GLOBAL STATE OF THE BLUEBERRY INDUSTRY REPORT 2022

Witness the Unveiling of Your National Blueberry Production, Pricing and Estimation System

On October 6-7th at the Blueberry Summit, Joe Vargas and key members of the blueberry industry will unveil the first phase of a reporting system that regularly captures, integrates and analyzes domestic and imported blueberry crop production, inventory, sales and pricing data at a national level. Join us in Nashville to learn how your company can contribute to and benefit from this revolutionary, timely view of the U.S. blueberry market.

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“USHBC is working closely with industry leaders to create a single source of truth that reduces uncertainty around market investments and helps blueberry producers better understand the market to optimize their production, sales and marketing efforts.”

— Joe Vargas

Director of Business Intelligence
U.S. Highbush Blueberry Council

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blueberries
U.S. Highbush Blueberry Council

TABLE OF CONTENTS

TABLE OF CONTENTS

INTRODUCTION

A MESSAGE FROM THE IBO PRESIDENT

It is indeed an understatement to say we live in tumultuous times. This makes the fresh produce industry an even more important part of our global economy, with an emphasis on consistency of fresh food production, competitive pricing, value for money, and last but not least, security of supply. The blueberry industry is at the forefront of this dynamic and it presents both opportunities and challenges.

To capitalise on the opportunities, it is worth highlighting some of the IBO's key objectives, which are focused on driving the growth of the global blueberry industry and positioning it as a fresh produce global leader. One of the key objectives is to 'foster the common goal of increased worldwide consumption of blueberries in all forms'. This has and will continue to be done with an emphasis on the quality of varieties. We know that consumers respond to blueberries with superior size and taste, and importantly they have demonstrated a willingness to pay a price premium for this product. It is also about distinguishing the superiority of blueberries from other fresh produce products because there will always be competition from other items.

The industry must continue to strive to develop yet further varieties that deliver on these attributes, including the purpose-breeding of varieties that can be grown in specific and changing climatic conditions. This in particular addresses the challenges the industry faces, not least of all the industry's ability to adapt to and respond to the risks of climate change, but to also recognise the growing expectations of consumers that our product is grown in an environmentally sustainable and ethical way. It means we have to be more efficient in our use of natural resources, while achieving improved yields and quality from the same inputs, ensuring responsible environmental stewardship at all times.

Another key IBO objective is to 'encourage worldwide free trade of blueberries and associated byproducts, and to dissociate itself with the artificial protection of markets'. It is certainly tempting in these times to look inward and try to protect industry from competition, but this would be counterproductive and be to the detriment of our industry. We should not waiver from maintaining existing free markets and opening new ones, as we all know that an open global economy provides the best means for our industry to be successful and grow.

I want to conclude by sincerely thanking the Report team, who do a tremendous job in compiling what is undoubtedly the leader in fresh produce industry reports. The 2022 Report is no exception, and as usual there is an abundance of detail and information which we can all draw on to better understand how our industry is performing and what our future holds. Well done to Cort, Colin, Matt and the rest of the team.

Peter McPherson
IBO President

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FOREWORD

Thank you for your interest in the blueberry industry. This report exists for the purpose of empowering participants throughout the blueberry industry with improved information. We hold a conviction that a more informed industry and market is a healthier one. This project is producer focused and intended as a tool for producers large and small to empower decisions such as how and where to bring their fruit to market, whether to expand their production or invest in their operations, or to change varieties. The international nature of this report is also intended to help offer perspective on how the production trends of one region are comparable to and affect others.

The current version of the report is an incremental expansion on the 2021 report, offering a similar structure and layout but with more detailed reporting, a more complete picture of global blueberry production, and trade statistics that are up to date with the production data. Another notable addition to this report is a comparison of last year's global production forecast with the statistics that were collected this year. One of the goals of this publication is to help set expectations. We strive to produce forecasts that offer context and help guide the industry on likely future scenarios. In alignment with the IBO mandate, we wish to support informed growth as the industry expands its position in a staple of healthy diets the world over.

Background on this Report: This 2022 State of the Blueberry Industry Report represents the 9th iteration under the current editor. The project began under the direction of the United States Highbush Blueberry Council and North American Blueberry Council in 2007. Responsibility was transferred to the IBO as the organization came into its own in the early 2010's. The transition from the USHBC oversight to the IBO arena was made in consideration of the increasingly global nature of the industry and the need for a comprehensive and global perspective. The scale and scope of the 2007 project was markedly smaller when compared to what the endeavor has come to involve in recent years. As the industry grows and expands in current and new geographies, both new consuming markets and new production regions, the task of ensuring this project is comprehensive becomes ever more daunting. From 2007 through the 2017/18 report, the project was owned and led by Cort Brazelton. For the 2019 report, Colin Fain of Agronometrics partnered with Cort Brazelton to co-own the project. At the conclusion of that project, it became clear this project needed a broader team. The IBO Board was in full support and approved the new expanded team and approach in early 2020.

Many thanks to the IBO board for this opportunity to serve the industry as well as funding the work by the hard-working team at Agronometrics. Also, many thanks to the many contributors who magnanimously and often anonymously gave their time to provide useful insights and information. As always, please forgive the errors and generalizations which fall short of desired precision. They are not intentional. We hope readers can make good use of this year's product and, if they are not members of the IBO, are inspired to join the effort!

Blueberries are a truly special crop, bringing a healthy choice to consumers around the globe while presenting an incredible development opportunity to improve the lives of people and their local economies. Those of us who work in service of this wonderful fruit, our many blueberry colleagues around the world, and those who enjoy it are truly blessed.

Until next time, best wishes and happy reading.

Cort Brazelton
IBO SOTIR, Chief Editor

Colin Fain
Report Manager

Matt Ogg
Narrative

WHAT IS THE IBO?

Who we are

The IBO is a global voluntary organization bringing together leaders from around the blueberry world in all segments of the industry, including blueberry producers and marketers, affiliated business, social groups, and governmental organizations worldwide.

We come together to learn, share, increase understanding, distribute information, address mutual challenges, coordinate potential solutions and explore opportunities. Ultimately, the organization exists to advance the health and sustainability of the blueberry industry.

The IBO board consists of official industry commissions, guilds, and associations from members' countries.

Association members consist of companies and other entities who wish to support the IBO and access the growing suite of data and services offered to members. Associate members pay an annual fee.

Mission

Our mission is to collect and share blueberry information, fostering a common goal of increased worldwide blueberry consumption in all forms.

The IBO seeks to promote a better understanding of the common interests shared by all participants in the blueberry industry.

The 10 Objectives of the IBO

1. To collect and share blueberry information.
2. To foster the common goal of increased worldwide consumption of blueberries in all forms.
3. To provide the opportunity for a united voice on issues in an international forum.
4. To provide representatives of blueberry-producing nations a consultative forum for better mutual understanding of items of common interest.
5. To maximize the IBO´s sphere of influence within the blueberry industry.
6. To promote a better understanding of the common interests of the blueberry producers and marketers and affiliated businesses, social and governmental organizations throughout the world.
7. To encourage the compilation and publication of production and non-proprietary marketing information.
8. To encourage worldwide free trade of blueberries and associated by-products, and to dissociate itself with the artificial protection of markets.
9. To assist countries in mitigating regularity items that can inhibit growth of the industry, e.g., artificial competition barriers and pesticides registration.
10. To target assistance in order to maximize the continued success of the international blueberry industry.

ABOUT THE AUTHORS

This report has been elaborated on behalf of the IBO by Agronometrics, with the help, guidance and support of Cort.

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About Agronometrics

Agronometrics has the mission of helping the fresh produce industry make data-driven commercial decisions, identify market opportunities and project market trends to help decision makers best position themselves in an ever-changing commercial landscape. Our team has been working as a consulting firm within the industry since 2012, getting our start in Chile working with avocado producers. Since then, our product line has expanded to 21 different fresh commodities across a global audience including the International Blueberry Organization (IBO), the US National Mango Board and some of the world's most important fresh produce companies.

Our analytics products range from market reports synthesizing global trade data to interactive dashboards automatically updated daily, and everything in between. This wide range of products has honed our skills in data acquisition, management, and interpretation, allowing us to bridge the gap between technical implementation, academic theory and actionable insights for an increasingly demanding industry.

For more information visit www.agronometrics.com

Special Thanks

Special thanks ***Cristian Crespo*** for his support on data collection, AH for support in programming and ***the team at Yentzen Consulting*** for having a key role in setting up the sponsorship and advertising that is financing this report.

HEALTH RESEARCH UPDATE

By Dave Brazelton

Dave presents this update for 2022 as board chair for Fall Creek Farm & Nursery. He also chairs the USHBC Health Research and Nutrition Committee

In this past year, as part of the US Highbush Blueberry Council's new 5-year strategic plan, the USHBC Health Research Committee has expanded its scope to become the Health Research and Nutrition Committee (HRNC). There has been no change to the active research program, but the added focus will allow the HRNC to become involved in health and nutrition related projects that are not directly tied to a funded research project.

As part of the 5-year strategic plan, the committee will focus on five health pillars: Cardiovascular health, Cognitive health, Gut health, Diabetes/Prediabetes and Healthy Living. These are health areas that resonate with consumers throughout the world, and also where previous research funded by the USHBC and others has indicated that blueberry consumption may have a positive effect.

The challenge of the Covid years has delayed the progress of many studies that should be completed in the coming years. They encompass all areas of health the strategic plan identifies including brain health, immune system effects, the benefits of blueberries as a first food for infants, the effects of blueberry consumption on gut health, the benefits of blueberries for those involved in strenuous exercise, and more. It is expected a steady stream of information will be published that will be of great interest to consumers throughout the world.

Two studies were completed this past year. One study led by Dr. Aedin Cassidy was published in the Journal Clinical Nutrition. Her team found that adding the equivalent of one cup of fresh blueberries to meals that are high in calories, fat and sugar helped reduce the acute post-consumption risk markers such as glucose, insulin and cholesterol. This study provided additional evidence that consuming blueberries may benefit heart health.

Another recent study led by Dr. Robert Krikorian and published in the journal Nutrients found that overweight, middle-aged

individuals who were starting to experience some cognitive decline showed an improvement on cognitive tests after consuming the equivalent of a half cup of blueberries per day for 12 weeks. These results suggest that consuming blueberries may contribute to protection against cognitive decline when implemented early in at-risk individuals. Both studies were picked up by media outlets in the US and other countries.

The HRNC also funded new research this year. One epidemiological study conducted by researchers at Boston University will utilize data from the Framingham Heart Study to determine if intakes of fruits with high levels of flavonoids, such as blueberries, during midlife and late-life states are associated with a reduced risk of dementia, including Alzheimer's disease. The Framingham Heart Study is a community-based ongoing study that was initially designed to explore cardiovascular disease risk factors in residents of the city of Framingham, Massachusetts. The study began in 1948 with a total of 5209 participants aged 28-62 years. Since that time the Study has added several offspring and generational cohorts. Approximately every 4 years, the participants undergo a physical examination, and complete a series of questionnaires, laboratory, and cardiovascular tests. The group is also monitored for various incident outcomes such as cardiovascular disease, stroke, diabetes, hypertension, and dementia.

Over the years, research using the Framingham Study population has led to the identification of major cardiovascular disease risk factors such as smoking, high blood pressure, obesity, high cholesterol levels and physical inactivity. Risk factors for other physiological conditions such as dementia have been investigated and continue to be studied.

The age range of participants who are enrolled in the Framingham Heart Study generally spans from early adulthood (20s-30s) to late life (>65 years). Therefore, information on diet and specific foods such as blueberries is available to analyze across different age periods. This information coupled with the dementia surveillance in this group that has been ongoing since 1976 will provide findings that can advance the understanding of whether the potential benefits of blueberries on the brain and cognition are similar across different age periods or whether greater dietary blueberry intake at specific age periods such as midlife or late life confers more benefits.

Another study within the brain health area that the Council will be funding is a long term 6-month study led by investigators at Brigham and Women's Hospital and Harvard University. They will be investigating whether long-term supplementation with blueberries improves memory and cognitive function in older adults, and whether these changes can be tracked by plasma brain biomarkers.

The category of Healthy Living encompasses a wide range of studies that investigate how blueberry consumption can maintain or improve health in everyday living, such as for the many individuals who suffer from knee pain often secondary to osteoarthritis and eventually require knee replacement. This will be covered in the third study that was funded this year, to be conducted at the University of Exeter in the UK, examining how blueberry supplementation affects osteoarthritis pain, joint inflammation and postoperative recovery in participants undergoing a total knee replacement for osteoarthritis.

With the broader scope of activities as the Health Research Committee converts to a Health Research and Nutrition Committee, nutrition programs will be evaluated and projects that can promote the importance of blueberries in the diet will be encouraged. In some cases, the focus is on the US diet, but the scientific support for the inclusion of blueberries in the diet can be applied worldwide.

As the USHBC continues to generate great research and information, we must ensure that this information is communicated not only to consumer media and consumers directly but also to the entire blueberry industry which includes marketers, retailers, importers/exporters, and growers. For those organizations throughout the world that would like to access abstracts of USHBC funded research, easy to navigate web pages have been developed at www.ushbc.org. The section for health professionals and health researchers will provide public access to review the many studies within the five health pillars. These studies, conducted in multiple countries, employ the highest standards for independent scientific research. Members of the IBO are encouraged to access this information and work with media in their consuming markets to bring this information to consumers throughout the world. The health benefits of blueberries are a significant factor in consumer's decision to try blueberries and to regularly include them in their diet. It is up to all of us to work together to encourage that message.

INDUSTRY TRENDS

The following Trends section provides the report teams' summary of predominant themes which stood out most consistently in interviews with industry participants around the world, as well as integrating the teams' own knowledge and experience. The following trends do not represent the opinion of the IBO, nor that of any individual team member, but rather seek to synthesize and summarize.

Input Inflation & Logistical Challenges

Whilst the previous State of the Industry Report (SOTIR) emphasised demand side dynamics, the "great accelerator" effect of the pandemic that turbo-charged consumption trends around healthy food including both frozen and fresh blueberries (and that momentum that has continued albeit at a slower pace), the most common themes impacting the sector today relate to the supply side. Over the last year, heightened inflation of most farm and supply chain inputs, from fertilizers to gas to packaging materials to container procurement, coupled with extended logistical delays in getting fruit to market have had a profound effect on supply growth and availability. The latter has posed a major challenge for Southern Hemisphere exporters over the past 12 months, putting increased pressure on post-harvest quality in an environment that already required careful calibration of agronomic and supply chain management to maintain quality under 'normal' shipping schedules. Even though the easing of covid restrictions has led to greater international flight connectivity over the past 12 months, benefiting airfreight-oriented exporters to certain countries, in a competitive market with rising volume the majority of trans-continental shipping needs to be conducted via sea freight as sending fruit by air can only tailor to a small segment of the global blueberry import market.

There is active speculation that the strain experienced in maritime shipping may serve to accelerate the varietal transformation underway toward more durable, journey-hardy cultivars, but the high capital expenditures involved in renovating existing or planting new fields is still likely to dissuade some growers from making big moves as they face trade offs between suboptimal returns on fresh blueberries arriving late in the market in inferior condition, the price paid by the processed market, or industry exit. For those that struggle under protracted logistical times, the only way to avoid this decision matrix is if shipping times improve (which many insiders believe will ultimately happen as supply reacts to demand), if fruit industry representatives are able to either combine or utilize resources/lobbying to secure more shipping options (there is already experimentation happening for charter vessels, as well as bulk shipping), or if they are able to get capital for farm-level reinvestments, although there are reports of general reticence from lenders within some regions. (Today much of the new sources of funding come from institutional investors and less traditional financial models). The opportunity cost and risk aversion in replacing cultivars is also higher in areas best suited to northern highbush varieties, as these orchards take longer to reach maturity than their southern highbush counterparts.

The question of whether inflation will be temporary or lingering is one for economists and central banks, but the problem has been undoubtedly felt much more acutely by farmers with farm input costs rising at many multiples versus the consumer price index (CPI) in most of the world. The geopolitical flashpoint of the war in Ukraine has exacerbated the issue with direct impacts on the cost of fertilizers, oil and gas, impacting not only transport, but materials and equipment that are either made from petrol such as plastic, or that require large amounts of energy for their manufacture. Labor and salary costs also continue to increase. It is also yet to be seen how cost of living pressures will play out in terms of blueberry demand, although at the time of writing blueberry pricing remains strong in most developed countries despite high volumes.

Consolidation & New Entrants

Logistical challenges have tipped the scales in favor of blueberry operations that have proximity to the world's leading markets of North America and Europe, including those within these markets – particularly parts of Western Europe where consumers prefer local products or foods with a lower carbon footprint.

Industries in countries that have relatively lower wages than their target markets, ideal growing conditions, and ease of transport (for example Mexico and Morocco) have flourished despite the challenges of input inflation, and a great deal of new planting is occurring in areas that have these attributes, including others that are further from their target markets, such as Peru and South Africa.

The opportunities presented by markets, pre-established growing operations, distribution channels, or intellectual property in terms of genetics, have prompted several high-profile acquisitions, mergers and partnerships over the past year and this trend looks set to continue. Industries themselves are also consolidating their positions across markets as they grow in size.

But the bullishness witnessed over the past few years has also led to a proliferation of small growers adopting blueberry cultivation worldwide with varying degrees of sophistication and often with public varieties. There has also been high growth off a low base for several incipient industries as well such as Zimbabwe, Colombia, the Republic of Georgia, Turkey, and even India, to name a few.

The successful experience of international partnerships to grow blueberries in China has shown what is possible in emerging markets for the fruit, both from a cultivation and market opportunity perspective in or near areas with large populations of middle-class consumers. Plantings in China would likely be on a much greater scale if it weren't for the imposition of land use limitations, which are discussed in greater depth in the China section of this report. This has slowed down the production growth opportunity in China considerably, and led many to pivot to new focal points for both farming and market development; many prospective developments in emerging industries were also put on hold due to travel restrictions (which at the time of writing remain in China) that affected the ability of foreign investors or agronomists to get established on the ground.

Regarding new entrants, there has also been significant growth from relatively 'new' players in the intellectual property and genetics business, and this has not come without its tensions within the blueberry genetics sector. In addition to the world's leading names in blueberry genetic development which continue to find growers who are eager to use their plants and varieties, there are several new genetics providers with alternative business models aimed at either affordability or providing access to particular segments of the industry that have previously felt excluded from access to premium genetics. At the same time, several North American university programs or their IP management representatives are on the cusp of new roll-outs, as are all the dominant private industry leaders.

Proprietary Genetics, Divergent Consumer Experiences & Quality Stratification

The aforementioned proliferation of new breeding programs is reflective of the great shift at play with producers renewing their blueberry farming operations through newer generations of proprietary genetics, focusing on attributes such as yield to make production more profitable at the farm level, but also many fruit attributes that make the berries more appealing to consumers – flavor (either sweetness, achieving a certain sweetness-to-acidity ratio, or triggering the flavor sensations created by certain chemical compounds called 'metabolites'), firmness (a function of both genetics and post-harvest practices to lengthen shelf life) and eye appeal. If you can tick all three of these boxes, then you have a winner with the consumer and are on track to building loyalty with them.

With the exception of South Africa and to some extent Morocco (both countries with a high percentage of vertically integrated export operations built around proprietary genetics), most of the world's fastest-growing blueberry regions were established with a focus more on filling in supply gaps than

necessarily having the most premium-quality fruit. That does not mean the fruit is of poor quality, but that varieties that consistently garner that "wow" factor are not in the majority. Now that the investments in volume have come to bear, transitions to new cultivars have become part and parcel with planning for future prosperity.

The growth in new varieties has led to an identity crisis for blueberries, now a more heterogeneous product on the shelf than ever. The difference in the eating experience between varieties can vary greatly, and size is by no means an indicator of taste, so consumers are left taking a gamble every time they purchase blueberries unless they know of certain brands or retailers that always meet their expectations, and ideally on a year-round basis. A divergence in the eating experience has emerged that is sometimes reflected in prices, but for those who invest in proprietary genetics they do not always reap the rewards when there is an abundance of lower-quality supply in a given week, although the consensus from breeders, successful growers, and marketers is that those with targeted programs – and to excuse the repetition, those who are promoting repeat sales – can always "find a home" and will be more viable in the long-term.

There can be no expectation that blueberries or the blueberry industry's success is going to be top of mind for any retailer. A fresh produce manager will set up programs if blueberries – from a given origin, marketer or variety – prove successful day in, day out. That confidence must be gained and is not an easy feat. Stratification of blueberries by any retailer is hard to manage in-store, so what is emerging around the globe is more of a market-led stratification whereby a subsection of retailers will have particular priorities around size, maybe varieties that they want but more likely varieties they don't want, and will work with growers or marketers they deem to be consistent and bringing in higher margin sales.

In some cases, berry brands and even some licensing platforms are creating their own stratification with premium varieties and developing consumer followings. When it does occur, retailer stratification could be described as two-tiered or even three-tiered, comprising 'standard', 'premium' and 'jumbo' blueberries. There are examples in the U.K., Europe and now the U.S. as well as branded efforts to call attention to blueberries with higher standards in size, firmness and flavor. This trend is likely to continue.

The nuances by market are discussed in greater depth within the regional sections of this report, but broadly speaking there is a divide between the price-oriented and premium genetics-focused retailers; a line that is blurred as well by local-for-local trends when domestic growers' blueberries are in season.

Also worth noting in the arena of proprietary genetics is the increasingly crowded field on the variety side. As the number of breeding programs grows, with more varieties released in the various chill categories (with heavy concentration in lower chill by most programs), growers in particular are challenged to make informed decisions as they select not only what variety(s) to grow, but the commercialization and access model associated with the varieties. The trend is likely to rise in prominence as the demand for quality increases, with the inevitable tie-in to new and improved varieties on one side of the equation, while on the other side the risk of adopting new genetics rises for growers as margins come under pressure. The successful balance of these two dynamics will be a major determining factor in future success.

Now that filling shoulder periods is not the objective it once was, with only very small windows of relative (but far from absolute) scarcity remaining, the next ambitious goal prevalent in industry discussion is achieving 52-week supply of quality, better and/or premium varieties, and consistency from across the spectrum of genetics available from the world's leading breeders, growers, and handlers. This trend will take years to materialize with consistency at scale, but once achieved it is anticipated to result in a heightened level of industry stratification, and possible accelerated attrition within the industry.

Amidst high labor costs, 'machine harvestability' is the 'holy grail' discussed by many breeders and growers alike, especially in more mature industries. Today, there are no true machine-harvest fresh blueberry varieties. 'Successful machine harvesting for fresh' generally means doing so without market rejections. That said it is increasingly done out of necessity in some parts of the world. In regions such as North America's Pacific Northwest, increasingly California and the U.S. South, and even parts of Eastern Europe, machine harvesting for fresh is becoming more common out of necessity due to labor shortages. This is having a detrimental impact on quality in many cases.

Machine harvesting experimentation – from equipment design, to varieties, some robotics, and new growing techniques – is underway across the developed world, but remains a divisive topic with regards to the quality consistency angle the industry is striving for. However, most growers turning to this harvesting technique are doing so because they have to and not necessarily because they want to, and in the short-term at least it is still unclear to what degree its adoption will impact volumes of marketable fresh fruit due to bruising, damage, and reduced shelf life. There is a consensus among leading breeders and growers that successful machine harvesting for fresh will likely involve technology, equipment, varieties, and field design that are not in commercial use today.

Environment, Social and Governance (ESG)

Almost anywhere you go, something has changed in the weather conditions that affect blueberry production. Growers who planted particular varieties targeting certain production windows are finding their plans disrupted by variable weather conditions, which come in many forms. It could be warmer winter spells that induce bloom before a cold snap hits the plants, reducing fruit yields; more frequent rains during harvest that didn't used to happen 10 years ago; increased pest pressures due to warmer temperatures or unseasonal rain; increasingly earlier harvests due to warmer weather; or drought which is a pressing concern in many regions throughout the world, leading to increased utilisation of desalination plants for dry, coastal farms.

Climate change, climatic unpredictability, and the increased frequency of intense weather events that comes with it, will undoubtedly have an impact on the blueberry industry at a production level. This will shape the kind of approaches growers take when it comes to crop protection, growing structures to protect against the elements, and varietal selection. Given the high cost of desalination and the role southern highbush blueberries in warmer, drier environments have played in the industry's recent growth, the search for drought-hardy blueberry varieties will also be a consideration in the future.

Environment, Social and Governance (ESG) is an increasingly important feature of doing business, and more than ever supermarkets are scrutinized by consumers and investors regarding their credentials in this complex and nuanced arena of disparate subjects that are difficult to measure. In order to reduce plastic waste, there is a growing push to ensure the recyclability of packaging, and as referenced in the Western and Central Europe section, countries such as France plan to phase out single-use plastic packaging altogether for fruit sales including blueberries within a few years. This kind of legislative activity may have implications for the current blueberry business model of selling in clamshells, which to date have proven the best way to conserve blueberry shelf life and visual appeal; with the cost of timber on the rise, a shift to cardboard cartons won't be cheap either.

Today's consumer cares much more about the supply chain of what they eat, and the impact of their purchasing decisions on the world. This is why retailers – especially in Europe – are so demanding in terms of social certifications, and blueberry growers worldwide are meeting those stricter requirements.

It is against this backdrop that blueberry growers now have yet another challenge. They don't just have to be profitable and survive in an increasingly competitive landscape, but they must also demonstrate social capital. What are they doing to help the communities where they operate? What are their protocols in environmental stewardship and the protection of biodiversity?

Efforts are underway, particularly in North America and Europe, to reduce the use of plastic packaging in blueberries. Meanwhile some companies and whole industries are also turning their attention to their carbon footprint.

Blueberries are a very labor-intensive crop, directly generating a livelihood for hundreds of thousands of people worldwide and with an indirect economic impact of hundreds of thousands or more. From harvest workers, to packhouse employees, to all of the people who service the sector, and all of the industries in regional areas where itinerant workers and staff spend their earnings. Schools, health clinics, chemical run-off mitigation schemes, sound environmental planning, and vocational training for local populations are all ways that the blueberry industry is making a positive contribution, illustrating its long-term benefits not just for the health and well-being of consumers, but the communities where the fruit is grown as well.

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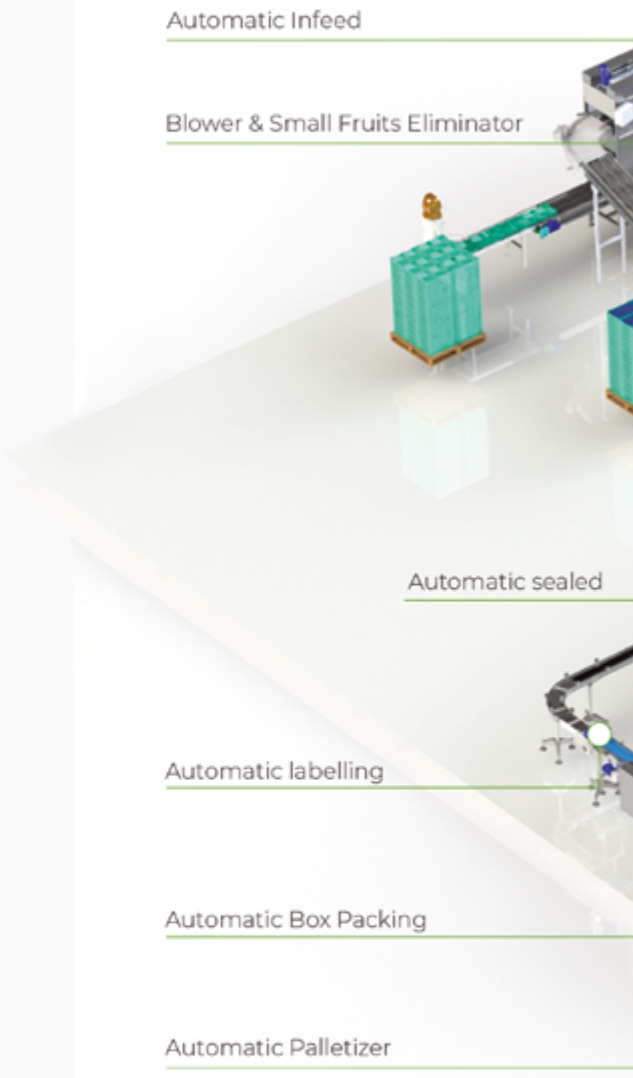

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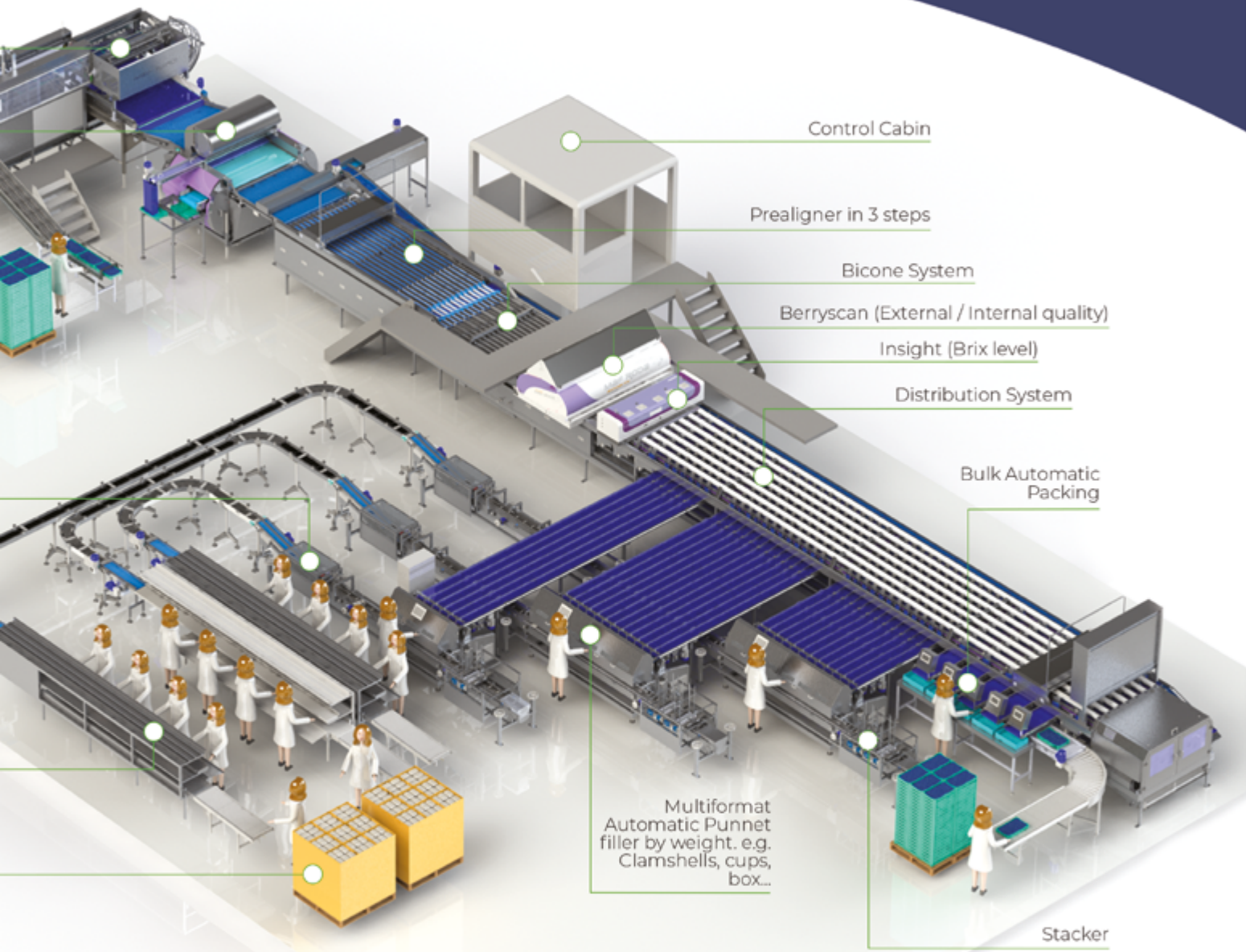

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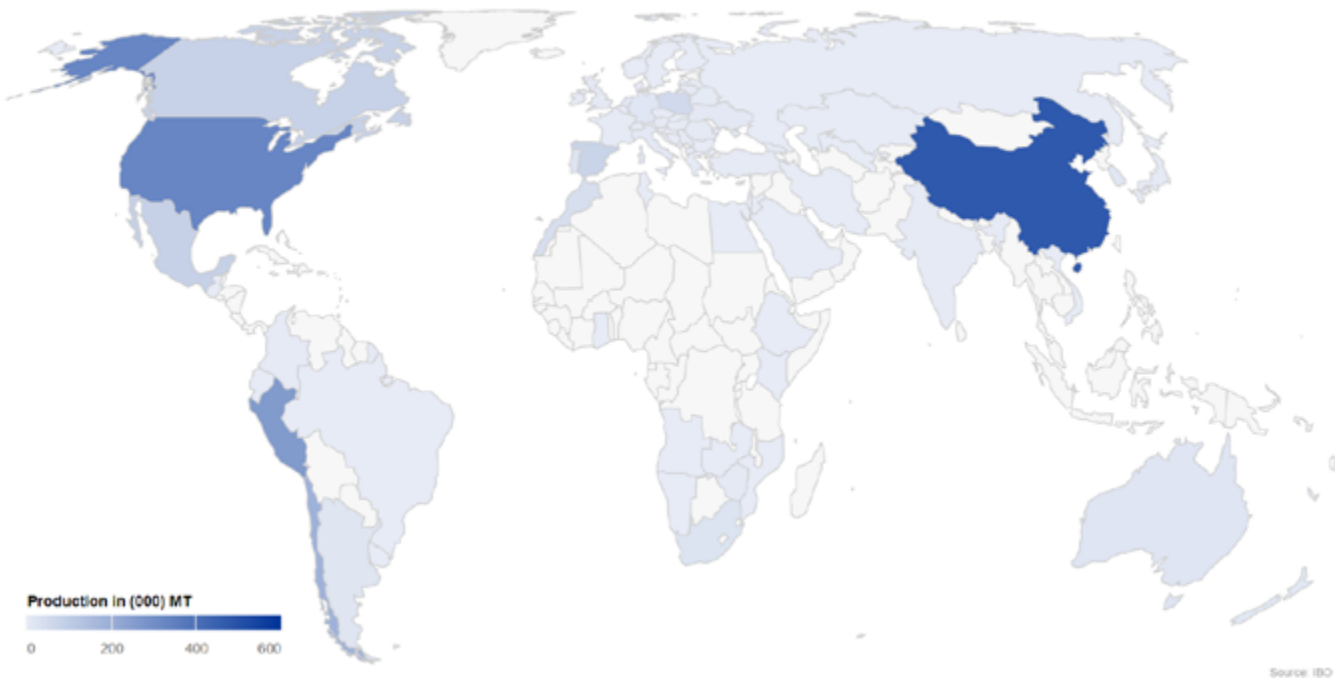
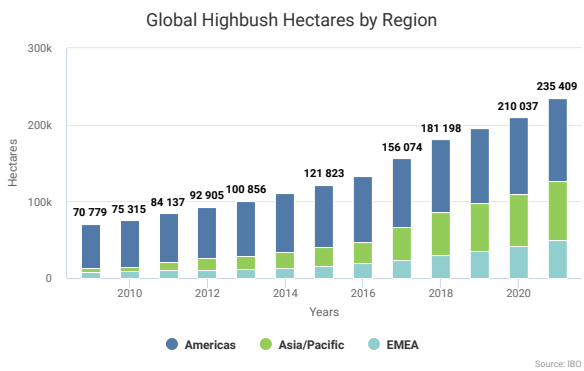
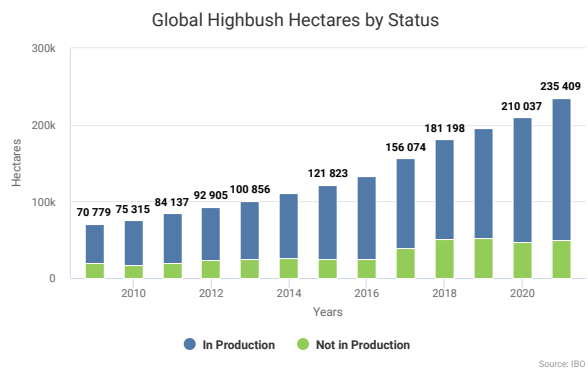
Global Highbush Production by Country



Global Highbush Hectares by Region

Global Highbush	Planting					2021 Production		
Growth Totals	**2017**	**2018**	**2019**	**2020**	**2021**	**Fresh**	**Process**	**Total**
Americas	89,822	94,841	98,603	100,132	108,851	676.59	287.30	963.89
US & Canada	59,966	62,270	61,577	56,798	60,291	382.51	87.65	470.16
South America	25,100	27,041	30,291	35,394	39,417	210.48	198.15	408.63
Mexico / Central America	4,755	5,530	6,735	7,940	9,143	83.60	1.50	85.10
Asia / Pacific	42,210	56,299	62,049	67,921	77,072	253.24	272.53	525.77
Asia	39,646	53,653	59,103	64,553	73,497	223.31	270.83	494.14
Pacific	2,285	2,250	2,501	2,873	3,013	26.17	1.40	27.57
Central Asia / Indian Subcontinent	280	396	445	495	562	3.76	0.30	4.06
EMEA	24,041	30,057	35,344	41,983	49,485	271.81	28.12	299.93
Eastern Europe	9,852	13,367	16,635	21,468	26,790	128.66	13.94	142.60
So. Europe / N. Africa	7,079	8,583	9,324	9,934	11,680	79.21	4.71	83.92
Western / Central Europe	5,108	5,438	5,895	6,083	5,894	28.24	7.10	35.34
Africa	1,646	2,253	3,130	4,008	4,442	31.45	2.20	33.65
Middle East	356	416	360	490	679	4.25	0.17	4.42
Global Highbush Totals	**156,072**	**181,197**	**195,996**	**210,036**	**235,408**	**1,201.64**	**587.95**	**1,789.59**

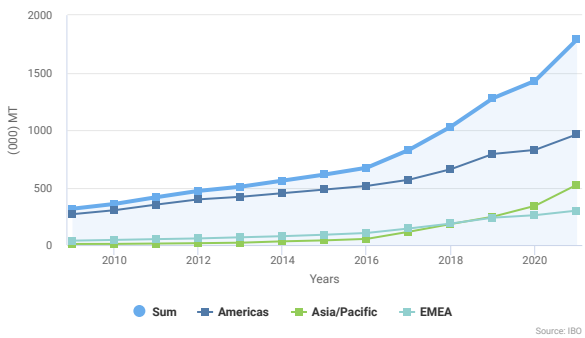




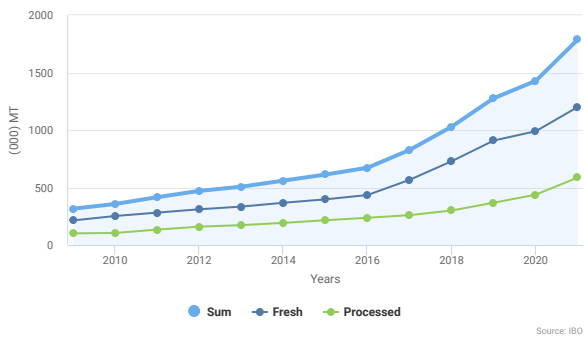
Global Highbush Production by Region

Global Highbush	2019			2020			2021		
Productions Totals	**Fresh**	**Process**	**Total**	**Fresh**	**Process**	**Total**	**Fresh**	**Process**	**Total**
Americas	548.95	243.70	792.65	567.93	259.71	827.64	676.59	287.30	963.89
South America	282.01	55.63	337.64	320.50	78.73	399.23	382.51	87.65	470.16
US & Canada	207.79	187.54	395.33	184.79	180.31	365.10	210.48	198.15	408.63
Mexico / Central America	59.15	0.53	59.68	62.64	0.67	63.31	83.60	1.50	85.10
Asia/Pacific	137.89	108.94	246.83	184.59	156.49	341.08	253.24	272.53	525.77
Asia	115.78	108.35	224.13	157.02	155.55	312.57	223.31	270.83	494.14
Pacific	20.43	0.50	20.93	24.55	0.70	25.25	26.17	1.40	27.57
Central Asia / Indian Subcontinent	1.68	0.09	1.77	3.02	0.24	3.26	3.76	0.30	4.06
EMEA	222.51	15.64	238.15	237.71	22.05	259.76	271.81	28.12	299.93
So. Europe/N. Africa	116.67	7.74	124.41	118.45	13.14	131.59	128.66	13.94	142.60
Eastern Europe	56.17	3.00	59.17	70.59	4.67	75.26	79.21	4.71	83.92
Western/Central Europe	33.51	3.56	37.07	27.46	3.37	30.83	28.24	7.10	35.34
Africa	14.39	1.14	15.53	19.06	0.67	19.73	31.45	2.20	33.65
Middle East	1.77	0.20	1.97	2.15	0.20	2.35	4.25	0.17	4.42
Global Highbush Totals	**909.35**	**368.28**	**1,277.63**	**990.23**	**438.25**	**1,428.48**	**1,201.64**	**587.95**	**1,789.59**

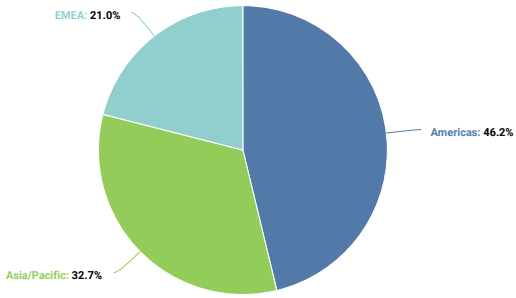
Global Highbush Production by Region



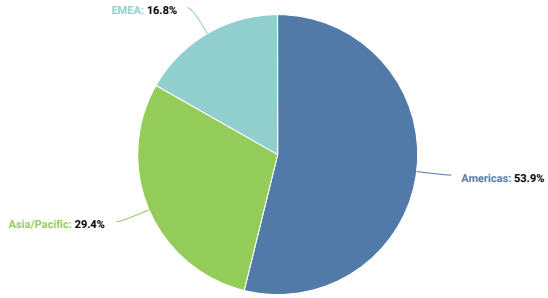
Global Highbush Production by Use



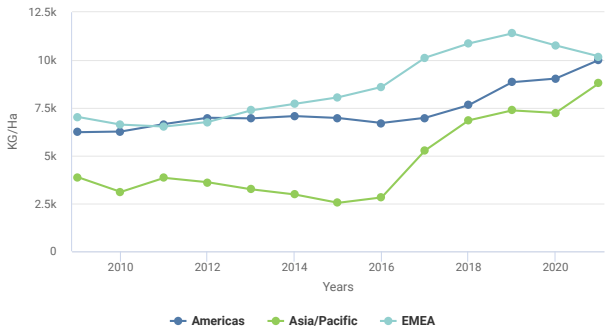
2021 Global Highbush Hectares by Region



2021 Global Highbush Production by Region



Global Highbush Yield by Region



Source: IBO

Global Highbush 2021 Production Metrics

Hectares Planted:	**235,408.5 Ha**
Hectares in Production:	**185,535.5 Ha**
Production:	**1,789.59 (000) MT**
Growth in Production[1]:	▲361.1 (000) MT (20.18%)
Growth from Hectares[2]:	▲213.56 (000) MT (59.14%)
Growth from Yield[3]:	▲147.56 (000) MT (40.86%)
Yield:	**9,645.57 (Kg/Ha)**

[1] Growth in volume produced compared to previous season
[2] Volume increase from new hectares coming into production
[3] Volume increase from higher yields

Global Highbush Fresh Report Team Narrative

While Fresh Highbush figures are extensively covered in the different subregions and individual country sections. This space gives us the opportunity to explore general global trends not otherwise covered in the report.

Based on the data collected for the 2021 report the production of fresh blueberries rose by 21% breaking the 1,000 (000) MT mark for the first time in history.

Interestingly we see that every subregion saw an increase in production compared to the previous year. This indicator speaks to the increasing relevance of the blueberry category within fresh produce isles the world over. Further illustrating the continued vitality of the industry, North America, the native home of highbush blueberries, and one of the most established growing regions, continues to see strong growth adding 26 (000) MT over the last season, mostly from increases in yield, which points to replantings with new varieties and updated growing systems in core growing areas.

China and Peru stand out as the countries adding the most volume of fresh blueberries. The Peruvian data is provided from industry sources highly engaged with growing and exporting companies in the sector (the Industry Guild). The Chinese data sources are less concrete and we acknowledge the possibility that the actual hectares and production figures may indeed be lower. All the while there are exciting newer growing regions in Africa and India looking to bring blueberries to new consumers in the years to come.

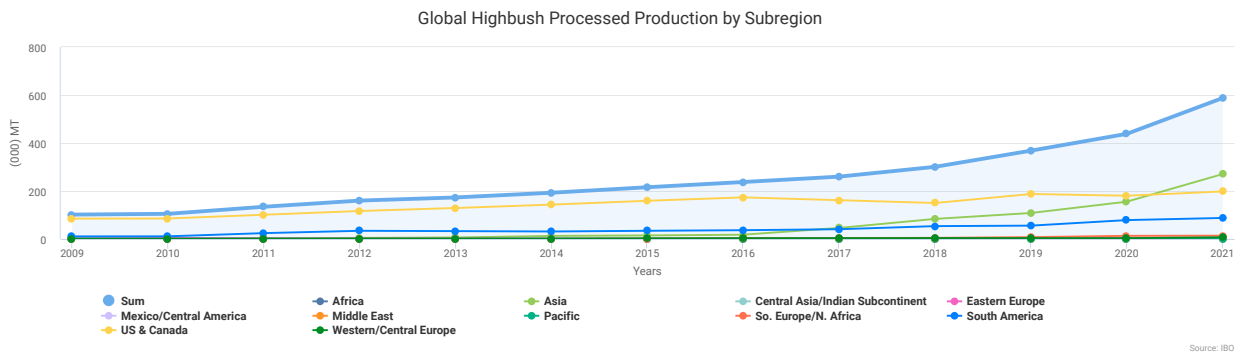
Blueberries are one of the most exciting and fastest growing produce categories. Thousands of people in this industry steadily work year after year to paint the map of the blueberry world. Many thanks to all the contributors to the data presented in this report, your continued support helps serve a more informed industry seeking to develop a sustainable industry for producers and ever better experience and access to consumers.

GLOBAL HIGHBUSH PROCESSED

Planting and Production Data, Figures & Commentary
(Denominated in Hectares and Thousands of Metric Tons)

Global Highbush Processed Production by Region

Global Processed	2019			2020			2021		
Productions Totals	**Fresh**	**Process**	**Total**	**Fresh**	**Process**	**Total**	**Fresh**	**Process**	**Total**
Americas	-	243.70	243.70	-	259.71	259.71	-	287.30	287.30
US & Canada	-	187.54	187.54	-	180.31	180.31	-	198.15	198.15
South America	-	55.63	55.63	-	78.73	78.73	-	87.65	87.65
Mexico/Central America	-	0.53	0.53	-	0.67	0.67	-	1.50	1.50
Asia/Pacific	-	108.94	108.94	-	156.49	156.49	-	272.53	272.53
Asia	-	108.35	108.35	-	155.55	155.55	-	270.83	270.83
Pacific	-	0.50	0.50	-	0.70	0.70	-	1.40	1.40
Central Asia/Indian Subcontinent	-	0.09	0.09	-	0.24	0.24	-	0.30	0.30
EMEA	-	15.64	15.64	-	22.05	22.05	-	28.12	28.12
So. Europe/N. Africa	-	7.74	7.74	-	13.14	13.14	-	13.94	13.94
Eastern Europe	-	3.00	3.00	-	4.67	4.67	-	4.71	4.71
Western/Central Europe	-	3.56	3.56	-	3.37	3.37	-	7.10	7.10
Africa	-	1.14	1.14	-	0.67	0.67	-	2.20	2.20
Middle East	-	0.20	0.20	-	0.20	0.20	-	0.17	0.17
Global Highbush Processed Totals	**-**	**368.28**	**368.28**	**-**	**438.25**	**438.25**	**-**	**587.95**	**587.95**



FRUITIST & PARADISE LLC

Berries Paradise and **Agrovision** have partnered together to market their combined berry production in **the United States** and **Canada.** The partners' blueberries, raspberries, and blackberries will be marketed through a new company, **Fruitist & Paradise, LLC.**

The Mission of this new **Joint Venture** is to offer the retail trade a single source of **Own Grown, controlled production** of all three berries, and to build an **optimal supply chain** that provides the consumer with the most delicious eating berries, everyday.

AVAILABILITY

3 Berries, year-round. Complete control of **the supply chain, 52 weeks of the year.** Full control of Own Production **optimizes speed to market,** and maximizes freshness and quality.

PREMIUM VARIETIES

Mexico, Peru, Chile and North American production of **the most desirable and exclusive varieties** of Blueberries, Raspberries and Blackberries. Dedicated **new variety research programs** and commitment to investing in **the improved production** of the future.

FARM DIRECT TO SUPERMARKET

SUSTAINABLE PRACTICES

Agrovision and Berries Paradise Farming operations are committed to implementing **sustainable practices,** precision **agriculture techniques, and environmental stewardship.** The companies have **achieved highest level certifications** for their efforts.

More information:

info@berriesparadise.com
+52 384 733 3200

info@thefruitist.com
+1 831 900 5141

Global Highbush Processed Report Team Narrative

While processed volume and market growth may have slowed somewhat since 2020 when consumers globally – from the U.S. to South Korea to Australia - hoarded frozen fruit in response to covid, the sector's situation is still far more robust than before the pandemic when the processed industry had been enduring years of marginal growth and commoditization.

In May 2022 the level of frozen blueberry inventories in Public Storage in the United States - the category's largest market - were up by around 3%, partly reflecting the year-on-year frozen sales decline in volume (-6.5%, tied to a decrease in North American frozen crop diversion) and value (-4.4%) reported by the U.S. Highbush Blueberry Council (USHBC) for 2021. Another driver may be what one industry veteran described as "the largest ever volume diverted on arrival" from South American fresh blueberries to the processed market. Shipping delays from South America put the quality of imports under pressure in 2021/22, at times leaving processing as the only option apart from wastage for some containers.

The ongoing opacity of global and national frozen inventories and grade transparency plays a perennial role in undermining market stability. With what is effectively a 24-month marketing cycle and a tendency for fruit to suddenly appear from "under a snowbank" (a large portion of the crop remains in private storage which is not reported publicly), inventory and pricing mechanisms for the frozen market can be challenging to track, especially as freezer reports don't necessarily reflect the grade of the fruit. To illustrate, what can occur are reports of large inventories (e.g. the Public Cold Storage report, which reports volumes in public storage and includes fruit that is sold but not shipped) while packers are in fact struggling to source A-grade frozen blueberries. Despite the ample stock available on paper, there are still shortages of A Grade IQF polybag blueberries at retail in North America.

The relative improvement in the sector's performance on 2019 levels however cannot be overstated, with the figures in 2021 demonstrating major double-digit growth over the two-year period in value and volume, perhaps also buoyed by speculation over greater losses than what eventuated following the heat dome in the Pacific Northwest. As referenced in the British Columbia section of this report, there were even moments when processed prices were higher than fresh.

Prior to the pandemic, observers had noted a divergence from the previous interlinkages between the fresh and processed blueberry sectors, but since 2020 it appears more of an equilibrium has returned after years of processed-oriented growers exiting the industry. Growers have the option of diverting to processed, both fresh byproduct and higher grade field product, processing plays a useful role in absorbing volumes – a critical channel as fresh blueberry plantings expand globally and the existence of fields with less desired varieties. This is particularly the case for high chill growers. Longer established plantings struggling to serve the fresh market are increasingly diverted to processed. The scaling of processed blueberries is working to the benefit of food manufacturers, juicers, and consumers who either have lower budgets or whose purchasing preferences are driven primarily by the berry's high antioxidant content.

In regions such as the Pacific Northwest, growing, harvesting, and packing blueberries strictly for processed is also a competitive business model due to the high yields and mechanization of the systems in the region. Most harvesting for processed is already done by machine with sophisticated infrastructure established in mature industries where vertical integration and economies of scale are key; a business model that has risen in tandem with the fresh industry.

The IQF (individually quick frozen) market remains the primary target at the higher end of the processed market. This marks very little change over the last two decades with limited innovation on the product side among the growing, packing, and first handler side of the business. While there are exceptions, the majority of the value creation in processed blueberries is done by CPG companies (small and large) with the packing industry filling the role of an input supplier or at best a vendor of IQF polybags to retail. No doubt there is room for further downstream integration in the industry. Examples of this happening today include growing and packing companies introducing new dried and infused products as well as some new 'fresh like' ready-to-eat (RTE) products. Looking to the future it is not unreasonable to assume that there will be a substantial opportunity to create new uses for the market. The question remains as to whether this innovation can also be led by organizations which actually have established supply chains close to the raw product.

Industry efforts to boost consumption of processed blueberries are a key piece of the puzzle for lifting demand and returns for growers. As the product is less difficult to ship than highly perishable fresh blueberries, export market development is a logical pathway to lifting demand, but there is also a need to push more food manufacturing channels within categories such as baking, confectionery, smoothies and yogurts. To be effective, large-scale incorporation is required for this strategy to have a real impact as often a finished food such as a muffin or a protein bar has a very low gram-count of blueberries. What is also problematic is that whilst the fresh market is increasingly seeking out larger-sized berries, some food manufacturers such as bakers tend to seek out smaller-sized frozen blueberries, leaving less margin of error for fresh-oriented growers that shift to larger cultivars.

One sub-division of the processing industry that has struggled the most is juice-grade concentrate, for which inventories are at times high relative to demand. Unlike their peers in crops such as pomegranates, the industry has been unable to achieve the same levels of success for blueberry juice even though the product has similarly flavorful and high-antioxidant attributes. Worthy of inclusion is also the example of the Brazilian acai industry, which has capitalized on the Amazonian fruit's high antioxidant content with acai bowls and smoothies sold in far-flung trendy cafes and eateries across the developed world.

North America remains the leading processed blueberry growing region and market, having practically doubled since 2010, but China's processed industry is catching up after jumping three-fold between 2017 and 2020 according to the official figures. It is important to note that a disproportionate amount of China's processed fruit is of low grade rabbiteyes destined for the juice and puree market. Processed blueberry exports from South America, most notably Chile, Peru and Argentina, have been increasing steadily as well in recent years and play second fiddle in the IQF industry after the leaders in the Pacific Northwest.

The wild blueberry industry is a sector that witnessed greater rises in price during the pandemic. It is understood that North American wild blueberry crops, concentrated in the continent's northeast, have witnessed strong export performance to Europe where wild blueberry supplies have been hampered to some degree by the Russian invasion of Ukraine.

GLOBAL HIGHBUSH TOP 10

Planting and Production Data, Figures & Commentary
(Denominated in Hectares and Thousands of Metric Tons)

2021 Top 10 Highbush Hectares by Country

#	Country	2018 Hectares	2019 Hectares	2020 Hectares	2021 Hectares
1	China	50,097	55,122	60,147	69,036
2	United States	49,350	48,574	45,269	48,139
3	Chile	15,708	15,784	18,185	18,802
4	Peru	7,884	10,964	13,613	16,850
5	Canada	12,920	13,003	11,529	12,152
6	Poland	7,400	8,450	9,500	11,000
7	Mexico	5,500	6,700	7,900	9,100
8	Ukraine	2,183	3,183	4,383	5,318
9	Spain	3,720	4,030	4,210	4,570
10	South Africa	2,000	2,661	3,322	3,500

2021 Top 10 Highbush Production by Country

#	Country	2018 Production	2019 Production	2020 Production	2021 Production
1	China	150.74	209.02	295.36	477.08
2	United States	248.91	303.67	282.68	328.21
3	Peru	80.90	134.83	179.58	261.45
4	Chile	180.49	179.06	195.76	185.30
5	Mexico	48.60	59.46	63.05	84.70
6	Canada	73.26	91.66	82.42	80.42
7	Spain	58.89	69.38	66.70	76.36
8	Poland	30.00	42.05	54.10	55.50
9	Morocco	24.40	31.75	36.00	39.03
10	South Africa	11.50	13.65	15.80	26.00

2021 Top 10 Highbush Fresh Production by Country

#	Country	2018 Fresh Production	2019 Fresh Production	2020 Fresh Production	2021 Fresh Production
1	Peru	78.90	125.40	162.73	243.40
2	China	68.30	102.34	141.85	208.20
3	United States	137.40	168.29	153.07	177.09
4	Chile	135.49	136.96	138.78	122.90
5	Mexico	47.90	58.93	62.38	83.20
6	Spain	55.27	65.07	59.29	67.88
7	Poland	28.50	40.30	52.10	52.50
8	Morocco	23.96	30.60	34.20	37.07
9	Canada	34.76	39.50	31.72	33.39
10	South Africa	10.00	12.66	15.33	24.00

2021 Top 10 Highbush Processed Production by Country

#	Country	2018 Processed Production	2019 Processed Production	2020 Processed Production	2021 Processed Production
1	China	82.44	106.68	153.51	268.88
2	United States	111.51	135.38	129.61	151.12
3	Chile	45.00	42.10	56.98	62.40
4	Canada	38.50	52.16	50.70	47.03
5	Peru	2.00	9.43	16.85	18.05
6	Spain	3.62	4.31	7.41	8.48
7	Argentina	6.50	4.00	4.80	7.02
8	Germany	2.00	1.85	1.70	4.20
9	Poland	1.50	1.75	2.00	3.00
10	Portugal	0.50	1.82	3.15	2.60

2021 Top 10 Highbush Yield by Country

#	Country	2018 Yield	2019 Yield	2020 Yield	2021 Yield
1	Peru	13,501.34	17,101.33	16,379.18	19,205.91
2	Spain	20,919.95	20,057.56	18,694.98	19,008.71
3	Namibia	9,106.00	9,464.00	13,600.00	17,391.30
4	Austria	13,835.01	18,481.73	16,900.00	17,272.73
5	Turkey	5,600.00	6,800.00	8,000.00	15,560.00
6	Ecuador	0.00	15,000.00	16,000.00	15,000.00
7	Georgia	9,117.65	9,400.00	9,500.00	14,545.45
8	New Zealand	3,755.93	5,149.66	7,155.56	14,461.54
9	Portugal	18,760.20	21,666.67	21,000.00	14,414.40
10	Morocco	13,480.66	12,700.00	13,457.94	13,694.74

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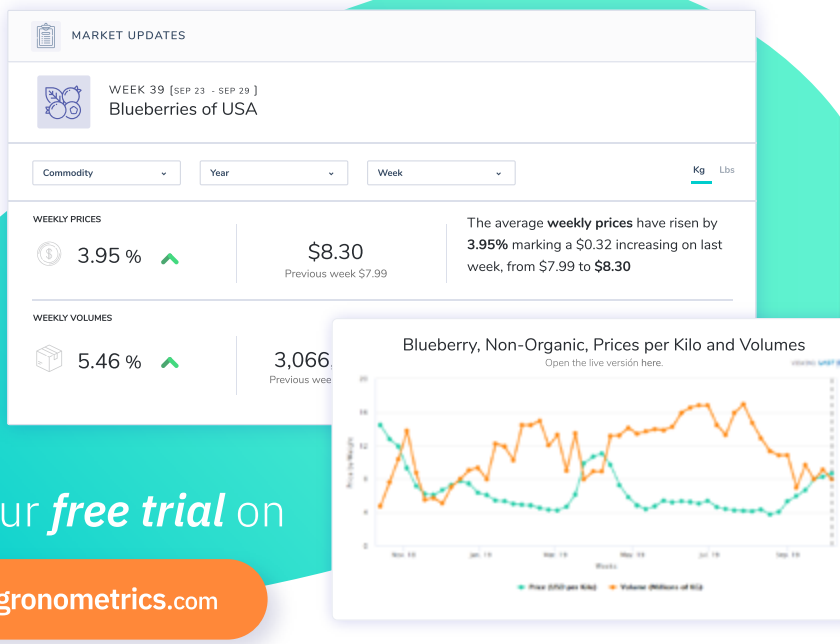

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GLOBAL HIGHBUSH PRODUCTION FORECAST

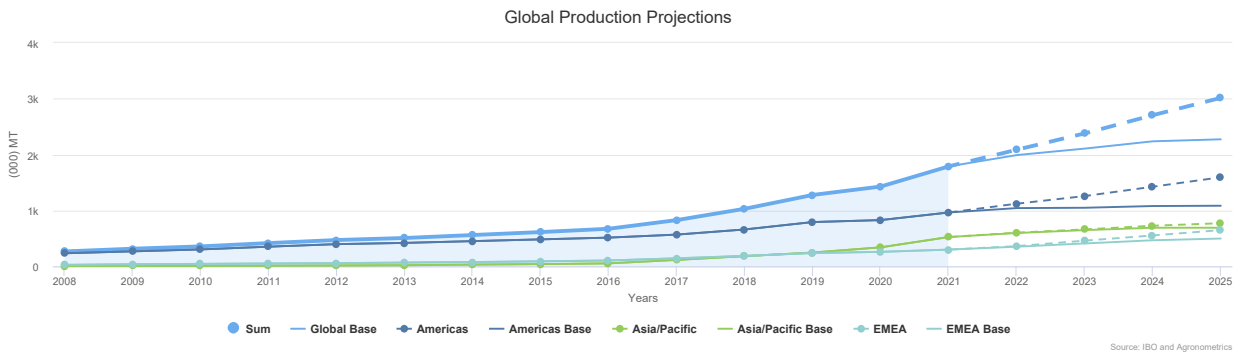
Global Production Forecast

The production forecast built from the planting and production data projects the global industry volume crossing the 3,000 (000) MT milestone by 2025. This milestone will be driven by continued growth from the Americas, followed by Asia/Pacific* and then the EMEA region, the latter running about two years behind the Asia-Pacific with a similar rate of growth. *The report team, however, feels that there is a probable downward trend in this forecast as there are real limitations to production and planting increases including access to land, water and labor, particularly in Latin America that put a constraint on growth which our model is not setup to capture.* Additionally, it is the opinion of the report team that over the next couple of years the industry will begin to transition from high growth to a more mature stage, which will clearly have an effect on long term projections.

This year's projections offer an important improvement in the technology used to create the predictions. By employing Machine Learning, our methodology identified the amount of history used by regressions that offers the least amount of error for each producing region in the dataset.

To add context to the projection, the charts present a scenario (solid line under the forecast) where the growth observed is coming exclusively from hectares planted in 2021 and coming into commercial operation within the next four years. This means that no additional plantings, or increases in yields are used in the forecasts offering the lowest realistic scenario for production, which we labeled as base in the charts. That said, knowing that plantings continue to go in the ground makes the zero growth scenario impossible, but it offers perspective allowing the likely future growth for the industry to lie somewhere between the forecast and the Zero Growth Scenario.

See Production Forecast Methodology at the end of the report for more information.

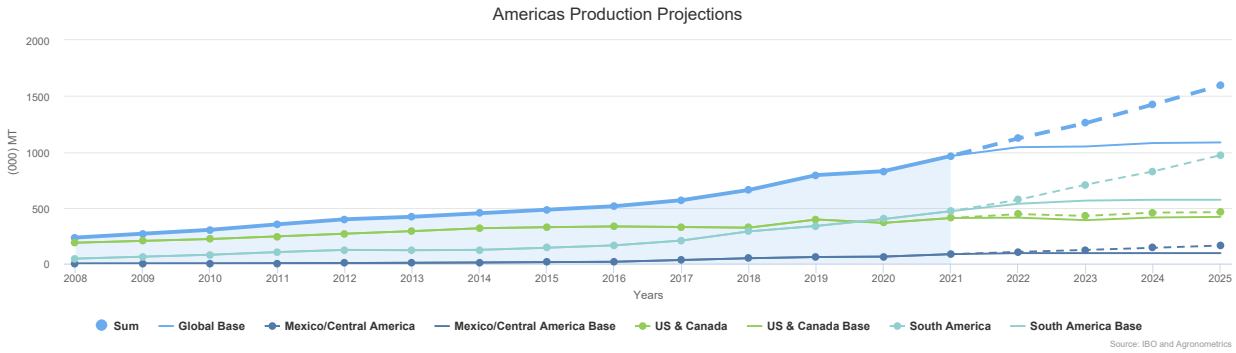


Americas Production Forecast

The Americas are the world's powerhouse of production. By 2025 - 2025/26, the forecast created from our historical regression projects the region's production to 1.6 billion kilos. This number needs to be taken cautiously as explained earlier.

After all the turmoil of the pandemic in 2020, 2021 has broken records for production seeing increased growth for every subregion. In South America the main driver of production continues to be Peru seeing even levels of growth in both hectares and yields. A considerable increase in plantings is expected to come on-line in Chile after 2023, adding significantly to production in the region if uncompetitive fields likely to be removed are not taken into consideration. North America's production is also expected to continue to grow led by

the Western US producers, although most other origins are expected to remain stable. Mexico/Central America, led by Mexico, is growing at a faster rate than South America, albeit from a much lower base. As both South America and Mexico/Central America regions come into maturity, the growth rate is expected to slow down and begin to stabilize, this is partially reflected in the forecast although, as previously mentioned the report team feels that *these projections are likely high*.



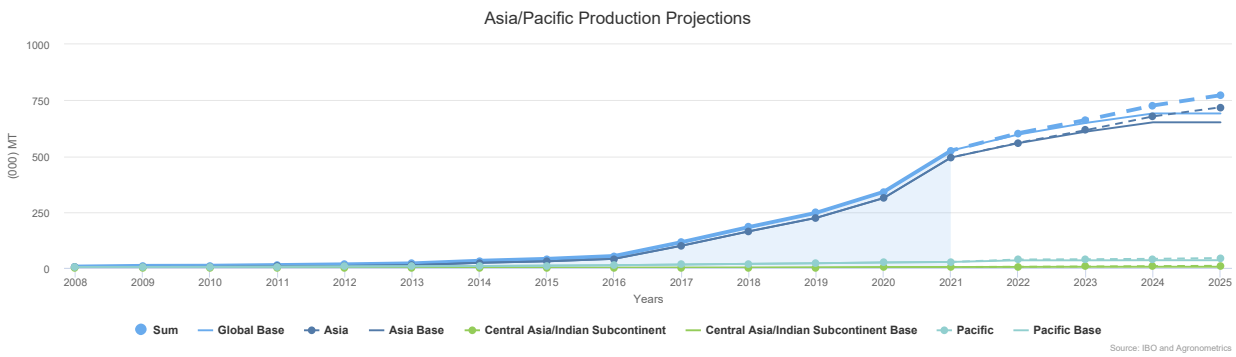
Asia/Pacific Production Forecast

The proverbial elephant in the room is Asia, predominantly led by China. There are a large number of hectares that are expected to come on-line in the next four years driving these numbers.

Echoing last year's report and as outlined elsewhere in the document, it would be reasonable for a reader to suppose that the data available for China is likely higher than what may actually be produced*. Unfortunately the true values for Chinese production are simply not knowable today. To offer this information in a relevant context as best we can, the report team assumes that the real growth rate of plantings in hectares is 6% while, for the purposes of this forecast the yields have been maintained at their 2021 levels.

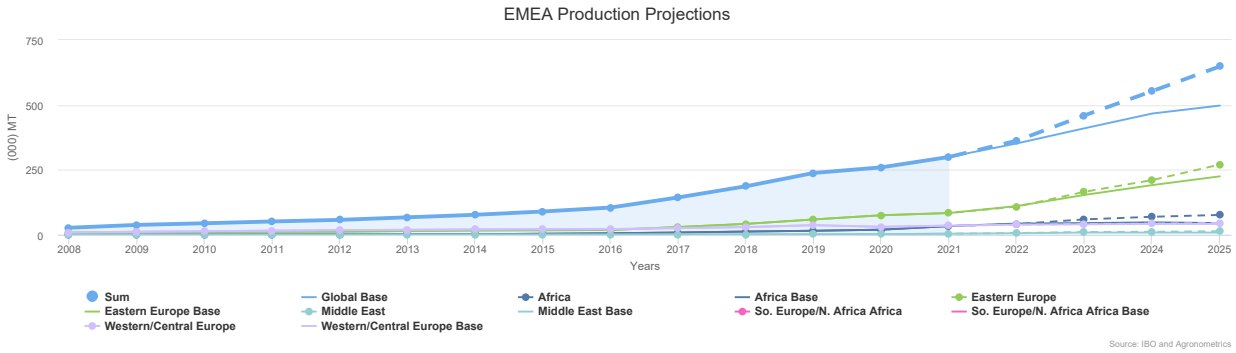
Importantly, growth in China is expected to continue. As of yet, Chinese blueberries have mostly been directed at internal consumers, however we are beginning to see limited exports in our datasets to regional partners like Singapore. As the country continues to grow, we may find Chinese blueberries with an increased role on the world stage.

*For more information see the Missing or Anomalous Production Data section in About the Data section.



EMEA Production Forecast

EMEA is expected to see a healthy growth rate bringing its production to nearly 650 (000) MT by 2025. Through the better part of the 2000's the star player has been Southern Europe and North Africa, however, given the large number of hectares not in production that are expected to come on-line in the next four years, Eastern Europe is being projected to overtake these regions by 2025. Another origin to watch will be Africa which is seeing an impressive growth rate with production having matched Western/Central Europe this year, despite several production issues in South Africa, the continent's leading producer.



Forecast Error

Offering context is crucial to the credibility of any forecast. In the table below we offer the values predicted last year for the 2021 season compared to the actual data collected.

Generally speaking the results of the forecast were quite good, only presenting an 8.8% variance compared to the actual numbers for 2021. The largest error came from Asia, which is mostly due to the lack of reliable data from China. The EMEA error was the lowest at 2.9% thanks to a particularly good forecast of So. Europe/No. Africa, while the Americas was a bit higher than EMEA at 6.37% despite a very low error rate for the US and Canada with higher rates for South America and Mexico/Central America.

Of note is that the error for each producing region is negative, meaning that our methodology consistently under-forecasted actual production. Part of this is due to the production numbers in 2020, which were lower than they could be because of COVID 19 and a myriad of related reasons. The forecasts created with these lower volumes hence produced lower forecasts. As the industry got back up to speed, regions out performed the prediction creating the observed error. Although this isn't the only reason our forecast was likely to be off, the observation is part of the reasoning behind the emphasis being put on the improvements in the forecast methodology.

For a disaggregation of the forecast error by subregion please visit the Production Forecast Methodology section.

Geography	2021 Forecast	2021 Results	% Error
Global	1,631.47	1,788.80	-8.80%
Americas	902.47	963.90	-6.37%
Asia/Pacific	437.55	524.96	-16.65%
EMEA	291.45	300.00	-2.85%

AMERICAS

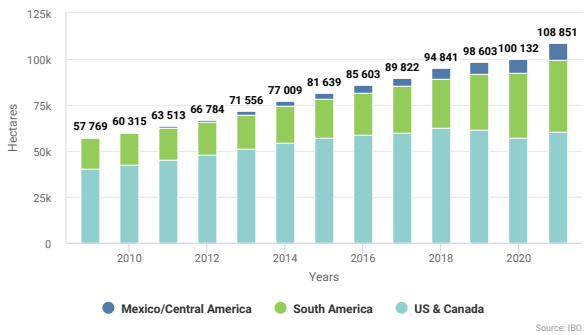
AMERICAS

Planting and Production Data, Figures & Commentary
(Denominated in Hectares and Thousands of Metric Tons)

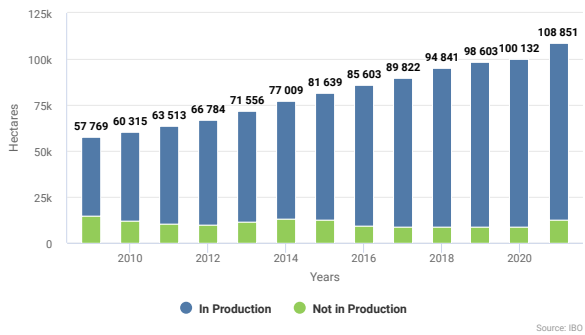
Americas Highbush Hectares by Subregion

Americas	Planting					2021 Production		
Growth Totals	**2017**	**2018**	**2019**	**2020**	**2021**	**Fresh**	**Process**	**Total**
South America	25,100	27,041	30,291	35,394	39,417	382.51	87.65	470.16
US & Canada	59,966	62,270	61,577	56,798	60,291	210.48	198.15	408.63
Mexico/Central America	4,755	5,530	6,735	7,940	9,143	83.60	1.50	85.10
Americas Totals	**89,822**	**94,841**	**98,603**	**100,132**	**108,851**	**676.59**	**287.30**	**963.89**

Americas Highbush Hectares by Subregion



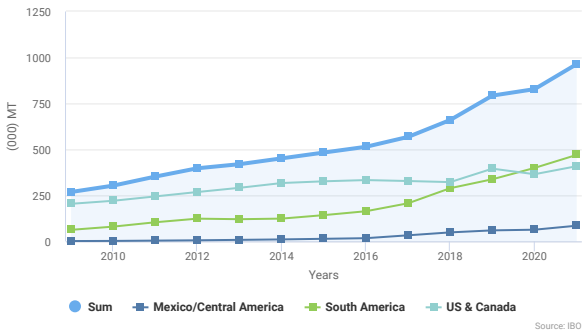
Americas Highbush Hectares by Status



Americas Highbush Production by Subregion

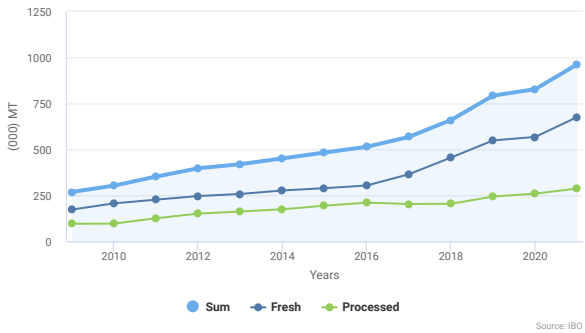
Americas	2019			2020			2021		
Productions Totals	**Fresh**	**Process**	**Total**	**Fresh**	**Process**	**Total**	**Fresh**	**Process**	**Total**
South America	282.01	55.63	337.64	320.50	78.73	399.23	382.51	87.65	470.16
US & Canada	207.79	187.54	395.33	184.79	180.31	365.10	210.48	198.15	408.63
Mexico/Central America	59.15	0.53	59.68	62.64	0.67	63.31	83.60	1.50	85.10
Americas Totals	**548.95**	**243.70**	**792.65**	**567.93**	**259.71**	**827.64**	**676.59**	**287.30**	**963.89**

Americas Highbush Production by Subregion



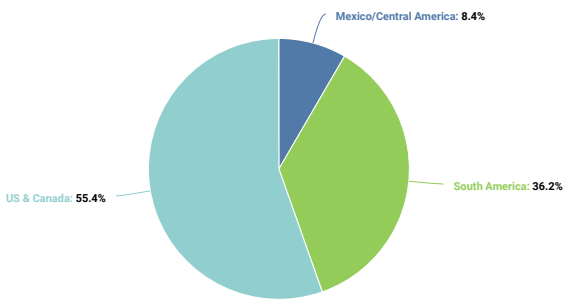
Source: IBO

Americas Highbush Production by Use

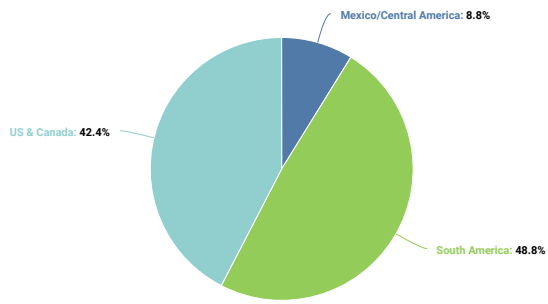


Source: IBO

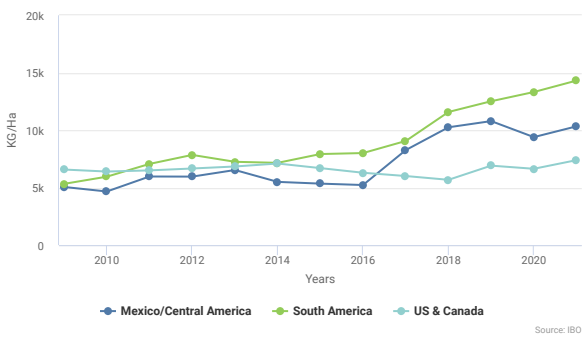
2021 Americas Highbush Hectares by Subregion



2021 Americas Highbush Production by Subregion



Americas Highbush Yield by Subregion



Source: IBO

Americas 2021 Production Metrics

Hectares Planted:	**108,850.7 Ha**
Hectares in Production:	**96,296.0 Ha**
Production:	**963.89 (000) MT**
Growth in Production[1]:	▲136.2 (000) MT (14.14%)
Growth from Hectares[2]:	▲66.22 (000) MT (48.60%)
Growth from Yield[3]:	▲70.04 (000) MT (51.41%)
Yield:	**10,009.72 (Kg/Ha)**

[1] Growth in volume produced compared to previous season
[2] Volume increase from new hectares coming into production
[3] Volume increase from higher yields

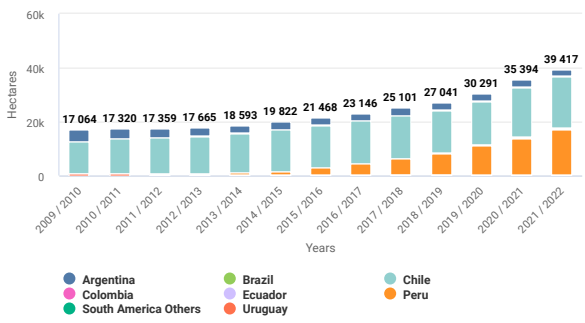
SOUTH AMERICA

Planting and Production Data, Figures & Commentary
(Denominated in Hectares and Thousands of Metric Tons)

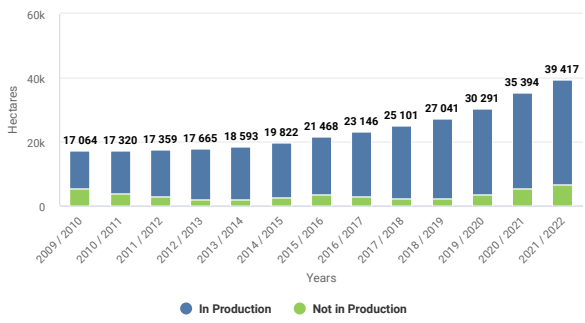
South America Highbush Hectares by Country

South America	Planting					2021/2022 Production		
Growth Totals	**2017/2018**	**2018/2019**	**2019/2020**	**2020/2021**	**2021/2022**	**Fresh**	**Process**	**Total**
Peru	5,992	7,884	10,964	13,613	16,850	243.40	18.05	261.45
Chile	15,754	15,708	15,784	18,185	18,802	122.90	62.40	185.30
Argentina	2,700	2,700	2,650	2,515	2,500	10.69	7.02	17.71
Colombia	145	225	320	500	600	3.40	0.11	3.51
Uruguay	300	290	273	241	240	0.77	0.07	0.84
Ecuador	2	4	80	120	185	0.75	-	0.75
Brazil	202	220	220	220	240	0.60	-	0.60
South America Totals	**25,100**	**27,041**	**30,291**	**35,394**	**39,417**	**382.51**	**87.65**	**470.16**

South America Highbush Hectares by Country



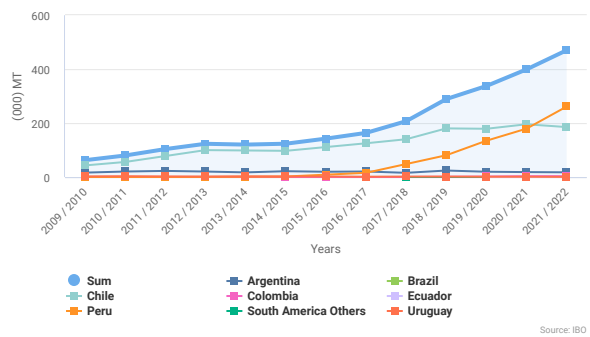
South America Highbush Hectares by Status



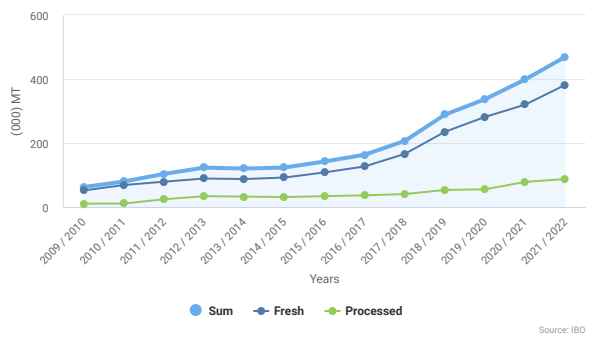
South America Highbush Production by Country

South America	2019/2020			2020/2021			2021/2022		
Productions Totals	**Fresh**	**Process**	**Total**	**Fresh**	**Process**	**Total**	**Fresh**	**Process**	**Total**
Peru	125.40	9.43	134.83	162.73	16.85	179.58	243.40	18.05	261.45
Chile	136.96	42.10	179.06	138.78	56.98	195.76	122.90	62.40	185.30
Argentina	15.82	4.00	19.82	13.70	4.80	18.50	10.69	7.02	17.71
Colombia	1.90	0.10	2.00	3.10	0.10	3.20	3.40	0.11	3.51
Uruguay	1.28	-	1.28	1.30	-	1.30	0.77	0.07	0.84
Ecuador	0.02	-	0.02	0.19	-	0.19	0.75	-	0.75
Brazil	0.60	-	0.60	0.70	-	0.70	0.60	-	0.60
South America Totals	**282.01**	**55.63**	**337.64**	**320.50**	**78.73**	**399.23**	**382.51**	**87.65**	**470.16**

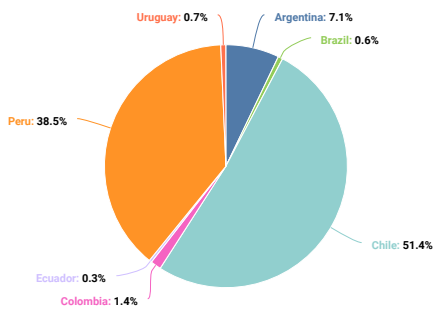
South America Highbush Production by Country



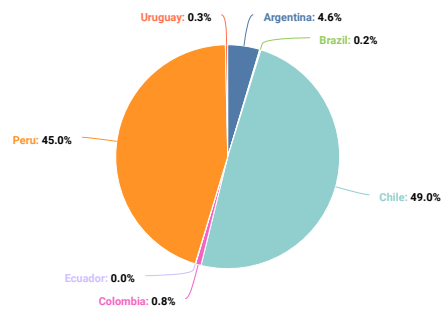
South America Highbush Production by Use



2021/2022 South America Highbush Hectares by Country



2021/2022 South America Highbush Production by Country



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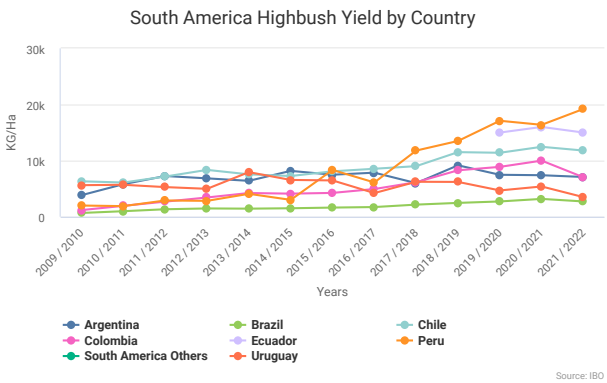


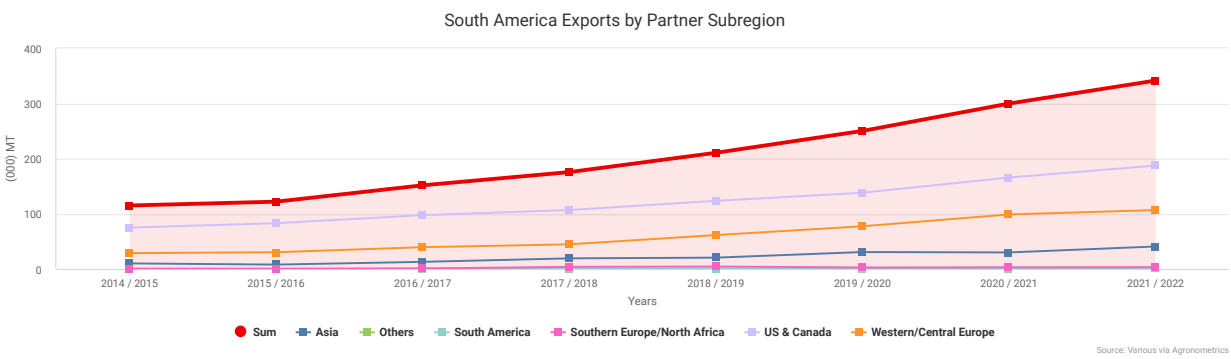
South America 2021 Production Metrics

Hectares Planted:	**39,416.6 Ha**
Hectares in Production:	**32,831.0 Ha**
Production:	**470.16 (000) MT**
Growth in Production[1]:	▲70.9 (000) MT (15.09%)
Growth from Hectares[2]:	▲45.79 (000) MT (64.56%)
Growth from Yield[3]:	▲25.16 (000) MT (35.47%)
Yield:	**14,320.94 (Kg/Ha)**
Exports:	**341.50 (000) MT**
Imports:	**0.92 (000) MT**

[1] Growth in volume produced compared to previous season
[2] Volume increase from new hectares coming into production
[3] Volume increase from higher yields

South America Exports by Partner Subregion

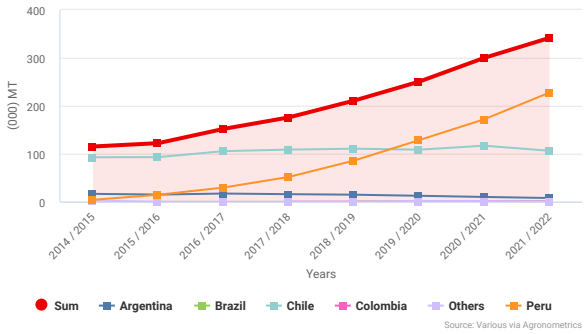
Subregion	2018/2019	2019/2020	2020/2021	2021/2022
US & Canada	123.51	138.21	165.69	187.43
Western/Central Europe	61.43	77.39	98.84	106.76
Asia	20.54	30.69	29.97	40.76
Southern Europe/North Africa	4.42	2.73	3.04	3.29
Middle East	0.16	0.34	1.00	1.30
Others	0.53	0.84	1.31	1.96
South America Totals	**210.58**	**250.20**	**299.84**	**341.50**



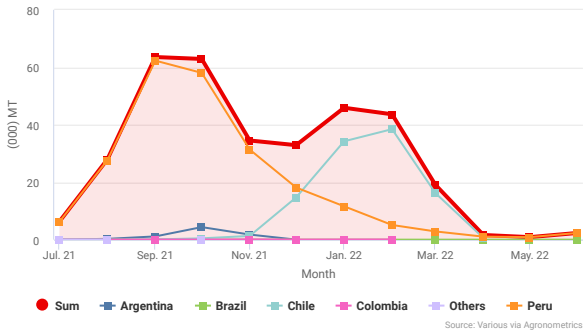
South America Exports by Reporter

Reporter	2018/2019	2019/2020	2020/2021	2021/2022
Peru	85.56	128.28	171.83	227.48
Chile	110.45	108.38	116.67	106.05
Argentina	14.55	12.28	9.84	7.59
Colombia	0.00	0.21	0.55	0.37
Brazil	0.02	0.01	0.06	0.01
Others	0.00	1.03	0.90	0.00
South America Totals	**210.58**	**250.20**	**299.84**	**341.50**

South America Exports by Reporter



South America Exports by Reporter



South America Report Team Narrative

For an in-depth review of the leading producing countries of South America, please see the individual reports including official country member reports and IBO Report Team narratives for:

- Peru
- Chile
- Argentina
- Uruguay

As Ecuador and Colombia now have nascent blueberry industries, the IBO team has collected the following information to complement the South America narrative.

Colombia

Colombia may not yet be a substantial player in the global blueberry industry, but the country's close proximity to the USA and its ability to produce blueberries practically year-round have made it an emerging industry of interest, particularly considering Colombia's recent proven export success in other fruit crops such as avocados, limes and physalis/goldenberries. The operation and logistics models of the highly competitive cut flower industry also provide both reference as well as strong horticulture industry operators. Historically, the focus of the industry has been on supplying domestic consumption, but as scaling continues export oriented activity is also beginning.

While blueberry cultivation in Colombia technically dates back to the 1980s, the industry's incipient growth began in earnest in the late 00's. Unlike the South American sector's northward push into Peru that relied on low-chill genetics along the coast, the international ventures from Chile, the U.S. and elsewhere that entered Colombia have planted between 2,600-3,000 meters above sea level, under the moniker of 'tropical blueberries at altitude'. The growing systems are more reminiscent of Central Mexico no-chill evergreen production but without the punctuation of seasonality.

Most of this production sits in the mountainous plains of Boyacá and Cundinamarca to the north of Colombia's capital Bogota, where very little difference in daylight hours throughout the year allows for pruning to induce production as desired by farm managers. The remainder is split between the department Antioquia and in the country's south near the border with Ecuador.

Blueberry plantings have increased almost tenfold since 2016 in Colombia with an industry that is now much larger than long standing South American producer Uruguay, for example, but still much smaller than Argentina, to put its size into perspective. There are an estimated 600 growers in the country but only three that have farms larger than 20ha. The largest of these is a Colombian grower that has accounted for the highest share of an incipient export program, predominantly focused on the USA. Larger plantings are in the pipeline over the next two years from domestic and foreign investors, including a joint venture with Australian proprietary varieties that intends to reach 50ha planted within two to three years as well as various American and Chilean supported ventures underway.

For now, Colombia is putting in the groundwork to develop production with a view to establishing a more aggressive export program in the years to come. Colombia's population of more than 50 million has shown sufficient demand to absorb the volumes being produced, which are around 150MT per week in peak periods and 70MT in the season dips. Colombia has two production peaks – the first in December-January, and another in July-August. Peru, and to a much lesser extent Chile, also exported small volumes to the market last season.

The greatest hindrance to Colombia's export ambitions at present is the protocol options for shipping to the USA, comprising either the less preferred methyl bromide treatment on arrival, or cold treatment in transit for 14 days. Colombian phytosanitary authorities have applied to their U.S. counterparts to accept a systems approach in areas with a low prevalence of Colombia fruit fly such as the Colombian savannah where harvests are concentrated. There are hopes that this will be achieved within one or two years, paving the way for a potential seven-day timeframe from harvest to arriving in the ports of Florida.

Ecuador

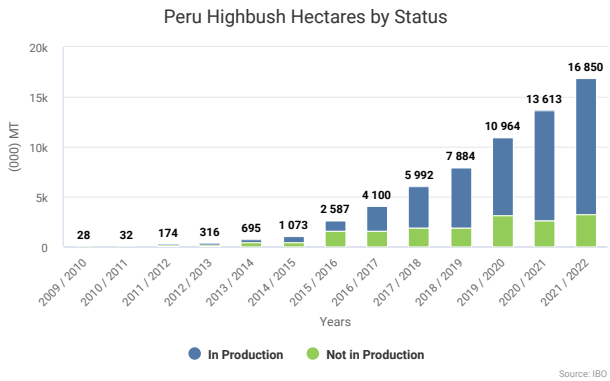
Ecuador's industry is much younger, having begun in 2015 with its production spread along the Andes Mountains in various locations on both sides of the equator. There are also trial plantings in coastal areas such as Santa Elena, Manabi and El Oro; the latter two being more often associated with Ecuador's world-leading banana export sector.

Around 95% of volume from Ecuador's estimated plantings of 185ha are currently concentrated in the Andes, although only 50ha is currently in production. Both Ecuadorian and multinational companies are conducting trials and tests with new varieties with the goal of meeting demand in overseas markets. The varietal mix is around a third Biloxi, 27% Atlas Blue and 13% Emerald, with other varieties planted include Apolo, Stellar, Presto, Jewel, Legacy, Star, Eureka and Dazzle.

Almost all the volume grown is sold domestically, although the beginnings of an export program may be emerging as miniscule shipments were sent to Spain and Panama in 2021

PERU

Planting and Production Data, Figures & Commentary
(Denominated in Hectares and Thousands of Metric Tons)



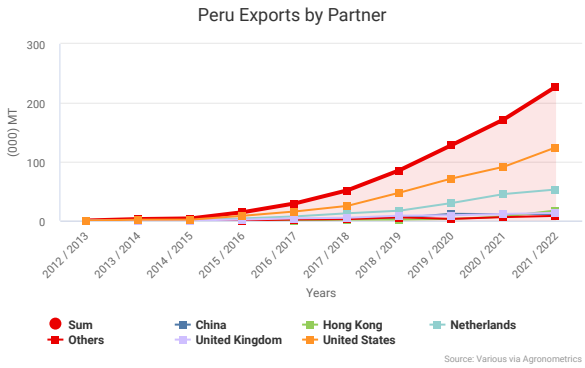
Peru 2021/2022 Production Metrics

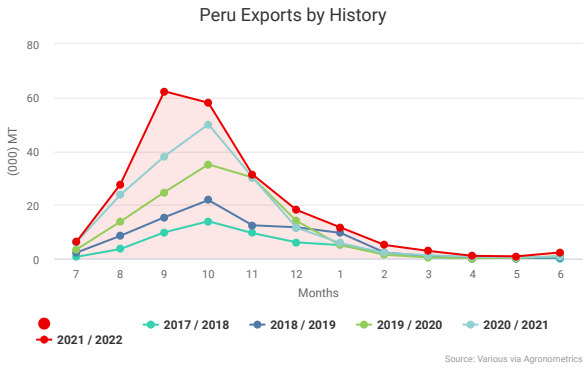
Hectares Planted:	16,849.6 Ha
Organic:	Not Reported
Under Structure:	Not Reported
Hydroponics:	Not Reported
New Genetics:	Not Reported
Hectares in Production:	**13,613.0 Ha**
Production:	**261.45 (000) MT**
Growth in Production[1]:	▲81.9 (000) MT (31.31%)
Growth from Hectares[2]:	▲43.39 (000) MT (53.00%)
Growth from Yield[3]:	▲38.48 (000) MT (47.00%)
Yield:	**19,205.91 (Kg/Ha)**
Exports:	**227.48 (000) MT**
Imports:	**0.02 (000) MT**

[1] Growth in volume produced compared to previous season
[2] Volume increase from new hectares coming into production
[3] Volume increase from higher yields

Peru Exports by Partner

Reporter	2018/2019	2019/2020	2020/2021	2021/2022
United States	47.50	71.54	91.49	124.45
Netherlands	16.93	29.93	45.16	52.89
Hong Kong	1.97	3.01	6.81	17.34
United Kingdom	8.50	9.14	11.45	13.18
China	4.98	11.65	10.92	11.47
Others	5.68	3.02	6.01	8.15
Peru Totals	**85.56**	**128.28**	**171.83**	**227.48**





Pro arándanos
Arándanos de Perú para el Mundo

Peru
Country Member Summary

Adapted from a Report by the Peruvian Blueberry Growers & Exporter Association, ProArándanos

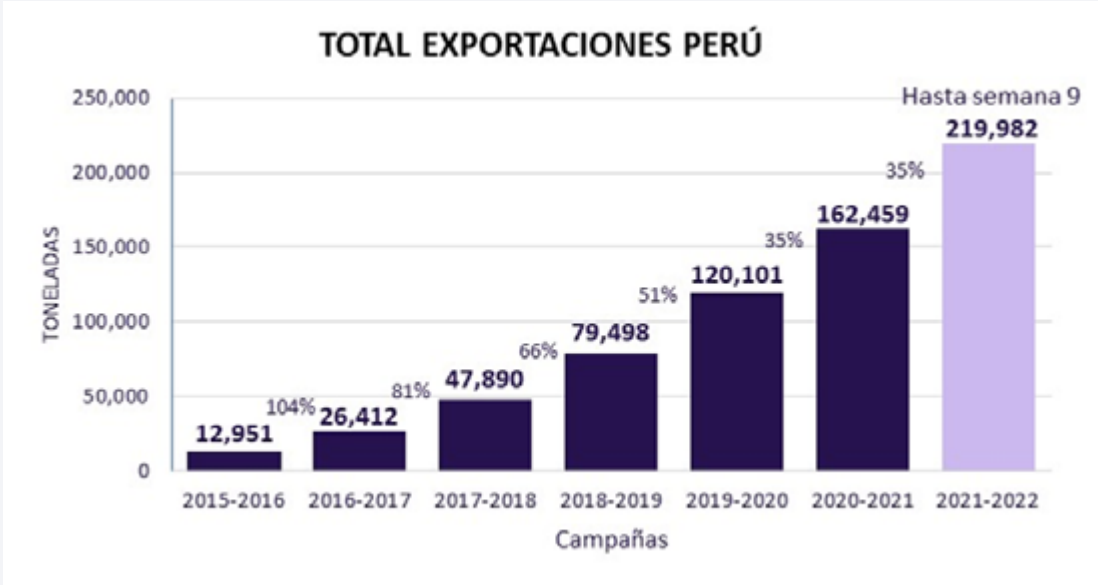
2021-22 Campaign

Peruvian fresh blueberries once again managed to top the world's export rankings in 2021-22, giving cause for optimism on the path to 2022-23 despite the challenging moment the agricultural export industry is facing.

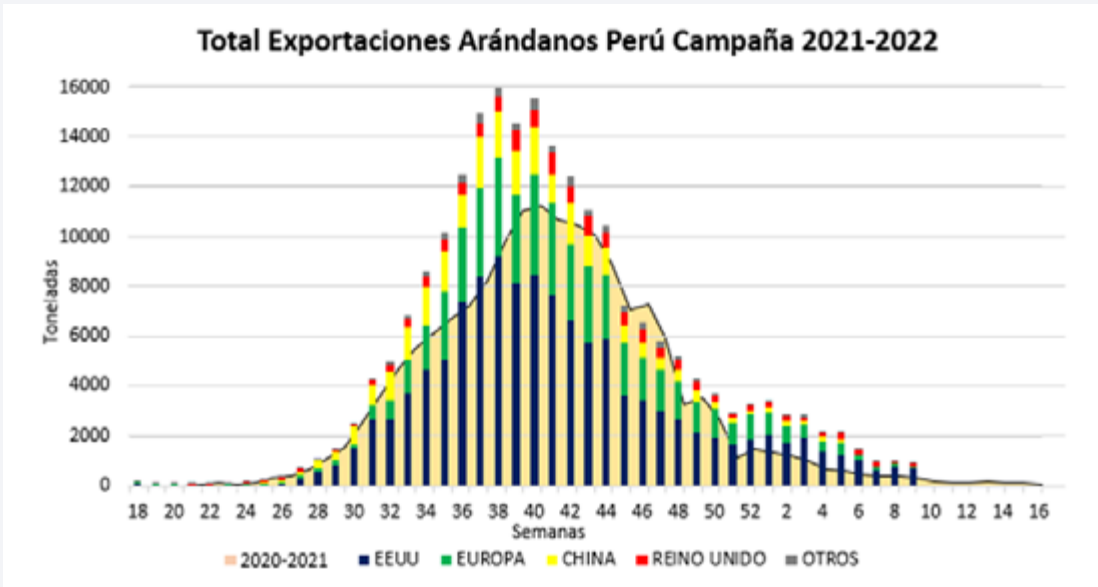
Having exported a total of 12,951 metric tons (MT) by the close of the 2015-16 campaign, Peru grew to export 219,982MT in the recent 2021-22 season, consolidating itself for the third consecutive campaign as the world's leading fresh blueberry exporter.

The export peak during the 2021-22 season occurred in week 38 with a total of 15,981MT, representing an increase of 42% compared to the previous season peak of 11,240MT in week 41, or an increase of 108% in comparison to the peak in the 2019-20 season when 7,689MT were exported during week 45.

It is also worth noting that during the 2021-22 season there were 16 consecutive weeks (weeks 33 to 48) when exports greater than 5,000MT were registered; in the 2020-21 season this benchmark was achieved for 15 consecutive weeks (weeks 34 to 38), while in the 2019-20 season it was for 12 weeks (weeks 37 to 48)



Source: Senasa, Preparation: ProArándanos



Source: Senasa, Preparation: ProArándanos

It is estimated that 8% of the total fresh blueberry volume exported from Peru was organic, with the U.S. as the main destination market.

In terms of annual values, during 2021 Peruvian fresh blueberry exports were more than US$1.2 billion (Source: Sunat), reflecting growth of 23% versus 2020, a year when US$983 million was exported. This growth has kept

blueberries in second place in the ranking of Peruvian fruit and vegetable exports, surpassing fresh avocados, positioned only behind fresh grapes which were just shy of US$1.26 billion.

Main International Markets

The main export destination for Peruvian blueberries during the 2021-22 season was the United States with a 55% share of the exported volume, followed by Europe (ex-UK) with 24.37%, China with 12.18%, the UK with 5.82%, and others with 2.63%. Overall, Peru shipped blueberries to 31 countries worldwide.

There were 120,992MT of fresh blueberries exported to the United States, representing a 40% increase on the previous season when 86,385MT were exported.

Shipments to Europe (ex-UK) reached 53,603MT, representing an increase of 17% compared to the previous campaign in which 45,969MT were exported.

Exports of fresh blueberries to the British market totalled 12,810MT, representing an increase of 20% compared to the previous season, in which a total of 10,712MT were exported.

In terms of China, exports to this market reached 26,786MT, representing an increase of 68% compared to the previous season, in which a total of 15,908MT were exported. In percentage terms, the Chinese market has increased significantly more than the United States, Europe or the UK during this campaign; at the same time, in absolute terms it has grown by a little bit more than 10,000MT – a figure that is close to the growth in shipments to Europe (including the UK), which rose by 9,000MT compared to the previous season.

During the 2021-22 season, a total of 1,657MT of fresh blueberries were exported via air freight, representing 0.75% of the total exported volume. This air freight volume was up 3.09% compared to the previous season in which 1,607MT were sent via this channel, representing 0.98% of the total volume sent in the campaign.

Determining factors for Peruvian export supply

Climate and optimal genetics for blueberry production are determining factors for our export offering. Specifically for blueberries, an optimal temperate climate (desert-arid-subtropical) exists across almost the whole coastal region, from Piura to Tacna, and from the Pacific coast to approximately 2,000 metres above sea level.

This temperate climate, characterised by the absence of rain (the annual average is 150mm) and an average annual temperature of 18° to 19°C, which is lower at higher areas, ensures good quality and is highly relevant for the precocious production of blueberries, making varietal replacement trials much faster than in other places.

All of this, adding to an agile phytosanitary control organization and the professionalism of Peruvian operations (human capital, technology and innovation), have accelerated the growth of our blueberry exports.

Blueberry export evolution over the years

The industry has evolved rapidly, with exponential growth in exported volumes during certain weeks of the year and with an expansion of the blueberry growing area to more regions in the country. This is very good, as the employment generation is reaching more regions in our country.

This exponential growth in recent years – more than 16-fold in seven years – has been accompanied by a great responsibility and commitment to continue representing the good name of Peru, ensuring we meet the highest standards of quality and good agricultural, social and environmental practices, as well as refreshing our brand image as promoters of Peruvian blueberries.

Varieties in the 2021-22 export campaign

In 2016, Peru had 13 different blueberry varieties and Biloxi represented 60% of total plantings.

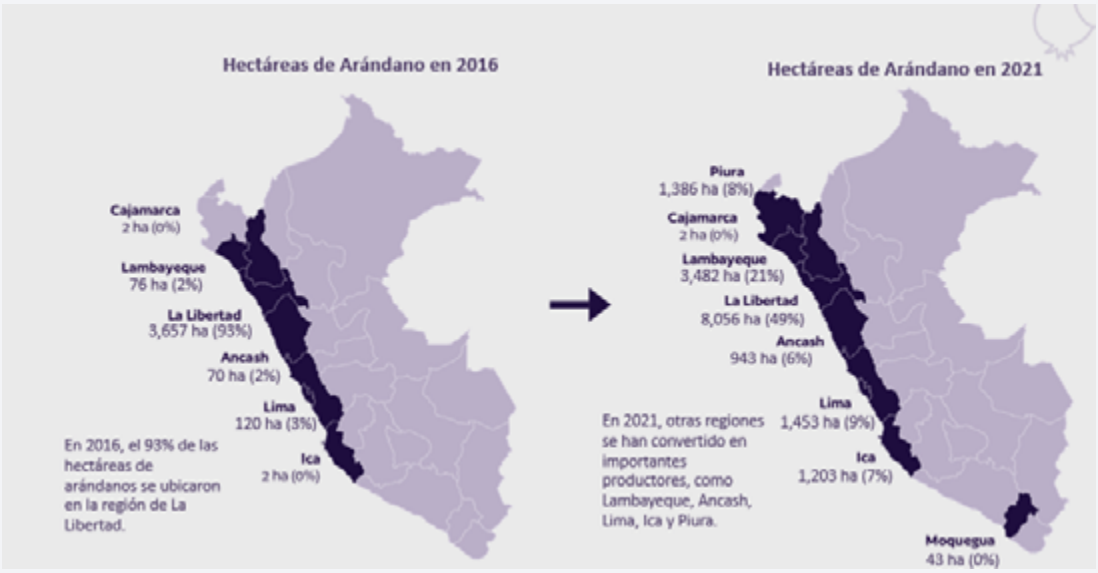
In this campaign there were around 60 different varieties of blueberries and Biloxi was in second place, representing 30% of total plantings in Peru, after the variety Ventura which occupied first place, representing 32% of the total.

	2016	%		2017	%		2018	%		2019	%		2020	%		2021	%
BILOXI	2,366	60%	BILOXI	3,472	57%	BILOXI	4,747	62%	BILOXI	5,905	48%	BILOXI	5,764	37%	VENTURA	5,354	32%
ROCIO	475	12%	ROCIO	1,154	19%	VENTURA	1,246	16%	VENTURA	3,376	27%	VENTURA	5,073	33%	BILOXI	4,980	30%
VENTURA	409	10%	VENTURA	581	10%	ROCIO	770	10%	ROCIO	1,170	10%	EMERALD	1,227	8%	ROCIO	1,228	7%
EMERALD	255	6%	EMERALD	487	8%	EMERALD	415	5%	EMERALD	854	7%	ROCIO	911	6%	EMERALD	938	6%
OTROS (9)	421	11%	OTROS (16)	347	6%	OTROS (19)	513	7%	OTROS (28)	986	8%	OTROS (42)	2,467	16%	OTROS (56)	4,066	25%
TOTAL	3,926	100%	TOTAL	6,041	100%	TOTAL	7,690	100%	TOTAL	12,292	100%	TOTAL	15,444	100%	TOTAL	16,566	100%

Main growing regions in the country and their participation in the export dynamic

During the 2021-22 campaign, La Libertad had a representation of 54.11%, consolidating itself as the most significant region in exports of this crop, followed by Lambayeque with a representation of 21.16% and Lima with 7.98% of the total.

In terms of the area planted at the close of 2021, there were 16,566 hectares certified with blueberries, representing an increase of 7% (1,123ha) compared to 2020 when 15,444ha were registered. Between 2019 – a year when 12,292ha were registered – and 2020, the increase was 26% (3,152ha).



Leading the way to a promising future

During the 2021 campaign the markets of India and Malaysia were opened, and we have been working to open the markets of South Korea, Japan, Indonesia and Vietnam.

Turning to 2022, as Proarandanos we continue working to access more markets and with better conditions, maximizing our communication channels to strengthen the positioning of Peruvian blueberries, providing more statistical information and forecasts to enable a more informed industry; similarly, we continue working together with the State, through the leadership of AGAP to ensure the necessary conditions are provided for the production and exportation of blueberries.

In the same way, we keep focusing our efforts on the efficient management of natural resources, good agricultural practices, and above all, the respect and appreciation of our workers, their families and communities.

ProArándanos has prioritized the following areas of action in its agenda for the coming years:

- Access to more markets with better conditions: action together with Senasa
- Increasing consumption in the main markets, working together with international stakeholders.
- Ensuring the necessary conditions for production and exportation, coordinating with the public sector through AGAP – the Association of Agricultural Grower Unions of Peru.
- Enabling a more informed industry with regards to statistics and forecasts, as well as social and environmental impact indicators.
- Sustainable development: fomenting the efficient management of natural resources and good agricultural practices.

Peru
Report Team Narrative

The global opportunity to serve higher year-round global blueberry consumption is exemplified by the recent strong performance of the world's largest exporter of the fruit, Peru, which was an industry minnow just a decade ago when it wasn't even in the top 30 blueberry-shipping nations worldwide, registering gross sales of less than $500,000 in 2012.

As referenced in the detailed Peruvian country member summary prepared by ProArandanos, the country's fresh blueberry exports surpassed $1.2 billion in the 2021 calendar year. This figure encompasses Peru's peak shipping window of late August to October, although shipments can start as early as late May/early June and finish in April of the subsequent calendar year. Export volume rose by more than 35% in the 2021-22 season, and returns held up remarkably well considering the influx of volume and unprecedented, pandemic-induced logistical delays that set back shipping arrival times from a matter of days to several weeks in Peru's key overseas markets. In the U.S. for example, the average price for Peruvian blueberries was higher year-on-year for the first seven weeks of the season, while from late August until mid-January the fruit was selling for higher prices than market averages every week relative to other sources of supply. This speaks to the consistency that Peru has come to represent as a supplier to the global markets.

Most of the volume growth in 2021-22 occurred between August and October, reflecting a strategy to target periods of relative scarcity between the North American/European seasons and the Chilean campaign. It is a strategy that has been implemented through a combination of geographical diversification within Peru, varietal selection and pruning methods to manipulate harvest times. It is interesting to note the industry's peak export volumes occurred three weeks earlier in 2021, and that the share of the nation's two leading varieties – the 'older' cultivars Biloxi and Ventura – fell by eight percentage points to 60%, illustrating the rapid take-up of new varieties with improved durability, sizing, texture and flavor; a transition that has been accelerated by competitive pressures from South Africa, a producer that is known for its widespread adoption of proprietary genetics and positive quality perceptions in the European market. Anecdotally, Peruvian exporters have been increasingly selecting newer genetics with longer shelf life and greater firmness and brix for shipments to the more demanding Chinese market. As a side note, in mid-2022 the Peruvian industry achieved an opening of Israeli fresh blueberry market access.

Practically all the world's leading blueberry genetics companies offering southern highbush (Low and No-Chill) blueberry varieties have a presence in Peru, with the number of registered varieties rising by 30% in 2021 to 60. Some are more incipient than others, including a local breeder that has been expanding, while at least one of Peru's top grower-exporters has a blueberry breeding programme based in the country.

Chilean, Spanish, and U.S. horticultural experts played a pioneering role in the Peruvian blueberry industry's development, just as they did previously in table grapes, successfully executing a transformative vision in what a decade ago was viewed as an unorthodox region for growing the soft fruit.

The opportunities of earlier production thus attracted more foreign entrepreneurs and investors who went with the tide rather than fighting against it, along with Peruvian agricultural companies that have since become industry leaders, some of whom have undertaken ventures north in the same expansive, pioneering fashion to produce blueberries in such countries as Colombia and Mexico.

Almost half of Peru's blueberry plantings are in the department (province) of La Libertad, more often known for the city of Trujillo – a desert region whose agricultural sector was activated by the Chavimochic irrigation project in the late 90s with a boom in asparagus production, but since then blueberries have become a much more attractive investment.

More recently in 2014, the opening of the Olmos irrigation project in the department of Lambayeque heralded a new agricultural revolution in the Peruvian desert, prompting ambitious, large-scale projects in numerous crops including blueberries. Today the region accounts for more than a fifth of Peru's blueberry hectares in production, offering a a more natural ability to produce in an earlier window than La Libertad.

La Libertad's share of blueberry-growing hectares has declined from 93% in 2016 to 49% in 2021, as part of a geographical diversification trend that has reinforced the country's push towards extended production and its ability to grow more during particular market windows. Combined, the southern region of Ica, the region of Lima encapsulating the nation's capital and its surrounds, and the northern region of Piura bordering Ecuador, account for almost a quarter of Peru's surface area for the crop.

Broadly speaking, coastal Peru has a mild climate with very little variance in temperature; the same is true for the northerly, early-producing Piura, but within a higher temperature band. In atypical years however when temperatures are slightly higher in the summer, as was the case for the 2021-22 season, certain varieties tend to be triggered into plant growth with delays in flowering and hence, fruiting. This underscores how critical varietal selection can be in the warmest

of climates; cultivars that can tolerate or adapt in such conditions do exist and are increasingly being planted in the area.

The number of hectares planted in Piura more than tripled in 2021, with growers attracted by the region's adaptive soils, water chemistry and, most importantly, earlier harvests that tend to garner higher market returns. The Piura season begins in May and peaks in late September-early October, unlike Peru overall which peaks in mid-October. The humid and muggy conditions can create new challenges, making it essential to pick fruit as close to dawn and dusk as possible.

The department of Ica, which like La Libertad has been a bastion of first asparagus and then avocado industries, saw its blueberry-growing area rise by almost 60% last year. High-density plantings in substrate pots are less common in Peru where most coastal production is open field, but the very salty soils in Ica warrant alternative growing methods that are more in line with what can be seen in southern Morocco or Mexico. Many of these projects harness reverse osmosis units to address water chemistry for irrigation, which is especially critical for achieving optimal pH levels and electric conductivity in substrate growing systems.

The percentage share of organics rose by three percentage points to 8% in 2021 as the industry pursues what is perceived as an attractive proposition in the North American market, with many growers reporting healthy premiums despite marginal falls year-on-year. In the larger context of the Peruvian industry, the 8% share represents a significant increase in the offering versus prior years and is the product of decisions made several years ago given the lag time in converting conventional fields to organic and securing certification. It is important to note that growing organic in Peru is uniquely challenging due to the lack of a 'kill cycle' for pests and disease as well as the challenge for securing inputs to manage in evergreen systems. Organic fields in Peru tend to have lower average yields than conventional fields in Peru, which is not always the case in other competitive organic growing regions.

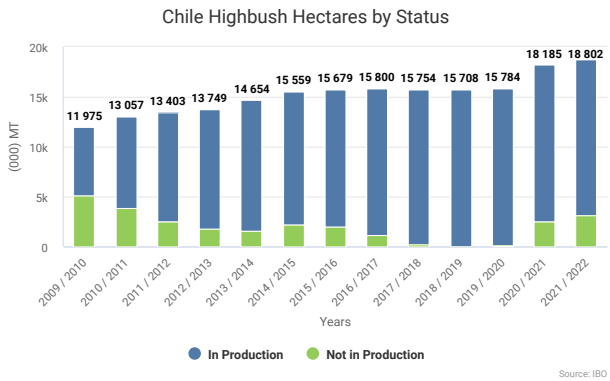
Growers throughout Peru became more reluctant to plant new fields since the election of President Pedro Castillo last year. At the time of writing, the administration has not enacted any policies that specifically damage agriculture, but rather the tone towards business and agriculture have led to uncertainty. Blueberry planting has recently been revived in Peru, which has among the highest yields for the fruit globally, but it is believed that the speed of new plantings would have been much faster had Castillo's opponent won. The political climate also has implications for infrastructure developments and upgrades that have been idle for years, and are likely to remain so in the current environment, including irrigation development plans such as the Chavimochic expansion and the Majes Siguas project near Arequipa. These delays in infrastructure will likely impact the capacity for the industry to expand in high value horticultural crops in the medium term. Nonetheless, the data shows almost 20% of Peru's planted hectares for blueberries are not yet in production; fields of new varieties are still maturing and the impact of that, ceteris paribus, will be continued volume growth over the medium term.

Peruvian growers emphasize that the political uncertainty is not just limited to them but is an issue of concern throughout South America, as is the consensus that logistics delays and costliness are the most pressing problems facing the industry right now. These conditions have forced operators to be more flexible in how they react to changing shipping schedules and port conditions, while also diversifying their shipping options. Most of Peru's 2021-22 volume had been shipped by the commencement of Russia's invasion of Ukraine in February this year, but the fertilizer shortages that ensued have also been an issue for Peruvian agriculture generally, including blueberry farming.

The availability of labor is also a challenge in Peru amidst competition between several agricultural crops, with many farms in isolated desert areas that either require transportation or the establishment of lodgings. Protests in late 2020 led to changes to the Law of Agrarian Promotion which imposes a higher minimum living wage and requires a special bonus paid to workers that is equivalent to 30% of the minimum wage. Many Peruvian blueberry growers, however, were unaffected by these changes as their worker remuneration policies and benefits around food and transport already went beyond the minimum requirements established in the new law.

CHILE

Planting and Production Data, Figures & Commentary
(Denominated in Hectares and Thousands of Metric Tons)



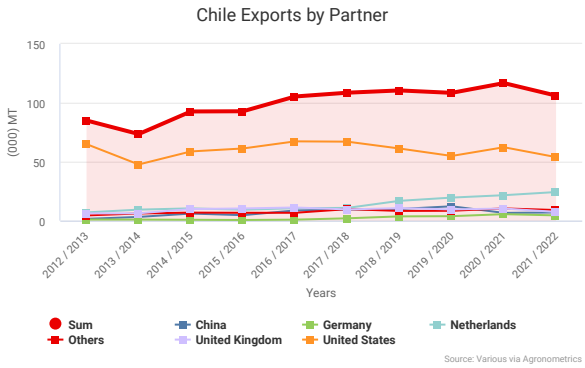
Chile 2021/2022 Production Metrics

Hectares Planted:	**18,802.0 Ha**
Organic:	Not Reported
Under Structure:	Not Reported
Hydroponics:	Not Reported
New Genetics:	Not Reported
Hectares in Production:	**15,708.0 Ha**
Production:	**185.30 (000) MT**
Growth in Production[1]:	▼-10.5 (000) MT (-5.64%)
Growth from Hectares[2]:	▲0.00 (000) MT (0.00%)
Growth from Yield[3]:	▼-10.45 (000) MT (-99.90%)
Yield:	**11,796.54 (Kg/Ha)**
Exports:	**106.05 (000) MT**
Imports:	**0.10 (000) MT**

[1] Growth in volume produced compared to previous season
[2] Volume increase from new hectares coming into production
[3] Volume increase from higher yields

Chile Exports by Partner

Reporter	2018/2019	2019/2020	2020/2021	2021/2022
United States	61.18	54.88	62.28	53.89
Netherlands	16.82	19.57	21.60	24.28
United Kingdom	10.65	9.53	10.30	7.43
China	9.89	12.20	6.60	6.94
Germany	3.64	3.81	5.52	4.48
Others	8.26	8.39	10.39	9.03
Chile Totals	**110.45**	**108.38**	**116.67**	**106.05**



Chilean Blueberry Committee

Chile
Country Member Summary

Adapted from a Report by the Chilean Blueberry Committee, ASOEX

The last five years have probably been some of the most significant for the global blueberry industry in terms of production growth, as well as new regions and production windows that have dramatically changed the competitive situation. One need only look at what has occurred for example with exports from Argentina, or the situation in Florida in the U.S., to appreciate what this means.

The Chilean Blueberry Committee has witnessed these changes and everyone in the industry is aware of the need to adapt to new market conditions. Or are there still people who imagine a world where Chile will be alone in the market at certain times of the year and that it is possible to export the same varieties as 10 years ago? At the Chilean Blueberry Committee we believe it is necessary to adapt, and quickly, if we want to continue participating successfully in this market.

Surely the main problem faced last season was the long transit times and delays at different stages of the logistics chain. Arrival dates were modified and for some weeks the supply was short, and then arrived several days or weeks late with significant problems of condition. This is a key challenge for the Chilean supply to remain competitive and new alternatives are being put together for the coming season.

But even going back to pre-covid logistics with reasonable transit times, we still have some challenges that must be addressed by the industry.

Varietal replacement is an example. Chile is making progress in improving the varietal mix, and year after year the supply of new varieties grows and those cultivars with the poorest performance are restricted. But even so, this last season 9% of what was exported were varieties that the Committee simply recommends not to export as fresh.

Another issue is the availability of labor. It is necessary to implement harvest strategies focused on the quality of the fruit and not only on volume and costs. Given the distance that we have from Chile to the markets, it is absolutely necessary to harvest with the correct harvest frequency to assure quality.

Chile exported 107,000 metric tons of fresh blueberries in the 2021-2022 season, down by 9% compared to the previous season, as a reaction to the logistical situation. The market with the biggest logistics problems was the US, where the decrease in fresh blueberry exports from Chile was 14%. Europe and Asia also went down, but only by 3% and 2% respectively.

Blueberry consumption continues to grow in all markets and there is still potential to continue incorporating new consumers. Blueberries with a sweet pleasant flavor and a good condition have a place in the market, and, together with the convenience and the health halo of the fruit, will continue to drive demand. On the other hand, the growth in production has generated a more stable supply in volume and prices every week of the year, which has been to the benefit of increased consumption.

Chile Report Team Narrative

Whilst this report strives to achieve a certain diplomatic decorum in its pursuit of industry improvement and giving credit where it's due, the use of strong language from industry insiders – both from within and outside Chile - to describe the 2021-22 Chilean blueberry season cannot be ignored, including such terms as "catastrophe", "disaster", and "a call to action".

Notwithstanding a heatwave in the first week of December in Chile's Central Valley in regions such as Ñuble and Maule, followed by a few rain events in that month and January, conditions in the field were good - albeit with less-than-ideal labor availability - and most growers reported a good crop. In fact, the warm weather experienced throughout the country meant that growers in southern Chile were theoretically in a favourable position with harvests two weeks earlier than usual, which in a normal year would have helped reduce the late season overlap with early Mexican and Moroccan blueberries in the U.S. and Europe respectively.

But this was not a normal year. At the start of the campaign exporters were experiencing minor delays, but as time went on, the congestion in ports, quarantine arrangements for crewmembers on ships, longer stopovers and unloading delays all added up and started to intensify around December and into 2022, coinciding with the peak harvest. This shipping backlog meant that many of those growers who expected to be in-market 15 days early ended up with their fruit arriving 15 days late instead, with mixed quality because not all had sorted their pack-outs with such a long journey in mind.

It is extraordinary that Chile's fresh blueberry export volume only declined by 9% under these circumstances, demonstrating that despite the fragmented nature of the industry and prevalence of older varieties, Chileans are adept at long-distance shipping in a way that would be a great struggle for other blueberry industries globally under the same level of pressure. However, the combination of delays and summer rains did take their toll on quality, weighing down returns and in some cases leading fruit to be either sent to processing or thrown out. Moreover, the delays disrupted retail programs, making it harder to organize promotional activity.

If Chile undergoes another season like this, contributors indicate that the financial strain on smaller growers could be enough to send many out of business, while those that remain could face greater scrutiny on quality from exporters who will be looking to restore the national reputation in the eyes of overseas buyers. It has also been reported that given a large push towards processing, even IQF operators in Chile itself have become more stringent due to the ample supply available from fresh blueberry growers hoping to avoid the headaches of a problematic logistical environment.

Against this backdrop it appears the trend of consolidation in Chile will continue, reinforced further by the advantage larger, vertically integrated exporters have in securing freight space. In 2021-22 some exporters experimented with bulk and break bulk shipping methods that used to be the norm until container shipping took over in recent decades. Chilean exporters of blueberries and other fruits had previously eschewed this method in favour of more flexible container shipping options, but against a volatile container export backdrop there has been renewed interest in regular, more direct shipments; a channel that brings with it new challenges in terms of how inspections are conducted on arrival and packaging arrangements for clients, but those who have tried the practice view it positively. The charting of boats and aircraft was not uncommon in the face of the challenges of this past season, and there are calls from within the Chilean fruit industry to establish services in the mold of the 'cherry express' that was set up for the Chinese market.

The Chilean blueberry industry has also adapted to the competitive pressures of recent years with greater plantings of organics, which now constitute more than 20% of the country's planted area. Nonetheless, fresh organic blueberry exports from Chile took a sharper dive of 24% in 2021-22, attributable in part to improved pricing for frozen organic blueberries.

This is in stark contrast to a 32% rise in fresh organic blueberry exports from Chile in 2020-21, which was driven by the approval of a systems approach without fumigation for the U.S. market from the regions of Ñuble and BioBio, which account for almost a third of Chile's organic plantings. It must also be noted that the systems approach regarding the Lobesia Botrana pest has also made life easier for conventional blueberry exporters, although for organics the effect is more pronounced as it is impossible to sell under the organic label if fruit is fumigated. Around three-quarters of fresh organic blueberries were shipped to the U.S., with most of the remainder exported to Europe.

In terms of markets, whilst Chilean blueberry exports declined 9% overall in 2021-22, volumes varied significantly by destination. As referred to in the country member report prepared by ASOEX, the USA had a decline of 14%, compared to Europe and Asia which saw declines of 3% and 2% respectively. It is worth clarifying the decline in Europe was attributable to a 26% reduction in shipments to the United Kingdom, in contrast to continental Europe where volumes actually rose by 4%. Even though exports to Asia were down overall, they were up in mainland China (+4%), South Korea (+2%) and Taiwan (+1%). The reduction in exports to the continent was mainly attributable to a 70% drop in emerging Asian markets due to the logistical challenges. Even in the United States, where port congestion in California has become synonymous with pandemic shipping problems, the decline was much more significant on the West Coast at -35% versus -6% on the East Coast.

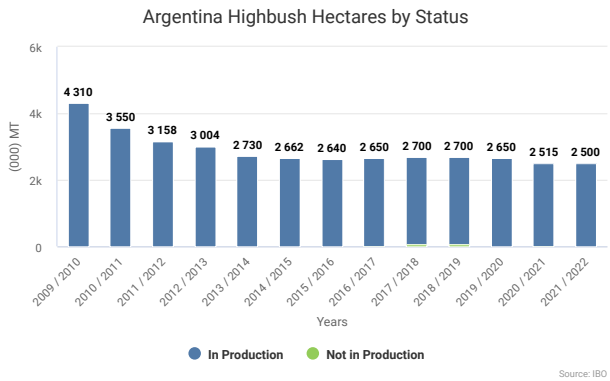
With a dominance of varieties such as Legacy, Duke and Brigitta, it is estimated that around only 10% of Chile's planted area is dedicated to newer-generation blueberry varieties, although the percentage is high in more sophisticated, larger farms. It could take 10 years or more for the country's non-proprietary and/or older less competitive cultivars to be either out of circulation or purely dedicated to processing, but the country has top class soil and climatic conditions for growing blueberries generally, which translates to optimal flavor, firmness and appearance as well as uniquely high yield potential when advanced genetics are planted and managed well. The country's challenges have not prevented some of the world's leading breeders from introducing new genetics into the market. Exemplifying that trend is the recent decision by a leading nursery and genetics company to establish scaled wholly owned R&D and nursery operations to serve the Chilean industry.

There is a consensus in Chile that it has become increasingly harder to secure a local workforce and that younger demographics are less willing to do fruit picking than before. There is also greater competition with the cherry industry for workers, though the disruptions to cherry demand in China may change this dynamic. Laborers have returned from other South American countries such as Bolivia now that the borders are open again, but many do not hold the appropriate documentation to work legally in Chile and therefore are not available to more professional growers that have strict governance policies. With long transit times to market and other structural matters to consider, machine harvesting for fresh is also not perceived by most as a possible solution to this dilemma.

The business community, including the blueberry industry, is also awaiting the outcome of a national plebiscite on Sept. 4, 2022 regarding proposed changes to the constitution, which at the time of writing contained drafts that have some potential detrimental to impact agriculture but are too speculative for further comment at this stage.

ARGENTINA

Planting and Production Data, Figures & Commentary
(Denominated in Hectares and Thousands of Metric Tons)



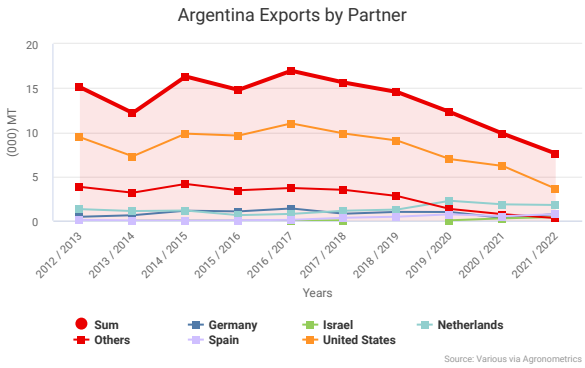
Argentina 2021/2022 Production Metrics

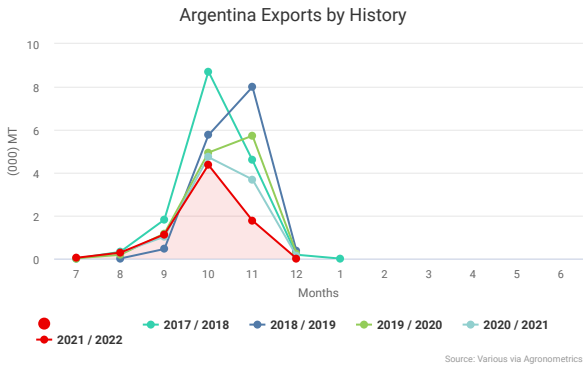
Hectares Planted:	**2,500.0 Ha**
Organic:	60.0%
Under Structure:	60.0%
Hydroponics:	Not Reported
New Genetics:	5.0%
Hectares in Production:	**2,500.0 Ha**
Production:	**17.71 (000) MT**
Growth in Production[1]:	▼-0.8 (000) MT (-4.46%)
Growth from Hectares[2]:	▲0.00 (000) MT (0.00%)
Growth from Yield[3]:	▼-0.78 (000) MT (-98.73%)
Yield:	**7,086.40 (Kg/Ha)**
Exports:	**7.59 (000) MT**
Imports:	**0.40 (000) MT**

[1] Growth in volume produced compared to previous season
[2] Volume increase from new hectares coming into production
[3] Volume increase from higher yields

Argentina Exports by Partner

Reporter	2018/2019	2019/2020	2020/2021	2021/2022
United States	9.06	6.96	6.19	3.61
Netherlands	1.26	2.25	1.85	1.77
Germany	0.99	0.98	0.30	0.75
Spain	0.45	0.72	0.51	0.74
Israel	-	0.04	0.26	0.41
Others	2.79	1.33	0.73	0.30
Argentina Totals	**14.55**	**12.28**	**9.84**	**7.59**





ARGENTINEAN blueberry committee

Argentina Country Member Summary

Adapted from the report by the Argentinean Blueberry CommitteeArgentine

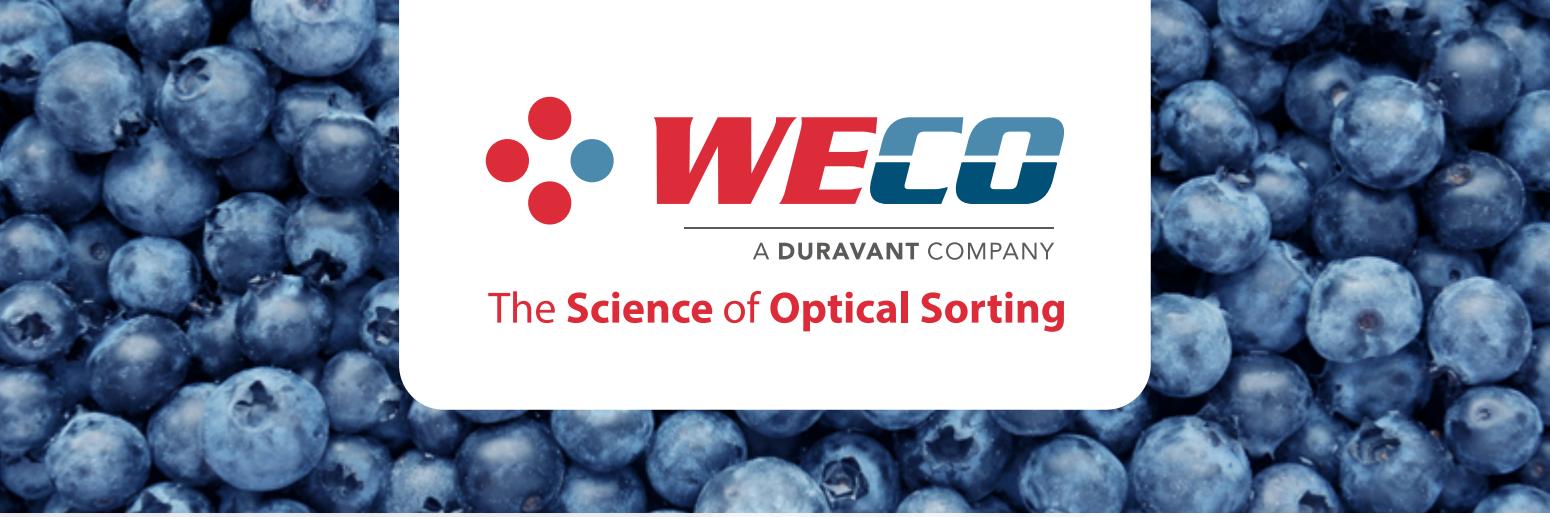
Blueberries 2021 Season

Argentina exported 13,200 metric tons (MT) of blueberries in the 2021 season of which 8,500MT were fresh and 4,700MT were frozen, while 4,500MT were destined for the domestic market. These figures show Argentina managed to keep its production volume stable at around 18,000MT thanks to a great effort in varietal replacement and high-density schemes.

Historically, the greatest share of volume was sent to the US, but exports to this market have decreased with it currently receiving less than half (45%). In contrast, the participation of Europe is growing. Shipments to this region have been maintained at levels between 3,500-4,000MT (43%) in recent years.

Argentina's commercial strategy has focused on:

- supplying niche markets and diversify destinations satisfying certain segments of the market that appreciate our fruit due to its distinctive flavor;
- improving quality fulfilling chill hours and temperature amplitude;
- increasing the share of sea shipments in order to extend the commercial window;
- seeking the right varieties in the right climate (varietal replacement);
- increasing organic production – a regime in which Argentina is highly experienced and has a strong presence with many products. It is estimated that approximately half of what was exported was organic;
- expanding the production capacity of frozen blueberries based on the expectation that demand continues at high levels;



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- developing the domestic market where demand is growing at high rates. For the sixth consecutive year, the ABC is carrying out its "Better with Blueberries" promotional campaign to encourage the consumption of this super fruit in the local market;
- strengthening its responsible business model: the sector designed its own social compliance system with a focus on child labor prevention. The ABC is part of the Enterprise Network against Child Labor, and is governed by the National Plan for the Prevention and Elimination of Child Labor and the Protection of Adolescent Labor. Most exporters have social certifications (GRASP, SMETA, FAIR TRADE, etc);
- addressing sustainable development goals which are at the heart of our vision.

Forthcoming Campaigns

Many challenges remain to be solved, however, the Argentine blueberry sector will continue working on the same course of action. The differentiation strategy will continue, based on four pillars: flavor, organic cropping, social responsibility, and environmental care.

Argentina Report Team Narrative

As outlined in the Argentinean Blueberry Committee (ABC) country member summary, the country's industry has been adapting to competitive challenges in recent years with such strategies as market diversification, varietal replacement and a shift to organics, the latter now constituting 60% of Argentina's planted area for the crop; that is almost double the share of organic-dedicated land in the 2020-21 season.

Argentina was a pioneer for South American blueberry production at the turn of the Millennium. It soon saw Chile encroach on the tail end of its season, but for a long time was able to maintain a privileged position in overseas markets in September and early October. However, this timing advantage came to an end with the emergence of Peru, which has forced Argentina to lift competitiveness through various means. The country's plantings have fallen in half since 2008, but since then yields have lifted substantially, organics have become the majority of volume, and Argentina's relatively small operations have embraced technology and vertical integration. With a climatic tendency towards rain and hail events, the majority of blueberry orchards are now planted in protected systems

Most Argentine growers close the containers for export within their own packhouses, but not all have been able to keep pace with the rapid operational changes required to survive and industry exits continue. Much more volume has been sent to processing over this past year with some farms opting to purely focus on the instant quick freezing (IQF) market in light of the competitive and logistical challenges for fresh blueberries. The infrastructure that exists for processing is predominantly in Buenos Aires, which represents part of Argentina's production but the majority is grown in the Northeast (Corrientes, Entre Rios) and Northwest (Salta, Tucuman, Catamarca).

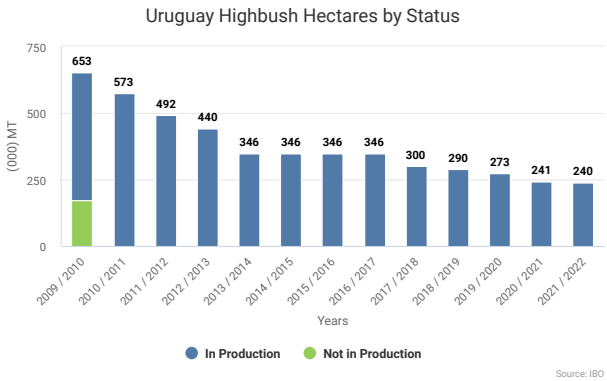
As noted by the ABC, Argentina's fresh blueberry export volume grew last season as the share of shipments to the USA declined. This is partly due to the competitive reality that Peru too has increased its dedication to organics with a strong focus on the U.S. market; even as Peru's weekly volumes in the U.S. market started to decline in December, they were still roughly 15 times that of Argentina's. In the 2021 calendar year Argentina's export volume worldwide fell by 23%, but in the USA it was down by more than 41%, illustrating the extent of this shifting market orientation.

Argentina will likely face even greater competition from Peruvian organics within the coming years, further accentuating the need identified by the industry to increase its share of air-freight exports; a trend that was making positive progress but has been slowed somewhat by the pandemic and associated shipping delays.

Meanwhile, in Europe exports to the Netherlands were down marginally but volumes were up in markets such as Germany, Spain and even Israel. What is noteworthy from the 2021 statistics is that Argentina's export value declined at approximately the same rate as volume, meaning on price a per kilo basis the fruit held up well considering the volume pressure from other countries. This stable performance may stem from a more than 25% increase in exports of fresh organic blueberries, for which growers report healthy premiums can be achieved.

URUGUAY

Planting and Production Data, Figures & Commentary
(Denominated in Hectares and Thousands of Metric Tons)



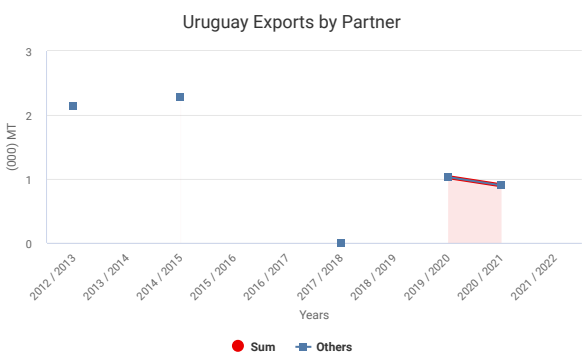
Uruguay 2021/2022 Production Metrics

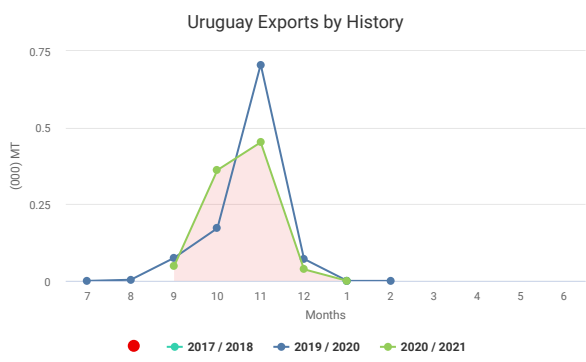
Hectares Planted:	**240.0 Ha**
Organic:	Not Reported
Under Structure:	20.0%
Hydroponics:	Not Reported
New Genetics:	18.0%
Hectares in Production:	**240.0 Ha**
Production:	**0.84 (000) MT**
Growth in Production[1]:	▼-0.5 (000) MT (-54.76%)
Growth from Hectares[2]:	▼-0.01 (000) MT (-2.17%)
Growth from Yield[3]:	▼-0.45 (000) MT (-97.83%)
Yield:	**3,500.00 (Kg/Ha)**
Exports:	**0.00 (000) MT**
Imports:	**0.06 (000) MT**

[1] Growth in volume produced compared to previous season
[2] Volume increase from new hectares coming into production
[3] Volume increase from higher yields

Uruguay Exports by Partner

Reporter	2018/2019	2019/2020	2020/2021	2021/2022
United Kingdom	-	0.00	0.00	-
Others	-	1.03	0.89	-
Uruguay Totals	**0.00**	**1.03**	**0.90**	**0.00**





Uruguay Report Team Narrative

Uruguay, which grows blueberries during a similar timeframe to Argentina, has become even more of a niche supplier than it already was over the past decade with a sharp decline in planted area. The logistical challenges posed by the pandemic have also accentuated the country's logistical difficulties as a small, isolated industry.

Like Argentina, Uruguay has historically had a strong airfreight focus but the industry has identified a need to turn to seafreight to remain cost-competitive. However, amidst global container shortages and shipping lines coming to grips with scheduling headaches, smaller ports such as Uruguay's Port of Montevideo have seen a reduction in services and higher charges. This has led exporters to ship via Buenos Aires in Argentina, adding to sea journey times that had already been extended. Uruguayans also have had fewer flight options for airfreight than their Argentinean counterparts. In response to these challenges, many growers opted for the certainty of pricing in the domestic market where consumption is reportedly on the rise.

Uruguayan growers have historically had less access to advanced blueberry genetics, as the sector's small size has meant less incentive for the world's leading nurseries and genetics providers to set up operations or license their varieties to smaller farmers. But producers obtain what they can, often importing plant material from Argentina or Chile. In recent years there has been a shift toward varieties that grow earlier in Uruguay's September-November cultivation window, while one of the industry's leading companies has young plantings of proprietary genetics from an Australian company.

Uruguayan blueberry production is concentrated in the northwestern region of Salto, whose main city of the same name is highly connected to the Argentine city of Concordia that sits on the other side of the Uruguay River and is a hub for one of Argentina's leading blueberry-growing areas. But for much of 2021 there was a pandemic-related hard border in place which disrupted the lives of Salto's residents and businesses, whether it be for travel or sourcing plant material from a Concordia nursery.

The 2021-22 season is best described as uneventful from an agricultural perspective, with no great weather problems or hail issues as those that caused significant damages a few years ago.

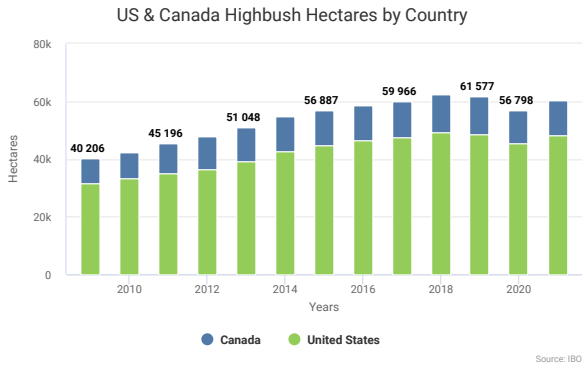
US & CANADA

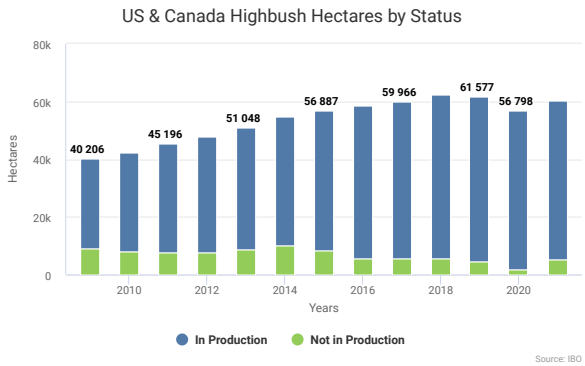
Planting and Production Data, Figures & Commentary

(Denominated in Hectares and Thousands of Metric Tons)

US & Canada Highbush Hectares by Country

US & Canada	Planting					2021 Production		
Growth Totals	**2017**	**2018**	**2019**	**2020**	**2021**	**Fresh**	**Process**	**Total**
United States	47,390	49,350	48,574	45,269	48,139	177.09	151.12	328.21
Western:	15,505	16,620	17,011	16,418	18,736	90.50	104.00	194.50
Washington	7,120	7,800	7,947	8,365	9,712	30	56	86
Oregon	5,200	5,300	5,685	5,463	6,070	31.5	40.5	72
California	3,185	3,520	3,379	2,590	2,954	29	7.5	36.5
Southern:	18,232	19,025	18,697	16,545	17,094	50.14	25.47	75.61
Georgia	9,675	9,800	9,554	9,675	9,712	23	20.15	43.15
North Carolina	2,550	3,035	3,521	2,954	2,995	12.15	5.1	17.25
Florida	3,100	3,200	2,632	2,104	2,307	12	-	12
Texas	590	600	600	655	720	1.65	-	1.65
Miss/Louisiana	1,790	1,850	1,850	607	809	0.81	0.22	1.03
Southern Others	270	280	280	290	290	0.5	-	0.5
Arkansas	258	260	260	260	260	0.03	-	0.03
MidWest:	9,795	9,845	9,037	8,828	8,831	20.30	17.65	37.95
Michigan	8,850	8,900	8,092	7,900	7,700	18	17.5	35.5
Midwest Others	645	645	645	645	645	0.7	-	0.7
Indiana	300	300	300	283	486	1.6	0.15	1.75
Northeastern:	3,858	3,860	3,829	3,478	3,479	16.15	4.00	20.15
New Jersey	3,300	3,300	3,269	2,913	2,914	16	4	20
New York	558	560	560	565	565	0.15	-	0.15
Canada	12,576	12,920	13,003	11,529	12,152	33.39	47.03	80.42
British Columbia	11,600	12,000	12,140	10,522	11,000	30.04	47.03	77.07
Canada Other	976	920	863	1,007	1,152	3.35	-	3.35
US & Canada Totals	**59,966**	**62,270**	**61,577**	**56,798**	**60,291**	**210.48**	**198.15**	**408.63**

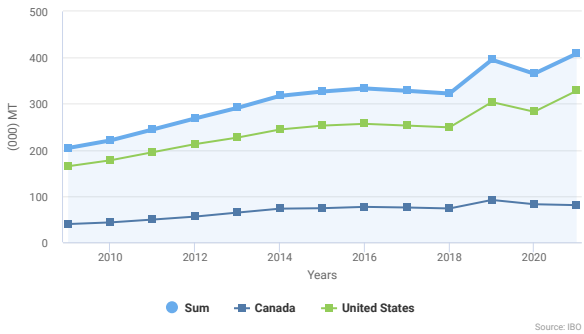




US & Canada Highbush Production by Country

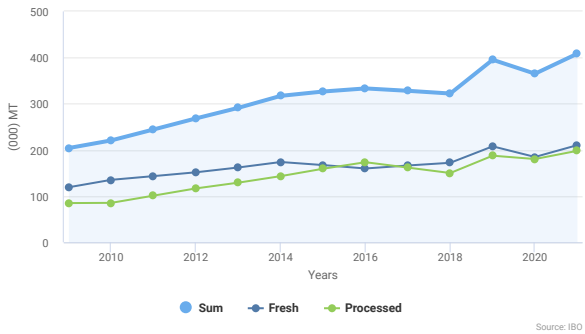
US & Canada	2019			2020			2021		
Productions Totals	**Fresh**	**Process**	**Total**	**Fresh**	**Process**	**Total**	**Fresh**	**Process**	**Total**
United States	168.29	135.38	303.67	153.07	129.61	282.68	177.09	151.12	328.21
Western:	78.00	96.50	174.50	79.30	98.40	177.70	90.50	104.00	194.50
Washington	21.8	50.8	72.6	18.1	56.7	74.8	30	56	86
Oregon	30.8	38.6	69.4	33.1	34.5	67.6	31.5	40.5	72
California	25.4	7.1	32.5	28.1	7.2	35.3	29	7.5	36.5
Southern:	54.14	17.44	71.58	40.17	14.32	54.49	50.14	25.47	75.61
Georgia	27.2	14.5	41.7	20.4	9.1	29.5	23	20.15	43.15
North Carolina	13.6	2.9	16.5	9.1	5	14.1	12.15	5.1	17.25
Florida	10.3	-	10.3	7.7	-	7.7	12	-	12
Texas	1.8	-	1.8	1.4	-	1.4	1.65	-	1.65
Miss/Louisiana	0.6	0.04	0.64	0.91	0.22	1.13	0.81	0.22	1.03
Southern Others	0.6	-	0.6	0.62	-	0.62	0.5	-	0.5
Arkansas	0.04	-	0.04	0.04	-	0.04	0.03	-	0.03
MidWest:	22.10	17.84	39.94	19.82	14.19	34.01	20.30	17.65	37.95
Michigan	19.7	17.7	37.4	18.6	14.1	32.7	18	17.5	35.5
Midwest Others	0.95	-	0.95	0.86	-	0.86	0.7	-	0.7
Indiana	1.45	0.14	1.59	0.36	0.09	0.45	1.6	0.15	1.75
Northeastern:	14.05	3.60	17.65	13.78	2.70	16.48	16.15	4.00	20.15
New Jersey	13.6	3.6	17.2	13.6	2.7	16.3	16	4	20
New York	0.45	-	0.45	0.18	-	0.18	0.15	-	0.15
Canada	39.50	52.16	91.66	31.72	50.70	82.42	33.39	47.03	80.42
British Columbia	36.99	52.16	89.15	28.7	50.7	79.4	30.04	47.03	77.07
Canada Other	2.51	-	2.51	3.02	-	3.02	3.35	-	3.35
US & Canada Totals	**207.79**	**187.54**	**395.33**	**184.79**	**180.31**	**365.10**	**210.48**	**198.15**	**408.63**

US & Canada Highbush Production by Country



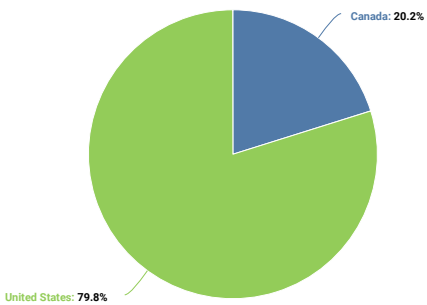
Source: IBO

US & Canada Highbush Production by Use

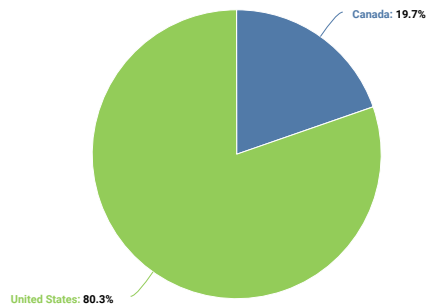


Source: IBO

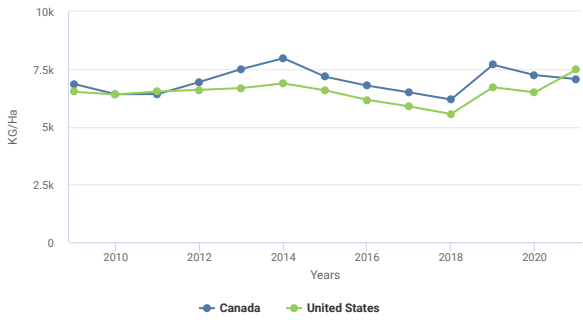
2021 US & Canada Highbush Hectares by Country



2021 US & Canada Highbush Production by Country



US & Canada Highbush Yield by Country



Source: IBO

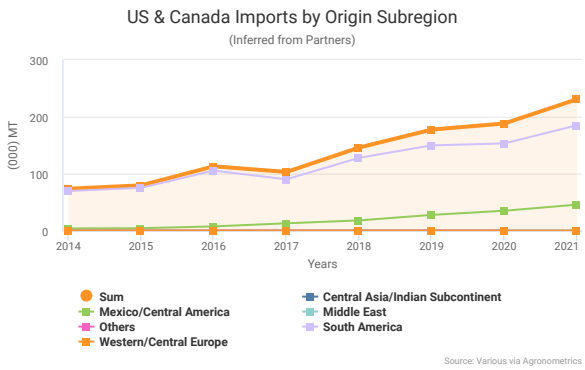
US & Canada 2021 Production Metrics

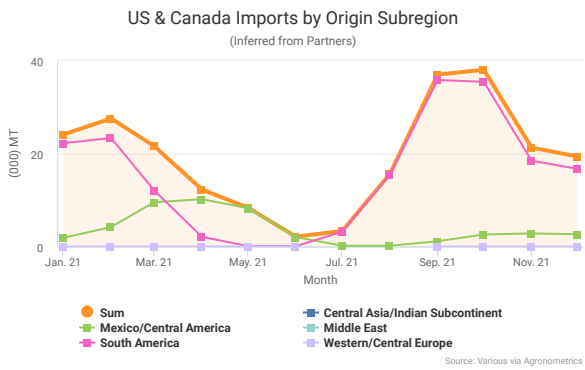
Hectares Planted:	**60,291.0 Ha**
Hectares in Production:	**55,235.0 Ha**
Production:	**408.63 (000) MT**
Growth in Production[1]:	▲43.5 (000) MT (10.65%)
Growth from Hectares[2]:	▲6.37 (000) MT (14.63%)
Growth from Yield[3]:	▲37.15 (000) MT (85.34%)
Yield:	**7,397.95 (Kg/Ha)**
Exports:	**2.95 (000) MT**
Imports:	**230.73 (000) MT**

[1] Growth in volume produced compared to previous season
[2] Volume increase from new hectares coming into production
[3] Volume increase from higher yields

US & Canada Imports by Origin Subregion (Inferred from Partners)

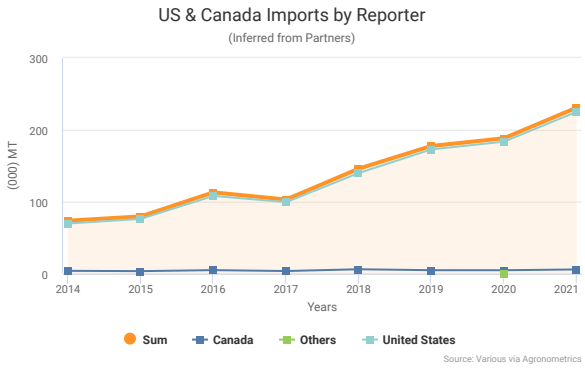
Origin	2018	2019	2020	2021
South America	127.86	149.73	153.10	185.05
Mexico/Central America	17.99	27.65	34.95	45.68
Central Asia/Indian Subcontinent	0.00	0.02	0.02	0.00
Western/Central Europe	0.00	0.00	0.00	0.00
Middle East	0.00	-	-	0.00
Others	0.03	0.02	0.04	-
US & Canada Totals	**145.89**	**177.41**	**188.12**	**230.73**

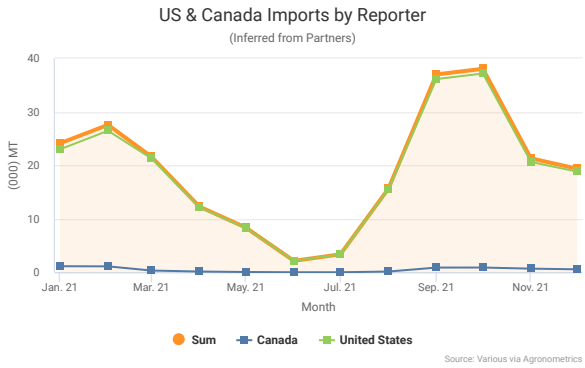




US & Canada Imports by Reporter (Inferred from Partners)

Reporter	2018	2019	2020	2021
United States	139.80	172.62	183.40	224.90
Canada	6.09	4.79	4.72	5.83
Others	-	-	0.00	-
US & Canada Totals	**145.89**	**177.41**	**188.12**	**230.73**





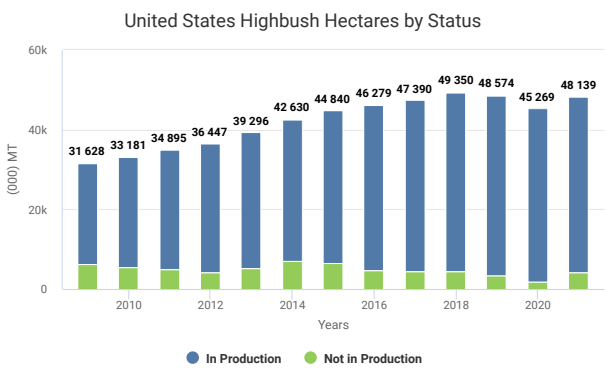
US & Canada Report Team Narrative

Here we provide an in-depth review of the state of the industry in the United States and Canada. Please visit the following country reports:

- United States
- Canada

UNITED STATES

Planting and Production Data, Figures & Commentary
(Denominated in Hectares and Thousands of Metric Tons)



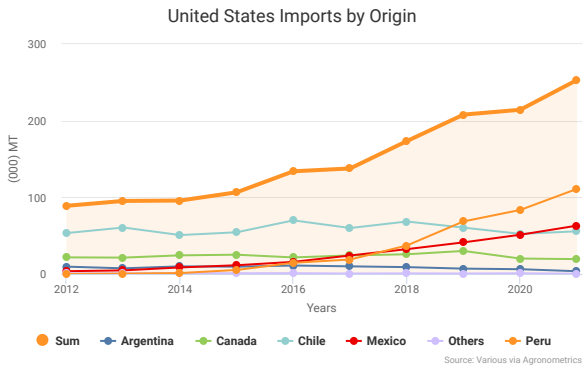
United States 2021 Production Metrics

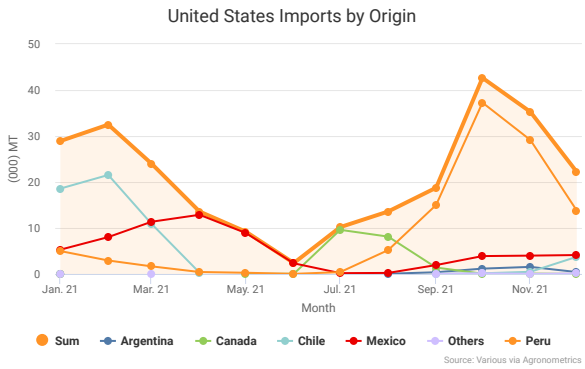
Hectares Planted:	**48,139.0 Ha**
Hectares in Production:	**43,850.0 Ha**
Production:	**328.21 (000) MT**
Growth in Production[1]:	▲45.5 (000) MT (13.87%)
Growth from Hectares[2]:	▲6.37 (000) MT (13.99%)
Growth from Yield[3]:	▲39.15 (000) MT (85.99%)
Yield:	**7,484.75 (Kg/Ha)**
Exports:	**22.38 (000) MT**
Imports:	**253.18 (000) MT**

[1] Growth in volume produced compared to previous season
[2] Volume increase from new hectares coming into production
[3] Volume increase from higher yields

United States Imports by Origin

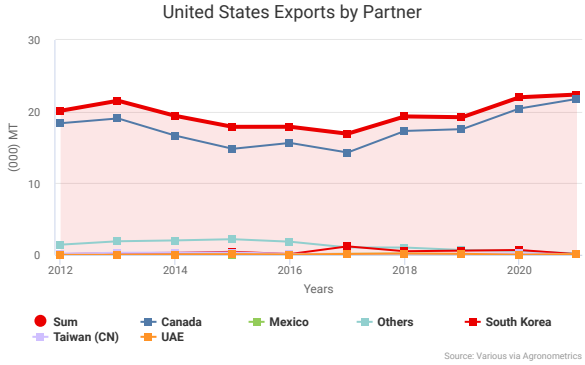
Reporter	2018	2019	2020	2021
Peru	37.16	68.60	83.56	111.07
Mexico	32.38	41.23	51.17	63.09
Chile	68.47	60.49	52.33	55.67
Canada	25.69	30.05	20.12	19.39
Argentina	8.94	6.96	6.23	3.57
Others	0.79	0.65	0.90	0.39
United States Totals	**173.44**	**207.98**	**214.30**	**253.18**

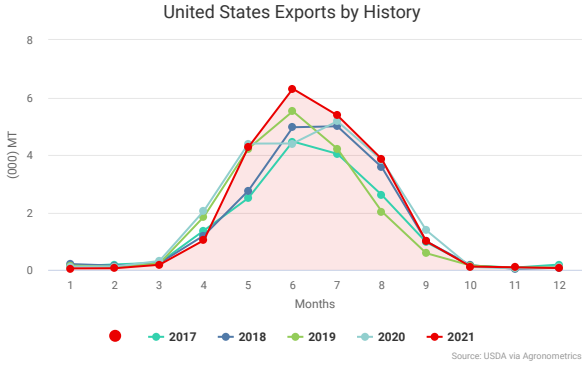




United States Exports by Partner

Reporter	2018	2019	2020	2021
Canada	17.30	17.55	20.44	21.78
Mexico	0.17	0.10	0.07	0.14
UAE	0.19	0.15	0.03	0.11
South Korea	0.51	0.59	0.68	0.09
Taiwan (CN)	0.14	0.15	0.23	0.08
Others	1.02	0.68	0.56	0.19
United States Totals	**19.33**	**19.22**	**22.00**	**22.38**





United States Country Member Summary

Adapted from the report by the United States Highbush Blueberry Council *(USHBC)*

2021 Season Production, Historical Trend and Projection

Highbush blueberry production and imports increased significantly in 2021, as a sign of both domestic producers' and importers' enthusiasm for the significant growth opportunities in the U.S. market. This enthusiasm shows no signs of waning with projections for double-digit growth in 2022 for both domestic production and imports.

Domestic and imported blueberries create a year-round market for blueberries in the United States which helps keep blueberries top-of-mind, and at the top of consumers' weekly shopping lists. Continuous access to high-quality fresh blueberries (and other berries) also drives retailer enthusiasm for prominently featuring and promoting the berry patch.

Through the "Grab a Boost of Blue" lifestyle campaign, the USHBC is working with retailers and blueberry marketers to drive increased consumer demand with a call to action that directly connects the blueberry purchase decision with the "health boosts" many U.S. consumers readily associate with blueberry consumption.

Highbush Blueberry U.S. Production and Imports (in millions of pounds)[1]

	2019	2020		2021		2022	
	Lbs	Lbs	% Chg.	Lbs	% Chg.	Lbs	% Chg.
Total	954.5	1,246.7	+31%	1,345.1	+8%	1,522.0	+13%
Domestic	670.0	627.1	-6%	656.6	+5%	752.2	+15%
Imported	284.5	619.6	+118%	688.5	+11%	796.8	+16%

2021 Season Overview: Performance at Retail

Looking back at blueberry sales in 2021 within the retail channel, apart from post-pandemic lockdown declines in frozen blueberry sales vs. 2020, volume and dollar sales in 2021 surpassed 2020, and significantly outpaced 2019 for the total category and in the fresh segment.

In 2021, total blueberry sales (inclusive of both fresh and frozen) grew +5.7% in dollars and +1.3% in volume vs. 2020. Fresh blueberry sales increased +19% in dollars and +2.9% in volume vs. 2020. Frozen blueberry sales in 2021 did not outperform 2020, which was a year marked by record-breaking sales in the frozen segment as a function of grocery stock up behaviors adopted by consumers at the onset of the COVID-19 pandemic. Compared to 2019, frozen blueberry sales in 2021 are up +25% in dollars and +19% in volume.

Blueberry Annual Retail Sales: 2021 vs. 2020 and 2019[2]

	Dollars ($)	% Dollar Chg.		Volume (Lbs)	Volume % Chg.	
	2021	vs. 2020	vs. 2019	2021	vs. 2020	vs. 2019
Total Category	$2,615,916,129	+5.7%	+19%	569,705,704	+1.3%	+17%
Fresh Segment	$2,301,686,197	+19%	+19%	476,743,910	+2.9%	+17%
Frozen Segment	$314,229,932	-4.4%	+25%	92,961,794	-6.5%	+19%

Value of 'Grab a Boost of Blue' Programming: Building U.S Market Demand

As part of 'Grab a Boost of Blue' – a strategic positioning and unified call to action backed by tools and consumer research made available on the USHBC's Retail Hub – the council coordinates industry promotion of blueberries during key seasonal periods or "power periods." Retailers and marketers are seeing benefit in leveraging the Grab a Boost of Blue as a supporting element of their own category and brand growth efforts.

Nielsen data shows that these periods of coordinated promotion during 2021 had a significant positive impact on incremental growth in total and fresh blueberry volume and dollar sales at retail:

Message testing research shows the Grab a Boost of Blue logo and call to action spark consumers' positive associations with blueberries in supporting heart and brain health, digestion and immunity.[3] USHBC plays a unique role in the global blueberry industry as the primary funder of nutrition science that uncovers the health benefits associated with regular consumption of blueberries.

Health messaging and investment in nutrition research are part of the USHBC programming, as this information drives today's consumer food purchasing and consumption behaviors. Blueberries have an important health story to tell, and USHBC's research pipeline - valued at more than $3 million invested with leading scientists and research institutions - facilitates this powerful and motivating narrative.

Industry Enthusiasm for Future Increased U.S Market Demand

As USHBC connects with other leaders in the industry, it is very clear that there is strong optimism for future growth. There is a collective sense that blueberry household (HH) penetration will equal, or exceed that of strawberries by the end of the decade and that fresh blueberry volume sold at retail can exceed 1 billion pounds within this same time frame. It is expected that current HH penetration of just over 50%[4] can reach or exceed 70% with the right investments in product quality, flavor and collective marketing programming that leverage blueberries health equities.

[1] NABC Crop Reports and Forecasts

[2] Category Partners Nielsen Report, Excel Dashboards for 52 weeks ending 01.04.20 through 01.02.21 and weeks ending 01.09.21 through 01.01.22

[3] FoodMinds Strategic Insights. USHBC Boost of Blue Communication Check. September 2020.

[4] Nielsen Homescan Database

United States Report Team Narrative

As the ancestral home of blueberries, the USA has witnessed phenomenal production and import growth in recent years, to the point where - if forecasts materialize - the total volume in the market in 2022 will be up almost 60% on 2019 figures, which were already at a high base. Imports overtook domestic production in 2021, driven primarily by growth from suppliers in Peru and Mexico followed by Canada and Chile.

Rising imports have been a source of friction in the U.S. industry, particularly for growers whose market windows overlap somewhat with Mexico in the spring months, Canada during the summer, or Peru in the fall. A latter portion of Mexican supply coincides with Florida and impacts what was previously the "early season windows" for California, Georgia, North Carolina and elsewhere. Meanwhile, growers in the Pacific Northwest and Michigan are also seeing their late season fruit in MA and CA storage competing with Peru in addition to the ongoing summer overlap with British Colombia.

This competitive environment has triggered consolidation in the industry as well as financial stress for some, but also increased productivity and innovation for the industry at large to lift yields, reduce harvesting costs with the help of machines (a practice that now represents the majority of volume in several states), and renewed efforts to produce varieties that deliver a better eating experience for consumers.

As one U.S. grower stated in response to the heightened competition: "Sometimes the worst of things brings out the better things. We need a little kick to get us off the old varieties."

The market absorption of such a large influx of volume, in a way that is economically viable, would not have been possible without a meaningful boost to demand. The tireless efforts of the U.S. Highbush Blueberry Council (USHBC) to fund health research paid dividends during the pandemic both at home and globally thanks to positive associations between blueberries and high levels of antioxidants, among other health

benefits. As referenced in the 2021 State of the Industry Report, the North American Blueberry Council (NABC) launched pilot programs during the pandemic to utilize digital technology to build demand, and many of these initiatives have since become always-on components of the commission's market strategy. Alongside marketing techniques that harness social media, e-commerce and geotargeting, one example highlighted by the NABC is digital video advertising on streaming platforms like Hulu, creating "one-to-one pull-through" whereby commercial success can be measured by purchases resulting from clicks.

When the U.S. International Trade Commission (ITC) ruled in early 2021 that imported volumes were not causing serious injury to American growers, it was a disappointment for those who had initiated a Section 201 global safeguard investigation. The episode was also a wake-up call to marketers and importers about the need to invest further in market development. One of the great positives to come out of that was a trade taskforce spearheaded by the NABC that was able to bring both sides of the conflict together to work on solutions and new marketing funding mechanisms. By December, companies accounting for half of the USA's blueberry imports in dollar terms had signed on to increase voluntary financial contributions. The scheme originally applied to importers of record, but has since expanded to exporters and is set to galvanize the NABC's capabilities in marketing, business intelligence and building price reporting systems.

The price reporting mechanism in its current iteration will not be able to achieve the "gold standard" of California where it is state mandated, but the NABC is drawing inspiration from the avocado industry to bring useful, transparent information under a centralized data house. This is very much in alignment with what the International Blueberry Organization (IBO) hopes to achieve on a global level with industry improvement through data transparency.

Production Trends and weather impacts

Inclement weather and labor availability are two predominant themes across the U.S. blueberry industry, presenting challenges that have held back crop volume growth from its true potential. Industry leaders often quip about how volume would look if every state experienced the perfect conditions, but for now that eventuality is unlikely as climate change is leading to a greater frequency and intensity of extreme weather worldwide.

It seems that every year at least one major region is beset by a major weather event. Last year it was hailstorms in North Carolina and an atypical heat dome in the Pacific Northwest, where in late 2021 there were also floods in both Washington State and across the Canadian border in British Columbia; the long-term effects of which are yet to be felt but will be diluted in the numbers due to the scale of plantings yet to reach maturity with higher-yielding varieties in WA.

The effect of volume growth in the pipeline due to younger plantings was so great in WA that there were even cases of farms with up to 15% of the crop damaged from heat, but still registering record total harvests. One industry representative expects volume from the state – already the largest producer in the country - could in the next few years plateau at around 250 million pounds (~113 million metric tons), which would represent a rise of almost a third on current annual volume.

Oregon would have had a record crop last year had it not been for the heat dome, marking a second consecutive year when yields were off because of weather. Compared to Washington State, Oregon has a much higher percentage of fruit sent to the fresh market, but the hot weather did impact quality and meant a greater proportion of berries was sent to processing than usual. Less than 10% of plantings have some kind of evaporative cooling system in place to mitigate damage. The industry's irrigation capacity is highly dependent on snowpack in the Cascade Mountains, which is fine at the moment but as is the case in all blueberry-growing areas with glacial or snowpack dependency, concerns remain for a warmer future and what impact that might have. Unlike its neighbor to the north, and to a lesser extent to the south in California, new planting has slowed somewhat in Oregon.

This year (in 2022) Georgia and parts of Florida had to deal with spring freeze events, which in Georgia's case drove significant year-on-year weekly volume declines (ranging from 20-81% depending on locale) throughout the first few weeks of May. Whereas in the past those growers who had supply could compensate for volume declines with better pricing, that possibility has been strained by increased competition from Mexico and competing domestic regions (in this case California) which was consistently shipping more fresh blueberries into the U.S. market year-on-year throughout March, April and May. In the first week of May, for example, USDA shipping point prices for Georgia-grown and Florida-grown blueberries were down 39% and 37% respectively.

Growers in the USA's oldest commercial blueberry-growing states such as New Jersey, Michigan and North Carolina – three of the largest producers outside of the West Coast – are also feeling the effects of climate change.

Michigan has been dealing with unusually cold springs in recent years and has been affected by rain and frost events. One grower in the state, where the typical farm is much smaller than on the West Coast, said they needed to use frost protection for 11 days out of a two-week period in May 2021 with wind machines and overhead irrigation. Despite all that work, and expenditure, there was a high level of rainfall just before the start of the harvest season in the second half of June. This affected the variety Bluecrop, which accounts for an estimated 25% of plantings in Michigan, very badly. As a result, Michigan too had to send a greater proportion of fruit to the processed market.

New Jersey, whose season has traditionally been tied to the peak 4th July sales period in the most populous part of the country, is increasingly dealing with rains during the harvest period which didn't used to happen. A tropical storm experienced in the middle of the season in 2021 wasn't as bad as in 2020, and the crop wasn't as low as it could have been considering a warm streak of weather during the flowering period, making pollination more of a challenge.

Like Oregon, North Carolina would have seen a record crop in 2021 if it weren't for a weather event – in this case a

hailstorm. The state's growers have also been dealing with unseasonably mild spells in winter that have put certain cultivars at risk, prompting early blooms that put the bushes at greater risk from freezes. Another challenge is that overhead irrigation doesn't work for wind-borne freezes that are common in the state.

As referenced in the Industry Trends section of this report, inflationary pressures (including fertilizer, gas, packaging, crop protection) have been a major headache for the blueberry industry as they have been for most sectors of the economy, and the U.S. is no different. What this has done, however, is accentuate the comparative advantages of growers that are close to their target markets, often tilting the cost-benefit equation in favor of 'local' or 'regional' supply, for example New Jersey blueberries in the Northeast, or even smaller blueberry industries such as Mississippi and Louisiana for the Delta area.

Labor scarcity and adaptation

Despite being hit by freeze events in coastal areas last season, the Californian industry was still able to pick its largest crop on record in 2021, and volume could have been even larger if it weren't for a lack of labor availability.

It has been an industry-wide problem for a while in the USA and elsewhere, but labor scarcity issues have become exacerbated since the pandemic began. Farms that need blueberry pickers through the H-2A temporary worker visa program are needing to get creative to make their operations more attractive to workers who could just as easily go to other sectors such as construction. From the West Coast to Florida, some have built or are building their own lodgings to make themselves more attractive to either pickers or contractors, while legislation has been lifting minimum wages in numerous states and this year Oregon introduced a law to transition into a 40-hour workweek limit by 2027.

For a large part of the industry, overcoming the labor challenge means adapting to machine harvesting for the fresh market. If successful, and if a grower can afford the capital cost of the machine or machines, renting one, or sharing it across several farms, their cost base can be reduced. However, the cost-benefit analysis is often framed as a matter of necessity. As one grower-marketer stated, "The elephant in the room is whether you want to get the fruit off or you don't."

As the blueberry industry climbs up the steep learning curve of machine harvesting for fresh, the impact of the practice on yield varies greatly, as does the choice of variety and orchard structure. As it stands currently it is almost guaranteed that a portion of machine harvested blueberries will be wasted due to fruit damage, as well as the fact the harvesters will take off berries that are unripe and would otherwise have been handpicked later.

Plants need to be trellised and pruned such that the structure stays upright and machines can gently detach berries as they're moving through the row, and northern highbush varieties have a comparative advantage over southern highbush in that they tend to require fewer runs in the rows throughout the season due to harvest concentration. The other advantage lies in the fact the Pacific Northwest growers have been doing machine harvesting for fresh for longer than elsewhere, and have worked on techniques with established commercial varieties that are, according to grower contributors to this report, more conducive, such as Duke, Blue Ribbon, Draper, Calypso, Top Shelf, Envoy, and Titanium, as well as hybrids like Legacy.

That said, machine harvesting is now a common practice in southern highbush areas such as Georgia, Florida and California, although for the latter around 44% of the fresh crop is organic and most of the organic fruit is handpicked. Some Southern highbush cultivars are demonstrating machine-harvest potential include Meadowlark, Suziblue and Optimus, but many leading breeders worldwide are focusing on up-and-coming varieties in this space that are yet to be named. Some producers, marketers and breeders however are skeptical about the quality assurance (QA) implications of this trend.

It is worth clarifying here that machine harvesting is certainly not the primary objective within the varietal transformation that is underway in all regions, which is elaborated upon in greater detail within the Industry Trends section of this report. There are other considerations that shift the yield side of the equation to improve the return per acre, adjust the harvest timing towards certain windows or expected weather conditions, or focus on organoleptic, textural and sizing characteristics aimed at enticing consumers with delightful berries in a way that encourages repeat purchases.

The United States is home to some of the world's leading private and university plant breeding programs, yielding varieties that are lifting the benchmark of what consumers are coming to expect in terms of blueberry quality. Breeders from around the world from Spain to Australia are also busy rolling out new cultivars with U.S. producers.

Machine harvesting and varietal conversion are two ways growers are adapting to the current environment, but another is adoption of organics. The U.S. organic blueberry category has grown substantially in recent years, both on virgin soil and with growers willing to wait the three years it takes to convert a conventional orchard to an organic one. The premium potential has led to plantings even in very challenging organic cultivation environments in the Southeast, but much of the organic growth has taken place in drier areas such as California, Michigan and in Washington State to the east of the Cascade Mountains.

The organic program has skyrocketed in California and, aided by high-density substrate plantings, has the nation's highest percentage of organic acreage for blueberries, getting close to 50 per cent of the state's fresh crop. This is partly as a response to market opportunities, but is also a reaction to government policies that encourage less use of pesticides.

Except for a couple of players, most organic blueberry farmers are relatively small and sell to larger marketers or distributors who sell both organic and conventional. These marketers are usually bullish about organics and have been encouraging more growers to make the switch, although they can be met with trepidation because of the perceived high-risk profile of the category that has lost its premium at certain times of the season, leading some organic fruit to be sold as conventional. Agronomically and in terms of field-to-packhouse times, organics are more demanding if growers are to achieve yields that make the venture economically feasible.

As much as many consumers express preference for organics and there is a small cohort of 'hardcore' organic fruit buyers, there are sales channel limitations as less than a handful of national retailers are genuinely committed to organic blueberries when it comes rotating significant volume at premiums. The fact that marketers sell both organic and conventional, regardless of their best intentions, also has an inherent incentive toward moving the most blueberries possible rather than necessarily hitting the highest of premiums that buyers may be willing to pay if pressed harder.

Export Development

Despite strong domestic demand and supply chain challenges, U.S. blueberry exports increased slightly in 2021 as growers started to consolidate gains made in Asia. Canada is by far the leading export market for U.S. blueberries, and the same is true vice versa, but this is a mature trading relationship as the two markets are intertwined. Including Canada, exports represented 16.6% of the U.S. blueberry crop last year but shipments outside North America have tended to hover around the 4% mark split 50-50 between fresh and frozen.

Cognizant of the fact that exports can take the pressure of a booming domestic market, the U.S. industry is well aware of the imperative to lift exports but this also requires a high degree of caution to ensure quality standards are met. Unlike sectors in South America and Southern Africa that have been developed around long shipping times, U.S. blueberry farmers have had the relative luxury of proximity to their core market with the longest haul being a trans-continental truck drive. Shipping across the Pacific Ocean is a different undertaking, and mistakes can be costly for reputations.

Select growers and particularly vertically integrated grower/packer/shippers have long been building relationships with overseas importers, but for most, export development is still on the to-do list. This is the case even for some major players that are experienced in facilitating moving of blueberries from Peru or Chile into Asian markets, and therefore have the expertise to execute successful programs if they are able to align their learnings with U.S. growers.

For fresh blueberries, the USA's leading export markets ex-Canada are South Korea (where only Oregon has access), Taiwan, Hong Kong, Japan, Singapore and Vietnam, the latter being arguably the greatest export success story of recent years where exports have been able to plug into the online and social media ecosystems of one of Vietnam's leading retail chains, Vinmart.

The USHBC - in conjunction with federal grants and state-backed programs from California, Oregon and Washington State - has expanded its Southeast Asia program to include Malaysia (a non-protocol market), Vietnam, and the Philippines (access gained in 2020). This program is not only limited to fresh, but also includes frozen and dried blueberries.

The Philippines is still an early-stage work in progress where efforts are needed to raise awareness about the fruit and its health benefits. Retailers tend to prefer small test shipments, which can be discouraging from a cost perspective for U.S. packers.

Airfreight continues to be the dominant supply route for fresh blueberry exports out of the U.S., and part of last year's success can be attributed to major exporters locking in air cargo space early. The Californian industry had been upbeat about having the use of sulfur dioxide pads approved to extend shelf life, but port congestion and competition for container space impeded development of this export channel.

In 2020 market access was gained in China for the U.S. industry, although only West Coast growers are able to do so without fumigating the fruit. The combination of high tariffs and supply chain problems have meant little progress has been made on capitalizing on this opportunity to date, not to mention the fact the Pacific Northwest partially overlaps with a period of large domestic blueberry volumes in China.

It is worth noting some of the regions that have been hit the hardest by imports in the U.S. – such as Florida, Georgia and California – harvest during periods of relative scarcity in Asia more broadly. In terms of improving Chinese market access, Florida was one of three states (also Michigan and New Jersey) where data has been collected on a systems approach without methyl bromide to treat blueberry maggot, but this is yet to go through the review process with Chinese phytosanitary authorities.

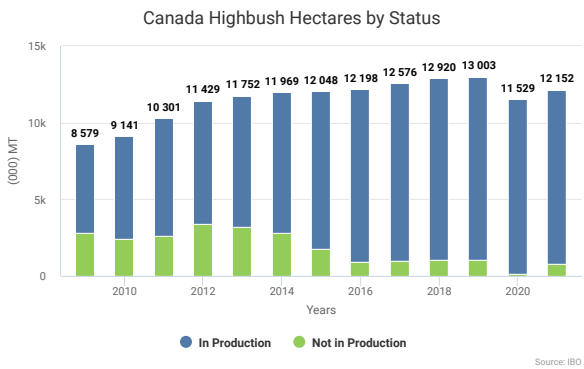
Blueberry maggot and spotted wing drosophila (SWD) are the pests of concern in current market access negotiations with South Africa, Australia, New Zealand and Israel, with studies involving Michigan State University and the USDA now completed and awaiting review from APHIS before incorporation into these international discussions.

Other key priorities for the U.S. blueberry industry minimum residue limited (MRL) harmonization, targeted health messaging, and altering perceptions of blueberries as an 'indulgent dessert' to the snacking status it has in developed markets, in addition to developing more global markets for frozen and dried blueberries. The latter will be critical for finding a home for blueberries that may not make the grade in future due to either machine harvesting damage or changed varietal/characteristic-based preferences from retailers. In this regard, the NABC and USHBC see a "huge runway" for fruit to find its way into the ingredients channel, with industry aiming to lift this portfolio through its Global Food Manufacturing Program.

The top export markets ex-Canada for frozen exports last year were South Korea, Japan, Australia, New Zealand and China, while for dried (the only blueberry category that didn't see an export rise in 2021) the Middle East was the main destination, followed by India.

CANADA

Planting and Production Data, Figures & Commentary
(Denominated in Hectares and Thousands of Metric Tons)



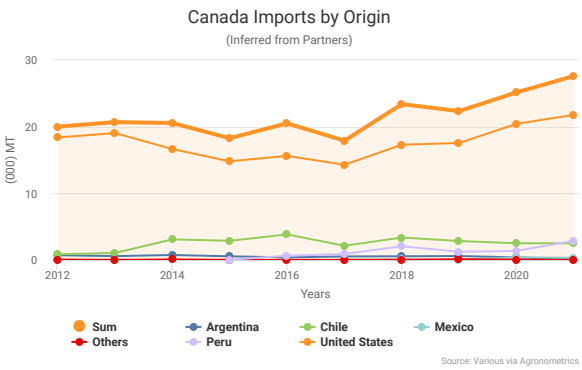
Canada 2021 Production Metrics

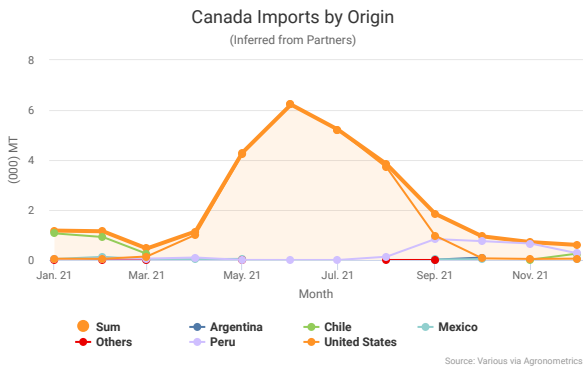
Hectares Planted:	**12,152.0 Ha**
Hectares in Production:	**11,385.0 Ha**
Production:	**80.42 (000) MT**
Growth in Production[1]:	▼-2.0 (000) MT (-2.49%)
Growth from Hectares[2]:	▲0.00 (000) MT (0.00%)
Growth from Yield[3]:	▼-2.00 (000) MT (-100.00%)
Yield:	**7,063.59 (Kg/Ha)**
Exports:	**20.00 (000) MT**
Imports:	**27.61 (000) MT**

[1] Growth in volume produced compared to previous season
[2] Volume increase from new hectares coming into production
[3] Volume increase from higher yields

Canada Imports by Origin (Inferred from Partners)

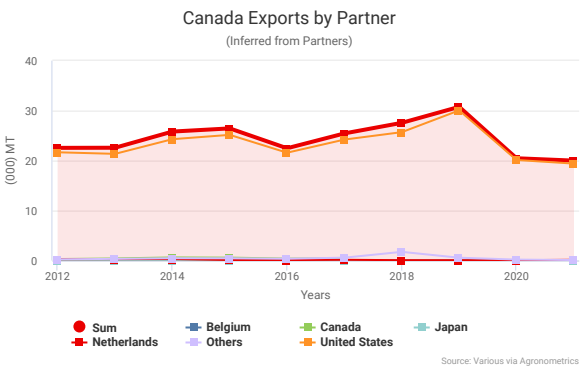
Reporter	2018	2019	2020	2021
United States	17.30	17.55	20.44	21.78
Peru	2.06	1.23	1.36	2.88
Chile	3.37	2.84	2.51	2.50
Mexico	0.08	0.03	0.40	0.34
Argentina	0.55	0.59	0.39	0.11
Others	0.03	0.10	0.06	0.00
Canada Totals	**23.39**	**22.34**	**25.15**	**27.61**

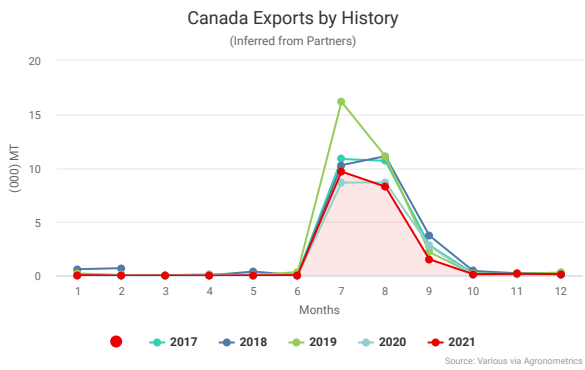




Canada Exports by Partner (Inferred from Partners)

Reporter	2018	2019	2020	2021
United States	25.69	30.05	20.12	19.39
Canada	-	-	-	0.28
Netherlands	0.07	0.07	0.07	0.15
Japan	0.03	0.06	0.04	0.07
France	-	0.01	0.02	0.02
Others	1.76	0.57	0.22	0.08
Canada Totals	**27.56**	**30.76**	**20.47**	**20.00**





BC blueberries
Powered by nature.

Canada
Country Member Summary

Adapted from the report by the British Columbia Blueberry Council *(BCBC)*

Season Data:

Total Estimated Production of Fresh and Processed (Metric Tonnes)	77110
Total Estimated Fresh Production (Metric Tonnes):	30844
Total Estimated Processed Production (Metric Tonnes):	46266
Total Estimate Number of Planted Hectares at time of survey:	11000

Season Overview:

British Columbia (B.C.) produced an average-sized blueberry crop in 2021, estimated at 170 million pounds (77110 MT) despite increased acreage and maturation of existing plantings. Continuing the trend observed in 2020, labour shortages resulted in even more blueberries being harvested by machine and a greater proportion of the crop destined for processing. The weather during 2021 can best be described as ranging from challenging to extreme and unprecedented, these conditions resulting in lower-than-average yields on many farms. There was little winter damage entering the season, but cool spring temperatures and frequent rain showers combined with shortage of bee colonies and low bee activity during the early bloom period to result in sub-optimal pollination, though conditions and bee activity did improve during the latter half of bloom. Just as early cultivars were beginning to ripen, the Pacific Northwest was hit with a "heat dome" from June 25-29, causing damage to the blueberry crop in some regions, especially in the eastern Fraser Valley. 'Duke' and 'Reka', with substantial blue fruit at the time, suffered losses of fruit due to sunscald and reduced size of remaining fruit in some cases. Though the mid- and late-season cultivars had not yet begun to turn blue at the time, 'Calypso' and 'Aurora' suffered damage to green fruit. Commercial harvesting began in the first week of July and peaked a couple of weeks later due to a relatively concentrated season, resulting in a lot of overlap between 'Duke', a.'Bluecrop', and 'Reka' toward the end of July. Fruit quality was excellent with little fruit rot due to hot, dry weather conditions. The harvest of 'Draper' started in the end of July with 'Calypso' and 'Liberty'; the harvest of 'Elliott' stretched from mid-August to mid-September; and the harvest of 'Aurora' and 'Last Call', the latter in diminishing amounts as plantings are removed, continued from late August to late September. Following the season, flooding impacted approximately 2,500 acres of blueberries in late November. Some fields were only flooded for a few days but up to 1,000 acres were flooded for more than two weeks and for as long as three weeks under up to 10 feet of water. Much of this acreage is either being replanted or stumped (i.e., renovation pruned) to stimulate plant recovery. While the full damage caused by this flooding has yet to be determined, BC does not expect this to substantially impact yields in the 2022 season as the severely flooded areas represent less than 5% of the acreage.

Varieties and New Plantings:

'Duke', 'Bluecrop' and 'Elliott' remain the three most widely grown cultivars in BC. 'Duke' comprises more than half of the current acreage.

New and existing acreage continues to be planted in BC, but at a slower rate than a few years ago. 'Elliott' fields are starting to be removed in favour of other cultivars, a trend that has increased with the greater prevalence of Blueberry Scorch Virus (BlScV) in the region. New plantings of 'Duke' are still very common, and an increasing amount of acreage has been planted to 'Calypso' in the past few years. 'Calypso' is likely to become the third most widely planted cultivar in the next few years, though total production volume of this cultivar will take some time to reach that of 'Elliott' and 'Draper' as these new plantings are not yet mature. 'Top Shelf' and 'Valor' continue to be planted in smaller blocks, and growers continue to look for new cultivar opportunities.

Production Challenges and Opportunities:

As in the previous year, variable weather patterns are impacting plant development and making it difficult to predict the timing of harvest each year. The overlap of 'Duke', 'Reka', and 'Bluecrop' harvests in 2021 continued to create challenges for growers and taxed the packing and processing capacity of the industry during the peak of the season.

The rising cost and limited availability of labour is a primary concern for producers. Costs of production are high in BC due to high labour costs, high land values, and high prices for agricultural inputs, particularly for pollination services and pesticides. The high costs of production have pushed growers towards more efficient methods of production. Over half of BC's blueberry crop is harvested by machine for process markets.

Spotted wing drosophila (SWD) and weevils are the most difficult insect pests to manage in this region. SWD pressure in 2021 was low through July and the first half of August due to the hot weather mentioned above, but populations began to increase in late August. The high amount of precipitation in the spring and fall makes it difficult control fungal diseases such as Phomopsis and Godronia cankers, mummyberry and Botrytis and Anthracnose fruit rots.

Pollination is a challenge for BC growers. Pollination is often impacted when alternately rainy or overly warm weather conditions coincide with bloom.

To deal with these production challenges, BC growers are investing in applied field research in the areas of pest, disease and horticultural management as well as bee health and the development of new varieties. In particular, the British Columbia Blueberry Council (BCBC) breeding program is entering its fourteenth year of active development of new varieties. The program aims at increasing yield and fruit quality for machine harvest (e.g., increased fruit firmness and resistance to bruising and splitting), pest and disease resistance and local adaptation. Advanced selections are currently entering grower trials, the final step prior to their future commercialization through the British Columbia Berry Cultivar Development Inc. (BCBCDI).

Market Trends and Projections:

BC has approximately 600 growers and around 30 large-scale packers and processors. The industry will likely see consolidation in the coming years, as small-scale producers with less than 10 acres are finding it difficult to compete.

The abundance of blueberry fruit that hits the market across the Pacific Northwest during BC's 'Duke' season results in low pricing for 'Duke' growers and puts significant strain on both fresh packing and processing capacity. BC growers are looking toward mid-season and mid-late-season varieties, especially for the marketing of fresh product.

BC typically sells around 70 million pounds into the fresh market. Depending on the size of the crop, between 50-65% of BC's production goes to the process market.

BC recently rebranded its product to the world as *Blueberries: Powered by Nature*. The US is the largest market for BC's export product, but other important markets include Japan, New Zealand, and South Korea.

Canada Report Team Narrative

The Country Member Summary provided by the British Columbia Blueberry Council (BCBC) provides a comprehensive overview of the province's 2021 season and the ongoing challenges faced by the industry, which has had a rough couple of years with extreme weather. Events such as the June 2021 heat dome and the November 2021 floods capture the imagination – the former with regards to direct fruit losses and the interruption of fruit sizing patterns that led to smaller berries in some areas, and the latter causing structural damage in specific fields representing a small percentage of total acreage; effects that are more pronounced in younger plantings that are still in the early stages of maturation.

The impacts of pollination problems are more insidious, and it is difficult to gauge how much volume in 2021 was hampered by this issue or the heat dome, or moreover how the two interacted with one another. But it is the marginal decline in volume under the circumstances – just 2.3% - that demonstrates British Columbia's resilience as one of the world's leading blueberry growing regions.

It is a province that accounts for roughly 96% of Canada's highbush blueberry crop, which is highly oriented towards sales in the USA – a market that accounted for 97% of the country's fresh blueberry exports in 2021. The second-largest market, the Netherlands, received just 1% of Canada's fresh blueberry exports.

Exporters are optimistic about the South Korean market, given that under the free trade agreement (FTA) between the two countries tariffs on fresh blueberries will be reduced to zero by 2024. Canada has had fresh market access to China since 2016, but exports have been limited due to high tariffs. Canadian fruit also arrives in one of the most congested periods for the Chinese blueberry market, which makes the provision of A-grade fruit absolutely essential in order to make the exercise economically viable. When you add to that the cost, labor and logistics challenges at present, it is unsurprising that interest to register for Chinese exports during the pandemic has been minimal.

British Columbia, like its highly connected neighboring industry in Washington State, has a very high proportion of its crop destined for processing with the percentage reported at 60% in 2021. It is also estimated that of the crop that is harvested for fresh, around half of that is picked by machine – a projection that aligns with the council's growth forecasts for the Calypso variety that is frequently described as among the more 'machine-harvestable' options available at the moment.

BC growers were at times perplexed in 2021 when processed blueberry pricing exceeded fresh blueberry pricing in certain periods, although in retrospect this may have occurred due to processors locking in contracts earlier to shore up supply or even in anticipation of greater damages from the heat dome than what ended up transpiring. As in previous years, Canadian blueberries sold at consistently lower prices in the U.S. than the domestic competition, which continues to be a source of frustration for Canadian growers.

One solution to this pricing discount could be varietal conversion towards cultivars with larger sizing and longer shelf life. Although Canada does have a greater share of modern genetics in its offering than Michigan for example, it is still far behind the adoption rate of Oregon and Washington. The industry structure implies a slower-moving evolution in consolidation as well for numerous reasons, including a skewed distribution towards smaller growers, many of whom are aging and in the process of succession planning, and a lack of varietal breakthroughs that cater to the province's unique conditions, which being so wet are also a hindrance to any meaningful organic industry development to attract better prices through that route - one that has been embraced by industries such as California, Argentina and Chile as one path to overcome heightened competition. In addition, as a large portion of the crop goes to processing there is a concern expressed by industry contributors regarding risk aversion towards new cultivar adoption, not only because of the associated extra cost that may not be compensated but also the lack of higher return if the fruit is diverted to the processed channel.

It has been difficult for the researchers of this report to ascertain a per capita estimate for Canadian blueberry consumption, but broadly speaking it has certainly been rising at a rapid rate over the past seven years. Between 2020 and 2021, fresh blueberry import volume in Canada rose by 34% to 71,872 metric tonnes. Around 60% of that fruit came from the U.S., but Canada-bound shipments from Peru and Mexico also had large rises of 32% and 58% respectively.

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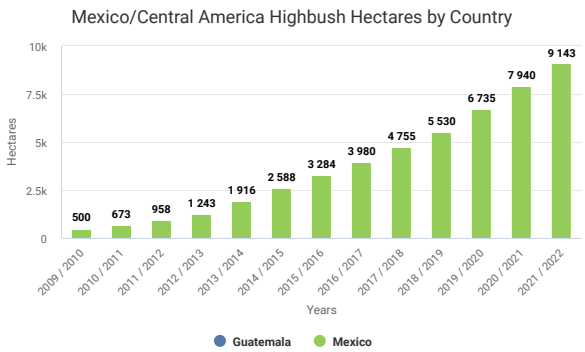
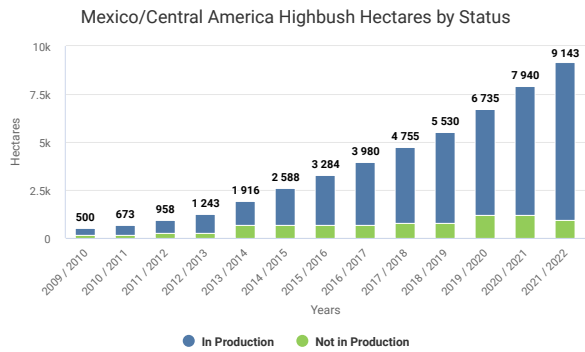
MEXICO / CENTRAL AMERICA

Planting and Production Data, Figures & Commentary
(Denominated in Hectares and Thousands of Metric Tons)

Mexico/Central America Highbush Hectares by Country

Mexico/Central America	Planting					2021/2022 Production		
Growth Totals	**2017/2018**	**2018/2019**	**2019/2020**	**2020/2021**	**2021/2022**	**Fresh**	**Process**	**Total**
Mexico	4,732	5,500	6,700	7,900	9,100	83.20	1.50	84.70
Guatemala	22	30	35	40	43	0.40	-	0.40
Mexico / Central America Totals	**4,755**	**5,530**	**6,735**	**7,940**	**9,143**	**83.60**	**1.50**	**85.10**

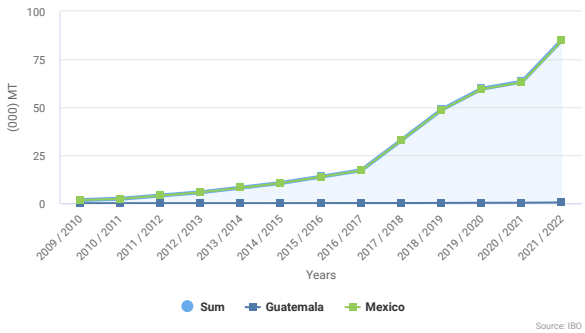




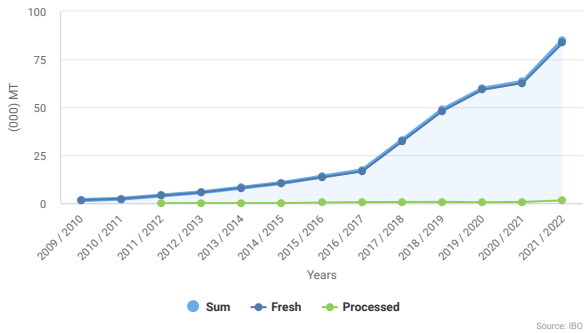
Mexico/Central America Highbush Production by Country

Mexico/Central America	2019/2020			2020/2021			2021/2022		
Productions Totals	**Fresh**	**Process**	**Total**	**Fresh**	**Process**	**Total**	**Fresh**	**Process**	**Total**
Mexico	58.93	0.53	59.46	62.38	0.67	63.05	83.20	1.50	84.70
Guatemala	0.22	-	0.22	0.26	-	0.26	0.40	-	0.40
Mexico / Central America Totals	**59.15**	**0.53**	**59.68**	**62.64**	**0.67**	**63.31**	**83.60**	**1.50**	**85.10**

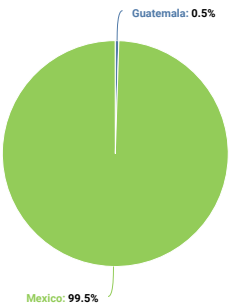
Mexico/Central America Highbush Production by Country



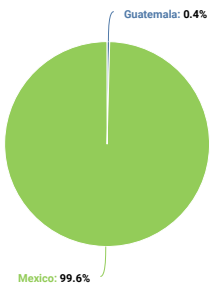
Mexico/Central America Highbush Production by Use



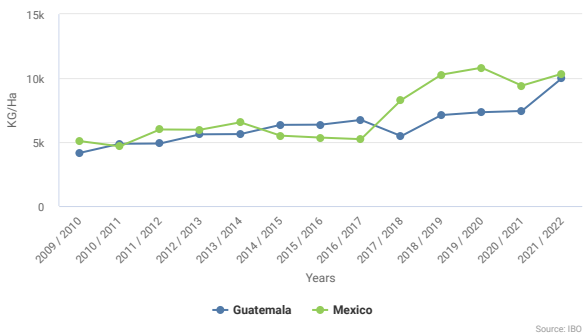
2021/2022 Mexico/Central America Highbush Hectares by Country



2021/2022 Mexico/Central America Highbush Production by Country



Mexico/Central Highbush Yield by Country



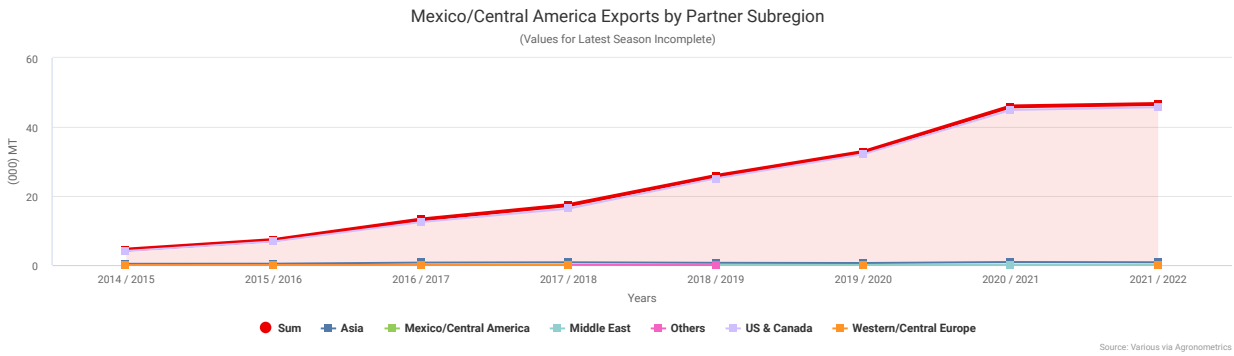
Mexico/Central America 2021 Production Metrics

Hectares Planted:	**9,143.0 Ha**
Hectares in Production:	**8,230.0 Ha**
Production:	**85.10 (000) MT**
Growth in Production[1]:	▲21.8 (000) MT (25.61%)
Growth from Hectares[2]:	▲14.06 (000) MT (64.53%)
Growth from Yield[3]:	▲7.73 (000) MT (35.47%)
Yield:	**10,340.22 (Kg/Ha)**
Exports:	**46.65 (000) MT**
Imports:	**0.33 (000) MT**

[1] Growth in volume produced compared to previous season
[2] Volume increase from new hectares coming into production
[3] Volume increase from higher yields

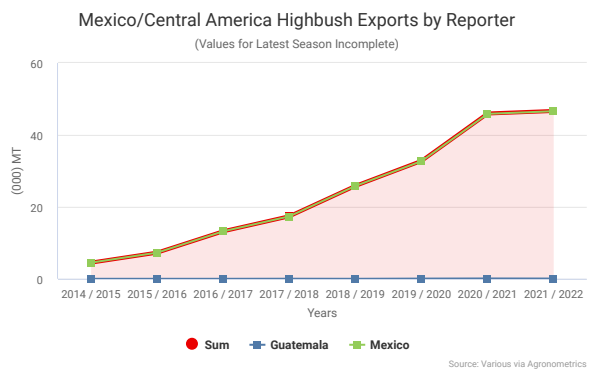
Mexico/Central America Exports by Partner Subregion (Values for Latest Season Incomplete)

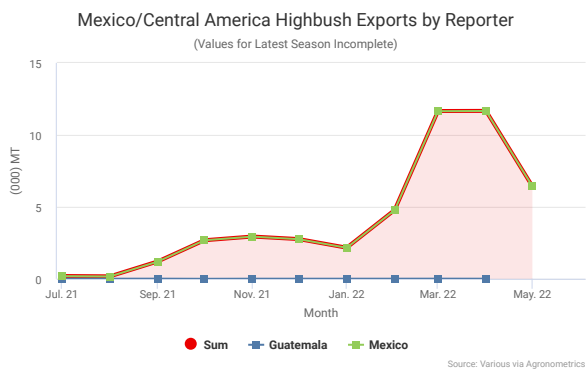
Subregion	2018/2019	2019/2020	2020/2021	2021/2022
US & Canada	25.12	32.12	44.89	45.71
Asia	0.67	0.61	0.90	0.83
Mexico/Central America	0.01	0.02	0.09	0.10
Middle East	0.02	0.01	0.06	0.01
Western/Central Europe	-	0.01	-	0.00
Others	0.00	-	-	-
Mexico/Central America Totals	**25.82**	**32.77**	**45.94**	**46.65**



Mexico/Central America Exports by Reporter (Values for Latest Season Incomplete)

Reporter	2018/2019	2019/2020	2020/2021	2021/2022
Mexico	25.82	32.71	45.85	46.58
Guatemala	0.00	0.06	0.09	0.07
Others	-	-	-	-
Mexico/Central America Totals	**25.82**	**32.77**	**45.94**	**46.65**





Mexico/Central America Report Team Narrative

For an in-depth review of the leading producing countries of Mexico/Central America, please see the individual reports including official country member reports and IBO Report Team narratives for:

- Mexico

Below is a brief review on the other commercial source of supply today in Central America, Guatemala.

Guatemala

Whilst pre-clearance protocols have been approved by the U.S. Animal and Plant Health Inspection Service (APHIS) for blueberries from Guatemala - the only noteworthy producer of the fruit in Central America – the program has not yet come to fruition due to limited budgets and the need to train inspectors.

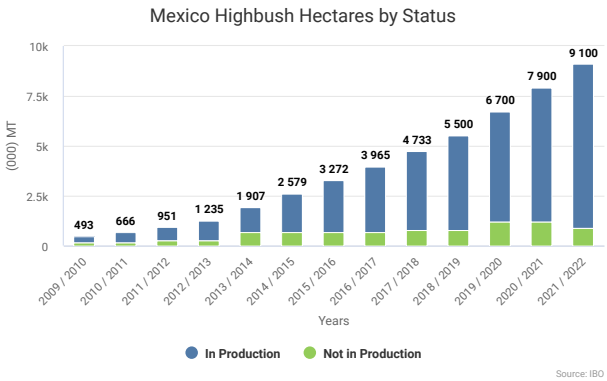
To date Guatemala has been limited in its export options, shipping small volumes to neighboring countries such as Honduras and Nicaragua, as well as to the U.S. where shipments need to have undergone treatment such as methyl bromide – a chemical that is difficult for growers to secure outside of programs administered by Guatemalan phytosanitary authorities. Fruit exported to the U.S. must also arrive north of the Mason-Dixon line, prohibiting imports in ports such as McAllen, TX or Miami, FL.

Since its emergence around 2005 and having been built on the variety Biloxi, the Guatemalan sector has been turning to new varieties and production techniques such as growing under tunnels with substrate. Volume is led by a small group of companies, most of which also produce blackberries, sugar snaps, and other produce for export. The growing regions are at a lower latitude but higher altitude than Central Mexico.

With a production window traditionally between November and February, Guatemalan growers have felt increased competitive pressure from Peru and Mexico, while their logistical channels to reach the Americas' largest market - the USA - are more challenging. There are also limitations around the availability of large extensions of land suitable for the crop, so whilst plantings have grown somewhat in recent years it has been at a very slow rate.

MEXICO

Planting and Production Data, Figures & Commentary
(Denominated in Hectares and Thousands of Metric Tons)



Mexico 2021/2022 Production Metrics

Hectares Planted:	**9,100.0 Ha**
Organic:	15.0%
Under Structure:	75.0%
Hydroponics:	60.0%
New Genetics:	10.0%
Hectares in Production:	**8,190.0 Ha**
Production:	**84.70 (000) MT**
Growth in Production[1]:	▲21.6 (000) MT (25.56%)
Growth from Hectares[2]:	▲14.02 (000) MT (64.76%)
Growth from Yield[3]:	▲7.63 (000) MT (35.24%)
Yield:	**10,341.88 (Kg/Ha)**
Exports:	**46.58 (000) MT**
Imports:	**0.10 (000) MT**

[1] Growth in volume produced compared to previous season
[2] Volume increase from new hectares coming into production
[3] Volume increase from higher yields

Mexico Exports by Partner (Values for Latest Season Incomplete)

Reporter	2018/2019	2019/2020	2020/2021	2021/2022
United States	25.08	31.67	44.61	45.50
Japan	0.67	0.61	0.82	0.79
Canada	0.04	0.42	0.27	0.22
Hong Kong	-	-	0.05	-
UAE	0.01	0.00	0.05	-
Others	0.01	0.01	0.06	0.07
Mexico Totals	**25.82**	**32.71**	**45.85**	**46.58**

Mexico
Country Member Summary

Adapted from the report by the National Association of Berry Exporters *(Aneberries)*

Of the four berries produced in Mexico, blueberries are the youngest crop and have shown the greatest promise in recent years with the highest growth rates. This has allowed the Mexican blueberry industry to utilize cutting-edge agricultural technologies.

For the 2021/2022 season Mexico had 9,000 production hectares of blueberries, and its main production regions are: Jalisco (3,200ha), Michoacán (3,000ha), and Sinaloa (2,000ha), with the latter being the region that has witnessed the highest growth in recent years. It is important to mention that even while Jalisco and Michoacán have almost the same planted hectarage, the yield is higher in Jalisco because of the use of technology, thus making Jalisco the leading state in terms of volume in the country accounting for around 50% of production.

Official estimates state that around of 95% of the production is exported at close to 68,300 metric tons (MT), generating $589 million in foreign exchange for the country, with Mexican blueberries sold in more than 35 countries and four continents.

With the growth of the industry more than 72,000 jobs have been created each season, and the economic income that has been brought to the communities where our crops are established has become invaluable, contributing directly to the welfare of farmworkers and their families, giving them above average salaries and social benefits such as housing, health and decent living conditions. This income reaches local business, including the hotel and restaurant industry, providers of supplies and services, and the transport industry, among many others.

The Mexican blueberry industry is constantly implementing environmental and social responsibility campaigns making it a priority to be a benchmark in Mexico in terms of green industries. This labor includes implementation

of technologies that seek to optimize and reduce the use of natural resources and campaigns that prioritize the farm worker.

Another important aspect to consider is the growing acceptance of blueberries in the domestic market. The National Association of Berry Exporters (Aneberries), alongside its 37 members, has over the last few years implemented marketing campaigns focus on Mexican buyers aimed at lifting consumption in Mexico.

The next challenges for the Mexican industry will be workforce availability and social responsibility, as well as continuing to satisfy global demand and diversify our market presence.

We estimate Aneberries membership represents near than 75-80% of the total production in Mexico, which allows us to be a benchmark and take the lead in statistics, trade and government regulations. We keep making changes in the industry and invite all producers and exporters who are not yet members to join us and work together as an industry to protect and keep developing our beloved Mexican blueberry industry.

Mexico Report Team Narrative

On the doorstep of the world's largest market, the USA, and with ideal climatic conditions that have proven less volatile than other leading global production regions, Mexico's blueberry industry has a comparative advantage that has only been amplified by the logistical problems that have plagued international supply chains. Whilst there is some increased cost and scarcity in trucking options, it is minimal compared to the challenges associated with sea-freight shipping and air cargo, which explains why Mexico has doubled-down on its historically US-centric export focus in 2021 and 2022.

The industry maintains the intention to further diversify its markets but the incentives closer to home have just been sufficient to maintain the focus on the core market, especially this year when competitors in the Southeastern U.S. were affected by freezes. This also makes sense from a cost perspective, as Mexican blueberry growers – like most producers worldwide - have been affected by labor challenges and rampant input inflation in everything from materials to fertilizers to chemicals. In mid-2022 the Mexican Government also announced a ban on subcontracting day laborers in berry and avocado fields, as part of compliance with the USMCA.

Another issue identified in Mexico this year is heat stress, which may partly explain a doubling of the processed blueberry volume – historically a very minor part of the sector. Another segment that has almost doubled in size in 2022 is fresh organic Mexican blueberries, as the product of converted fields and new plantings coming to maturity.

The Mexican blueberry sector has grown from non-existence at the turn of the Millennium to one of the top focal points of blueberry development worldwide, hosting almost all major blueberry genetics companies of note that specialise in southern highbush varieties. From around 2005, pioneering nurseries, marketers, growers and breeders from Chile and the U.S. teamed up with Mexican producers and agronomists to 'tropicalize' southern highbush blueberries in the state of Jalisco and Michoacan, fine tuning practices around pruning, varietal selection, chemistry, soil management and protective systems such as tunnels. It was a practice that proved successful over time, culminating in dual harvests in both the fall and spring – the former generating the most lucrative returns for several years before Peru too was able to develop an industry and tap that same window.

Since then the primary window has been late winter and spring with peak harvests taking place between February and April, although the season technically runs from September to June. Off-cycle production from late September through early December is also feasible in Central Mexico by leveraging genetics, nutrition, and pruning techniques but the yields to date are somewhat less competitive and the overlap with Peru has generally pushed the focus to the more 'natural' window. In 2022, Mexico's weekly blueberry shipments to the U.S. were consistently higher from the last week of January onwards, and substantially higher year-on-year from late March to mid-April. Export volume is now edging closer to the 70,000-metric-ton mark following annual growth rates of around 40% in recent years, with the lion's share going to its northern neighbour.

A proliferation of young plantings indicates volume growth trends will continue, and that could be accentuated by the introduction of new varieties, although most industry insiders expect the growth rate to decline to a level more in the range of 20% in the near future. It is important to note that replanting due to compelling new cultivars will also disrupt some of this growth rate. Even a reduced growth rate would result in volume increases, hence Aneberries' priority to develop markets in Asia, Europe and the Middle East to complement the current focus on US and Canadian markets. Mexico continues to be a key supplier of fresh blueberries to the Japanese market, and there are certain exporters that ship a much larger percentage – some even reaching approximately 20% - of their volume to ex-US markets in order to build demand or take advantage of niche market windows in certain geographic locations for premium varieties.

The leading blueberry variety in Mexico continues to be Biloxi, which achieves high yields but is increasingly inefficient to harvest and is largely unable to reach the kind of jumbo sizing that attracts premium prices. From a flavor profile variability perspective it is also garnering less audience from retailers and marketers that will no longer accept this cultivar in the United States. In the more demanding markets of Asia it would also not be conducive over the longer term to building a successful Mexican blueberry export program.

Biloxi however represents a miniscule proportion of new plantings in Mexico, which are increasingly centred around the next generation of genetics from countries as far afield as Australia, Spain, and the United States, as well as Mexico-based breeding programs operated by international companies. Labor scarcity, combined with the harvest efficiency issues of Biloxi, is adding pressure for growers to transition out the variety in coming years.

More than two-thirds (6,200ha) of the planted area of blueberries in Mexico is in the central states of Jalisco, by far the industry leader, and Michoacan. In this part of the country there is a prevalence of farms under tunnels with a mix of both substrate and in-ground farms. Meanwhile, some of the world's leading blueberry companies have invested heavily in the northern state of Sinaloa (2,000ha) in recent years, where newer farms tend to be substrate-based in open fields, often under netting. This rapid growth in Sinaloa is reflected in a large reduction in the percentage of Mexico's blueberry farms grown in controlled environments or tunnels, dropping from 92% to 75%. It is also important to note that the growth of Sinaloa will be in a more concentrated time window due to the climate.

Mexico has a wide spectrum of grower sophistication in terms of genetics and growing methods, and there are other smaller blueberry industries that have emerged in states such as Baja California (400ha), Guanajuato (250ha), and to a lesser extent Colima, mostly around the base of the Colima Volcano because the state itself is known for very high temperatures that are ideal for crops such as bananas.

The Colima-based Port of Manzanillo accounts for most of the country's sea-freight exports of blueberries, although estimates are this number is less than 100 containers annually. Since the previous instalment of this report, it was deemed an initiative for 14-day shipping journeys to Rotterdam from a port in the state of Veracruz would be unviable for blueberries as the target window in question is in June-July; a period when harvests tend to be cut short in Central Mexico due to rain and pruning cycles. Nonetheless, if the initiative goes ahead for other Mexican products there are hopes it could be extended to other times of the year.

It is not just Mexican growers that are hopeful the country will be able to diversify its export options. U.S. producers – particularly in California the U.S. Southeast – would welcome the volume being sent elsewhere. Since the previous report there have been no further advancements in market access negotiations with South Korea, Indonesia, India and Malaysia, while China – where Mexico does have access – has high tariffs and remains a challenge.

Aneberries is also attempting to raise domestic consumption amongst Mexico's population of more than 120 million people. The hope is that this could pave the way for a year-round program in Mexican supermarkets, encouraging more counter-seasonal imports which last year were only worth half a million dollars in the fresh market. Mexico also imported more than 9,000MT of frozen blueberries from the U.S. in 2021, with a value of $28 million.

ASIA / PACIFIC

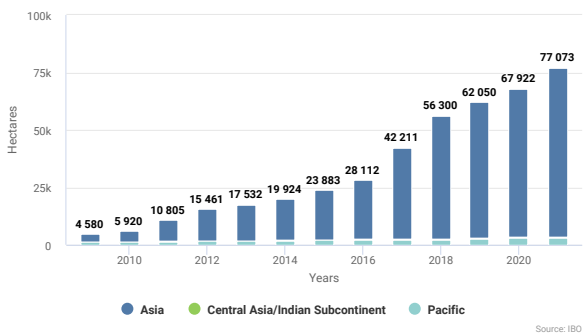
ASIA / PACIFIC

Planting and Production Data, Figures & Commentary
(Denominated in Hectares and Thousands of Metric Tons)

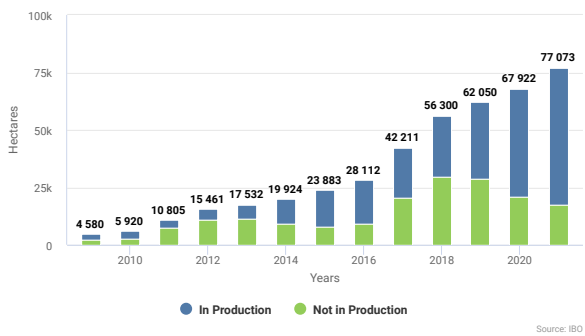
Asia/Pacific Highbush Hectares by Subregion

Asia/Pacific	Planting					2021 Production		
Growth Totals	**2017**	**2018**	**2019**	**2020**	**2021**	**Fresh**	**Process**	**Total**
Asia	39,646	53,653	59,103	64,553	73,497	223.31	270.83	494.14
Pacific	2,286	2,251	2,502	2,874	3,014	26.17	1.40	27.57
Central Asia/Indian Subcontinent	280	396	445	495	562	3.76	0.30	4.06
Asia/Pacific Totals	**42,211**	**56,300**	**62,050**	**67,922**	**77,073**	**253.24**	**272.53**	**525.77**

Asia/Pacific Highbush Hectares by Subregion



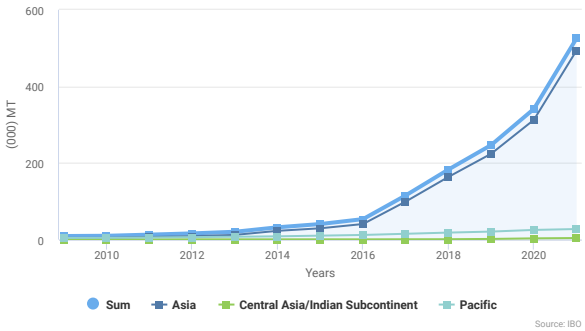
Asia/Pacific Highbush Hectares by Status



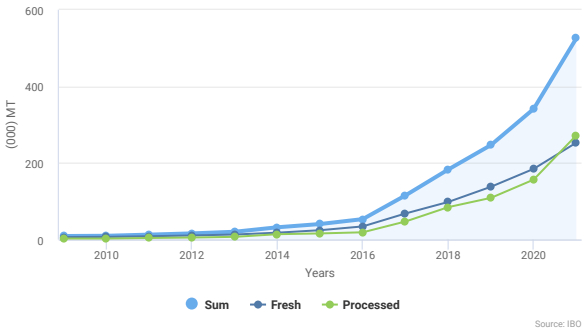
Asia/Pacific Highbush Production by Subregion

Asia/Pacific	2019			2020			2021		
Productions Totals	**Fresh**	**Process**	**Total**	**Fresh**	**Process**	**Total**	**Fresh**	**Process**	**Total**
Asia	115.78	108.35	224.13	157.02	155.55	312.57	223.31	270.83	494.14
Pacific	20.43	0.50	20.93	24.55	0.70	25.25	26.17	1.40	27.57
Central Asia / Indian Subcontinent	1.68	0.09	1.77	3.02	0.24	3.26	3.76	0.30	4.06
Asia / Pacific Totals	**137.89**	**108.94**	**246.83**	**184.59**	**156.49**	**341.08**	**253.24**	**272.53**	**525.77**

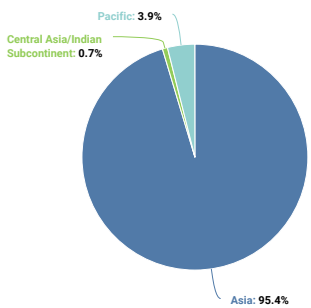
Asia/Pacific Highbush Production by Subregion



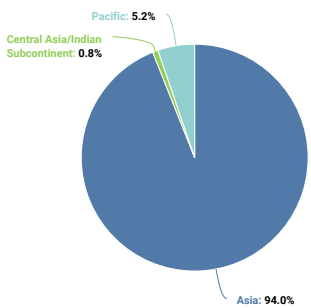
Asia/Pacific Highbush Production by Use



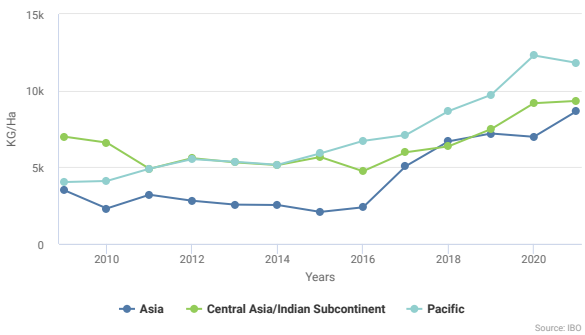
2021 Asia/Pacific Highbush Hectares by Subregion



2021 Asia/Pacific Highbush Production by Subregion



Asia/Pacific Highbush Yield by Subregion



Asia/Pacific 2021 Production Metrics

Hectares Planted:	**77,073.2 Ha**
Hectares in Production:	**59,804.5 Ha**
Production:	**525.77 (000) MT**
Growth in Production[1]:	▲184.7 (000) MT (35.13%)
Growth from Hectares[2]:	▲97.67 (000) MT (52.88%)
Growth from Yield[3]:	▲87.01 (000) MT (47.11%)
Yield:	**8,791.46 (Kg/Ha)**

[1] Growth in volume produced compared to previous season
[2] Volume increase from new hectares coming into production
[3] Volume increase from higher yields

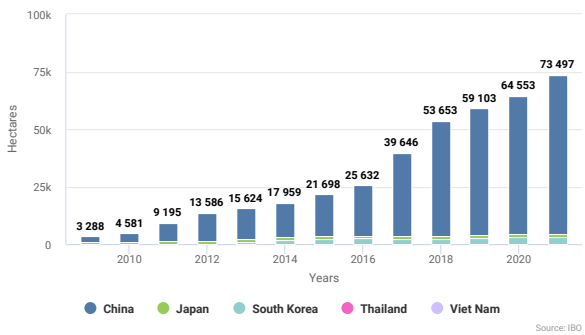
ASIA

Planting and Production Data, Figures & Commentary
(Denominated in Hectares and Thousands of Metric Tons)

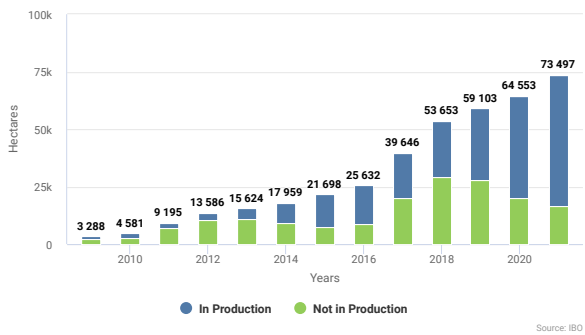
Asia Highbush Hectares by Country

Asia	Planting					2021 Production		
Growth Totals	**2017**	**2018**	**2019**	**2020**	**2021**	**Fresh**	**Process**	**Total**
China	36,051	50,097	55,122	60,147	69,036	208.20	268.88	477.08
Guizhou	11,958	14,967	14,984	15,000	17,335	9.4	104.52	113.92
Liaoning	4,240	6,134	6,967	7,800	8,831	20.7	53.18	73.88
Shandong	3,786	5,600	6,466	7,333	8,284	28	18	46
Sichuan	2,133	4,000	5,334	6,667	8,294	39	33.64	72.64
Yunnan	1,999	3,333	4,166	5,000	6,032	55.2	4.91	60.11
China Others	2,000	3,000	3,500	4,000	4,500	9	24.14	33.14
Anhui	2,199	3,000	3,250	3,500	3,750	22	-	22
Jilin	3,199	4,000	4,000	4,000	4,000	4.5	12.9	17.4
Hubei	1,453	2,100	2,384	2,667	3,129	8.9	5.16	14.06
Jiangsu	1,840	2,200	2,100	2,000	2,334	5.4	6.48	11.88
Chonqing	740	1,000	1,075	1,150	1,356	3	2.4	5.4
Zhejiang	320	500	600	700	817	3	3.5	6.5
Shaanxi	184	263	296	330	374	0.1	0.05	0.15
South Korea	2,350	2,200	2,600	3,000	3,000	12.60	1.40	14.00
Japan	1,242	1,350	1,375	1,400	1,455	2.50	0.55	3.05
Viet Nam	2	4	4	4	5	0.01	-	0.01
Asia Totals	**39,646**	**53,653**	**59,103**	**64,553**	**73,497**	**223.31**	**270.83**	**494.14**

Asia Highbush Hectares by Country

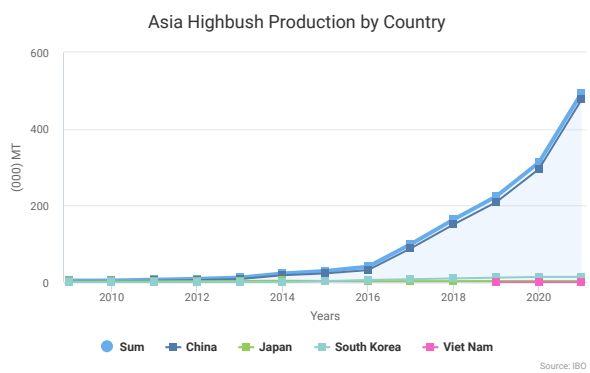


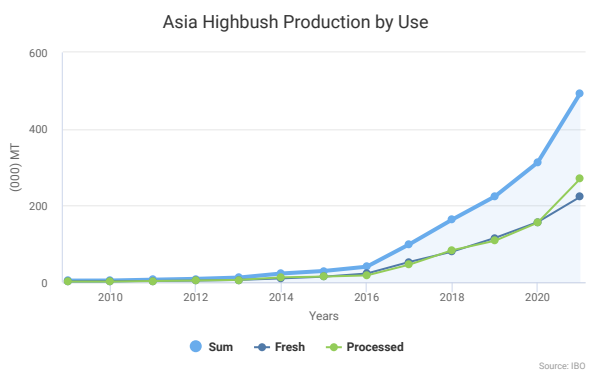
Asia Highbush Hectares by Status



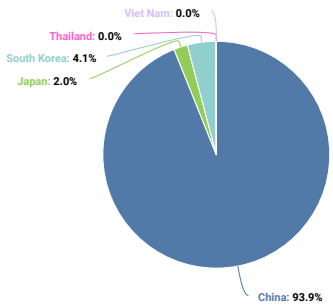
Asia Highbush Production by Country

Asia	2019			2020			2021		
Productions Totals	**Fresh**	**Process**	**Total**	**Fresh**	**Process**	**Total**	**Fresh**	**Process**	**Total**
China	102.34	106.68	209.02	141.85	153.51	295.36	208.20	268.88	477.08
Guizhou	5.8	52.2	58	8.5	76.5	85	9.4	104.52	113.92
Liaoning	17.75	12.25	30	17.5	17.5	35	20.7	53.18	73.88
Shandong	23.55	9.05	32.6	23.1	9.9	33	28	18	46
Sichuan	6.5	7	13.5	18.3	12	30.3	39	33.64	72.64
Yunnan	13.95	1.55	15.5	25.2	2.8	28	55.2	4.91	60.11
China Others	5.42	8.13	13.55	8	12	20	9	24.14	33.14
Anhui	15	-	15	20	-	20	22	-	22
Jilin	2.75	7.75	10.5	4.5	10.5	15	4.5	12.9	17.4
Hubei	4.94	2.12	7.06	7.7	3.3	11	8.9	5.16	14.06
Jiangsu	3.88	3.88	7.76	5	5	10	5.4	6.48	11.88
Chonqing	1.25	1.25	2.5	2	2	4	3	2.4	5.4
Zhejiang	1.5	1.5	3	2	2	4	3	3.5	6.5
Shaanxi	0.05	-	0.05	0.05	0.01	0.06	0.1	0.05	0.15
South Korea	10.80	1.20	12.00	12.60	1.40	14.00	12.60	1.40	14.00
Japan	2.63	0.47	3.10	2.56	0.64	3.20	2.50	0.55	3.05
Viet Nam	0.01	-	0.01	0.01	-	0.01	0.01	-	0.01
Asia Totals	**115.78**	**108.35**	**224.13**	**157.02**	**155.55**	**312.57**	**223.31**	**270.83**	**494.14**

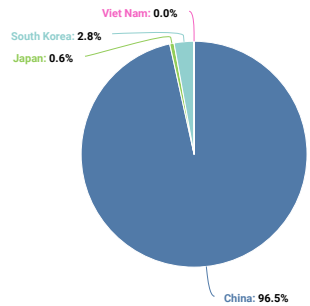




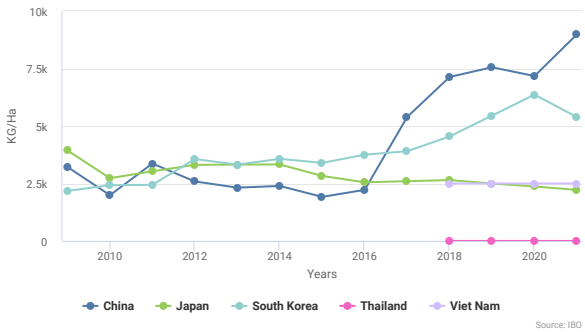
2021 Asia Highbush Hectares by Country



2021 Asia Highbush Production by Country



Asia Highbush Yield by Country



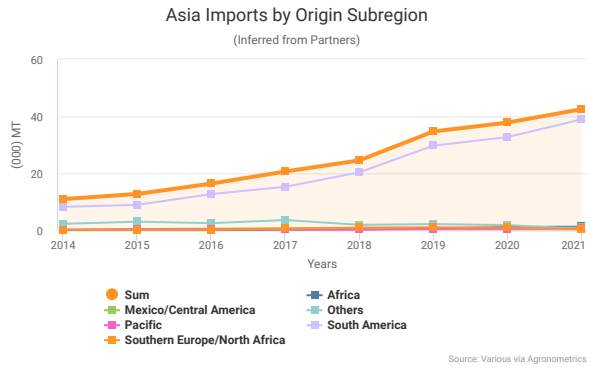
Asia 2021 Production Metrics

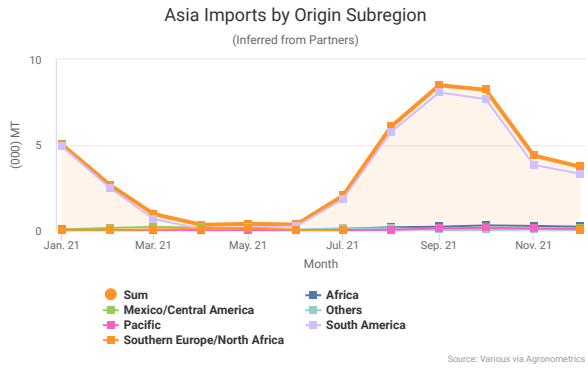
Hectares Planted:	**73,497.4 Ha**
Hectares in Production:	**57,036.0 Ha**
Production:	**494.14 (000) MT**
Growth in Production[1]:	▲181.6 (000) MT (36.74%)
Growth from Hectares[2]:	▲92.09 (000) MT (50.72%)
Growth from Yield[3]:	▲89.48 (000) MT (49.28%)
Yield:	**8,663.65 (Kg/Ha)**
Exports:	**0.05 (000) MT**
Imports:	**42.52 (000) MT**

[1] Growth in volume produced compared to previous season
[2] Volume increase from new hectares coming into production
[3] Volume increase from higher yields

Asia Imports by Origin Subregion (Inferred from Partners)

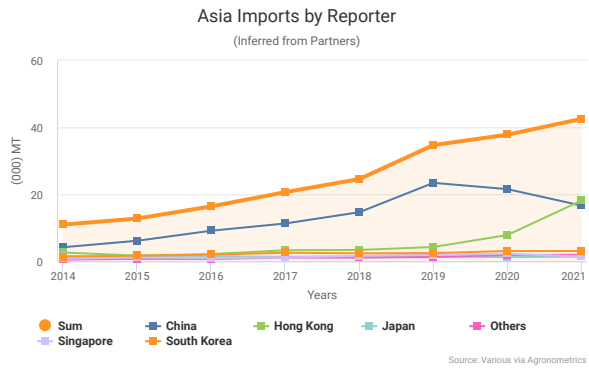
Origin	2018	2019	2020	2021
South America	20.35	29.72	32.71	38.94
Africa	0.36	0.58	1.16	1.26
Mexico/Central America	0.72	0.70	0.67	0.96
Pacific	0.23	0.47	0.48	0.55
US & Canada	1.78	1.71	1.61	0.37
Others	1.10	1.49	1.17	0.45
Asia Totals	**24.55**	**34.68**	**37.80**	**42.52**

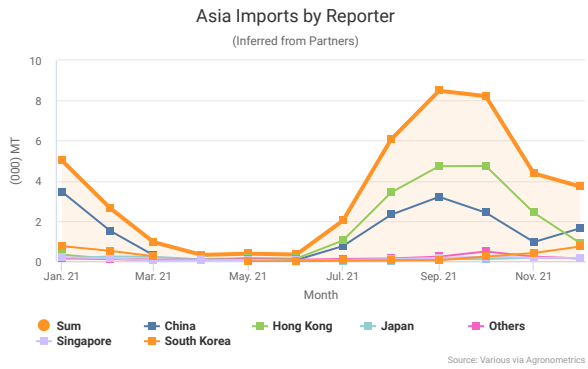




Asia Imports by Reporter (Inferred from Partners)

Reporter	2018	2019	2020	2021
Hong Kong	3.38	4.25	7.84	18.14
China	14.65	23.41	21.54	16.63
South Korea	2.38	2.43	3.07	3.04
Singapore	1.62	1.92	2.24	1.42
Japan	1.43	1.42	1.23	1.37
Others	1.09	1.25	1.88	1.92
Asia Totals	**24.55**	**34.68**	**37.80**	**42.52**





Asia
Report Team Narrative

For an in depth complement to the happenings in the most established regions of Asia, please visit the following country reports:

- China
- South Korea

Apart from China (See China Report Team Narrative) which is, according to official Chinese data, the world's largest blueberry producer and a major import market, the only country in Asia with a sizable level of production is South Korea – a nation whose volume in 2020 was comparable to that of North Carolina.

South Korea's production volume has been steadily increasing since overtaking Japan in 2016, doubling in size over the three years that followed to 2019. As per Mr. CS Rim's summary, much of this growth has come from higher-yielding early season southern highbush varieties under tunnels as plantings mature, although the shift in timing has led to a return in interest towards earlier northern highbush cultivars for open field production. A lot of the varietal conversion in Korea is being led by a private nursery from the U.S. Pacific Northwest.

Between 2016 and 2020, South Korea's imports rose by 42% with Chile accounting for more than four-fifths of volume and the US supplying almost all of the remainder. This put South Korea on a similar footing to Japan in terms of import market size, with the latter having changed little over the intervening period. More than half of Japan's imports in 2021 were from Mexico, with other key suppliers including the USA, Chile and Canada.

For a country with a population of more than 125 million people, Japan's per capita blueberry production and imports are now much smaller than their Korean neighbors and have been static for years. This may signal opportunities for growth with concerted efforts, especially considering Japan's strong horticultural reputation in other crops such as strawberries. A British intellectual property management company representing university and private breeding programs in the U.S. currently has plants in Japanese quarantine, with plans to introduce new cultivars upon release.

Southeast Asia has been a focal point for market development amongst blueberry export industries worldwide, as evidenced by the fact non-protocol import markets such as Singapore – itself comparable in size value-wise to Japan or Korea – attract supply from all corners of the globe. In 2020 the USA was that country's top supplier in terms of value, followed by Chile, Peru, South Africa, Spain, Morocco, and Australia.

At the time of writing there is no data yet available on the 2021 Singaporean import season, although one industry insider noted the logistical challenges with shipping lines worldwide had led to a greater insistence from supermarkets for air-freighted blueberries, with implications for those that traditionally ship via sea. Some of the blueberries Singapore imports from further afield arrive in Hong Kong first, and there were reports of delays in that final leg of the journey as well. As referenced in the Chinese section of this report, China has become an emerging presence in the Singaporean market due to higher volumes and a greater prevalence of blueberry varieties that travel well.

As noted in the U.S. section of this report, Southeast Asia is of great importance to both national and state blueberry bodies with promotional efforts underway. Outside of Singapore, Malaysia is another fast-growing market with imports doubling in the two years to 2020, with around a third coming from South Africa, with other key suppliers including the USA, Spain and Argentina, while Mexico is expected to become more dominant in years to come. Malaysia has seen similar trends regarding a preference for air-freighted blueberries, but importers report improved flight connectivity over the past 12 months which has increased the options available. Similarly to what has occurred in China, blueberry consumption in Malaysia has expanded to second- and third-tier cities where double-digit sales growth has been occurring and cold storage infrastructure is available.

Thailand and Vietnam are also rising in stature as blueberry export destinations, with New Zealand as an important supplier to both, while Peru has a prominent position in Thailand and the USA is increasing its presence in Vietnam.

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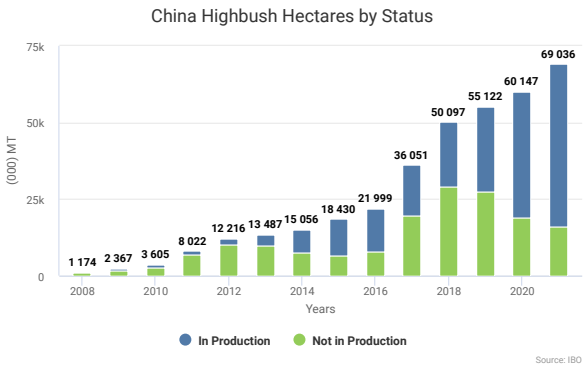
CHINA

Planting and Production Data, Figures & Commentary
(Denominated in Hectares and Thousands of Metric Tons)



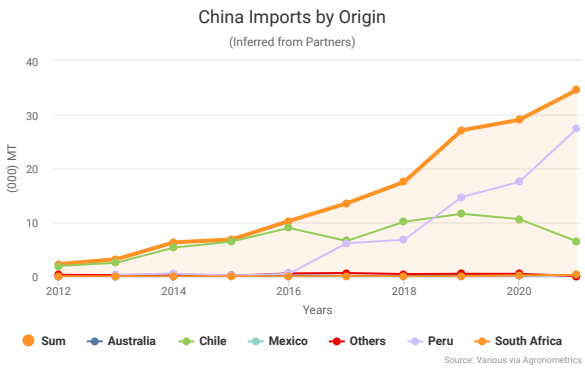
China 2021 Production Metrics

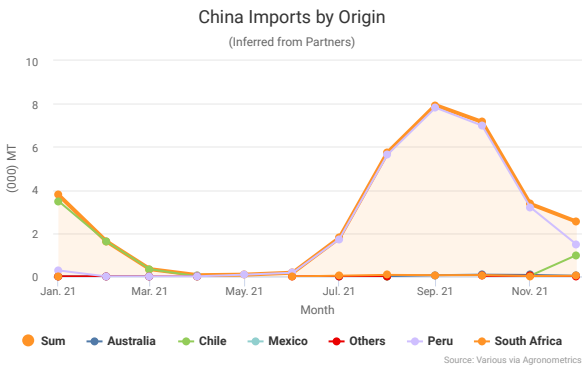
Hectares Planted:	**69,035.7 Ha**
Hectares in Production:	**53,055.0 Ha**
Production:	**477.08 (000) MT**
Growth in Production[1]:	▲181.7 (000) MT (38.09%)
Growth from Hectares[2]:	▲89.48 (000) MT (49.24%)
Growth from Yield[3]:	▲92.24 (000) MT (50.76%)
Yield:	**8,992.18 (Kg/Ha)**
Exports:	**0.04 (000) MT**
Imports:	**34.57 (000) MT**

[1] Growth in volume produced compared to previous season
[2] Volume increase from new hectares coming into production
[3] Volume increase from higher yields

China Imports by Origin (Inferred from Partners)

Reporter	2018	2019	2020	2021
Peru	6.79	14.72	17.52	27.41
Chile	10.15	11.61	10.63	6.48
South Africa	0.02	0.04	0.21	0.29
Australia	0.12	0.22	0.19	0.27
Mexico	-	-	-	0.05
Others	0.44	0.49	0.48	0.08
China Totals	**17.51**	**27.08**	**29.02**	**34.57**





China Report Team Narrative

The rapidly transforming Chinese blueberry industry, now the world's largest according to official reported Chinese figures (although with a heavy diversion to the lower grade processed category), presents contrasting themes that will determine its future trajectory. Investments made into more sophisticated growing systems in China's southwest over the course of several years contributed to what was an almost doubling of volume between 2020 and 2021 in that region, with higher fruit quality thanks to a mix of overseas-backed joint venture partnerships and the introduction of modern genetics, as well as local companies following suit including domestic farming companies and large national wholesaler-distributors.

Meanwhile the heady pace that has historically accompanied so many growth spurts for a variety of industries in China led to what some have described as a "wild west" scenario for the conversion of farmland to uses other than staple agricultural crops, whether it be for the development of advanced horticultural systems and greenhouses or even commercial property. Both food security concerns and societal backlash (by Chinese standards) over so-called 'nail house' hold-outs against large developments led to an adjustment in land use policy from Beijing that has placed a greater emphasis on utilizing arable land for rice, wheat, and corn, whilst also giving more negotiating power to individual plot holders; a major issue because the establishment of new blueberry farms often involves the agglomeration of sometimes hundreds of small landowners to negotiate with a local government enterprise that then signs a lease to the prospective grower. Food security has also been a major driver for these new regulations on land use. In Yunnan, the figurative engine room of China's modern fresh blueberry industry, these policy changes (resulting in greater limitations on using agricultural land for high value horticulture) prompted a mad dash for land towards the end of 2021 across the fruit industry to secure access to an increasingly limited land supply. The change also disrupted various projects in the region.

These circumstances have attenuated the blueberry planting momentum witnessed to date, whilst the concurrent issues of closed borders and a covid-zero policy at the time of writing have impeded the ability of foreign investors and experts to enter the country. On a more positive note, lockdowns in cities such as Shanghai and Beijing have forced domestic blueberry growers to expedite their diversification activities into new areas to move volume, opening up more new, lower-tier cities to blueberry consumption.

One must be circumspect when it comes to analyzing data in China, but insiders corroborate the official estimate of approximately 500,000 metric tons (MT) of blueberries produced in the country in 2021 of which roughly 200,000MT were for the fresh market. Of that fresh blueberry volume, more than half came from the southwestern provinces of Yunnan and Sichuan focused on the late winter through the spring window. The other half of the summer focused fresh volume is concentrated in Shandong and surrounding provinces. It is important to emphasize the lack of official reliable and comprehensive data on the production and planting statistics of the many producing areas in China.

Yunnan's blueberry production starts in December with small volumes, peaks in February-Mid April and continues until May. These are all times of relative scarcity in the Chinese domestic blueberry market, and Yunnan growers can do this thanks to diverse climates and growing conditions, from the tropical area around Xishuangbanna to Jianshui at 1,500 metres above sea level, and even higher up at Qujing which is around 2,000 metres above sea level. Sichuan is also characterized by high altitudes and has a colder climate, which has implications for the varietal mix that can be planted with a slightly later season, leading to a preference for Yunnan as a China hub for breeders and genetics companies with low chill varieties wishing to build a presence in the country.

There are now two major joint venture partnerships (one between a Chilean multinational and a local partner, the other being American/Australian) growing IP blueberries successfully in Yunnan and securing significant premiums over average market prices. Other international breeding companies - including one headquartered in the U.S. Pacific Northwest, another from Spain, and a British company with university and private genetics - are also in the early stages of nursery development and varietal introductions to Yunnan.

Both Yunnan and Sichuan border China's largest blueberry-growing province Guizhou, but most of its production is from small growers producing rabbiteyes and goes to mainly juice grade processing with minimal impact on the fresh blueberry market. China's fresh blueberry prices usually start to plummet when large volumes of blueberries from the Yangtze River Delta area near Shanghai (Jiangsu, Zhejiang, Anhui) and the Shandong province around Qingdao come on-line. The season finishes in the northeastern provinces of Liaoning and Jilin, often winding up in August when late summer rains arrive. Some northern growers start earlier as growers cultivate their blueberries in greenhouses to induce earlier production, with some innovating with specially designed greenhouses that have north-facing earthen walls.

As volumes from Yunnan increase with berries exhibiting longer shelf life, an emerging trend has been the increased presence of Chinese fresh blueberry exports in Southeast Asian markets such as Singapore and the Philippines; a phenomenon that may also stem from cost competitiveness and proximity to market given it has also been seen with other Chinese-grown fruit.

The extent of China's boom in blueberry consumption is noteworthy with domestic volume more than quintupling between 2018 and 2021 and imports doubling over the same period. There is a wide spectrum of pricing structures though in a market that has been described as a lead indicator of global stratification trends. The Chinese consumer is fastidious in identifying premium product, and this is translated into high price premiums for jumbo, firm and sweet-tasting berries.

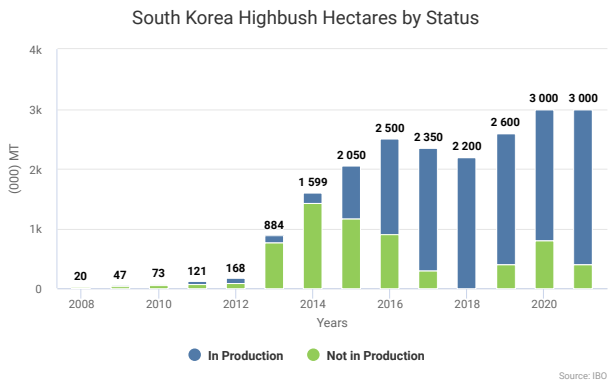
From some accounts, this is something that Peruvian blueberry exporters particularly appear to have mastered with not only a 68% increase in volume to mainland China in the 2021-22 season, but with a higher proportion of next-gen varieties the average pricing per kilogram was stable as well. In 2018 Peru was the second-largest fresh blueberry supplier to mainland China behind Chile, but it has now consolidated its leadership position. For its part, the Chilean industry struggled with logistics delays in 2021-22 which were reportedly worse in the winter months of the Northern Hemisphere than when Peru entered the Chinese market in September. The Chilean season was thus later in its timing, and volume was up 4% although this belies a 46% drop in 2020 when Chilean exporters were more reluctant to ship to the market due to covid-related uncertainty. Chileans nonetheless have the advantage of a free trade agreement with China and zero tariffs.

There appears to be a broader-scale lull in Chinese market development on the part of other exporting nations that prior to the pandemic were either making or planning forays upon securing more favorable market access agreements. Tariffs for Argentina and Uruguay dropped to 15% at the end of 2020 but neither has made a mark yet. Mexico has done little to capitalise on its market access given demand in the U.S. has been so strong and as an industry it is still in the process of transitioning out of the Biloxi variety whose sizing falls short of China's premium-level benchmarks. Meanwhile, the U.S. did send more volumes in 2021 versus 2020 but tonnage was still in the low single digits. After much fanfare over a market access agreement that led to a trial shipment in 2020, Zambia's blueberry export ambitions in China are also yet to materialize.

A rebound in fresh blueberry imports in Hong Kong is also worth mentioning here. The non-protocol market was once the leading source of blueberry imports for the Chinese market with a thriving 'gray channel' whose relevance faded over time due to stricter phytosanitary enforcements from the mainland where market access protocols had also improved for many suppliers. But in calendar 2021, whilst mainland China's imports rose by 18%, in Hong Kong they shot up by 48% to a level that was almost on par with the mainland, short by around 2,000MT at record levels; however, it must be noted that much of this increase likely made its way to mainland China in any case. Peru was also the leading exporter to Hong Kong with volume up 64%, shipping around double that of the second-largest supplier Chile (+45%), followed by the United States (-36%), Morocco (+36%), Zimbabwe (+358%), South Africa (+110%), Spain (+95%), Mexico (+53%), and Australia (+48%).

SOUTH KOREA

Planting and Production Data, Figures & Commentary
(Denominated in Hectares and Thousands of Metric Tons)



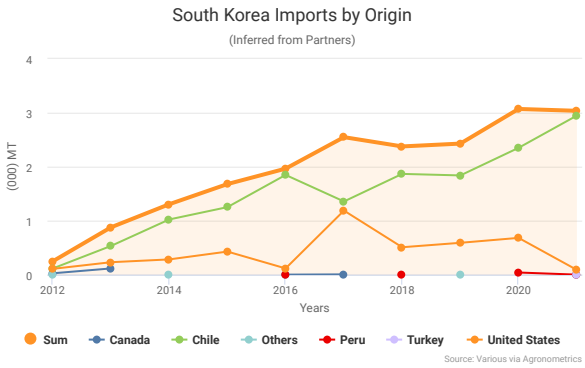
South Korea 2021 Production Metrics

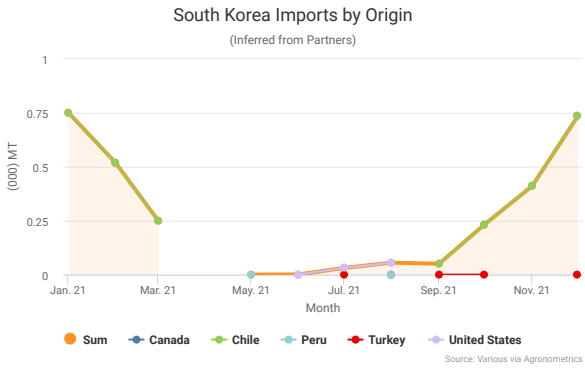
Hectares Planted:	**3,000.0 Ha**
Organic:	Not Reported
Under Structure:	Not Reported
Hydroponics:	Not Reported
New Genetics:	Not Reported
Hectares in Production:	**2,600.0 Ha**
Production:	**14.00 (000) MT**
Growth in Production[1]:	▲0.0 (000) MT (0.00%)
Growth from Hectares[2]:	▲2.55 (000) MT (0.00%)
Growth from Yield[3]:	▼-2.55 (000) MT (0.00%)
Yield:	**5,384.62 (Kg/Ha)**
Exports:	**0.01 (000) MT**
Imports:	**3.04 (000) MT**

[1] Growth in volume produced compared to previous season
[2] Volume increase from new hectares coming into production
[3] Volume increase from higher yields

South Korea Imports by Origin (Inferred from Partners)

Reporter	2018	2019	2020	2021
Chile	1.87	1.84	2.35	2.95
United States	0.51	0.59	0.68	0.09
Canada	-	-	-	0.00
Peru	0.00	-	0.04	0.00
Turkey	-	-	-	0.00
Others	-	0.00	-	-
South Korea Totals	**2.38**	**2.43**	**3.07**	**3.04**





South Korea Report Team Narrative

Adapted from Report by Private Industry Source in Korea, Mr CS Rim

More controlled growing

Korean blueberry farms used to be planted in the open field, which means northern highbush varieties were the main cultivars introduced to survive the cold winter. The first efforts to harvest blueberries with an earlier season involved triple-jacket tunnels with heating systems installed, increasing plantings of southern highbush varieties.

Harvested earlier and with better quality fruit, southern highbush blueberries have been more profitable and favorable for Korean blueberry growers. Climate variables such as drought, frost and cold temperatures also drove more Korean blueberry growers to produce under tunnels.

There seems to be no big change in the total planted area at around 3,000 hectares since 2020, but there has been a 20% reduction in open field plantings while tunnel plantings grew by 20%. This led to a huge change in supply quantities month by month as more blueberries are being harvested earlier in the season.

Quality improvement and season extension

With this change to more production under tunnels, the Korean blueberry season has been extended and general quality has been improved. The season used to be from March through July, but that has now become January through August. More controlled environment operations and varietal shifts continue to lead to quality improvements in blueberries.

The Korean blueberry market is segmented mainly by size: 20mm up, 18mm, 16mm and 14mm. 14-16mm sizes are supplied to mass supply chains of large franchise supermarkets. Bigger sizes (18-20mm) of blueberry are consumed more in the premium market at 20-50% higher prices. Now beyond the sizes, the market is demanding crunch, firmness and flavor in blueberries as more specialized varieties are being introduced.

Effects on pricing throughout season from production changes

As open field production is reduced and more tunnel production is growing, the price of earlier season (March to April) blueberries has dropped significantly while mid-season (May to early June) prices stay strong. Also, a poor weather situation (low temperatures and drought) and the cutting of open field production has supported prices in the later season.

As the earlier season competition is intensifying, with recent developments focused on spring southern highbush production, the focus seems to be shifting to the early summer season for northern highbush varieties with strong cold hardiness. However, as the Korean winter is severely cold, the right genetics must be trialed and identified.

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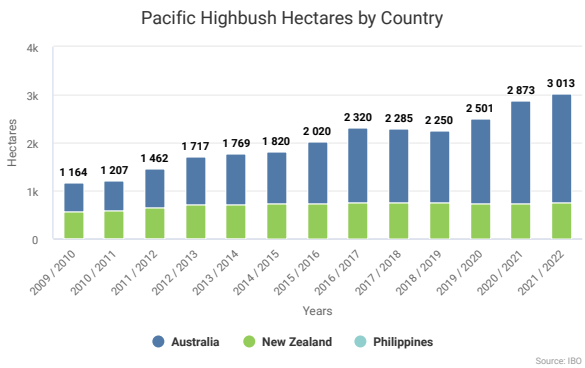
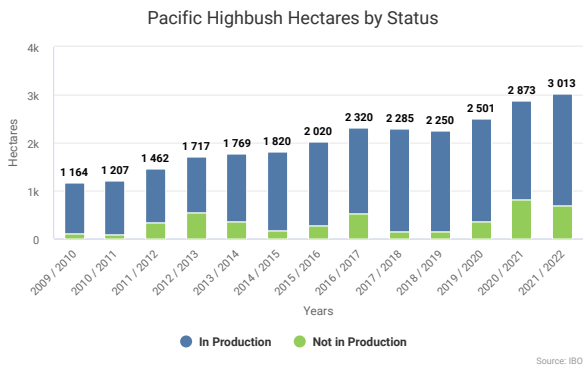
PACIFIC

Planting and Production Data, Figures & Commentary
(Denominated in Hectares and Thousands of Metric Tons)

Pacific Highbush Hectares by Country

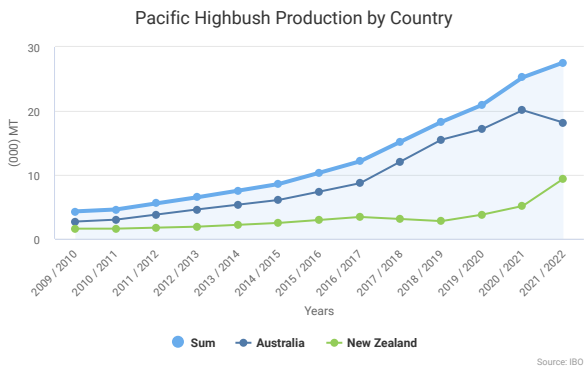
Pacific	Planting					2021/2022 Production		
Growth Totals	**2017/2018**	**2018/2019**	**2019/2020**	**2020/2021**	**2021/2022**	**Fresh**	**Process**	**Total**
Australia	1,540	1,500	1,766	2,153	2,263	18.17	-	18.17
NSW (New South Wales)	1,262	1,125	1,474	1,824	1,824	13.66	-	13.66
Queensland	185	250	207	164	327	3	-	3
Western Australia	92	125	84	44	44	0.7	-	0.7
Tasmania	0	0	0	91	38	0.6	-	0.6
Victoria	0	0	0	30	30	0.21	-	0.21
New Zealand	745	750	735	720	750	8.00	1.40	9.40
Pacific Totals	**2,285**	**2,250**	**2,501**	**2,873**	**3,013**	**26.17**	**1.40**	**27.57**

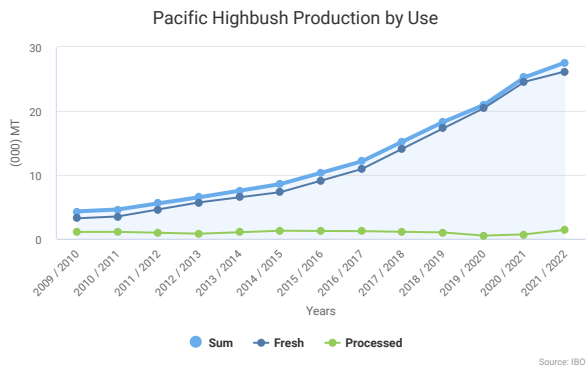


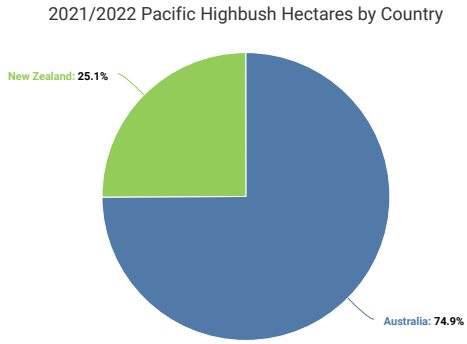


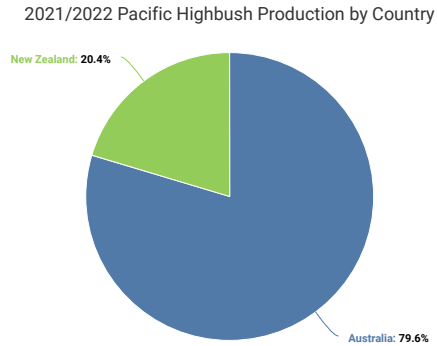
Pacific Highbush Production by Country

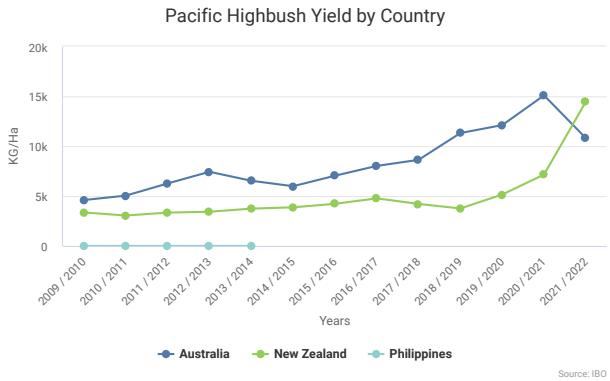
Pacific	2019/2020			2020/2021			2021/2022		
Productions Totals	**Fresh**	**Process**	**Total**	**Fresh**	**Process**	**Total**	**Fresh**	**Process**	**Total**
Australia	17.15	-	17.15	20.11	-	20.11	18.17	-	18.17
NSW (New South Wales)	14.5	-	14.5	17.5	-	17.5	13.66	-	13.66
Queensland	2.05	-	2.05	1.1	-	1.1	3	-	3
Western Australia	0.6	-	0.6	0.7	-	0.7	0.7	-	0.7
Tasmania	-	-	-	0.6	-	0.6	0.6	-	0.6
Victoria	-	-	-	0.21	-	0.21	0.21	-	0.21
New Zealand	3.28	0.50	3.78	4.44	0.70	5.14	8.00	1.40	9.40
Pacific Totals	**20.43**	**0.50**	**20.93**	**24.55**	**0.70**	**25.25**	**26.17**	**1.40**	**27.57**











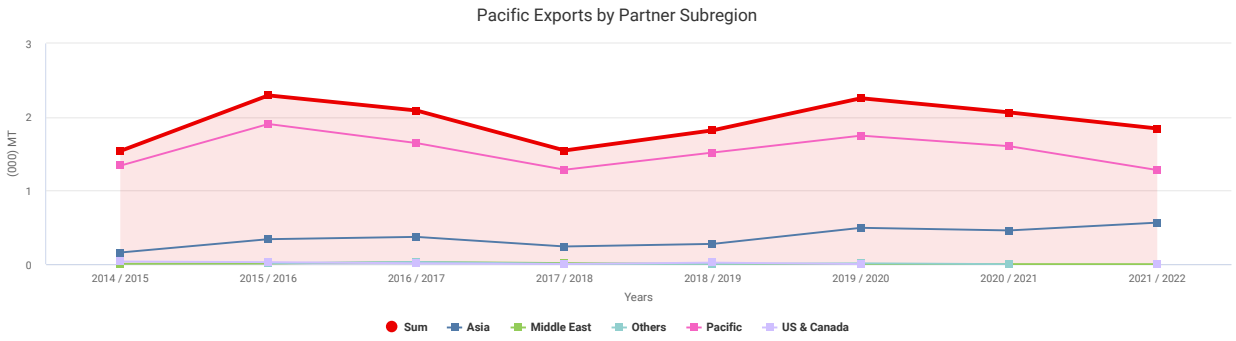
Pacific 2021 Production Metrics

Hectares Planted:	**3,013.0 Ha**
Hectares in Production:	**2,332.5 Ha**
Production:	**27.57 (000) MT**
Growth in Production[1]:	▲2.3 (000) MT (8.41%)
Growth from Hectares[2]:	▲4.94 (000) MT (212.93%)
Growth from Yield[3]:	▼-2.63 (000) MT (-113.36%)
Yield:	**11,819.94 (Kg/Ha)**
Exports:	**1.84 (000) MT**
Imports:	**1.26 (000) MT**

[1] Growth in volume produced compared to previous season
[2] Volume increase from new hectares coming into production
[3] Volume increase from higher yields

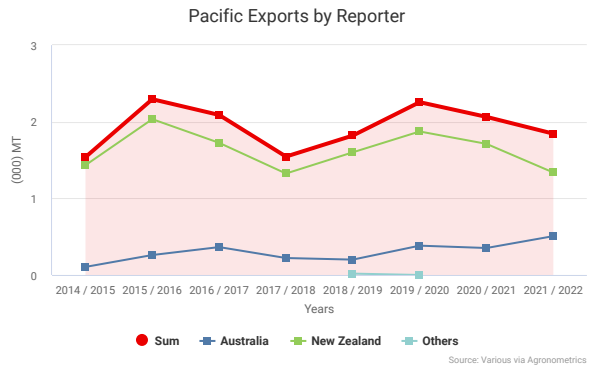
Pacific Exports by Partner Subregion

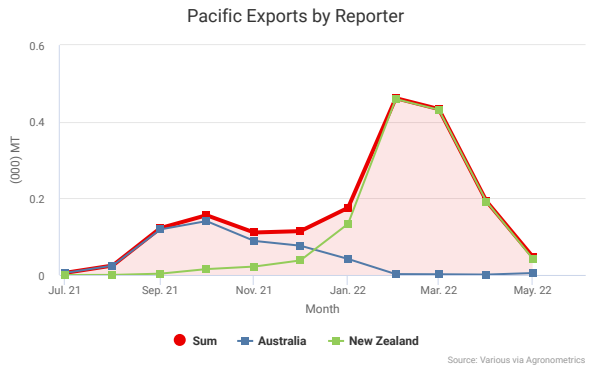
Subregion	2018/2019	2019/2020	2020/2021	2021/2022
Pacific	1.52	1.75	1.60	1.28
Asia	0.28	0.49	0.46	0.56
Middle East	0.00	0.00	0.00	0.00
Others	0.02	0.01	0.00	0.00
Pacific Totals	**1.82**	**2.26**	**2.06**	**1.84**



Pacific Exports by Reporter

Reporter	2018/2019	2019/2020	2020/2021	2021/2022
New Zealand	1.60	1.87	1.71	1.34
Australia	0.20	0.38	0.35	0.51
Others	0.02	0.00	-	-
Pacific Totals	**1.82**	**2.26**	**2.06**	**1.84**





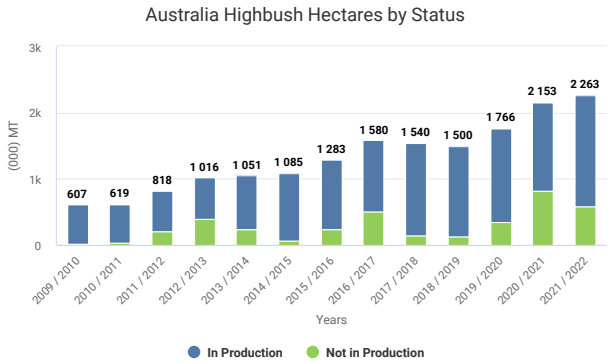
Pacific Report Team Narrative

For an in-depth complement to what is happening in the Pacific please visit the following country reports:

- Australia
- New Zealand

AUSTRALIA

Planting and Production Data, Figures & Commentary
(Denominated in Hectares and Thousands of Metric Tons)



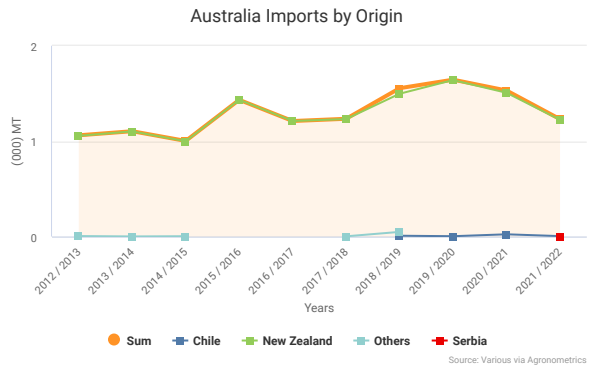
Australia 2021/2022 Production Metrics

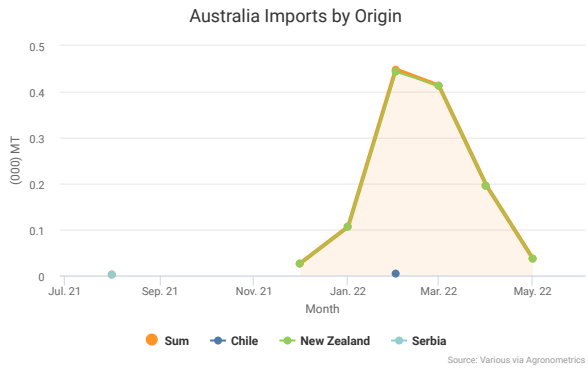
Hectares Planted:	**2,263.0 Ha**
Hectares in Production:	**1,682.5 Ha**
Production:	**18.17 (000) MT**
Growth in Production[1]:	▼-1.9 (000) MT (-10.68%)
Growth from Hectares[2]:	▲5.44 (000) MT (280.41%)
Growth from Yield[3]:	▼-7.38 (000) MT (-380.41%)
Yield:	**10,799.41 (Kg/Ha)**
Exports:	**0.51 (000) MT**
Imports:	**1.23 (000) MT**

[1] Growth in volume produced compared to previous season
[2] Volume increase from new hectares coming into production
[3] Volume increase from higher yields

Australia Imports by Origin

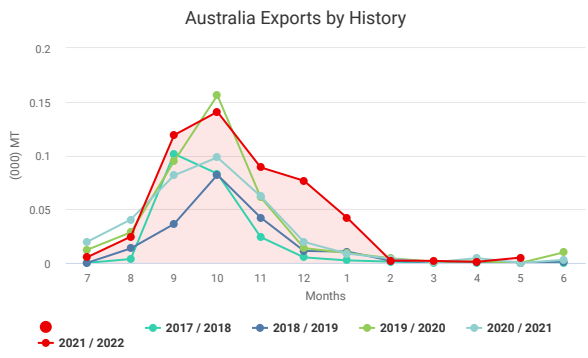
Reporter	2018/2019	2019/2020	2020/2021	2021/2022
New Zealand	1.50	1.64	1.51	1.22
Chile	0.01	0.00	0.02	0.01
Serbia	-	-	-	0.00
Others	0.05	-	-	-
Australia Totals	**1.55**	**1.64**	**1.53**	**1.23**





Australia Exports by Partner

Reporter	2018/2019	2019/2020	2020/2021	2021/2022
Hong Kong	0.12	0.23	0.18	0.28
Singapore	0.04	0.07	0.11	0.19
Indonesia	0.00	0.03	0.03	0.03
Thailand	0.02	0.04	0.02	0.01
Malaysia	0.00	0.01	0.00	0.00
Others	0.01	0.01	0.00	0.01
Australia Totals	**0.20**	**0.38**	**0.35**	**0.51**



Australia
Country Member Summary

Adapted from the report by the Australian Blueberry Growers Association

Whilst the Australian blueberry industry continues to deliver high quality blueberries 52 weeks a year to the domestic market, 2021 was not without its challenges. The impact of the February and March 2021 storms and floods had a significant impact on the growers on the NSW North Coast. This region produces more than 75% of Australian blueberries so the impact of these weather events had industry-wide significance and saw an overall reduction in production of 10% across the industry.

Covid lockdowns and changed shopping habits also saw a reduction in consumption of blueberries as more shoppers moved to online shopping. Covid also affected supply chains in terms of distribution of produce, access to workers and increased the cost of inputs such as fertiliser. The Australian Blueberry Growers Association is increasing its domestic marketing campaign for the 2022 season and there is considerable opportunity to increase market penetration compared with other berry growing countries.

Whilst the year was not easy, there is a general sense of optimism as the industry is exploring new options in phytosanitary markets. Utilising voluntary grower levies with matched funding from the Australian government, the industry now has a professional export capability. Part of that export push is to educate growers on what the export opportunities are and ensure that when markets are opened, the industry is primed to provide the best quality fruit for these new markets.

Whilst Australia is certainly a land of climatic extremes this provides opportunities for the industry in terms of production windows and has been the driver for enormous investment in breeding programs. Australia will never be a low-cost production country, but it is increasingly positioning itself as the producer of a genuinely premium blueberry that can take advantage of a range of production windows to tap into export opportunities as well as a savvy health conscious domestic customer base.

Australia Report Team Narrative

As a "natural laboratory" for blueberry development, the Australian industry may not have sufficient volume to make a real dent in the global market but it certainly punches above its weight in its contribution to the varietal transformation at play worldwide in warmer climates. Australia is home to three of the leading low chill blueberry breeding companies that have helped fuel the exponential rise in low- and no-chill genetics around the world. Meanwhile there is also an emerging fourth player currently in the early stages of its commercialization journey, established by a former co-owner of one of the incumbents.

A wide variety of micro-climates allowed Australia to become the first blueberry-growing nation to achieve 52-week supply, with aggressive planting in the Coffs Harbour region of New South Wales responsible for much of the growth in recent years and consumer demand that has responded in kind. But as noted in the Australian Blueberry Growers Association (ABGA) country member summary, national production is heavily concentrated in that area which suffered from storms and floods in early 2021, leading to a decline in volume.

The Northern New South Wales region is included within a band of territory stretching from Southeast Queensland to south of Sydney that was impacted by unprecedented, relentless rainfall and flooding over several weeks starting in late February 2022, followed by continuous rainfall throughout much of the first half of the year. Few farms in the Coffs Harbour region were directly impacted by flooding, but Lismore – some two hours' drive north – endured a catastrophic inundation, with a major packhouse in the area reportedly affected. It is yet to be seen what the full consequences will be for the 2022 crop, but it will likely have some post-harvest implications due to the ongoing moisture. There is little data available to indicate what proportion of farms may have been spared from the constant rains given a national protected crop mapping exercise being conducted by Protected Cropping Australia is still underway at the time of writing.

Those growers who were able to achieve volumes were able to sell at high prices in the first half of 2022, although as referenced in the New Zealand section, Australia's island neighbors were able to capitalize on the shortage. In calendar 2021, Australia's exports rose by 37% in volume, buoyed by Hong Kong which accounted for two-thirds of overseas sales, followed by Singapore and Indonesia. The average pricing for Australian blueberries abroad was almost $5 per kilo higher in 2021 at $22/kg.

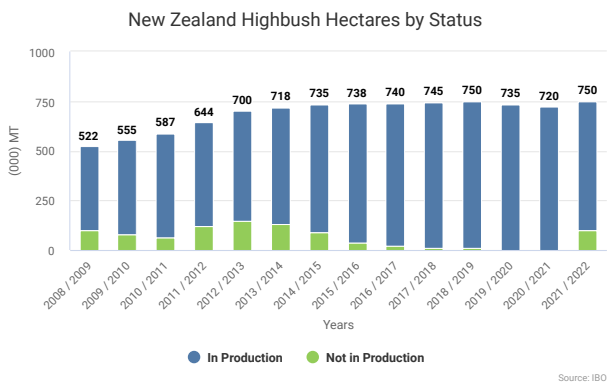
The events of the past two years underscore the diversification imperative for the Australian blueberry industry, which may be spread far and wide but only in small quantities relative to NSW. The industry extends as far north as the mango- and banana-producing region of the Atherton Tablelands of tropical Far North Queensland, where a leading Australian Stock Exchange-listed fruit company has been producing incipient volumes of a purpose-bred tropical blueberry variety it intends to roll out internationally. Also in Queensland there is a large operation in Mundubbera, a region better known for its citrus and table grapes, as well as smaller farms in the macadamia-growing area of Bundaberg.

Where the Australian production mix is really lacking is in its cooler climates to service the market from December to May - a timeframe when the industry has historically struggled with sub-optimal quality. December and January are two months when almost all the domestic supply is from public varieties, even though the industry's share of proprietary varieties is expected to continue to increase. Some domestic and international breeders are attempting to bridge this gap through the development or introduction of hybrid mid-chill blueberries in the southern states of Victoria and Tasmania, although this is a process that could take several years.

Another fairly untapped growing source for the country is Western Australia (WA), which hosts a dry climate with fewer pest pressures than in the country's concentrated east, with a wide variety of microclimates. It is here that one of Australia's and the world's leading blueberry breeders is based, and is developing new farms with next-generation genetics between Gingin north of Perth and Manjimup in the state's Southern Forests region. In very small volumes, 12-month blueberry supply has been achieved in WA alone, but new projects are focused on closing the supply shortage between March and June. Varieties have been bred specifically with machine harvesting for fresh in mind in an attempt to circumvent Australia's labor shortage issue, which has been felt acutely in WA where for most of the pandemic the state government had in place a hard border with the rest of the nation. Indeed, Australia was relatively closed off to the world for a long time during the covid pandemic, and there is a consensus that the country's leading breeders and scientists have used that time of international travel restrictions to sharpen their focus on varietal development. Blueberry growers worldwide will no doubt be waiting to see what the fruit of those efforts will bring.

NEW ZEALAND

Planting and Production Data, Figures & Commentary
(Denominated in Hectares and Thousands of Metric Tons)



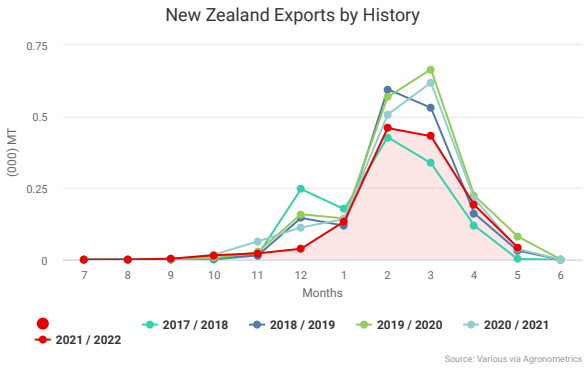
New Zealand 2021/2022 Production Metrics

Hectares Planted:	**750.0 Ha**
Organic:	7.0%
Under Structure:	27.0%
Hydroponics:	23.0%
New Genetics:	6.0%
Hectares in Production:	**650.0 Ha**
Production:	**9.40 (000) MT**
Growth in Production[1]:	▲4.3 (000) MT (45.32%)
Growth from Hectares[2]:	▼-0.50 (000) MT (-11.74%)
Growth from Yield[3]:	▲4.75 (000) MT (111.50%)
Yield:	**14,461.54 (Kg/Ha)**
Exports:	**1.34 (000) MT**
Imports:	**0.00 (000) MT**

[1] Growth in volume produced compared to previous season
[2] Volume increase from new hectares coming into production
[3] Volume increase from higher yields

New Zealand Exports by Partner

Reporter	2018/2019	2019/2020	2020/2021	2021/2022
Australia	1.49	1.70	1.55	1.23
Viet Nam	0.03	0.08	0.10	0.06
Thailand	0.04	0.04	0.03	0.01
Indonesia	0.01	0.01	0.01	0.02
Hong Kong	0.01	0.00	0.00	0.01
Others	0.02	0.03	0.01	0.01
New Zealand Totals	**1.60**	**1.87**	**1.71**	**1.34**



New Zealand Report Team Narrative

The effects of inclement weather on Australia's blueberry crop were to New Zealand's benefit in 2021-22 with exporters achieving astronomical prices in the market of their neighbouring country to fill the supply gap, particularly during New Zealand's peak volume period of February to May.

With Australia representing more than 96% of exports, the impacts of the windfall were significant at a time of double-digit volume growth, rising input costs, and ongoing labor shortages exacerbated by the country's protracted border closures that are only expected to start lifting to the industry's traditional working holiday visa base just prior to the publication of this report. In response to the challenge – which has also impacted New Zealand's much larger kiwifruit, apple and avocado sectors – blueberry growers have explored new ways to find pickers within their own communities, including recruiting retirees and introducing more flexible working arrangements to attract mothers, for example.

New Zealand is now approaching a 52-week supply scenario for its blueberry industry (although with a dip in June-July) thanks in part to a concentration of growth in the northern parts of the country's North Island where fruit can be produced earlier. There used to be a peak in the Southern Hemisphere summer but that has flattened out quite a lot in recent years with southern highbush varieties planted to capture the August-September-October window and Rabbiteyes to capture the March-April-May shoulder period. For many growing regions harvesting lasts until the first frosts of the spring or winter, which can be either in May or June. In the South Island conditions are more similar to North America's Pacific Northwest albeit with reduced temperature extremes, so varieties suited to Oregon, Washington State and British Columbia tend to be selected for that part of New Zealand

While Rabbiteye volumes are dismissed as outdated by much of the global industry, those New Zealand producers who grow locally developed varieties it insist the fruit has appealing flavor characteristics that are well received by the market. A Crown Research Institute (CRI), which has achieved great success globally in developing cultivars of other fruits that have become some of the biggest brands in the fruit industry, bred three Rabbiteye blueberries for New Zealand's climate that have proven popular domestically and have witnessed incipient interest from growers abroad. This breeding programme is very small by international standards but has resourced up in recent years.

Much of New Zealand's growth can also be attributed to relatively new hectarage dedicated to more premium market-oriented southern highbush varieties produced under tunnels, with plenty of adoption of varieties from one of Australia's leading private breeders. Others from Australia and the United States are in the process of introducing new genetics to New Zealand, but the country's strict phytosanitary rules for plant material make the process slow with delays that can last several years. There is still a high prevalence of public varieties in the cultivar mix.

The industry has historically exported half its volume, but given reports of high levels of growth the proportion was likely higher given the price incentives in Australia and emerging export markets in Southeast Asia, and the fact that domestic retail sales were up by approximately 10% even though the volume sold domestically rose by around 1.5%.

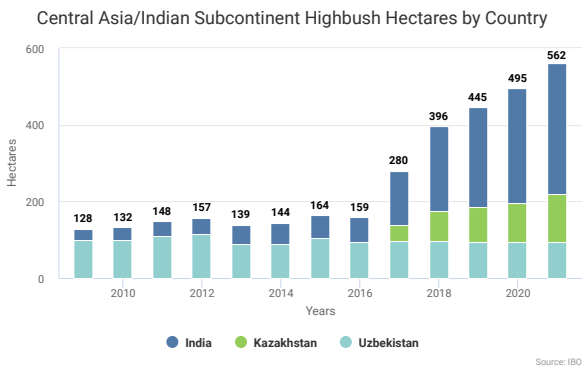
The most recent estimate for New Zealand's blueberry consumption per capita is still fairly low at 900 grams annually, of which around 300 grams are for fresh blueberries. New Zealand imports almost as many frozen blueberries as it grows for the fresh market, prompting one grower to plant a sizable project by New Zealand standards in the country's far south with northern highbush blueberries, oriented towards the frozen market with machine harvesting to reduce cost.

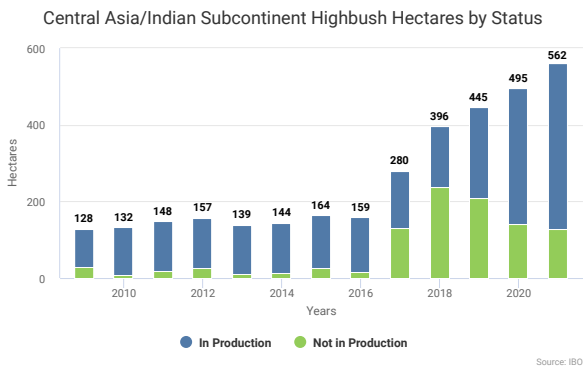
CENTRAL ASIA / INDIA

Planting and Production Data, Figures & Commentary
(Denominated in Hectares and Thousands of Metric Tons)

Central Asia/Indian Subcontinent Highbush Hectares by Country

Central Asia/Indian Subcontinent	Planting					2021 Production		
Growth Totals	**2017**	**2018**	**2019**	**2020**	**2021**	**Fresh**	**Process**	**Total**
India	142	220	260	300	342	2.70	0.30	3.00
Uzbekistan	97	96	95	95	95	0.66	-	0.66
Kazakhstan	40	80	90	100	125	0.40	-	0.40
Central Asia / Indian Subcontinent Totals	**280**	**396**	**445**	**495**	**562**	**3.76**	**0.30**	**4.06**

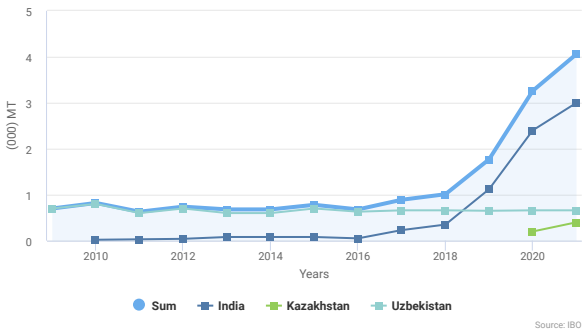




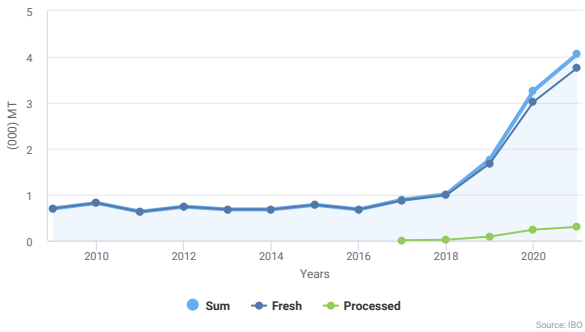
Central Asia/Indian Subcontinent Highbush Production by Country

Central Asia / Indian Subcontinent	2019			2020			2021		
Productions Totals	**Fresh**	**Process**	**Total**	**Fresh**	**Process**	**Total**	**Fresh**	**Process**	**Total**
India	1.03	0.09	1.12	2.16	0.24	2.40	2.70	0.30	3.00
Uzbekistan	0.65	-	0.65	0.66	-	0.66	0.66	-	0.66
Kazakhstan	-	-	0.66	0.20	-	0.20	0.40	-	0.40
Central Asia / Indian Subcontinent Totals	**1.68**	**0.09**	**1.77**	**3.02**	**0.24**	**3.26**	**3.76**	**0.30**	**4.06**

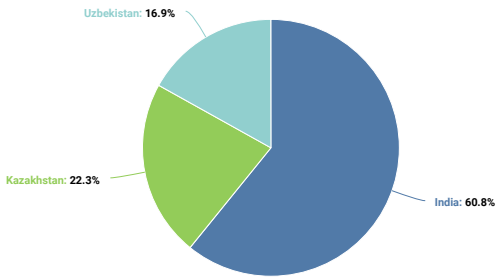
Central Asia/Indian Subcontinent Highbush Production by Country



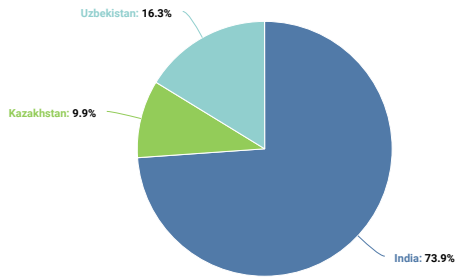
Central Asia/Indian Subcontinent Highbush Production by Use



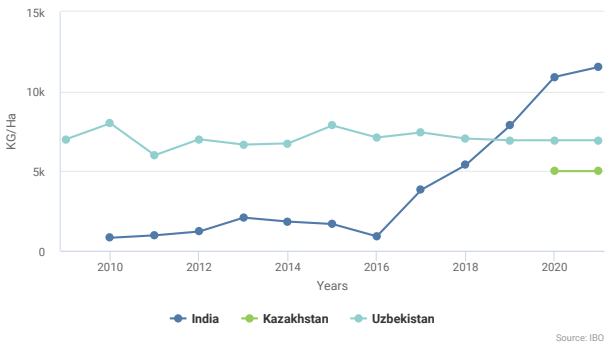
2021 Central Asia/Indian Subcontinent Highbush Hectares by Country



2021 Central Asia/Indian Subcontinent Highbush Production by Country



Central Asia/Indian Subcontinent Highbush Yield by Country



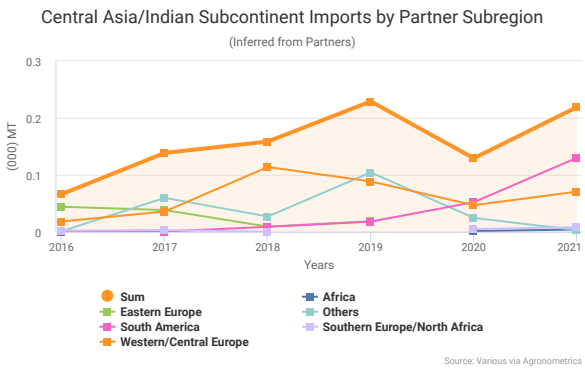
Central Asia / Indian Subcontinent 2021 Production Metrics

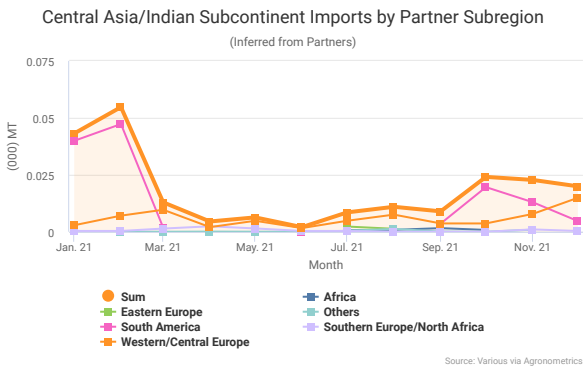
Hectares Planted:	**561.7 Ha**
Hectares in Production:	**435.0 Ha**
Production:	**4.06 (000) MT**
Growth in Production[1]:	▲0.8 (000) MT (19.70%)
Growth from Hectares[2]:	▲0.64 (000) MT (80.00%)
Growth from Yield[3]:	▲0.16 (000) MT (20.00%)
Yield:	**9,331.03 (Kg/Ha)**
Exports:	**0.01 (000) MT**
Imports:	**0.22 (000) MT**

[1] Growth in volume produced compared to previous season
[2] Volume increase from new hectares coming into production
[3] Volume increase from higher yields

Central Asia/Indian Subcontinent Imports by Origin Subregion (Inferred from Partners)

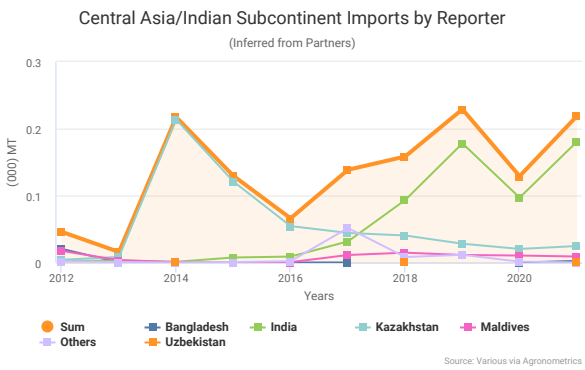
Origin	2018	2019	2020	2021
South America	0.01	0.02	0.05	0.13
Western/Central Europe	0.11	0.09	0.05	0.07
Southern Europe/North Africa	0.00	-	0.00	0.01
Africa	-	-	0.00	0.00
Eastern Europe	0.01	0.02	-	0.00
Others	0.03	0.10	0.02	0.00
Central Asia/Indian Subcontinent Totals	**0.16**	**0.23**	**0.13**	**0.22**

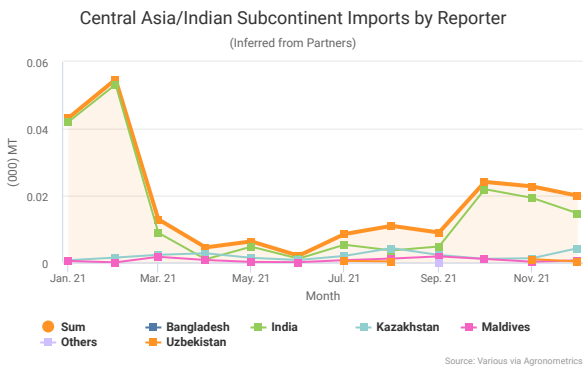




Central Asia/Indian Subcontinent Imports by Reporter (Inferred from Partners)

Reporter	2018	2019	2020	2021
India	0.09	0.18	0.10	0.18
Kazakhstan	0.04	0.03	0.02	0.02
Maldives	0.01	0.01	0.01	0.01
Bangladesh	-	-	0.00	0.00
Uzbekistan	0.00	-	-	0.00
Others	0.01	0.01	0.00	0.00
Central Asia/Indian Subcontinent Totals	**0.16**	**0.23**	**0.13**	**0.22**





Central Asia/India Report Team Narrative

India is the world's largest producer of many fruits, but blueberries are not yet one of them. Whilst the nation has diverse microclimates and mountainous regions that do have cold weather, for the most part it comprises tropical and sub-tropical climates coupled with summer monsoons. To adapt to these conditions, India's emerging blueberry industry has planted primarily low-chill southern highbush varieties, utilizing a mix of cultivar selection and agronomic techniques to avoid heavy rains with a season that runs from mid-February to early June.

There have been announcements around several joint venture partnerships over the years between local and international investors, but the most advanced at this stage was established five years ago between India's largest fruit importer and Australian investors with expertise and premium genetics. This year that same JV announced the world's largest blueberry grower, headquartered in Chile, would join the partnership. With its farms based in the central state of Madhya Pradesh, the operation has conducted successful trials and is now moving into more significant commercial volumes.

There is an understanding amongst India's more sophisticated farming companies that blueberries require a significant amount of knowhow and pilot projects to test which varieties and growing methods work in certain regions, and the consensus is there could be many such areas throughout central and western India that are waiting to be discovered for the crop. In light of the market's scale as a nation of 1.4 billion people including a large, growing middle class with a taste for premium fresh produce, investors who plan to develop blueberry projects have bold ambitions to put in motion as soon as they are comfortable with the feasibility of their plans. Maharashtra is another state with known commercial plantings and plans for trials from domestic farmers in collaboration with foreign partners, ranging from South Africa to the United States.

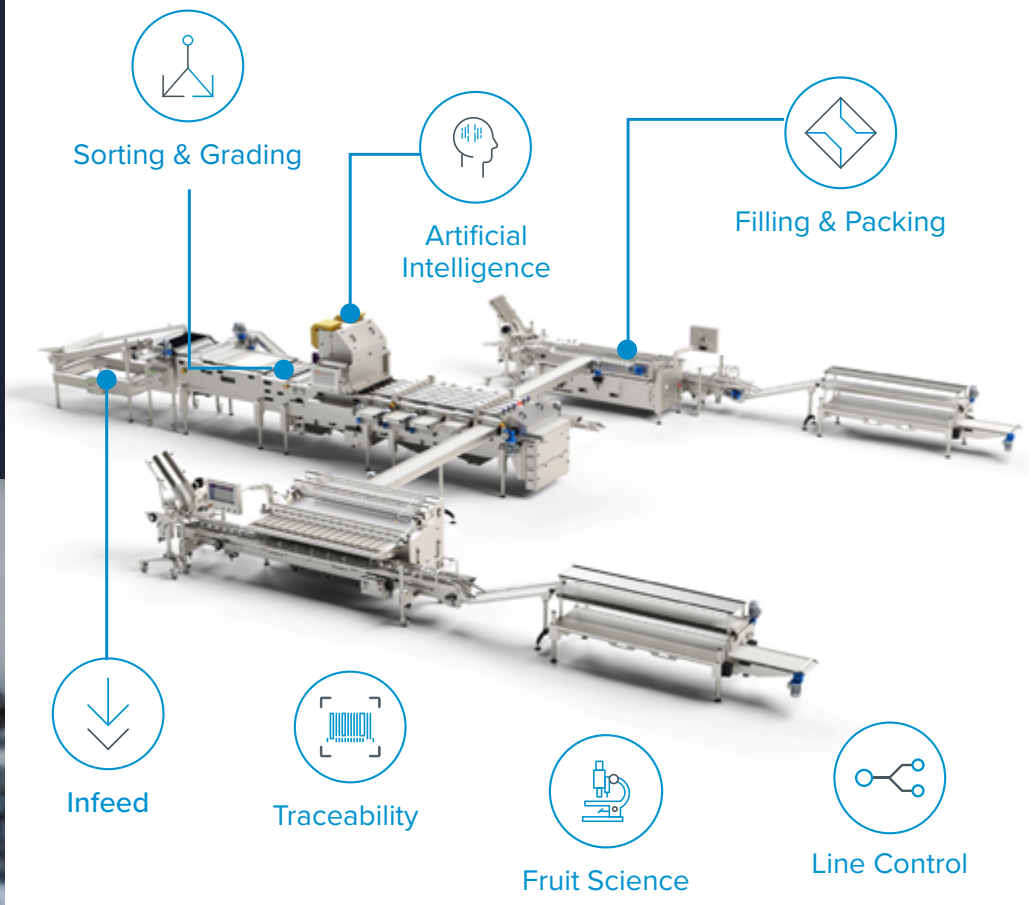
"I think every single big blueberry player in the world has got India on the radar," noted one industry insider, likening India to how China was 10 years ago from a blueberry industry development perspective. Pioneering projects in China have illustrated what is possible for domestically grown blueberries in populous, emerging markets, but at the same time new developments in China have faced limitations in recent years due to land use laws. This has only accentuated the relative attractiveness of India for new developments, but covid-related restrictions on the cross-border movement of blueberry experts has likely set back the country's potential by a couple of years. Nonetheless, the country is being spoken about as a more serious opportunity in industry dialogue from players around the world, and was publicly announced as a potential emerging growing and licensing region by another Australian company with premium genetics, including the results of a breeding program specifically tailored to tropical areas.

Also important to note is the current status of intellectual property in blueberries in India. To date blueberries are not a protectable crop in the country and varieties thus cannot be protected by PVR's or other means in the country. There are some concerns that the lack of a legal framework to protect breeders rights may at the very least slow the rate of access to better genetics to a broader industry.

Off a low base, fresh blueberry imports to India grew by more than five times in 2021, with the largest volume coming from Europe, followed by Chile, the USA and Peru. Price points can be a challenge however as India has very high tariffs for fruit imports, although a few years ago Chile's customs tariff was cut from 50% to 15%. The two countries have a preferential trade agreement (PTA) in place, and in terms of other blueberry-exporting nations, the Australia-India Economic Cooperation and Trade Agreement (ECTA) was signed this year. Blueberries in India are mostly sold in 125g punnets and consistency tends to be lacking, but management of the fruit is improving and dedicated importers and distributors are attempting to raise the bar of consumer experience with the support of better cold chain infrastructure.

In Central Asia, Kazakhstan and Uzbekistan are the main producers of blueberries with fairly small industries, although even in these isolated countries there are international companies moving in with offerings of proprietary blueberry genetics.

TOMRA



Integrated blueberry solutions: post harvest to pack

TOMRA Food offers integrated packhouse solutions for all varieties of blueberries. In addition to size, color, softness, bruising, decay, dehydration, peeling and scarring, we also offer artificial intelligence systems for superior grading across calyx, stem hole, and advanced defect detection.

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EMEA

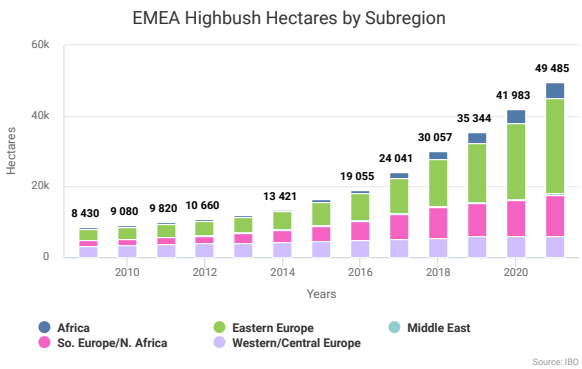
(EUROPE, MIDDLE EAST & AFRICA)

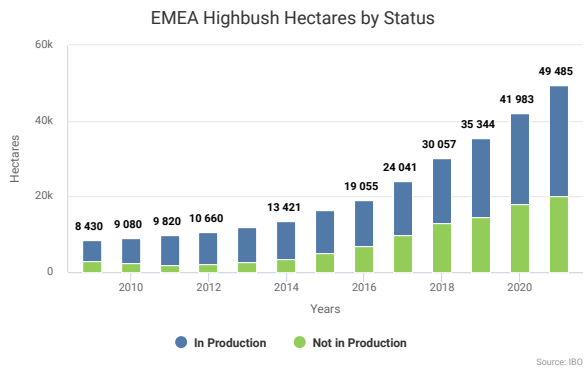
EUROPE, MIDDLE EAST & AFRICA (EMEA)

Planting and Production Data, Figures & Commentary
(Denominated in Hectares and Thousands of Metric Tons)

EMEA Highbush Hectares by Subregion

EMEA	Planting					2021 Production		
Growth Totals	**2017**	**2018**	**2019**	**2020**	**2021**	**Fresh**	**Process**	**Total**
So. Europe/N. Africa	7,079	8,583	9,324	9,934	11,680	128.66	13.94	142.60
Eastern Europe	9,852	13,367	16,635	21,468	26,790	79.21	4.71	83.92
Western/Central Europe	5,108	5,438	5,895	6,083	5,894	28.24	7.10	35.34
Africa	1,646	2,253	3,130	4,008	4,442	31.45	2.20	33.65
Middle East	356	416	360	490	679	4.25	0.17	4.42
EMEA Totals	**24,041**	**30,057**	**35,344**	**41,983**	**49,485**	**271.81**	**28.12**	**299.93**

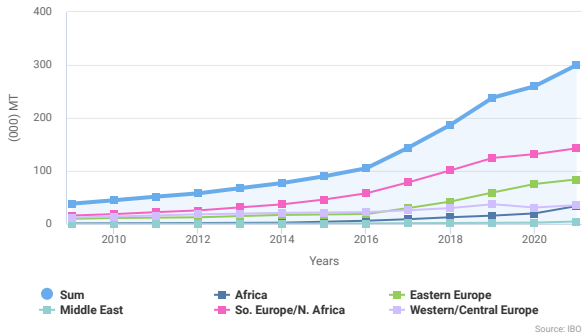




EMEA Highbush Production by Subregion

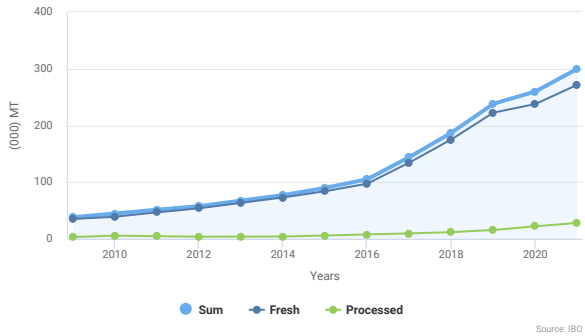
EMEA	2019			2020			2021		
Productions Totals	**Fresh**	**Process**	**Total**	**Fresh**	**Process**	**Total**	**Fresh**	**Process**	**Total**
So. Europe/N. Africa	116.67	7.74	124.41	118.45	13.14	131.59	128.66	13.94	142.60
Eastern Europe	56.17	3.00	59.17	70.59	4.67	75.26	79.21	4.71	83.92
Western/Central Europe	33.51	3.56	37.07	27.46	3.37	30.83	28.24	7.10	35.34
Africa	14.39	1.14	15.53	19.06	0.67	19.73	31.45	2.20	33.65
Middle East	1.77	0.20	1.97	2.15	0.20	2.35	4.25	0.17	4.42
EMEA Totals	**222.51**	**15.64**	**238.15**	**237.71**	**22.05**	**259.76**	**271.81**	**28.12**	**299.93**

EMEA Highbush Production by Subregion



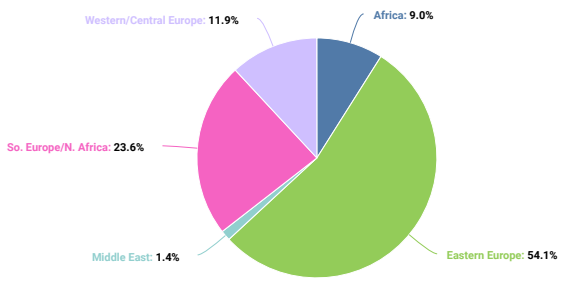
Source: IBO

EMEA Highbush Production by Use

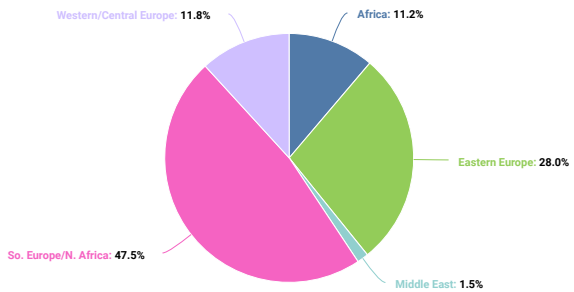


Source: IBO

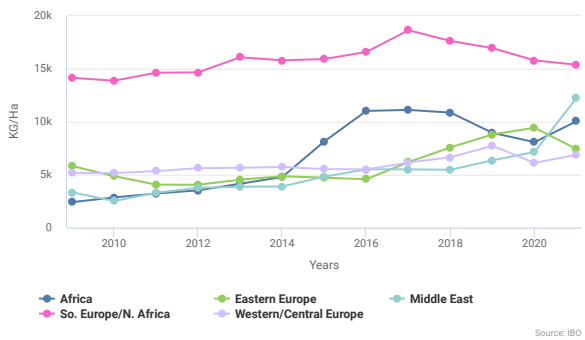
2021 EMEA Highbush Hectares by Subregion



2021 EMEA Highbush Production by Subregion



EMEA Highbush Yield by Subregion



Source: IBO

EMEA 2021 Production Metrics

Hectares Planted:	**49,484.6 Ha**
Hectares in Production:	**29,435.0 Ha**
Production:	**299.93 (000) MT**
Growth in Production[1]:	▲40.2 (000) MT (13.39%)
Growth from Hectares[2]:	▲49.67 (000) MT (123.65%)
Growth from Yield[3]:	▼-9.49 (000) MT (-23.62%)
Yield:	**10,189.56 (Kg/Ha)**

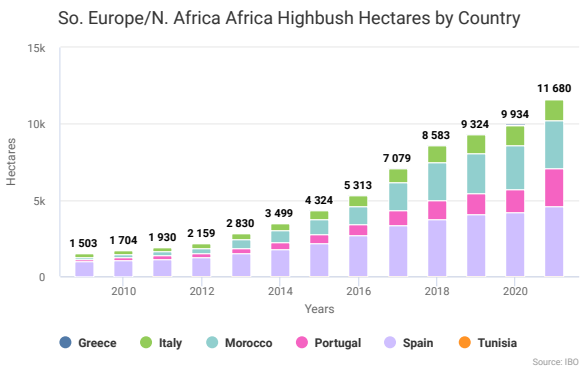
[1] Growth in volume produced compared to previous season
[2] Volume increase from new hectares coming into production
[3] Volume increase from higher yields

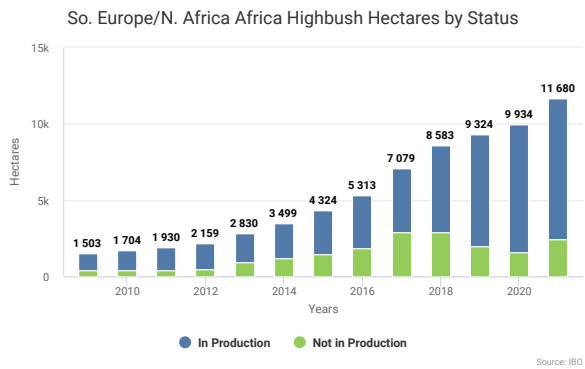
SOUTHERN EUROPE / NORTH AFRICA

Planting and Production Data, Figures & Commentary
(Denominated in Hectares and Thousands of Metric Tons)

So. Europe/N. Africa Highbush Hectares by Country

Southern Europe / North Africa	Planting					2021 Production		
Growth Totals	**2017**	**2018**	**2019**	**2020**	**2021**	**Fresh**	**Process**	**Total**
Spain	3,333	3,720	4,030	4,210	4,570	67.88	8.48	76.36
Huelva	2,538	2,858	3,059	3,089	3,310	51.38	6.42	57.8
Spain Other	795	862	971	1,121	1,260	16.5	2.06	18.56
Morocco	1,810	2,500	2,675	2,850	3,136	37.07	1.96	39.03
Portugal	1,000	1,250	1,375	1,500	2,481	15.42	2.60	18.02
Italy	925	1,100	1,200	1,300	1,390	8.00	0.90	8.90
Greece	10	12	41	70	99	0.27	-	0.27
Tunisia	**1**	**1**	**2**	**4**	**4**	**0.02**	-	**0.02**
So. Europe / N. Africa Totals	**7,079**	**8,583**	**9,324**	**9,934**	**11,680**	**128.66**	**13.94**	**142.60**

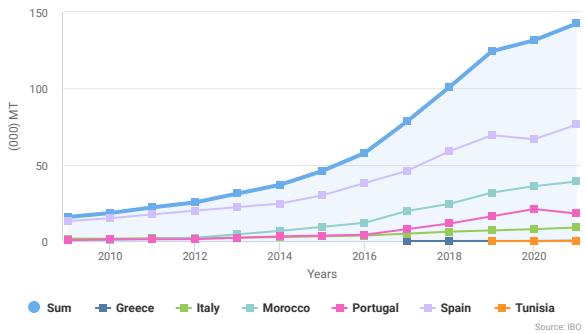




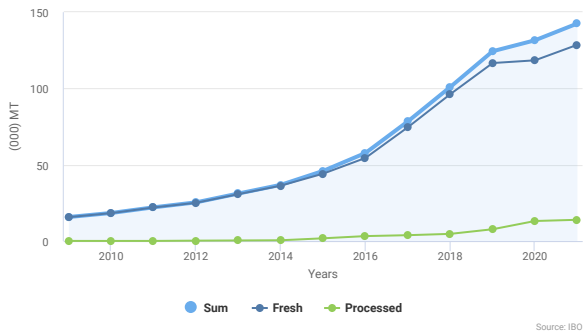
So. Europe/N. Africa Highbush Production by Country

Southern Europe / North Africa	2019			2020			2021		
Productions Totals	**Fresh**	**Process**	**Total**	**Fresh**	**Process**	**Total**	**Fresh**	**Process**	**Total**
Spain	65.07	4.31	69.38	59.29	7.41	66.70	67.88	8.48	76.36
Huelva	51.2	3.39	54.59	43.88	5.48	49.36	51.38	6.42	57.8
Spain Other	13.87	0.92	14.79	15.41	1.93	17.34	16.5	2.06	18.56
Morocco	30.60	1.15	31.75	34.20	1.80	36.00	37.07	1.96	39.03
Portugal	14.42	1.82	16.24	17.85	3.15	21.00	15.42	2.60	18.02
Italy	6.51	0.46	6.97	7.02	0.78	7.80	8.00	0.90	8.90
Greece	0.06	-	0.06	0.08	-	0.08	0.27	-	0.27
Tunisia	0.01	-	0.01	0.01	-	0.01	0.02	-	0.02
So. Europe / N. Africa Totals	**116.67**	**7.74**	**124.41**	**118.45**	**13.14**	**131.59**	**128.66**	**13.94**	**142.60**

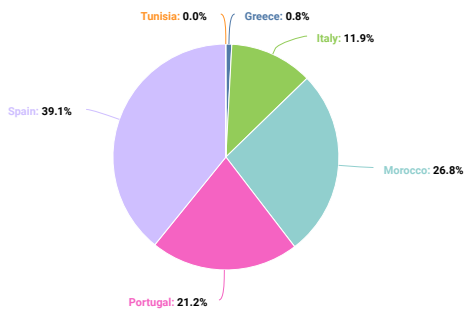
So. Europe/N. Africa Africa Highbush Production by Country



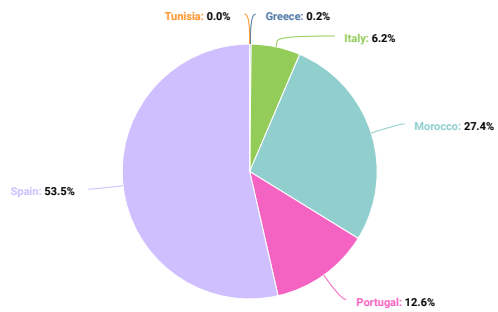
So. Europe/N. Africa Africa Highbush Production by Use

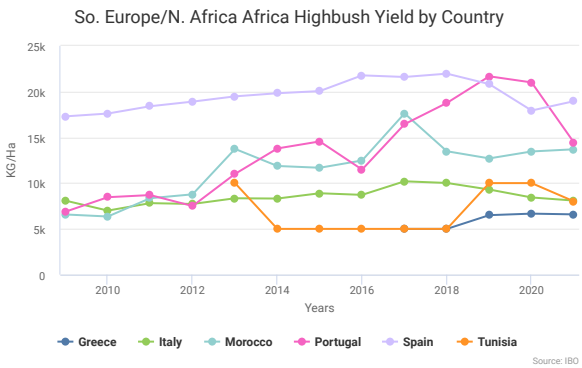


2021 So. Europe/N. Africa Africa Highbush Hectares by Country



2021 So. Europe/N. Africa Africa Highbush Production by Country





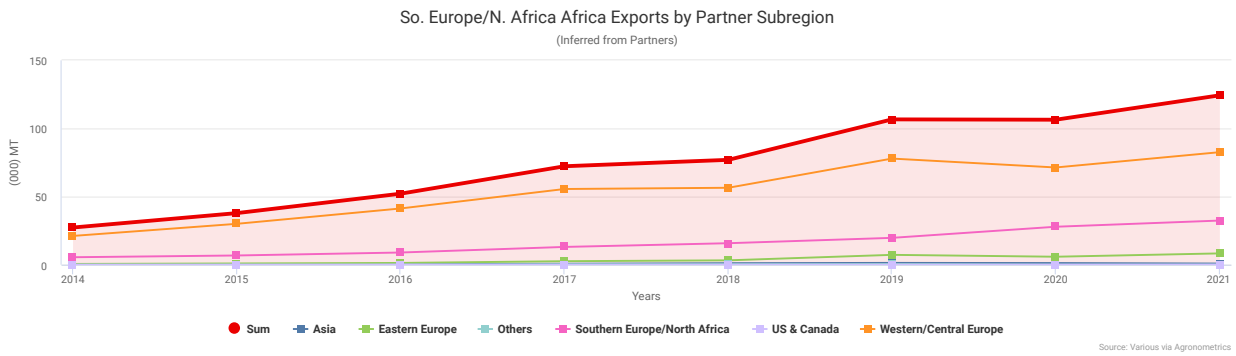
So. Europe/N. Africa 2021 Production Metrics

Hectares Planted:	**11,680.0 Ha**
Hectares in Production:	**9,273.5 Ha**
Production:	**142.60 (000) MT**
Growth in Production[1]:	▲11.0 (000) MT (7.72%)
Growth from Hectares[2]:	▲14.96 (000) MT (135.88%)
Growth from Yield[3]:	▼-3.95 (000) MT (-35.88%)
Yield:	**15,377.79 (Kg/Ha)**
Exports:	**124.34 (000) MT**
Imports:	**20.51 (000) MT**

[1] Growth in volume produced compared to previous season
[2] Volume increase from new hectares coming into production
[3] Volume increase from higher yields

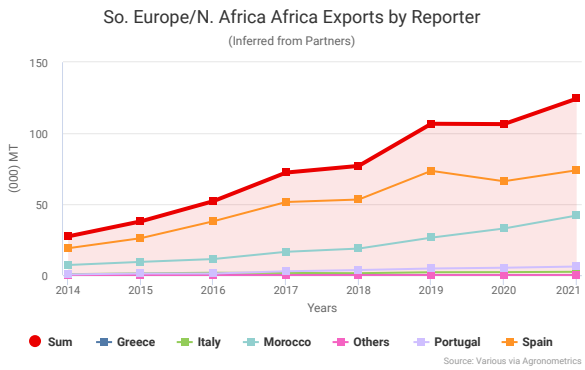
So. Europe/N. Africa Exports by Partner Subregion (Inferred from Partners)

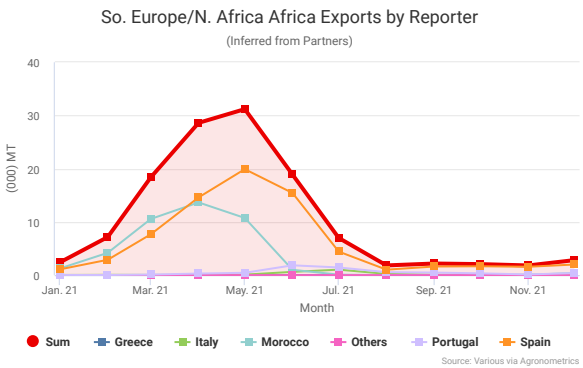
Subregion	2018	2019	2020	2021
Western/Central Europe	56.47	77.90	71.36	82.61
Southern Europe/North Africa	15.78	19.71	27.86	32.42
Eastern Europe	3.22	7.24	5.86	8.31
Asia	1.11	1.34	1.22	0.85
US & Canada	0.00	0.01	0.04	0.08
Others	0.39	0.46	0.07	0.07
So. Europe/N. Africa Totals	**76.97**	**106.66**	**106.42**	**124.34**



So. Europe/N. Africa Exports by Reporter (Inferred from Partners)

Reporter	2018	2019	2020	2021
Spain	53.28	73.48	66.15	73.90
Morocco	18.72	26.41	32.85	42.01
Portugal	3.58	4.67	5.22	6.05
Italy	1.36	2.04	2.11	2.35
Greece	0.02	0.04	0.06	0.01
Others	0.01	0.02	0.03	0.01
So. Europe/N. Africa Totals	**76.97**	**106.66**	**106.42**	**124.34**





Southern Europe/North Africa Report Team Narrative

Between the rapidly expanding industry of Morocco and the Mediterranean's traditional mainstay of Spain where production is concentrated in the province of Huelva, the European market has an ample late winter/springtime supply of blueberries between February and May. Both nations already produce fruit in smaller volumes well before that, but aggressive varietal conversion and planting programmes mean significant volumes may well be hitting the market from Morocco and Spain some 15 days earlier than usual within the next three years, in addition to flattening out the peaks and troughs through higher-yielding, crunchier fruit in the mid- and late-season.

The relevance of these two countries to the global industry's growth was underscored late last year by the acquisition from the world's largest blueberry company, Hortifrut, of one of Spain's leading growers and breeders, Atlantic Blue, which owns a number of highly successful cultivars as well as operations in Morocco.

Around 1,200km south of the Moroccan blueberry industry's previous southern frontier in Agadir, the pursuit of earliness is also underway in Dakhla within the territory of Western Sahara; a disputed region but one that has recently been emboldened by Spanish recognition and plans to open a United States consulate.

From Dakhla to Dakar, some international blueberry companies and investors are also emerging from the covid-induced travel lull to re-explore future opportunities in Senegal – a further 1,000km south - where trials that previously took place confirmed a blueberry-growing environment similar in latitude to the Mexican state of Jalisco (though lower elevation), allowing for two harvest periods including a very early window in September. Another peripheral zone of exploration is Morocco's Atlas Mountains, where trials are taking place aimed at summer blueberry production with mid chill and high chill northern highbush varieties in hopes they will perform commercially due to the altitude.

On the later side of the seasonal spectrum, Portugal is growing steadily and is increasingly featuring in the plans of blueberry marketers, retailers and breeders wishing to capitalise on the market shortfall in June before Serbia, and later Poland, supplies the market. The northern Italian region of Piedmont commences in late June, while a prospective industry is emerging in southern Italy, particularly in Sicily, where season timing coincides with Morocco's peak in March.

For an in depth complement to what is happening in Southern Europe/North Africa please visit the following country reports:

- Spain
- Morocco

Portugal in the ascendant

As a long country with diverse climates within a short distance, Portugal is fast becoming a viable blueberry supply alternative for European supermarkets in the late spring, early summer period, featuring in the origin stable of a few major global grower-marketers.

The geography in Portugal is such that one could have a low-chill blueberry farm within just a few hours' drive of a high-chill variety farm in the country's north. Southern Portugal has a similar although milder climate to Huelva with much production under protected tunnels, whereas in the hilly north there are more open field farms with mid-chill and high-chill varieties such as Duke and Legacy.

As has been the lesson learned elsewhere, an industry can only survive on lucrative windows for so long and Portugal's success will depend on its ability to adopt next-gen varieties – a process that is currently happening with cultivar from a handful of major players. Like Spain but not growing quite as early, Portugal has the advantage of proximity to major European markets and can produce fruit from March until the end of July, although with pruning of modern genetics it is possible that smaller quantities could be made available in October in direct competition with Peru.

The industry struggled with labor availability last year due to covid-related restrictions, and in response some growers are now turning to machine harvesting, although that trend is unlikely to appear in northern Portugal where farms tend to be small and on slopes with narrow roads.

In 2021, growers were able to attract strong prices in June until Serbian fruit arrived in the market. The Portuguese market itself is small with a population of just 10 million, but one of the country's largest blueberry-growing companies experimented with direct sales in Lisbon, often achieving better prices than in export markets. This has triggered greater engagement with Portuguese retail, such as Pingo Doce which is working closely with domestic food producers to develop its own brands with 'buy local' cache.

Italy as a prospective market and production source

Off a low base, Italian blueberry consumption has grown 20% annually for the last two years due to growing health awareness during covid, increased domestic production and imports. In northern Italy's largest cities blueberry consumption per capita is close to that of northern Europe, although in the south the fruit is far less known by consumers.

This is starting to change though, with Spanish exporters for example increasingly finding market outlets in Rome and further south, while a boom is underway in southern Italy for the production of southern highbush varieties in regions such as Sicily, Calabria and Puglia, spearheaded by large cooperatives from the country's center and north.

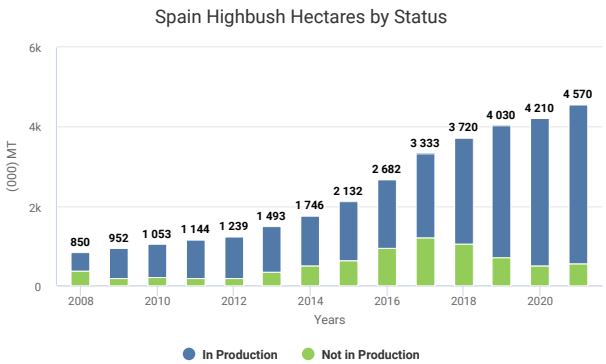
Transportation is a problem though, with it often taking longer for fruit to reach the north from Sicily than it would from Spain.

Southern Italian blueberry production is a very recent development, and was virtually non-existent five years ago. From an industry that began in the 1960's as a frozen-focused sector in Italy's northwestern Piedmont region, the cooperative-led horticultural model Italy is known for has driven most of the production increase in the north, mostly in the pre-Alpine climes of Piedmont and Trentino.

Piedmont itself exports fresh blueberries to parts of Western Europe in a lucrative niche window in late June, early July when EU production is not so high. Modern, high-chill genetics are in demand in the region with varieties being grown from two Oregon-based genetics companies. Growers of other fruits such as peaches and kiwifruit, the latter having been through a difficult decade or more with vine-killing disease Psa, have also been converting their fields to blueberries in central and northern Italy.

SPAIN

Planting and Production Data, Figures & Commentary
(Denominated in Hectares and Thousands of Metric Tons)



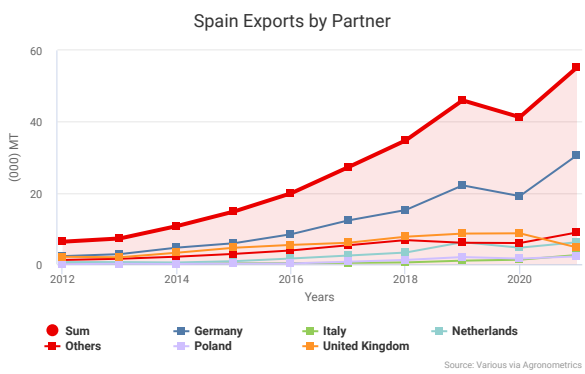
Spain 2021 Production Metrics

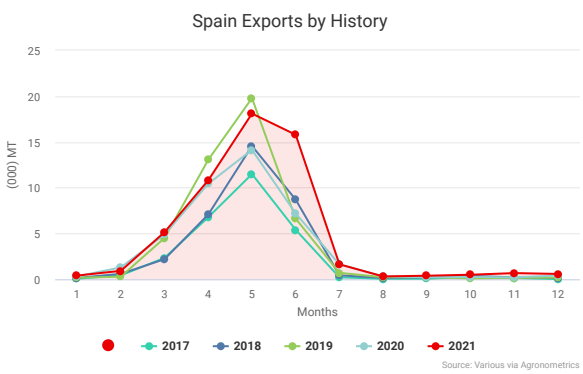
Hectares Planted:	**4,570.0 Ha**
Hectares in Production:	**4,030.0 Ha**
Production:	**76.36 (000) MT**
Growth in Production[1]:	▲9.7 (000) MT (12.65%)
Growth from Hectares[2]:	▲5.66 (000) MT (58.59%)
Growth from Yield[3]:	▲4.00 (000) MT (41.41%)
Yield:	**18,949.87 (Kg/Ha)**
Exports:	**55.23 (000) MT**
Imports:	**33.30 (000) MT**

[1] Growth in volume produced compared to previous season
[2] Volume increase from new hectares coming into production
[3] Volume increase from higher yields

Spain Exports by Partner

Reporter	2018	2019	2020	2021
Germany	15.20	22.13	19.12	30.60
Netherlands	3.28	6.19	4.65	6.18
United Kingdom	7.73	8.60	8.69	4.72
Italy	0.52	1.01	1.28	2.59
Poland	1.22	2.02	1.59	2.21
Others	6.78	6.03	5.95	8.92
Spain Totals	**34.73**	**45.99**	**41.27**	**55.23**





Spain
Country Member Summary

Adapted from report by Freshuelva

(The association representing the Spanish industry)

Huelva continues to be the leading production region for Spanish blueberries with more than 3,300 hectares planted in 2020-21, while hectarage is rising every year with production from February to July thanks to the introduction of earlier varieties that are suited to the climate. Following a 3.47% decrease in exported volume to 66,103 metric tons (MT) in 2020, which was a result of the situation generated by covid, exports from the region rose by 35.61% to reach 89,644MT in 2021.

Spanish blueberry exports are mostly focused on EU markets with Germany as the leading destination within the EU community (52.57%), followed by the Netherlands (14.8%), Poland (7.11%), France (5.85%), Italy (5.65%), Belgium (2.5%) and the Republic of Ireland (1.85%). Whilst no longer in the EU, the United Kingdom continues to be an important market that received 12,683MT in 2021, or 14.1% of Spain's total exports.

This makes the United Kingdom by far Spain's leading non-EU market representing 81.49% of blueberry shipments outside the union, with other destinations including Switzerland, Norway, Hong Kong, Singapore, Hong Kong and Malaysia.

The Spanish Agricultural Ministry is currently working on opening more markets outside of the EU but the process is slow and doesn't always achieve its desired goal. In the 2021 campaign an opening of the Brazilian market was achieved with general meetings about compliance with phytosanitary requirements. Paperwork was submitted for opening the Canadian market to Spanish blueberries, and whilst the process is advanced it has not yet concluded.

Storm Filomena, which hit the Iberian Peninsula in January 2021, led to a drop in temperatures that delayed early varieties by a month. Temperatures were very mild in March and April, so the peak that was expected was not reached. There were also expectations that volume would rise by 40-50% due to the age of plants, the number of hectares in production and the types of varieties planted, however the crop did not transpire this way.

There ended up being less production than forecast with a slow and stable supply without peaks. The most important trend was that prices remained stable. Whilst spring temperatures meant that the Huelva blueberry didn't suffer a contraction like what was feared at the beginning of the year, throughout the rest of Europe the cold weather delayed production in open field and in tunnels, allowing Spain to stay in the market for more than a month longer than planned with good programs.

Blueberry consumption continues to grow every year. Even though prices were adjusted at the end of the season, demand responded and there was constant growth. Global production is very large and the market is supplied by various origins, which leaves fewer gaps in production and facilitates regular consumption over the course of the year. This helps consumers familiarize themselves with the product and consume blueberries more frequently.

In Spain, blueberries are available practically 52 weeks a year in all supermarkets, even though in terms of volume they continue to be far below the levels seen in other countries in Central and Northern Europe.

As has been the case year after year, it is complicated to determine the varietal distribution that is currently grown in Spain.

Spain
Report Team Narrative

Spanish industry renewal

Though its industry may be fragmented with a mix of privately-owned growers and cooperatives comprising hundreds of small growers, Spain was able set the scene for southern highbush blueberry production for the European market and is home to some of the world's leading know-how, alongside ideal soils and climate, for the crop to flourish.

However, the tremendous growth from Morocco in recent years has put Spanish growers under competitive pressure, prompting supply-side and demand-side initiatives from the industry.

From a production standpoint this has triggered a major conversion to new varieties that is ongoing, whereby growers are seeking out higher-yielding varieties with improved taste, size, firmness and shelf life, and in some cases earliness that has even allowed for harvests in late November under the right conditions with specific cultivars. Generally speaking though, Spanish volumes in Huelva begin in mid-January and run through to July with around 70% concentrated in mid-April to late May.

New genetics providers have also appeared from within Spain seeking to challenge the status quo, offering their own varieties – many of which are focused on earliness or yield - to growers outside of the club model. One of these, which is also one of Spain's leading cooperatives, declares plans to have 80 percent of production dedicated to its own varieties in three years' time.

The world's largest varietal players are also present in the market and are gaining momentum, including a Spanish breeder of other berries that is now actively promoting its recently developed and released material in most of the world's centers of blueberry production growth. A portion of the industry is also turning to organic blueberries as a point of difference. Spain also hosts the EMEA headquarters of a large American nursery and genetics company.

After covid-related restrictions in Morocco prevented many Moroccan workers from entering Spain, and also prevented those within Spain from returning home, the berry industry has sought ways to diversify its labor supply with a pilot program for pickers flying across the Atlantic from Ecuador and Honduras.

In terms of market development, Germany overtook the United Kingdom as Spain's top market in 2017, while Italy has quickly become the industry's fifth-largest market. The Polish market has progressed a lot in recent years, as has Spanish blueberry consumption.

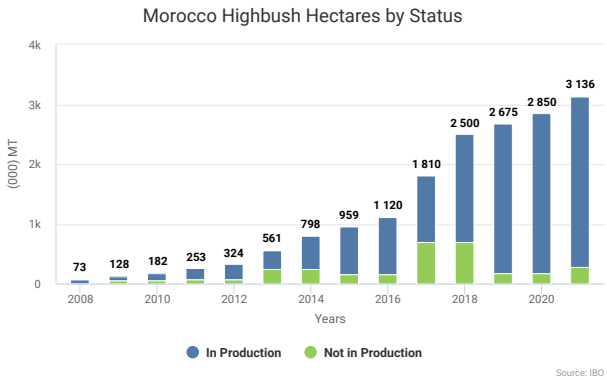
Spain does not have a longstanding consumer tradition with the fruit, but promotional campaigns and imports have allowed for a transformation with blueberries now available in stores year-round. Qualitative industry estimates show domestic blueberry consumption could be at around 10,000MT annually, representing a per capita level of just over 200g – well short of the 1kg per capita achieved two years ago in Poland, for example. "The ceiling is very high," as one grower explained.

The industry consensus is that Spain, like so many blueberry industries, has benefited from covid and health benefits perceptions around the fruit. Despite the Moroccan competition, and despite the Philomena storm in early 2021 that lowered yields, growers have notched good returns. The industry is currently assessing what a change to UK import protocols will mean whereby the post-Brexit country will require new phytosanitary certificates.

Before the pandemic, Freshuelva was in conversations with counterparts in the Moroccan industry to set up combined shipping routes for complementary blueberry exports to Asia, with hopes to revive these discussions in the near future.

MOROCCO

Planting and Production Data, Figures & Commentary
(Denominated in Hectares and Thousands of Metric Tons)



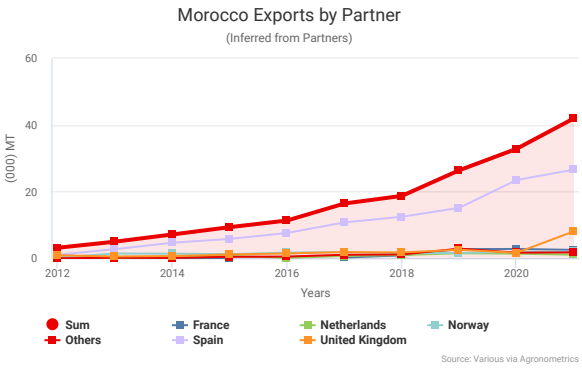
Morocco 2021 Production Metrics

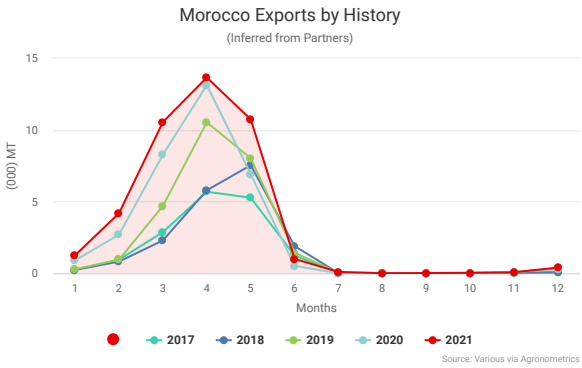
Hectares Planted:	**3,136.0 Ha**
Organic:	Not Reported
Under Structure:	Not Reported
Hydroponics:	Not Reported
New Genetics:	Not Reported
Hectares in Production:	**2,850.0 Ha**
Production:	**39.03 (000) MT**
Growth in Production[1]:	▲3.0 (000) MT (7.76%)
Growth from Hectares[2]:	▲2.36 (000) MT (77.89%)
Growth from Yield[3]:	▲0.67 (000) MT (22.11%)
Yield:	**13,694.74 (Kg/Ha)**
Exports:	**42.01 (000) MT**
Imports:	**0.00 (000) MT**

[1] Growth in volume produced compared to previous season
[2] Volume increase from new hectares coming into production
[3] Volume increase from higher yields

Morocco Exports by Partner (Inferred from Partners)

Reporter	2018	2019	2020	2021
Spain	12.45	15.13	23.47	26.61
United Kingdom	1.75	2.55	1.64	8.08
France	0.87	2.75	2.78	2.51
Norway	1.53	1.61	1.89	2.00
Netherlands	0.98	1.50	1.38	1.05
Others	1.14	2.88	1.68	1.76
Morocco Totals	**18.72**	**26.41**	**32.85**	**42.01**


Morocco Exports by Partner
(Inferred from Partners)
60
40
20
0
(000) MT
2012
2014
2016
2018
2020
Years
Sum
France
Netherlands
Norway
Others
Spain
United Kingdom
Source: Various via Agronometrics


Morocco Exports by History
(Inferred from Partners)
15
10
5
0
(000) MT
1
2
3
4
5
6
7
8
9
10
11
12
Months
2017
2018
2019
2020
2021
Source: Various via Agronometrics

Morocco Report Team Narrative

Moroccan growth continues

Following in the footsteps of Spain's blueberry boom, Morocco has rapidly become a major player since its first forays into low chill blueberry production in the mid-2000s, as companies and investors from the Americas, Europe, South Africa, Israel, Australia and Morocco itself continue to increase their plantings. Many of them also have production in both Spain and Morocco, thus offering diversification benefits to retailers, especially when cold snaps in Europe prompt later Spanish seasons so Morocco can fill the gaps. In 2022 the country was also able to fill gaps at the front end of the season in light of shipping delays for South American suppliers, leading to earlier-than-usual requests from retailers. However, cold weather persisted until March, delaying some of the crop and causing a clash with the peak of Spanish supply.

In general though, growers have been enticed by the returns that are possible from Morocco before Spanish volumes start in earnest, and with young plantings in the pipeline the Moroccan production growth trend shows no signs of abating any time soon. Exports rose by 29% in 2021 year-on-year, and were up 78% over two years.

This surge looks set to continue as the Moroccan industry positions itself as a safe bet for the nearby European market amidst supply chain challenges globally, and numerous companies are planning to roll out further plantings with proprietary genetics programmes. One genetics company has declared a forecast to increase production of a particular premium blueberry series by 8,000MT in three years.

The Moroccan blueberry industry began around the northern region of Larache and Rabat, and despite the boom that's occurring further south, these areas with open-field production continue to see growth including from raspberry and strawberry farmers who find the crop easier to cultivate. The Kingdom of Morocco is providing government land in the country's north to investors – both domestic and foreign – to grow blueberries, and there are at least five premium variety programmes in the region.

But a key point of focus continues to be the traditionally tomato-growing area of Agadir around 700km to the south, where an industry was pioneered with substrate production of proprietary southern highbush genetics, good agronomic management and tall 'canary greenhouse' protection. It is a geographical expansion that has allowed the country to produce earlier with a peak window from January to April.

Agadir has not been without its problems however, with water availability chief amongst them and presenting a risk to operations every year. Agadir's farming sector in general has been under strain from drought over several years, often necessitating a need to deploy reverse osmosis systems for irrigation as dam levels fall to critical levels. There is a large desalination plant that is already supplying the population with drinking water, but at the time of writing it is yet to be deployed for agriculture. Industry representatives are often told it will be open in the coming months, but as one producer noted, "it's always hard to know what 'in the coming months' means in Morocco".

Farms in Agadir maybe more protected than in Morocco's north, but in the emerging growing region of Dakhla the level of protection is greater still, with a preference for flat plastic structures known as 'Canarian greenhouses' in what is a windy area 1,200km to the south of Agadir in the disputed territory of Western Sahara, although the geopolitical climate has shown signs of stabilising with support for Morocco's autonomy plan for the area from more developed nations such as the United States and Spain.

The Kingdom of Morocco is set to "throw everything" at the Dakhla region to make it a success, according to one industry insider, with plans to develop a port and open up 5,000ha to agricultural projects under an irrigated perimeter with desalinated water. Dakhla has mild weather and its low chill climate allows for production at least a month earlier than in Agadir, but labor access is a problem as workers need to be brought in, and harvests will take two more days to get to the European market than fruit from Agadir. Any such delay however is fairly insignificant given the prospect of production in September, in competition with Peru and South Africa that both would take longer to get to the European market.

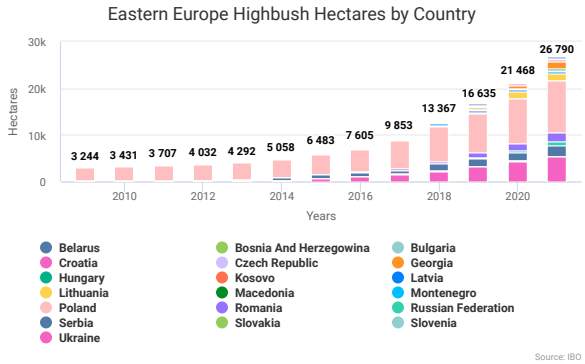
Along with Peru, Chile and Serbia, Morocco has also been one of the leading suppliers to the Russian market in recent years, which was burgeoning prior to the break-out of war on 24 February 2022 when the country invaded Ukraine. Despite the conflict and associated sanctions, at the time of writing it was understood that some Moroccan growers continued exporting to Russia, whether it be the predominant shipping method to Europe with trucks via a ferry to Spain, or alternatively by sea or by air-freight shipments via Turkey.

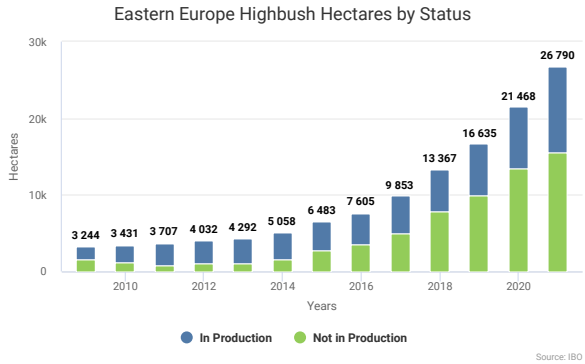
EASTERN EUROPE

Planting and Production Data, Figures & Commentary
(Denominated in Hectares and Thousands of Metric Tons)

Eastern Europe Highbush Hectares by Country

Eastern Europe	Planting					2021 Production		
Growth Totals	2017	2018	2019	2020	2021	Fresh	Process	Total
Poland	6,075	7,400	8,450	9,500	11,000	52.50	3.00	55.50
Ukraine	1,530	2,183	3,183	4,383	5,318	8.24	-	8.24
Romania	400	550	1,025	1,500	2,000	6.00	-	6.00
Serbia	770	1,539	1,612	1,800	2,360	5.00	0.50	5.50
Lithuania	140	170	200	1,470	1,460	1.84	0.30	2.14
Georgia	80	110	405	700	1,500	1.50	0.10	1.60
Belarus	180	250	270	290	362	0.82	0.51	1.33
Bosnia And Herzegowina	130	170	170	170	190	0.91	-	0.91
Latvia	200	500	510	500	600	0.50	0.30	0.80
Croatia	170	250	290	360	380	0.53	-	0.53
Kosovo	30	40	60	90	101	0.34	-	0.34
Slovenia	50	60	60	60	70	0.26	-	0.26
Czech Republic	15	30	50	70	88	0.20	-	0.20
Slovakia	30	30	50	70	70	0.18	-	0.18
Montenegro	8	15	15	15	18	0.11	-	0.11
Bulgaria	20	30	30	40	70	0.11	-	0.11
Macedonia	5	10	10	10	12	0.08	-	0.08
Russian Federation	10	10	205	400	750	0.05	-	0.05
Hungary	10	20	40	40	440	0.04	-	0.04
Eastern Europe Totals	**9,852**	**13,367**	**16,635**	**21,468**	**26,790**	**79.21**	**4.71**	**83.92**

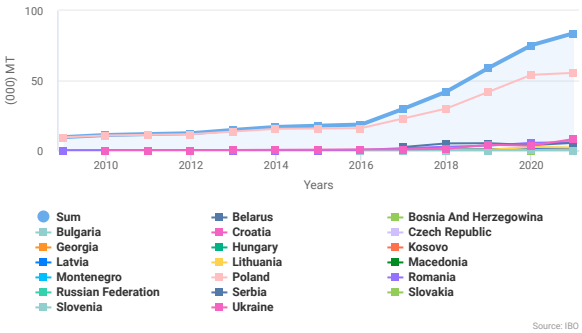




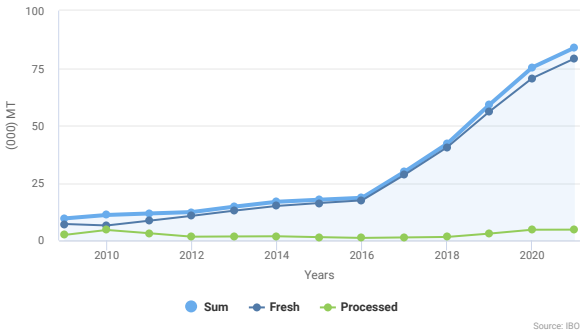
Eastern Europe Highbush Production by Country

Eastern Europe	2019			2020			2021		
Productions Totals	**Fresh**	**Process**	**Total**	**Fresh**	**Process**	**Total**	**Fresh**	**Process**	**Total**
Poland	40.30	1.75	42.05	52.10	2.00	54.10	52.50	3.00	55.50
Ukraine	4.10	-	4.10	3.49	-	3.49	8.24	-	8.24
Romania	3.18	0.32	3.50	4.68	0.83	5.51	6.00	-	6.00
Serbia	4.84	0.39	5.23	3.10	0.77	3.87	5.00	0.50	5.50
Lithuania	0.41	0.11	0.52	2.34	0.22	2.56	1.84	0.30	2.14
Georgia	0.42	0.05	0.47	0.67	0.09	0.76	1.50	0.10	1.60
Belarus	0.63	0.27	0.90	0.59	0.54	1.13	0.82	0.51	1.33
Bosnia And Herzegowina	0.60	-	0.60	1.06	-	1.06	0.91	-	0.91
Latvia	0.47	0.11	0.58	0.70	0.22	0.92	0.50	0.30	0.80
Croatia	0.36	-	0.36	0.72	-	0.72	0.53	-	0.53
Kosovo	0.25	-	0.25	0.22	-	0.22	0.34	-	0.34
Slovenia	0.29	-	0.29	0.42	-	0.42	0.26	-	0.26
Czech Republic	-	-	0.26	0.10	-	0.10	0.20	-	0.20
Slovakia	0.13	-	0.13	0.11	-	0.11	0.18	-	0.18
Montenegro	0.04	-	0.04	0.10	-	0.10	0.11	-	0.11
Bulgaria	0.06	-	0.06	0.08	-	0.08	0.11	-	0.11
Macedonia	-	-	0.11	0.03	-	0.03	0.08	-	0.08
Russian Federation	0.05	-	0.05	0.04	-	0.04	0.05	-	0.05
Hungary	0.04	-	0.04	0.04	-	0.04	0.04	-	0.04
Eastern Europe Totals	**56.17**	**3.00**	**59.17**	**70.59**	**4.67**	**75.26**	**79.21**	**4.71**	**83.92**

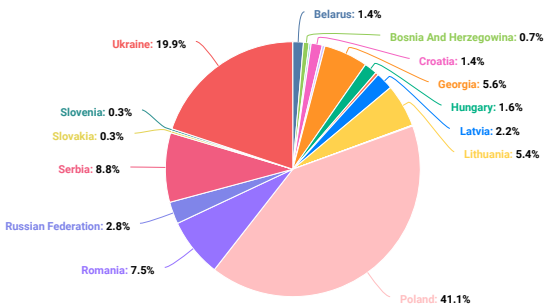
Eastern Europe Highbush Production by Country



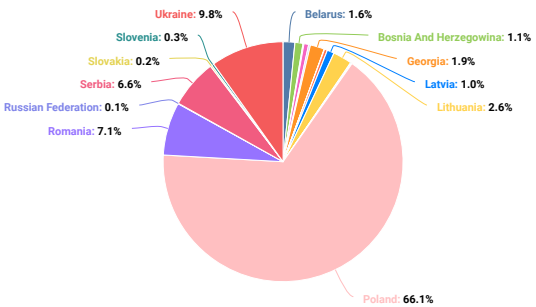
Eastern Europe Highbush Production by Use



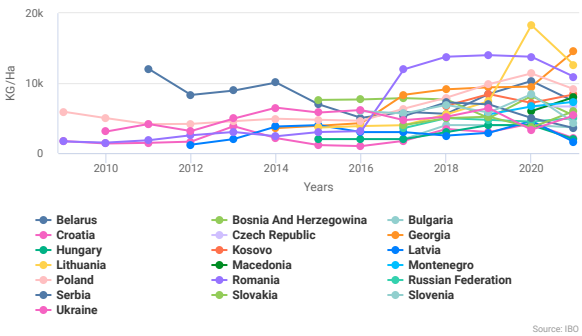
2021 Eastern Europe Highbush Hectares by Country



2021 Eastern Europe Highbush Production by Country



Eastern Europe Highbush Yield by Country



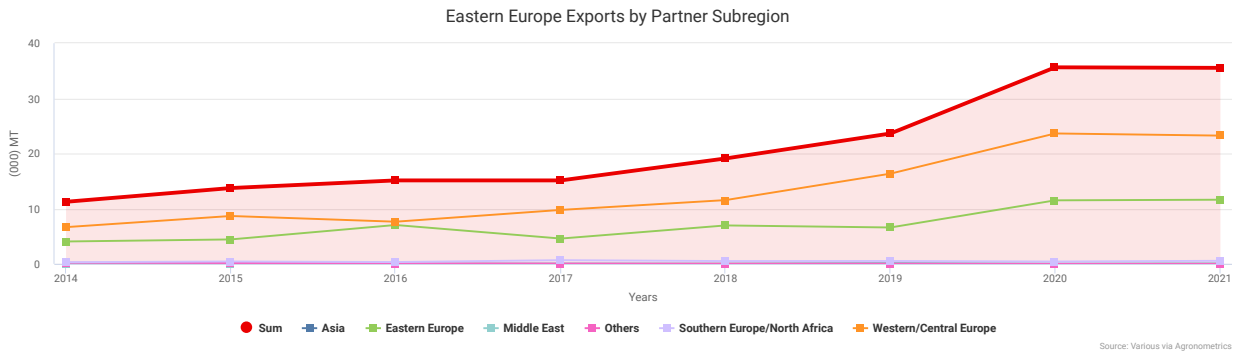
Eastern Europe 2021 Production Metrics

Hectares Planted:	**26,790.0 Ha**
Hectares in Production:	**11,319.0 Ha**
Production:	**83.92 (000) MT**
Growth in Production[1]:	▲8.7 (000) MT (10.32%)
Growth from Hectares[2]:	▲26.61 (000) MT (307.27%)
Growth from Yield[3]:	▼-17.94 (000) MT (-207.16%)
Yield:	**7,413.69 (Kg/Ha)**
Exports:	**35.53 (000) MT**
Imports:	**30.99 (000) MT**

[1] Growth in volume produced compared to previous season
[2] Volume increase from new hectares coming into production
[3] Volume increase from higher yields

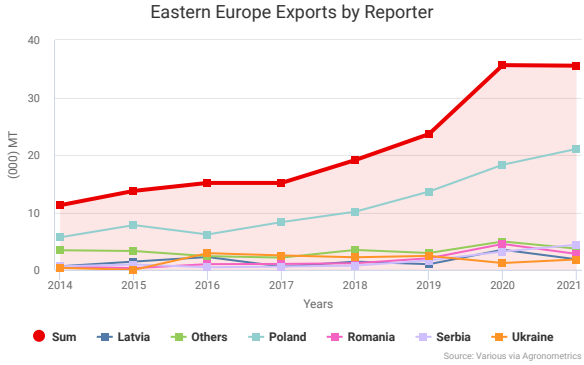
Eastern Europe Exports by Partner Subregion

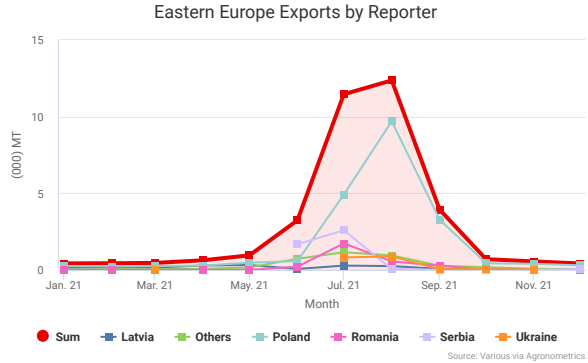
Subregion	2018	2019	2020	2021
Western/Central Europe	11.56	16.35	23.64	23.25
Eastern Europe	6.97	6.60	11.52	11.63
Southern Europe/North Africa	0.51	0.52	0.42	0.55
Middle East	0.03	0.06	0.04	0.06
Asia	0.02	0.09	0.01	0.03
Others	0.03	0.02	0.00	0.00
Eastern Europe Totals	**19.11**	**23.63**	**35.63**	**35.53**



Eastern Europe Exports by Reporter

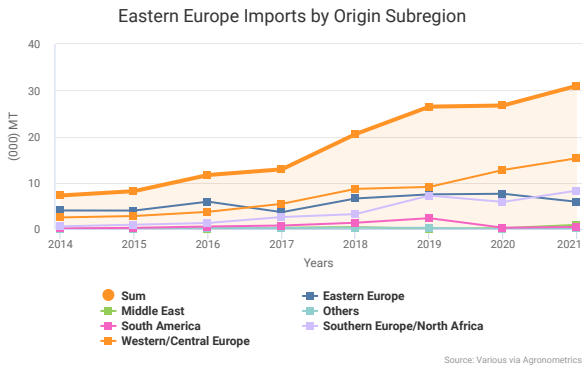
Reporter	2018	2019	2020	2021
Poland	10.12	13.62	18.30	21.05
Serbia	0.74	1.65	3.19	4.36
Romania	1.15	2.01	4.50	2.77
Latvia	1.43	0.99	3.50	1.84
Ukraine	2.19	2.43	1.19	1.82
Others	3.47	2.93	4.94	3.69
Eastern Europe Totals	**19.11**	**23.63**	**35.63**	**35.53**

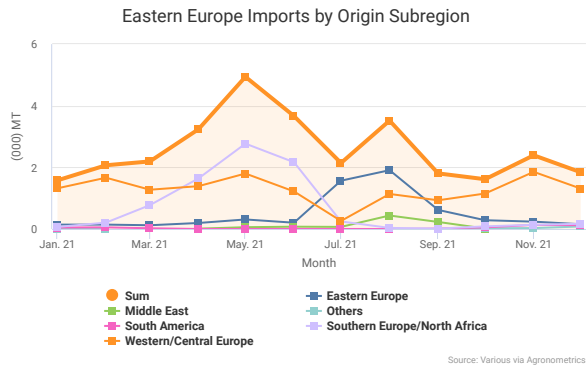




Eastern Europe Imports by Origin Subregion

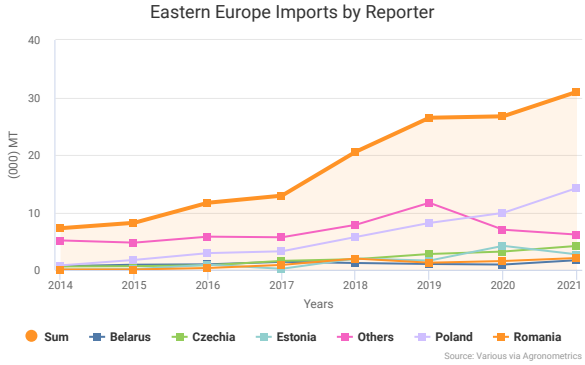
Origin	2018	2019	2020	2021
Western/Central Europe	8.68	9.10	12.77	15.31
Southern Europe/North Africa	3.22	7.24	5.86	8.31
Eastern Europe	6.60	7.49	7.62	5.89
Middle East	0.41	0.06	0.18	0.89
South America	1.35	2.34	0.28	0.45
Others	0.28	0.24	0.01	0.14
Eastern Europe Totals	**20.54**	**26.47**	**26.72**	**30.99**

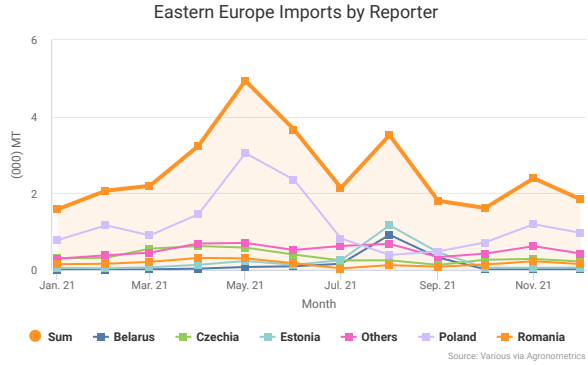




Eastern Europe Imports by Reporter

Reporter	2018	2019	2020	2021
Poland	5.72	8.16	9.91	14.25
Czechia	1.86	2.76	3.18	4.17
Estonia	1.97	1.61	4.18	2.70
Romania	1.96	1.25	1.54	2.06
Belarus	1.19	1.02	0.92	1.68
Others	7.83	11.67	6.99	6.13
Eastern Europe Totals	**20.54**	**26.47**	**26.72**	**30.99**





Eastern Europe Report Team Narrative

For an in-depth complement to what is happening in Eastern Europe please visit the following country reports:

- Poland

With the longstanding Polish industry accounting for the lion's share of production and continued growth (See Polish country member summary and report team narrative), Eastern Europe is home to rapidly developing blueberry industries whose young plantings are still in the maturing phase with plenty of volume increases on the horizon.

Spread across a wide geographical expanse – which in this report also includes the Republic of Georgia, a nation technically outside of Europe but to the west of the Caucasus Mountains – Eastern Europe comprises an agglomeration of culturally and climatically diverse nations that have found opportunities in blueberry markets, particularly in Europe and Russia, and to a lesser extent the Middle East. As part of the global trend towards 52-week supply, Eastern Europe itself - especially Poland - has also become a key market in its own right for exporters from the Southern Hemisphere, the Mediterranean and North Africa.

Some of the most aggressive planting has taken place in countries that cater to the June lull between the Spanish season and when large volumes come on in July from Poland, Germany and the Netherlands. The most notable rises targeting this window have come from Romania and Serbia, but there are other smaller pockets of development such as Kosovo, and Bosnia and Herzegovina.

Ukraine

Ukraine, with a blueberry season that largely overlaps with Poland, has also seen pronounced production rises over the last few years coming from an industry that is relatively sophisticated with sizable operations utilizing modern cooling facilities and sorting lines. There is a greater share of large operations – most of which come from Ukrainian capital, although there are a few from Russian and Kazakh investors – but smallholder farmers have followed suit with tiny plots, similarly to what has occurred in Poland.

Prior to the Russian invasion of Ukraine in late February 2022, the industry was preparing for further investments in advanced infrastructure but since then has been in "survival" mode; a small portion of Ukrainian farms near Kyiv were damaged by military action, but 90% of fields are concentrated west of the capital where the situation has not been as severe, albeit not free from Russian shelling.

At the time of writing, there are concerns about transportation difficulties into the EU for Ukrainian blueberries when the season begins, given the logistical challenge of needing to change trucks and drivers at the border because of the prohibition on men leaving the country, not to mention the effects of inflation including the higher price of a variety of inputs including gasoline. Over the past two years the Ukrainian market has also proven attractive for local growers, at times offering higher prices than export markets, but amidst the war the purchasing power of citizens has been greatly reduced, which has major implications for that domestic sales outlet. The Ukrainian Berries Association has also been hampered in its ability to collect fees from members, limiting its financial capacity to undertake the kinds of educational activities aimed at furthering development. The association's leadership is based in Poland at the time of writing, and has been working hard to both support the industry and raise charitable funds to help displaced Ukrainians.

Russia

Prior to the war Russia had seen a 25% increase in blueberry planting area year-on-year in 2021, albeit off a low base, and there was a great deal of interest from farmers in a variety of regions to adopt best-of-breed production methods and varieties; the industry at the start of this year could have been described as at an inflection point with domestic producers eager to capitalize on strong demand between import windows. Imports were growing at double digits with Peru as its leading supplier, followed by Morocco, Chile, and then Serbia close behind. Russian import growth from the Republic of Georgia was also surging as that industry's main export market, although due to the tension between both countries there is a preference amongst Georgian growers to shift their market channels to Europe, the Middle East and Asia. Russia stopped reporting official data following the invasion, but data from Eurostat indicates the country's imports in fact rose year-on-year in the first three months of 2022. There are reports of long lines at the border of trucks for the exchange of shipments, as European trucks are not allowed into Russia.

Serbia

After Poland, Serbia has the second-largest planting area for blueberries in Eastern Europe although volume-wise it sits just behind Romania. Serbia's mountainous terrain allows for the manipulation of harvest windows with different varieties, although the predominant cultivar is Duke. Most growers are

smallholders, but most exports are from large farms which also source volume from third parties in their local areas.

Some of the more advanced blueberry establishments in Serbia involve investment, resources and expertise from the Netherlands, the United States, the United Arab Emirates and Germany. At least half of the nation's exports are attributed to a handful of companies. More than half of Serbia's fresh blueberry exports in 2021 went to the Netherlands, followed by Russia, Germany, the UK and Poland.

Private genetics companies and growers from outside the country are dipping their toes into the Serbian market to train farmers with the necessary skill sets before taking the plunge into partnering on larger-scale commercial programs for proprietary varieties. With a lack of data and transparency within the industry there are varying views about the extent of certain cultivation methods such as pots and substrate, although on the most conservative estimate at least half are producing this way, and a growing portion have anti-hail nets too. In some hilly areas in the south and southwest the soil is optimal for blueberry production and is conducive to growing larger berries that command price premiums.

Kosovo

Kosovo's industry is closely connected to Serbia despite their checkered past. As far as the sector is concerned, "both countries fly under the same flag of blueberries", as one industry leader noted.

The Kosovan blueberry industry was developed with support from USAID over the course of a decade, and after that programme recently ended the Swiss Government-affiliated Caritas took up the baton and has been helping small farmers with a programme that will last until 2025. Kosovo's production has been growing rapidly with a window that is normally between late May and July, although the season commencement was 10 days late in 2021, meaning exporters missed out on a window with the best prices. A heatwave also led to damages for late varieties such as Liberty and Aurora (in a country where, like in Serbia, the leading variety is Duke), but those with fog systems were able to avoid the damage. Most growers were not ready for this form of protection though, as they had just been through a severe hail event in 2020 when half the crop was lost, prompting widespread investments in anti-hail nets that are now estimated to be in use for around half the planted hectares.

Kosovo has a similar cost per hectare to Serbia. Its percentage of substrate production in pots is lower at 25%, but growers who plant in fields still use white peat as substrate and yields are currently higher than in Serbia with aspirations towards a Dutch-style, high-density industry.

Elsewhere in the Balkans, other emerging blueberry industries include Bosnia & Herzegovina and Croatia.

Romania

To the east of Serbia, the bulk of Romania's production is in the foothills of the Carpathian Mountains on either side of the range, with the season running a week later than Serbia in the south and two weeks later in the north. This allows for harvests from mid-June to late August.

There are more than 300 independent growers in Romania, most of whom are smallholder farmers, but the handful of larger operations that exist are working towards becoming a cooperative with advanced irrigation systems, automated packhouses and modern sorting technology. Some are also experimenting with next-gen varieties from the United States, Spain and elsewhere.

Romania has the added benefit that it can draw on a workforce who already have years of experience working on blueberry fields in Spain, and can return to Romania to continue working once the Spanish season is finished each year. As is the case everywhere, the Romanian industry is battling with input inflation, but that hasn't stopped interest from new investors including a Canadian company that is assessing the viability of a large development by Romania's standards.

Republic of Georgia

On the opposite side of the Black Sea from Romania sits the Republic of Georgia, a nation that has only been experimenting with blueberries for less than five years and is on the precipice of massive growth, mostly in the form of southern highbush blueberry varieties although the mountainous topography allows for northern highbush growing in certain areas. With tunnel production the industry is capable of growing the fruit in May, but the season is concentrated in June and July with some volume in August. The bulk of plantings are in western Georgia in the regions of Guria, Samegrelo-Zemo Svaneti and Imereti.

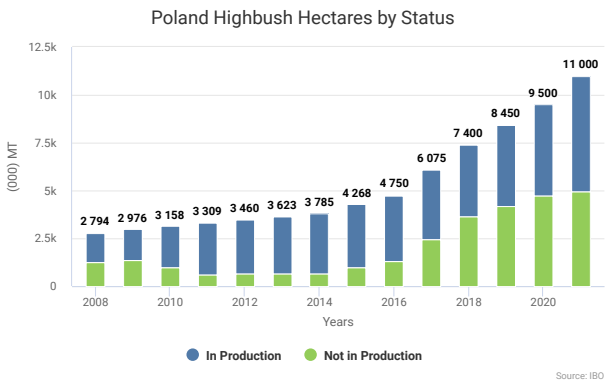
The typical farm in the Republic of Georgia is one hectare or less – a tendency that has been encouraged by government grants to smallholder farmers to plant blueberries, mostly with older varieties as well. As such a new industry, there is a wide gap in knowledge which is not helped by the fact most educational materials are not in languages that are very accessible to the average Georgian farmer. There are an estimated 40 farmers in Georgia who have blueberry farms that are larger than 20ha.

In parallel to the trends across Eastern Europe, the proliferation of small growers detracts from the fact that most of the blueberry volume comes from larger entities, which in Georgia is about 90%. There are an estimated 40 farmers in Georgia who have blueberry farms that are larger than 20ha. As has been the case in Serbia there has been investment into a large farm from a UAE-affiliated entity, as well as investors from India. In 2020 one of the world's largest blueberry breeders and nurseries from the U.S. set up shop in the country, with around 11 next-gen varieties under trial. Growers also are known to source plant material from Polish nurseries.

There is further opportunity for large operations to be developed as well thanks to another government programme committing grants towards seedlings and irrigation systems for citizens on plots of land between 0.5ha and 50ha. This can be for any crop, including blueberries.

POLAND

Planting and Production Data, Figures & Commentary
(Denominated in Hectares and Thousands of Metric Tons)



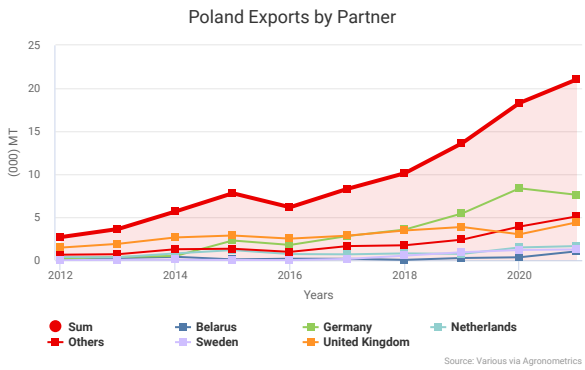
Poland 2021 Production Metrics

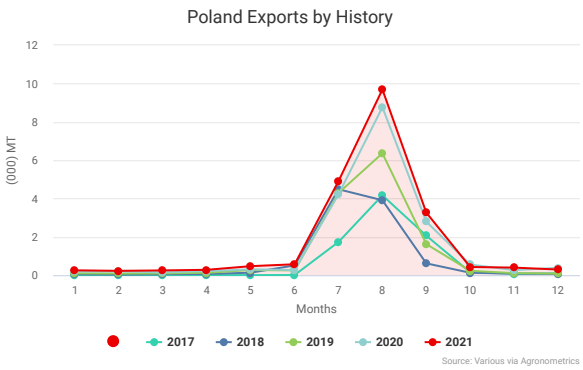
Hectares Planted:	**11,000.0 Ha**
Organic:	2.0%
Under Structure:	3.0%
Hydroponics:	Not Reported
New Genetics:	7.0%
Hectares in Production:	**6,075.0 Ha**
Production:	**55.50 (000) MT**
Growth in Production[1]:	▲1.4 (000) MT (2.52%)
Growth from Hectares[2]:	▲15.09 (000) MT (1,077.86%)
Growth from Yield[3]:	▼-13.69 (000) MT (-977.86%)
Yield:	**9,135.80 (Kg/Ha)**
Exports:	**21.05 (000) MT**
Imports:	**14.25 (000) MT**

[1] Growth in volume produced compared to previous season
[2] Volume increase from new hectares coming into production
[3] Volume increase from higher yields

Poland Exports by Partner

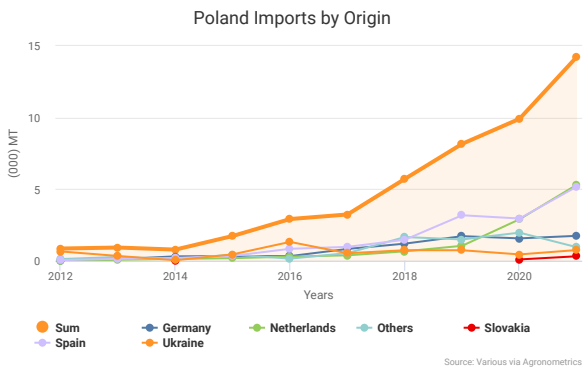
Reporter	2018	2019	2020	2021
Germany	3.57	5.44	8.36	7.60
United Kingdom	3.46	3.86	3.01	4.41
Netherlands	0.79	0.74	1.48	1.64
Sweden	0.53	0.93	1.19	1.25
Belarus	0.04	0.26	0.34	1.04
Others	1.74	2.39	3.91	5.10
Poland Totals	**10.12**	**13.62**	**18.30**	**21.05**

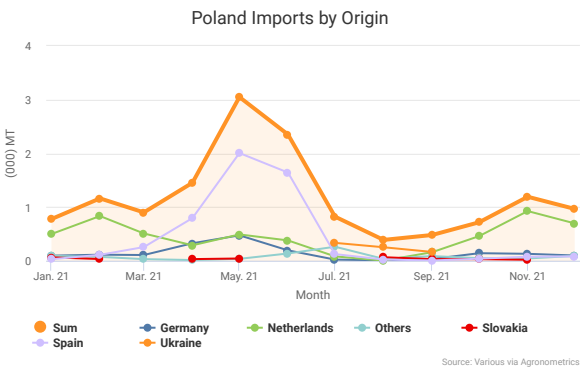




Poland Imports by Origin

Reporter	2018	2019	2020	2021
Netherlands	0.66	1.05	2.90	5.32
Spain	1.47	3.18	2.95	5.18
Germany	1.20	1.72	1.56	1.74
Ukraine	0.74	0.73	0.44	0.75
Slovakia	-	-	0.09	0.31
Others	1.66	1.49	1.96	0.94
Poland Totals	**5.72**	**8.16**	**9.91**	**14.25**





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FUNDACJA PROMOCJI POLSKIEJ BORÓWKI

Poland
Country Member Summary

Adapted from a Report by the Polish Blueberry Promotion Foundation
Contributors: Dominika Kozarzewska, Stanisław *(Stan)* Pluta, Mariusz Podymniak, Mateusz Pilch

Planted area and yields in 2021

According to data published by the Agency for the Restructuring and Modernisation of Agriculture, the total acreage of blueberry plantings in 2021 amounted to 11,000ha. The total fruit production is estimated at 55,500 metric tons (Mt).

According to our estimates, conventional fresh fruit production constitutes 51,000MT, organic production is 1,500MT and fruit for processing and IQF freezing is 3,000MT.

Blueberry production under covers (tunnels and rain sheds) has been developing steadily, but it is still relatively small.

Country narrative

Production. Highbush blueberries (Northern type) have been grown commercially in Poland for over 45 years; but in particular the last five years saw an unprecedented increase in acreage and fruit production. The Polish blueberry producer base is strongly fragmented, with farms smaller than 5ha constituting around two thirds of all farms. However, the largest farms (over 50 ha) account for about 30% of the total planted area.

Production is heavily concentrated with 3 regions (Mazovia, Łódzkie and Lubelskie) in central and south-eastern Poland accounting for 54% of the total planted area. The three regions are also growing at a fast pace and account for 64% of total planted area growth between 2020 and 2021.

The 2021 season was different from the previous ones in that the traditional ‘Bluecrop’ peak in early August was preceded by a ‘Duke’ peak in July. This is attributable to mass plantings of this variety in recent years. Due to the ‘Duke’ peak and ensuing decrease in prices, many growers were heavily concerned about the financial outcome of the season. However, in late August and early September there was considerable demand for blueberry fruit for processing resulting in relatively high prices, which “saved” the season for many growers.

With regard to new plantings, recent releases such as ‘Last Call’, ‘Megas Blue’, ‘Valor’, ‘Cargo’ and ‘Calypso’ are gaining popularity. Many test plantings of these new varieties have been put in place with the aim of verifying their adaptation and suitability for Poland’s climate, including winter hardiness. The severe (frosty) and snowy winter of 2020/2021 and mild winter of 2021/2022 have already allowed growers to gain some valuable information, but full evaluation will require more time.

Polish commercial blueberry farms are drip irrigated, and most of them are equipped with fertigation systems with different levels of technical sophistication. In general, blueberry fruit for the fresh market is hand-picked. Machine

harvest takes place on bigger farms, usually only at the end of the season and the fruit is destined for processing. Many Polish growers and producer organisations possess state-of-the-art cold storage and packing facilities.

Late 2021 and early 2022 saw an unprecedented increase in the costs of many production materials, including but not limited to fertilisers, plant protection products and packaging.

The impact of the war in Ukraine on the availability of labour for Polish growers is yet to be assessed. It is however already clear that during the 2022 season growers will face new challenges such as providing additional accommodation and day care for the children of refugee workers.

Sales

Domestic demand for blueberry fruit increased sharply within the last 3-4 years. This can be attributed to the "Time for Polish Superfruit" promotional campaign, which is run jointly by growers of various small fruit. At the start of the pandemic, in the spring of 2020, we observed a surge in consumption of imported blueberries, but in 2021 consumption patterns went back to normal. In August 2021 penetration amounted to 53% and it was 8 percentage points higher than in August 2020, which translates into 2.5 million new consumers. Huge increases are also happening outside of the Polish season, with the number of consumers in April 2022 being 50% higher than in April 2021. Consumption per capita per annum has exceeded 1 kg already in 2020.

Most of the fruit produced in Poland is exported. The biggest export markets include Germany which has now taken over the UK as the main importer (probably partly as a result of Brexit), followed by the Netherlands and Scandinavian countries.

The general sentiment in the Polish blueberry industry is now considerably less optimistic than a few years ago, mostly due to decreasing profitability. However, commercial growing of highbush blueberries remains an attractive alternative to apple orchards, for example. The grower mentality is also slowly changing – more and more producers are becoming aware that further market development cannot be achieved without offering high quality fruit.

Outlook for the future. The key challenges Polish growers are now facing include rising costs, the need to increase fruit quality, and the consolidation of production. If Poland is to remain competitive on the global blueberry market, fruit quality parameters such as firmness, crunchiness and shelf life must be improved. This can be achieved mostly through introducing new genetics, but also modern production technologies.

Promotional activities. The highly successful and efficient "Time for Polish Superfruit" campaign continues in 2022. It promotes the consumption of blueberries and other soft fruit using, among others, the concept of "Berry Relay", which emphasises the fact that Polish soft fruit is available for 8 months of the year, with seasons for various berry fruits following one another.

The 2022 edition of the campaign will include, among others, participation in the National Sports Day. According to consumer research, blueberries top the list of soft fruit associated by Poles with fitness and exercise and the event will seek to reinforce this image.

Poland
Report Team Narrative

Poland, the leading supplier of blueberries to the European market over winter and the continent's second-largest producer after Spain, is a highly fragmented industry that has recently seen an uptick in new entrants – mostly smaller farms – drawn to the sector's relatively attractive returns versus other crops. Despite a significant rise in volume, and the new twin peaks scenario in production for Duke and Bluecrop in July and August respectively, the average return in 2021 was only slightly lower than pre-pandemic levels and still higher than in 2015.

This resilience is due to several factors, with one being the exemplary marketing efforts as referenced by the Polish Blueberry Promotion Foundation's country member report. Domestic promotions have lifted domestic blueberry consumption substantially in a way that has helped alleviate the supply burden, bolstered by the continuity effect on demand of counter-seasonal supply. Another is the increased adoption of newer varieties, which rose from 5% to 7% of planted fields in 2021. As noted by the industry organization, higher processing prices (up 25% on average in August and continually higher year-on-year until the most recent reporting period of April 2022) "saved" the season by leading to higher prices in turn for fresh blueberries in late August and early September; this was due to the substitution effect of low wild blueberry crops from Poland and Ukraine, as well as high prices for frozen raspberries.

The latent challenge is the vast tracts of land – almost half the planted blueberry hectares according to estimates – that are still not yet in production, which will enter maturity in the years to come. In addition, as Poland starts to register higher volumes earlier in the season, this has overlapped and will clash even more so in the future with an ever-rising Serbian crop.

As more small players enter the fold, it is difficult to gauge how average crop yields will change given the combination of an increased proportion of small farms within newly planted hectares, and the fact there are still large, more sophisticated operations in the process of exponential scaling as fields mature.

Unpredictable weather is also an issue, with campaigns tending to be more problematic in years when mild winters are followed up by frost events in the spring. By all accounts the industry appears to have handled the spotted wing drosophila (SWD) threat well, but as other industries would likely attest, this is a pest that needs to be treated with vigilance and it is essential that educational and mitigation efforts continue.

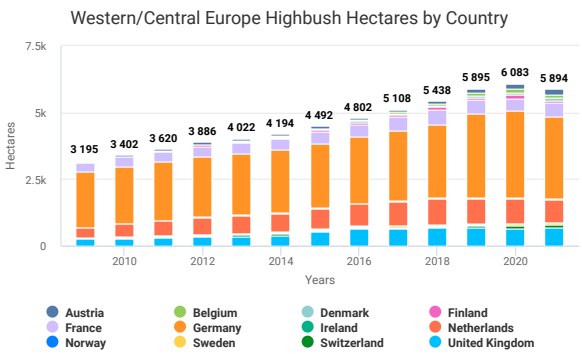
At the time of writing it is yet to be seen how the fruit picker situation will transpire in 2022. While the 1,000-plus small blueberry farms in Poland are picked by family and locals, larger orchards that account for most of the volume at present have traditionally had the majority of their labor force filled by Ukrainian workers. With the outbreak of war in that country in February 2022, male workers returned home to fight and Poland welcomed millions of refugees who were predominantly women and children. It is understood that there is a strong desire from these women to work in order to repatriate income home to Ukraine, but as noted by the Polish country member association, establishing lodgings with appropriate childcare amenities is a challenge. There is also the consideration that if parts of Ukraine stabilize, families may want to return home but the men will still stay in Ukraine. Some Polish growers are investing in machine harvesters as a risk mitigation strategy for this eventuality, recognizing that many of the fields and cultivars are not well situated for machine harvesting for fresh.

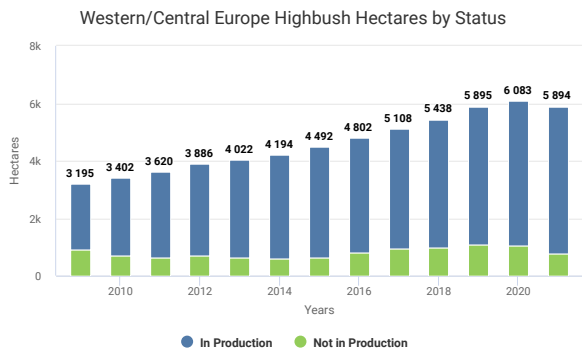
WESTERN / CENTRAL EUROPE

Planting and Production Data, Figures & Commentary
(Denominated in Hectares and Thousands of Metric Tons)

Western/Central Europe Highbush Hectares by Country

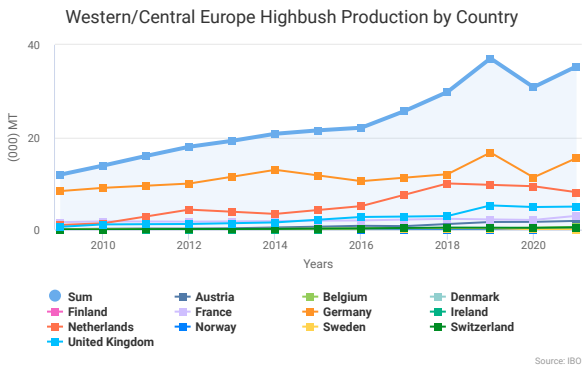
Western/Central Europe	Planting					2021 Production		
Growth Totals	**2017**	**2018**	**2019**	**2020**	**2021**	**Fresh**	**Process**	**Total**
Germany	2,625	2,750	3,162	3,289	3,050	11.30	4.20	15.50
Netherlands	900	980	950	920	873	6.00	2.10	8.10
United Kingdom	648	660	673	653	660	4.80	0.20	5.00
France	515	580	515	450	528	2.85	0.15	3.00
Austria	100	110	156	202	220	1.74	0.16	1.90
Belgium	40	60	95	130	128	0.40	0.20	0.60
Switzerland	45	50	78	107	135	0.42	0.09	0.51
Ireland	28	30	35	40	40	0.28	-	0.28
Finland	80	90	80	120	90	0.19	-	0.19
Denmark	60	60	80	100	100	0.12	-	0.12
Sweden	48	50	51	52	50	0.10	-	0.10
Norway	19	18	19	20	20	0.04	-	0.04
Western / Central Europe Totals	**5,108**	**5,438**	**5,895**	**6,083**	**5,894**	**28.24**	**7.10**	**35.34**

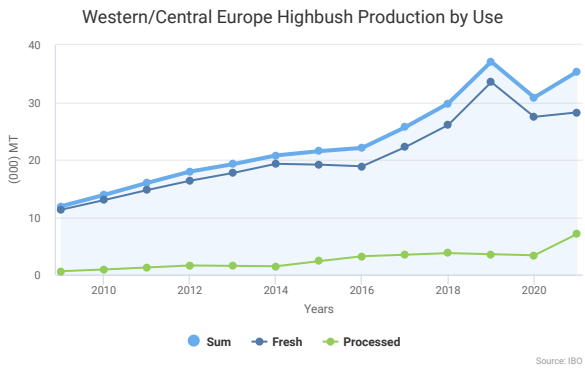


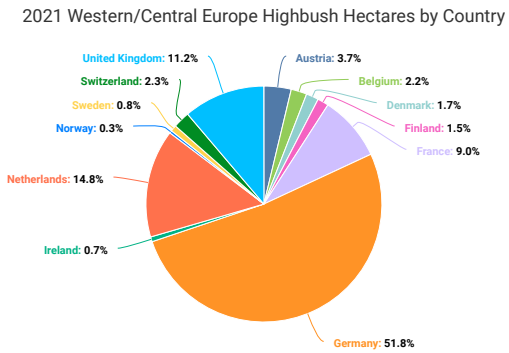


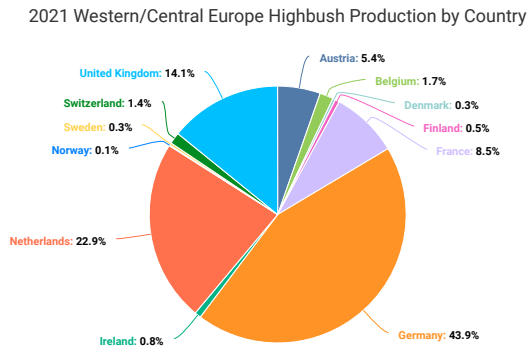
Western/Central Europe Highbush Production by Country

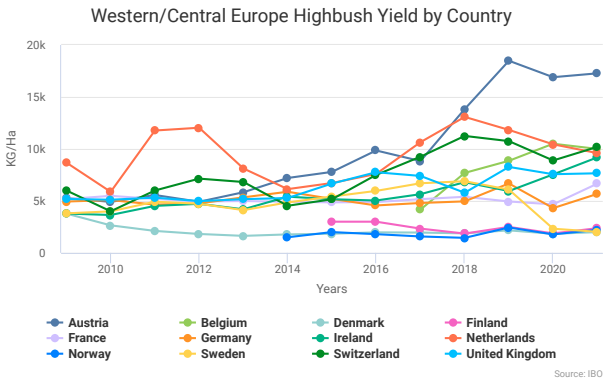
Western/Central Europe	2019			2020			2021		
Productions Totals	**Fresh**	**Process**	**Total**	**Fresh**	**Process**	**Total**	**Fresh**	**Process**	**Total**
Germany	14.84	1.85	16.69	9.61	1.70	11.31	11.30	4.20	15.50
Netherlands	8.35	1.35	9.70	8.20	1.20	9.40	6.00	2.10	8.10
United Kingdom	5.10	0.15	5.25	4.75	0.15	4.90	4.80	0.20	5.00
France	2.12	0.10	2.22	2.00	0.10	2.10	2.85	0.15	3.00
Austria	1.60	0.06	1.66	1.57	0.12	1.69	1.74	0.16	1.90
Belgium	0.30	0.01	0.31	0.40	0.02	0.42	0.40	0.20	0.60
Switzerland	0.39	0.04	0.43	0.32	0.08	0.40	0.42	0.09	0.51
Ireland	0.15	-	0.15	0.21	-	0.21	0.28	-	0.28
Finland	0.20	-	0.20	0.15	-	0.15	0.19	-	0.19
Denmark	0.13	-	0.13	0.11	-	0.11	0.12	-	0.12
Sweden	0.29	-	0.29	0.11	-	0.11	0.10	-	0.10
Norway	0.04	-	0.04	0.03	-	0.03	0.04	-	0.04
Western/Central Europe Totals	**33.51**	**3.56**	**37.07**	**27.46**	**3.37**	**30.83**	**28.24**	**7.10**	**35.34**











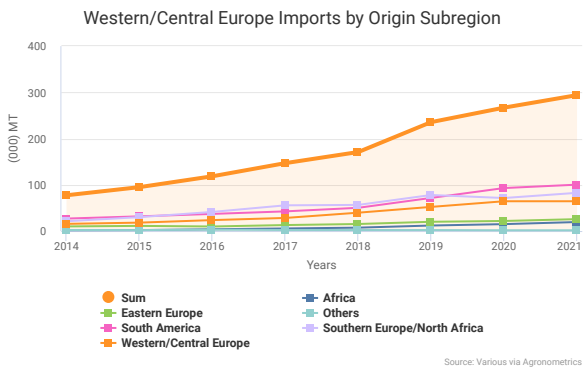
Western/Central Europe 2021 Production Metrics

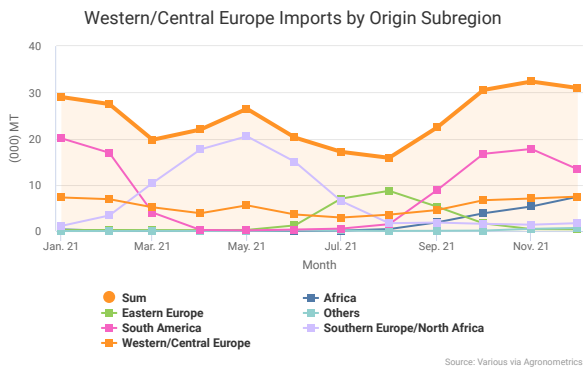
Hectares Planted:	**5,893.6 Ha**
Hectares in Production:	**5,135.0 Ha**
Production:	**35.34 (000) MT**
Growth in Production[1]:	▲4.5 (000) MT (12.76%)
Growth from Hectares[2]:	▲0.35 (000) MT (7.76%)
Growth from Yield[3]:	▲4.17 (000) MT (92.46%)
Yield:	**6,881.61 (Kg/Ha)**
Exports:	**87.53 (000) MT**
Imports:	**293.98 (000) MT**

[1] Growth in volume produced compared to previous season
[2] Volume increase from new hectares coming into production
[3] Volume increase from higher yields

Western/Central Europe Imports by Origin Subregion

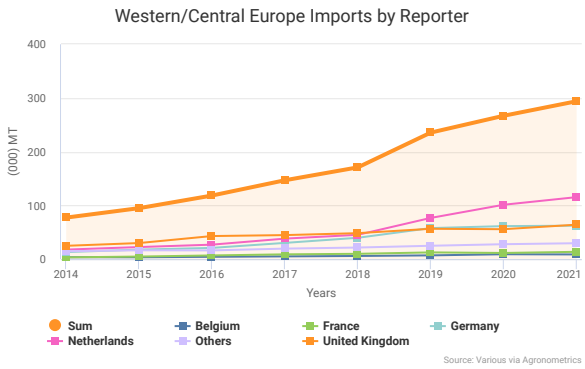
Origin	2018	2019	2020	2021
South America	50.21	71.60	92.92	100.31
Southern Europe/North Africa	56.47	77.90	71.36	82.61
Western/Central Europe	39.65	52.15	64.38	64.39
Eastern Europe	15.15	19.96	21.71	25.68
Africa	7.26	11.88	14.88	19.42
Others	2.12	2.07	1.62	1.58
Western/Central Europe Totals	**170.86**	**235.57**	**266.88**	**293.98**

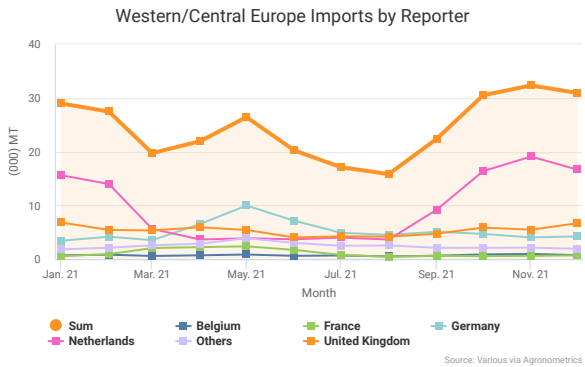




Western/Central Europe Imports by Reporter

Reporter	2018	2019	2020	2021
Netherlands	45.29	76.73	101.23	115.47
United Kingdom	48.37	56.52	55.72	64.19
Germany	39.77	57.82	61.49	62.29
France	9.92	12.57	11.51	13.63
Belgium	5.89	7.02	9.12	8.75
Others	21.61	24.91	27.81	29.65
Western / Central Europe Totals	**170.86**	**235.57**	**266.88**	**293.98**





Western/Central Europe Exports by Sub Region

Subregion	2018	2019	2020	2021
Western/Central Europe	39.65	52.15	64.38	64.39
Eastern Europe	8.68	9.10	12.77	15.31
Southern Europe/North Africa	3.60	4.43	6.71	7.54
Central Asia/Indian Subcontinent	0.02	0.01	0.01	0.20
Asia	0.09	0.10	0.12	0.08
Others	0.07	0.07	0.03	0.01
Western / Central Europe Totals	**52.10**	**65.87**	**84.04**	**87.53**

Western and Central Europe Report Team Narrative

For an in-depth complement to what is happening in Western and Central Europe please visit the following country reports:

- United Kingdom

As one of the world's fastest-growing fresh blueberry markets, Western and Central Europe is a region that has seen a steady rise in production over the past five years as growers turn their attention to soft fruit. Growth is coming from both a proliferation Europe-wide of small growers and a spattering of larger-scale operations; in both cases there is usually prior experience in berry farming with other crops such as strawberries or raspberries, and there is an eagerness amongst certain segments of national industries to adopt new genetics to meet demand from retailers for firm, large and flavorful berries, in addition to climate-adaptability considerations.

Weather was problematic across most of Europe in 2021, with rains impacting the shelf life of blueberries in the Netherlands and Belgium, as well as central and northern Germany. For the second time in three years, the French blueberry industry was struck by damaging frosts; an issue that is accentuated for that country because the largest concentration of growers in the southwest near Bordeaux have prioritised early production in their varietal selections, implying a greater share of bushes in bloom when spring frosts occur. Dutch growers also suffered from bird-related damages to fields, which were more severe than normal due to a lack of clarity in government policy on the issue.

With a relatively smaller area in the context of the region, the Netherlands has been one of the hotspots of blueberry investments in Western Europe, and the decline in production in 2021 is likely to be a dip in an upward sloping volume trend in the years to come. Dominated by five organisations that market most of the crop, around 90% of Dutch blueberry production is open field, sometimes with hail or rain covers. As an advanced agricultural nation that is home to a disproportionate amount of plant breeders generally for its size, it is unsurprising that the Dutch are so embracing of new varieties. Producers typically will not hold on to a particular cultivar for more than six years as they seek to rapidly innovate. Until the current inflation crisis there was also optimism surrounding incipient greenhouse innovations for blueberry production under lights, but investments in this cultivation model have been put on hold given the higher cost of energy.

Last year the Netherlands was Europe's largest importer of blueberries as well (albeit as both an import market and predominantly a re-export hub), followed by Germany, which itself was only just ahead of the UK. Most markets in the region recorded high blueberry import growth rates in 2021, with the largest percentage increases seen in France and Sweden. Germany actually imported less volume but its value of blueberry imports rose slightly. In the past few years it is estimated the penetration of blueberries in the German market has risen by around 45%, and another trend has been German retailers introducing larger pack sizes, including 500g and 750g packs in some stores at certain times.

On the topic of packaging, a potential barometer for where Western European countries might be heading on tackling plastic waste is the impending ban in France within three years on single-use plastic punnets – a traditional mainstay for the sale of berries, and one which most industry experts believe cannot be matched by other packaging materials in terms of shelf life, quality and presentation. What may be encouraging however is that Grand Frais – a relatively newer French retailer that has had great success in a saturated market, built on a premise of fresh foods and vertical integration - has introduced bulk blueberry formats (similar to what one would normally see with apples) accompanied by a scoop,

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and this has reportedly resulted in consumers making larger blueberry purchases.

In France itself, production is nowhere near large enough to satisfy demand. Year-on-year production in the country doesn't change much either, although newer plantings could mean there is latent growth potential. As noted earlier, volume is concentrated in the southwest but the fruit is grown all over the country. Closer to Paris is a large project by French standards that has been developed in Anjou in partnership with a British firm, while later season fruit is also grown around Lyon and in the mountainous Clermont-Ferrand area. At the time of writing, an agricultural census that finally gives blueberries its own category is due for release in 2022, which will provide a better understanding of the true planted area for the crop.

Across the channel, the UK's ability to produce domestically-grown blueberries has been threatened by pressing labour challenges following Brexit (see UK Country Member Summary for a more detailed analysis). Many Polish workers who used to pick fruit in the UK are increasingly choosing Germany and other EU industries instead as it is easier given the UK's migration regulations. Across the continent is greater demand for machine harvesters oriented for the fresh market, with one Dutch developer of the technology noting they are easily able to sell every machine they make. The adoption of machine harvesting for fresh is nowhere near as common in Europe as in North America, but some industry pundits believe that if proven successful it could suddenly make larger-scale Western European blueberry production much more viable than it is now, especially given labour scarcity and costs.

Local-for-local has become an important retail trend throughout Central and Western Europe – and for much of the former Soviet Bloc as well - that is incentivising new plantings that target the local market, even if the season is short or the yield is not particularly high. In this context, the blueberry business has become lucrative for farmers who already have high yields that compensate for high labor costs, as more secure local programs give them one less headache to worry about with much more certain cash flow.

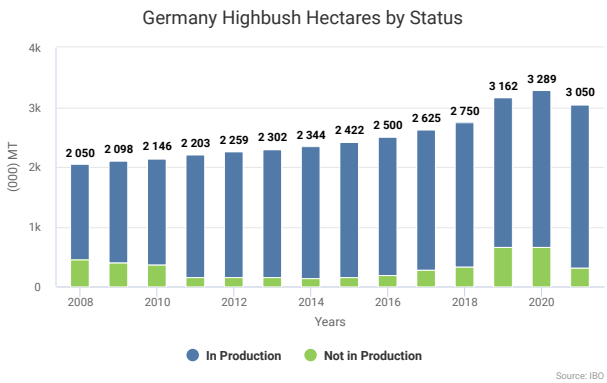
It is a trend seen amongst a subsection of retail and other channels such as community grocers and farmers' markets. Whether it's in Germany, the Netherlands, Belgium, France or elsewhere, there are supermarkets that showcase local fruit – including blueberries – as a differentiator during the local season, and those that are more focused on price discounting. The local-for-local trend is driven by two broad demographics: one, mostly older, who care about local for local's sake; and two, generally younger, for whom carbon footprint is most important so the country of origin may not be as relevant as how far the fruit has travelled.

Quality Premiums: There is a second retail divide as well, and not necessarily overlapping with the local trend, that marks the stratification of varieties. Certain retailers will pay for, and sell at, a premium for particular characteristics often exhibited by proprietary genetics or for blueberries from supply partners with a reputation for consistency regardless of fruit origin. Then there is the other half of retail that is more price-oriented and is willing to accept lower quality fruit from older varieties.

The dominance of private labelling in continental Europe and the UK is also a challenge, although not an intractable one, for encouraging marketers or growers to adopt premium genetics. Under this system their brand will not be consumer-facing and their product can be lumped in with other suppliers and the fruit characteristics may not be consistent. That said, some marketers have been able to successfully demonstrate the value of their brands and be given the privilege of their own consumer-facing marketing amidst the sea of private labels. What the entire removal of plastic packaging would mean in this area is uncertain, although there could be an unexpected positive effect – for blueberries to succeed under the more strenuous treatment conditions of bulk shelves or cardboard packaging, the imperative for improved genetics with an emphasis on durability becomes greater, although as other horticultural industries such as tomatoes learned the hard way – breeding for durability alone is a terrible idea when what the public wants is flavor as well.

GERMANY

Planting and Production Data, Figures & Commentary
(Denominated in Hectares and Thousands of Metric Tons)



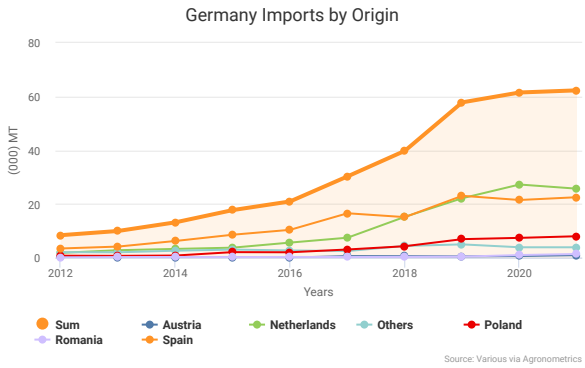
Germany 2021 Production Metrics

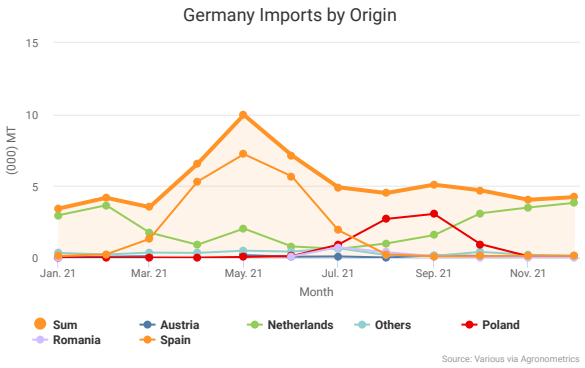
Hectares Planted:	**3,050.0 Ha**
Organic:	Not Reported
Under Structure:	Not Reported
Hydroponics:	Not Reported
New Genetics:	Not Reported
Hectares in Production:	**2,730.0 Ha**
Production:	**15.50 (000) MT**
Growth in Production[1]:	▲4.2 (000) MT (27.03%)
Growth from Hectares[2]:	▲0.45 (000) MT (10.74%)
Growth from Yield[3]:	▲3.75 (000) MT (89.50%)
Yield:	**5,677.66 (Kg/Ha)**
Exports:	**5.85 (000) MT**
Imports:	**62.29 (000) MT**

[1] Growth in volume produced compared to previous season
[2] Volume increase from new hectares coming into production
[3] Volume increase from higher yields

Germany Imports by Origin

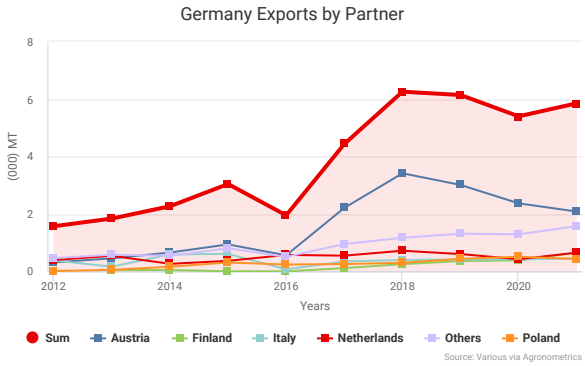
Reporter	2018	2019	2020	2021
Netherlands	15.20	22.12	27.23	25.67
Spain	15.09	23.02	21.47	22.50
Poland	4.26	6.89	7.37	7.97
Romania	0.30	0.38	0.97	1.36
Austria	0.56	0.47	0.60	0.93
Others	4.37	4.94	3.86	3.85
Germany Totals	**39.77**	**57.82**	**61.49**	**62.29**

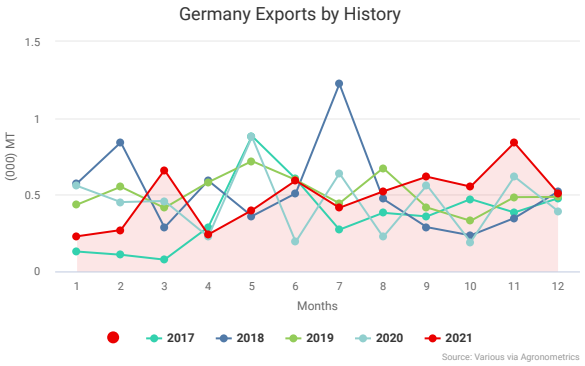




Germany Exports by Partner

Reporter	2018	2019	2020	2021
Austria	3.41	3.01	2.37	2.08
Netherlands	0.72	0.60	0.42	0.65
Finland	0.25	0.36	0.39	0.65
Italy	0.40	0.42	0.42	0.45
Poland	0.30	0.44	0.51	0.43
Others	1.17	1.31	1.29	1.58
Germany Totals	**6.26**	**6.14**	**5.40**	**5.85**





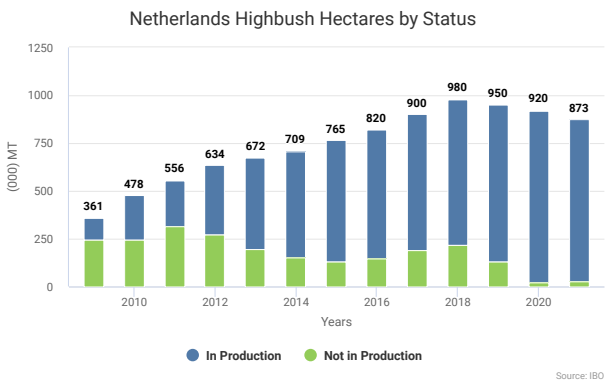
Germany Report Team Narrative

For an in-depth complement to what is happening in Germany please visit the following report:

- Western and Central Europe

NETHERLANDS

Planting and Production Data, Figures & Commentary
(Denominated in Hectares and Thousands of Metric Tons)



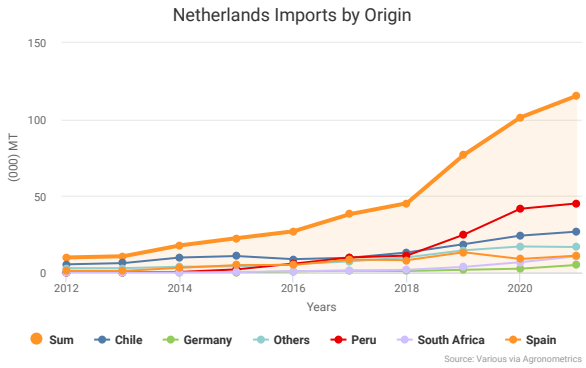
Netherlands 2021 Production Metrics

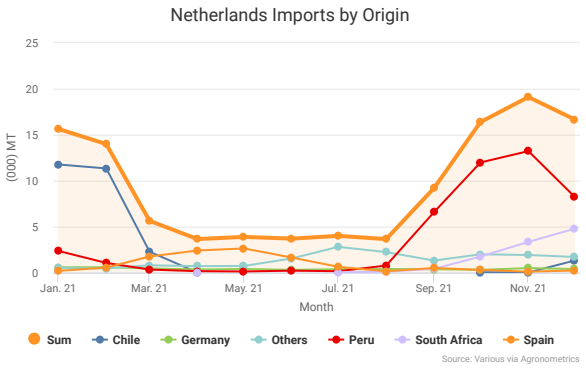
Hectares Planted:	**873.0 Ha**
Organic:	5.0%
Under Structure:	1.0%
Hydroponics:	5.0%
New Genetics:	3.0%
Hectares in Production:	**844.0 Ha**
Production:	**8.10 (000) MT**
Growth in Production[1]:	▼-1.3 (000) MT (-16.05%)
Growth from Hectares[2]:	▼-0.58 (000) MT (-44.62%)
Growth from Yield[3]:	▼-0.72 (000) MT (-55.38%)
Yield:	**9,597.16 (Kg/Ha)**
Exports:	**91.52 (000) MT**
Imports:	**115.47 (000) MT**

[1] Growth in volume produced compared to previous season
[2] Volume increase from new hectares coming into production
[3] Volume increase from higher yields

Netherlands Imports by Origin

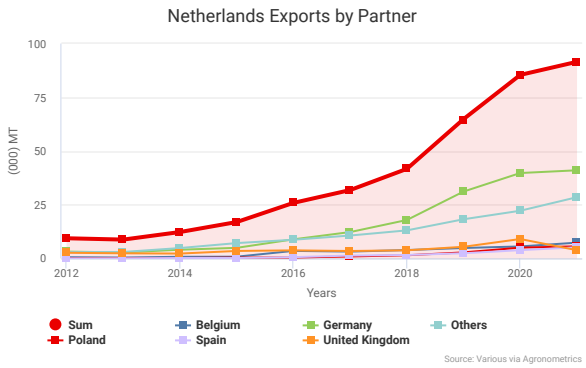
Reporter	2018	2019	2020	2021
Peru	11.14	24.72	41.68	45.19
Chile	13.16	18.55	24.13	26.77
Spain	8.13	13.30	8.93	11.10
South Africa	1.84	3.74	6.81	10.68
Germany	1.07	1.86	2.58	5.01
Others	9.95	14.57	17.09	16.71
Netherlands Totals	**45.29**	**76.73**	**101.23**	**115.47**

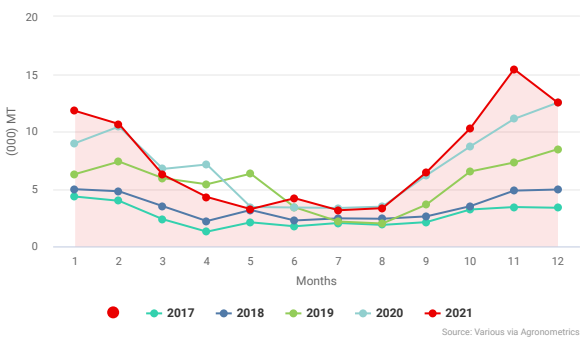




Netherlands Exports by Partner

Reporter	2018	2019	2020	2021
Germany	17.89	31.12	39.74	41.02
Belgium	3.90	4.86	5.58	7.34
Poland	1.47	2.80	5.03	5.62
Spain	1.60	2.42	3.84	5.19
United Kingdom	3.78	5.41	9.03	3.83
Others	13.05	18.23	22.19	28.51
Netherlands Totals	**41.68**	**64.84**	**85.41**	**91.52**





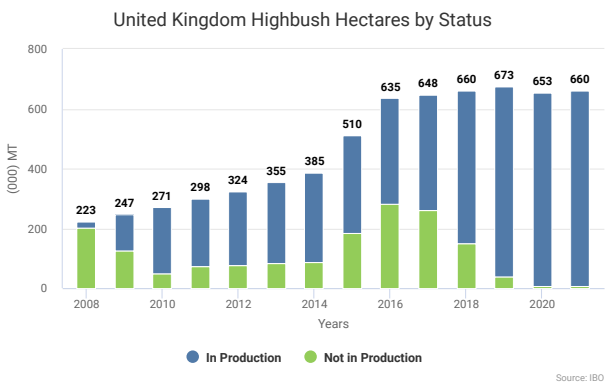
The Netherlands Report Team Narrative

For an in-depth complement to what is happening in The Netherlands please visit the following report:

- Western and Central Europe

UNITED KINGDOM

Planting and Production Data, Figures & Commentary
(Denominated in Hectares and Thousands of Metric Tons)



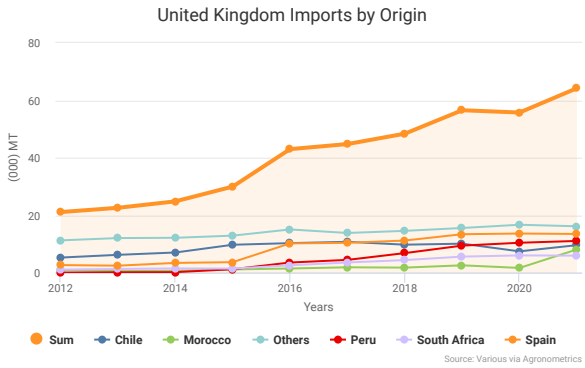
United Kingdom 2021 Production Metrics

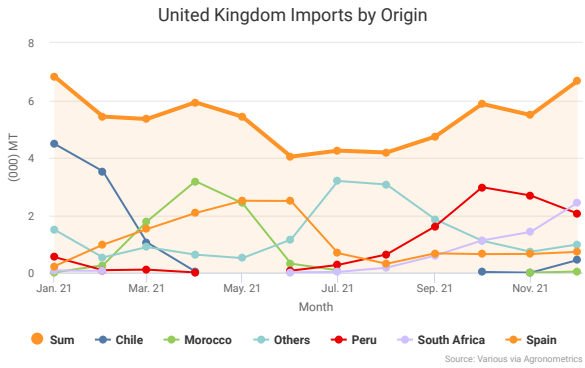
Hectares Planted:	**660.0 Ha**
Organic:	5.0%
Under Structure:	30.0%
Hydroponics:	40.0%
New Genetics:	5.0%
Hectares in Production:	**653.0 Ha**
Production:	**5.00 (000) MT**
Growth in Production[1]:	▲0.1 (000) MT (2.00%)
Growth from Hectares[2]:	▲0.04 (000) MT (40.00%)
Growth from Yield[3]:	▲0.06 (000) MT (60.00%)
Yield:	**7,656.97 (Kg/Ha)**
Exports:	**1.08 (000) MT**
Imports:	**64.19 (000) MT**

[1] Growth in volume produced compared to previous season
[2] Volume increase from new hectares coming into production
[3] Volume increase from higher yields

United Kingdom Imports by Origin

Reporter	2018	2019	2020	2021
Spain	11.17	13.37	13.61	13.46
Peru	6.80	9.40	10.40	11.03
Chile	9.73	10.08	7.41	9.57
Morocco	1.75	2.55	1.64	8.08
South Africa	4.37	5.58	6.00	5.92
Others	14.54	15.54	16.67	16.13
United Kingdom Totals	**48.37**	**56.52**	**55.72**	**64.19**





United Kingdom Report Team Narrative

Adapted from the report by Steve Taylor on behalf of the United Kingdom Berry Industry

Fresh blueberry sales in the UK continue to increase over the full year, but with some notable distortions year-on-year such as Peru disrupting the market with large increases in exports from the start of September until the end of November. Overall prices are steady with the exception of the September/October period.

UK growers generally coped well with Covid-related problems in 2020 but in 2021 the problems revolved around labour shortages, which were almost totally due to Brexit rather than covid. Some crops towards the end of the UK season, in September especially, were left on the plant unpicked. There were also logistics issues with the country being over 30,000 HGV (heavy goods vehicle) drivers short as many are traditionally from Eastern Europe and new people are now no longer able to come to the UK to work.

There were also almost no HGV tests done for the peak 18 months of the covid pandemic as it affected the UK. The UK Government has failed miserably in predicting these Brexit-related shortages, which are across a number of sectors. Unemployment in the UK is generally low (under 4% as of April '22) even in the wake of covid, and the demographic of Eastern Europeans who have left the country is not matched by the demographic and skillset of the English people who are looking for work. The social benefits system also means that for many they are better off staying at home and not working.

The industry has asked the Government for help in allowing greater numbers of migrant workers to be allowed to assist with the harvest operations on a temporary visa basis, but the government has refused with some strong words, saying that growers should invest in robots and pay English workers more, even though there are not enough English people to do the work, even if they wanted this type of work.

A cross-party group of 12 MPs challenged this policy as not being good for the country, in a very critical report published March 2022 after a detailed investigation of the UK soft fruit industry post Brexit.

Faced with a shortage of labour for the second year running, growers have therefore been forced into taking decisions to change operations to require less pickers. Growers have limited options to become more efficient, and we already see reduced plant orders, especially on fruits such as raspberries, where we will see a 10-15% reduction in the harvest being picked in 2022. Growers are also grubbing crops when they might normally leave them in for one more year, focusing instead on crops that are picker-efficient and make the most money. In the UK this means most growers have not cut back on strawberries but have either cut back, not replanted or grubbed early, fruits such as raspberries or blackberries. Blueberries are one the least profitable but growers are reluctant to take them out as they are typically a 10-year crop, with a large amount grown in pots as well as many in tunnels. This

means mechanical harvest options are not an option for most, but equally growers do not want to remove a crop that is only a few years' old. The end result is the volume and hectares of blueberries are fairly static, and over the next few years we might expect a slight decline in hectarage, and static production at best as new fields come into production.

Blueberries do have the advantage over raspberries and blackberries in that they have a longer window to carry out each pick, but conversely the cost per kg is significantly higher as the kg/hour picked is significantly less than for raspberries or strawberries. If there is another year with labour shortfalls, then blueberries are under threat.

Around 50% of UK production is under tunnelled production, much to maximise the value of pot-grown fruit. A large percentage of the UK production is in pots, and so there is a mixture of soil and pot grown, and open or tunnelled production. With labour becoming the dominant issue, then the picking efficiency is becoming the most important factor in the method chosen for new plantings.

UK growers aim mostly for early or late production as they cannot compete with Polish production from the second week July until the end of August, which is the natural northern highbush blueberry open production timing in England. Varieties such as Duke are still widely grown, with none of the newer proprietary varieties showing improvement on Duke in that time slot, and Duke being a 'free' variety has also limited the uptake of some newer genetics. Late season growers have varieties such as Liberty, but Peru is severely impacting what were traditionally high prices during the late market, being present in volume now from 1st September in the UK (but could be earlier if there is a demand). UK growers therefore try to have minimum production from the third week July to the end of August.

The UK consumer also does not want to pay much of a premium for UK-produced blueberries, and so there are very limited opportunities for premiums.

The UK was one of the first countries to return to the new 'normal' in so far as covid is concerned, and this is not impacting business for the 2022 calendar year. The new challenge is the unprecedented increase in input costs, with transport up 20% year-on-year and steel and plastic prices up 30-60%, which disproportionately affects UK production as a greater proportion is grown under tunnels. Although energy cost spikes are being seen globally, the self-inflicted UK labour cost rise of 7-10% in 2022 compared to 2021, on top of similar rises in 2020 and 2021, make the situation of the UK grower more problematic than some. UK supermarkets are saying the right words of sympathy, but they are also saying to consumers that they will not raise prices as they understand that the consumer is also suffering with the high inflation (7% year-on-year and rising, as of April 2022). First indications are that the UK supermarkets will import more fruit to keep prices down rather than pay UK growers more money.

The conflict in Ukraine has created a lot of uncertainty in Europe, specifically in the labour market, quite aside from the effect on fuel prices as a result of Europe actively seeking to reduce its dependence on Russia. The UK is also accepting Ukrainian refugees and allows them to work, although due to the incompetence of the UK Home Office administration, most are likely to be wanting to return to Ukraine before their paperwork to come to the UK is processed. Given the fluidity of Ukrainians' right to work in all of Europe, including the UK, at the time of writing there is therefore a large degree of uncertainty over how the war will affect labour availability for the main summer picking season within Europe, and there likely will be a knock-on effect in the UK.

IQF is almost zero in the UK due to growers not being set up for machine picking and being aimed at supermarket sales.

Total UK sales in 2021 were around 52,000 tonnes, up 5-6%, and 2021 per capita consumption was around 780g per person per annum.

Around half the UK sales increases are coming from increased market penetration, which reduces the level of price deflation that would otherwise be seen, but there are large seasonal variations in trends, particularly with the Peru effect as mentioned earlier.

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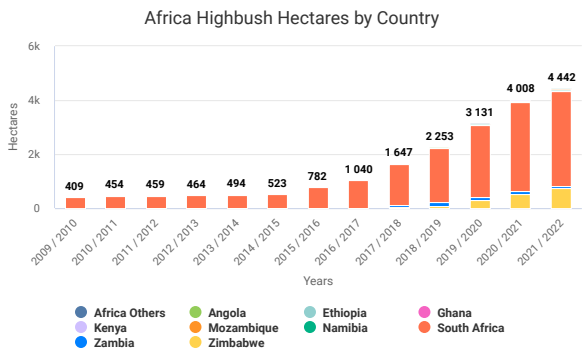
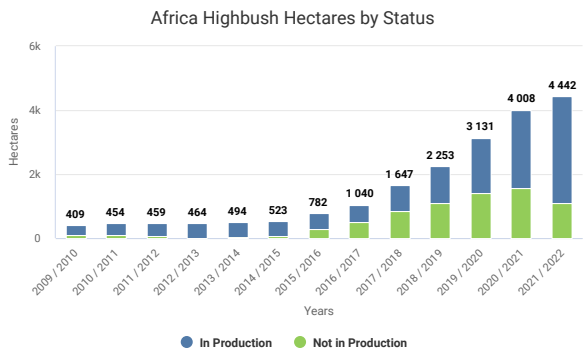
AFRICA

Planting and Production Data, Figures & Commentary
(Denominated in Hectares and Thousands of Metric Tons)

Africa Highbush Hectares by Country

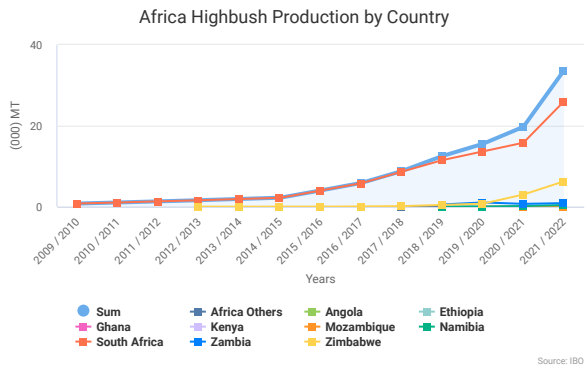
Africa	Planting					2021/2022 Production		
Growth Totals	**2017/2018**	**2018/2019**	**2019/2020**	**2020/2021**	**2021/2022**	**Fresh**	**Process**	**Total**
South Africa	1,508	2,000	2,661	3,322	3,500	24.00	2.00	26.00
Zimbabwe	45	75	296	518	727	6.25	-	6.25
Zambia	75	150	125	100	100	0.68	0.20	0.88
Namibia	1	2	12	23	60	0.40	-	0.40
Kenya	4	7	16	26	32	0.05	-	0.05
Ethiopia	1	2	2	2	2	0.02	-	0.02
Mozambique	2	3	3	3	4	0.02	-	0.02
Africa Others	10	12	12	12	15	0.01	-	0.01
Angola	1	1	1	1	1	0.01	-	0.01
Ghana	0	1	1	1	1	0.01	-	0.01
Africa Totals	**1,646**	**2,253**	**3,130**	**4,008**	**4,442**	**31.45**	**2.20**	**33.65**

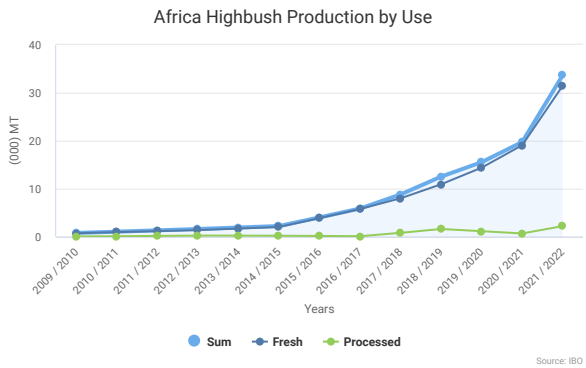


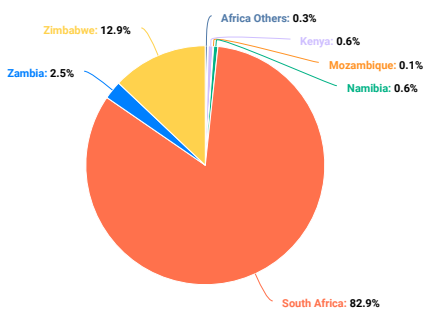


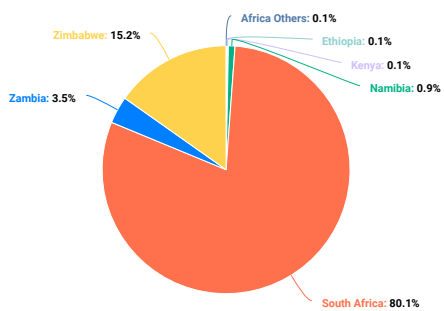
Africa Highbush Production by Country

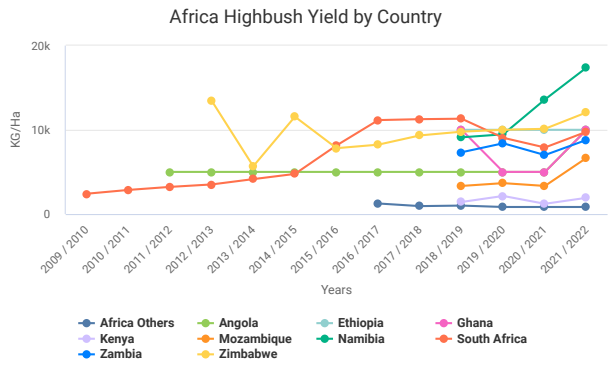
Africa	2019/2020			2020/2021			2021/2022		
Productions Totals	**Fresh**	**Process**	**Total**	**Fresh**	**Process**	**Total**	**Fresh**	**Process**	**Total**
South Africa	12.66	0.99	13.65	15.33	0.47	15.80	24.00	2.00	26.00
Zimbabwe	0.75	-	0.75	3.00	-	3.00	6.25	-	6.25
Zambia	0.90	0.15	1.05	0.50	0.20	0.70	0.68	0.20	0.88
Namibia	0.02	-	0.02	0.17	-	0.17	0.40	-	0.40
Kenya	0.02	-	0.02	0.02	-	0.02	0.05	-	0.05
Ethiopia	0.02	-	0.02	0.02	-	0.02	0.02	-	0.02
Mozambique	0.01	-	0.01	0.01	-	0.01	0.02	-	0.02
Africa Others	0.01	-	0.01	0.01	-	0.01	0.01	-	0.01
Angola	-	-	0.01	-	-	0.01	0.01	-	0.01
Ghana	-	-	0.01	-	-	0.01	0.01	-	0.01
Africa Totals	**14.39**	**1.14**	**15.53**	**19.06**	**0.67**	**19.73**	**31.45**	**2.20**	**33.65**











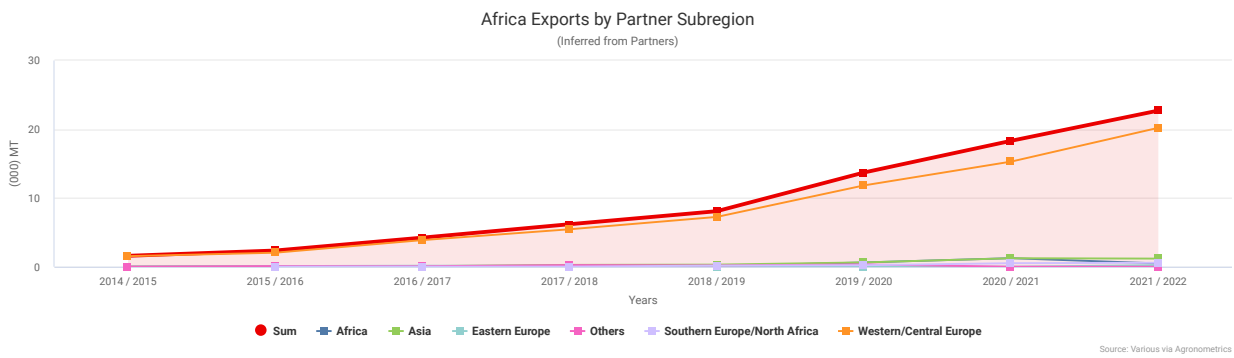
Africa 2021 Production Metrics

Hectares Planted:	**4,442.1 Ha**
Hectares in Production:	**3,347.0 Ha**
Production:	**33.65 (000) MT**
Growth in Production[1]:	▲13.9 (000) MT (41.37%)
Growth from Hectares[2]:	▲7.61 (000) MT (54.67%)
Growth from Yield[3]:	▲6.31 (000) MT (45.33%)
Yield:	**10,053.78 (Kg/Ha)**
Exports:	**22.71 (000) MT**
Imports:	**0.24 (000) MT**

[1] Growth in volume produced compared to previous season
[2] Volume increase from new hectares coming into production
[3] Volume increase from higher yields

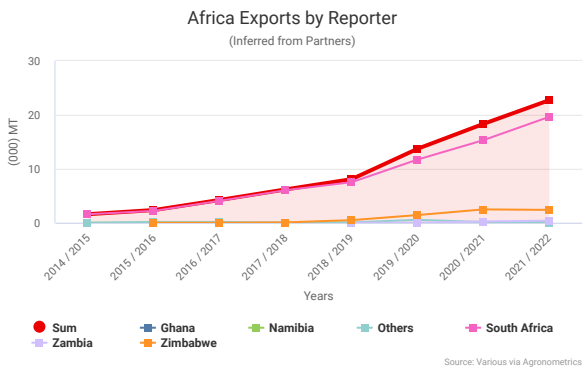
Africa Exports by Partner Subregion (Inferred from Partners)

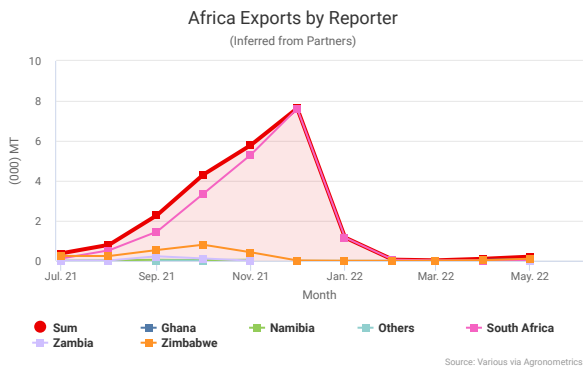
Subregion	2018/2019	2019/2020	2020/2021	2021/2022
Western/Central Europe	7.25	11.83	15.30	20.21
Asia	0.31	0.63	1.24	1.19
Southern Europe/North Africa	0.17	0.23	0.52	0.58
Africa	0.11	0.63	1.25	0.49
Eastern Europe	0.06	0.05	0.01	0.24
Others	0.19	0.34	0.01	0.01
Africa Totals	**8.08**	**13.71**	**18.32**	**22.71**



Africa Exports by Reporter (Inferred from Partners)

Reporter	2018/2019	2019/2020	2020/2021	2021/2022
South Africa	7.52	11.71	15.31	19.63
Zimbabwe	0.49	1.43	2.48	2.39
Zambia	0.00	0.02	0.24	0.39
Namibia	-	-	0.16	0.16
Mauritius	-	0.52	0.07	0.02
Others	0.07	0.03	0.06	0.12
Africa Totals	**8.08**	**13.71**	**18.32**	**22.71**





Africa
Report Team Narrative

For an in-depth complement to what is happening in Africa please visit the following country reports:

- South Africa

Zimbabwe

In moves that mimic what Chilean expertise brought to Peru and elsewhere in Latin America in recent decades, South African growers or companies with a strong presence there are branching out northwards towards the equator in pursuit of other production windows and supply diversification.

A prime example is Zimbabwe, where growth in percentage terms looks set to outpace South Africa, albeit off a lower base. Firm hectarage data is difficult to ascertain, but many large players have either run trials or have already begun commercial-scale plantings. This is in addition to local growers, many of whom already have experience in other intensive horticultural crops like snow peas and sugar snaps, forming alliances to export. Healthy infrastructure exists in Zimbabwe with cold storage facilities at Harare's international airport, and president Emmerson Mnangagwa – who replaced Robert Mugabe after his 37-year rule came to an end in 2017 – has shown an amenable attitude to agriculture.

The Zimbabwean season tends to begin in mid-to-late May although early volumes can commence as early as April. As has happened in many new industries, sizeable plantings of Biloxi and Ventura blueberries are in the ground, but in light of the aforementioned logistical and economic challenges that place greater emphasis on shelf life, most new plantings are with new genetics and several of the world's leading genetics IP holders are present in the market.

Namibia

Plantings and trials are also underway in Namibia, where a US-South African joint venture US genetics from a leading US genetics company accounts for the largest surface area of plantings has been investing into production, around Rundu in the country's north close to the border with Angola. Fruit from these farms is sent by truck to Johannesburg, where it is air-freighted into destination markets. In the desert region of Aussenkehr in southern Namibia, known for its table grapes, there are comprehensive substrate trials taking place involving varieties from a handful of global genetics programs, some of which serve to showcase new cultivars to visiting producers from South Africa if they haven't yet passed through quarantine there.

Zambia

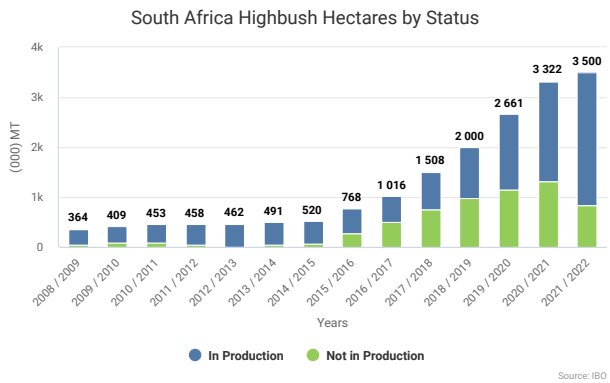
Growers and investors are trying their luck in Zambia as well, which in July 2020 became the first African nation to gain direct access to the Chinese market with the first shipments sent in November of that year. Since then however, it could not be confirmed whether any sizeable trade with that market has materialized. New developments have not been expanding as aggressively as in neighboring Zimbabwe, although some trials led by outside experts have progressed to the commercial stage on a small scale.

Other Origins

Further north, trials are taking place in the equatorial states of Uganda and Kenya where there is potential for production from March to May, with the potential to double crop on evergreen low chill varieties if desired.

SOUTH AFRICA

Planting and Production Data, Figures & Commentary
(Denominated in Hectares and Thousands of Metric Tons)



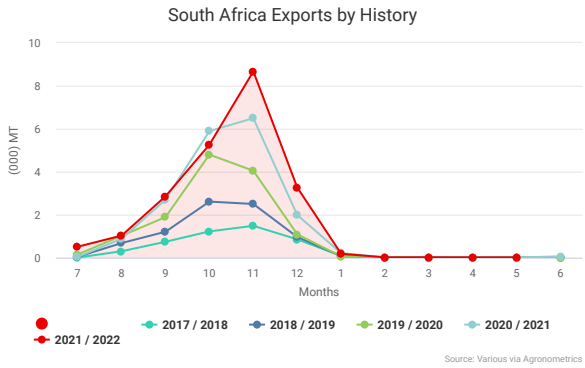
South Africa 2021/2022 Production Metrics

Hectares Planted:	**3,500.0 Ha**
Organic:	Not Reported
Under Structure:	Not Reported
Hydroponics:	Not Reported
New Genetics:	Not Reported
Hectares in Production:	**2,661.0 Ha**
Production:	**26.00 (000) MT**
Growth in Production[1]:	▲10.2 (000) MT (39.23%)
Growth from Hectares[2]:	▲5.22 (000) MT (51.18%)
Growth from Yield[3]:	▲4.98 (000) MT (48.82%)
Yield:	**9,770.76 (Kg/Ha)**
Exports:	**21.83 (000) MT**
Imports:	**0.46 (000) MT**

[1] Growth in volume produced compared to previous season
[2] Volume increase from new hectares coming into production
[3] Volume increase from higher yields

South Africa Exports by Partner

Reporter	2018/2019	2019/2020	2020/2021	2021/2022
Netherlands	1.72	4.15	8.01	10.66
United Kingdom	4.40	5.69	6.82	6.08
Germany	0.62	1.17	0.49	1.15
UAE	0.09	0.20	0.56	0.78
Spain	0.23	0.40	0.41	0.65
Others	1.01	1.46	2.00	2.51
South Africa Totals	**8.07**	**13.06**	**18.29**	**21.83**



BERRIES ZA
SUPPORTING SOUTH AFRICAN GROWERS

South Africa Country Member Summary

Adapted from the report by Berries South Africa

With a range of challenges across global berry markets during the Southern Hemisphere blueberry season, South Africa experienced another successful year of export growth. The 27% year-on-year increase gives the local industry much to be positive about. Continental Europe contributed primarily to this growth, together with contributions from the ongoing Middle and Far East Markets. The UK remains a steady partner of South Africa.

Conservative production forecasts remain in the 35,000-metric-ton (MT) range for the 2022/23 season with a 25% increase in export. Improved servicing of existing markets, together with the ongoing opportunities into new market access, account for this.

Berries South Africa, the industry body for blueberries, raspberries and blackberries, continues to facilitate the growth of the commodities through the promotion of accurate data consolidation and sharing, market access efforts, a technical focus on prioritized fields of research, and registrations of agrichemical products ensuring compliance with international standards. Strategic priorities within the industry body are aligned to the demands of the sector where quality, logistical efficiencies, and the significant impact of spiking input costs are critical sustainability challenges.

With an increasing contribution to the thriving South African fruit export market, Berries South Africa has increased its executive capacity by appointing Brent Walsh as its CEO. Stakeholder engagement remains a priority within the executive team across growers, plant breeders, nurseries, exporters, and statutory entities contributing to the energy that drives the ongoing success of the Southern African market. It continues to be an exciting time for blueberries in South Africa and we look forward to the season that lies ahead.

South Africa Report Team Narrative

As a technically astute industry dominated by large vertically integrated international programs, South Africa's blueberry sector has a relatively high proportion of proprietary genetics and substrate production, peaking in October and November, overlapping with Peru and shipping mostly to Europe. The bulk of the season goes from August to late December.

South Africa is one of the world's fastest-growing blueberry exporters, hitting new records in the 2021-22 season although this was short of expectations by several thousand metric tons (MT) due to weather problems.

After a positive early start in June and July 2021, growers in northern South Africa were hit by frost with some losing 50% of their crop for the second consecutive year. Then in the later part of the season in the Western Cape – a region that accounts for 60% of the country's production – there were high levels of rainfall for a crop that was already running later than normal, necessitating more intensive agronomic management to avoid pest and botrytis damage. For the 12% of farms that are in tunnels this was not such an issue, but the majority of operations in South Africa have net shading – a structure that does not provide adequate protection from precipitation.

These production challenges were exacerbated by ongoing port challenges, which in South Africa are not just the kind of congestion issues seen everywhere due to covid, but are also related to the slow deterioration of port infrastructure over the course of more than a decade, compounded by volume growth for numerous fruit crops that also compete with blueberries for space. Windy conditions at sea and in the Port of Cape Town led to further delays in December, and some shipping services bypassed the port altogether.

From what used to be a 20-day journey, port delays last year meant some blueberry shipments were taking 40 days or more from being picked to reaching supermarket shelves in the UK and continental Europe. With fewer airfreight options available due to the pandemic, these circumstances made shelf life a greater imperative than ever before as only varieties that are fit for longer journeys can survive such a long trip and still give consumers a positive eating experience.

This logistical problem was almost doubly harder for other Southern African emerging blueberry industries such as Zimbabwe and Zambia (to be discussed in more detail further down), which had fewer airfreight options than pre-covid times and were thus more heavily reliant on re-export through South African ports. This implied an even longer journey for growers in those countries if they could not secure air freight cargo, not just for the truck journey but also longer wait times at international borders.

In a competitive market with tightening margins due to rising input costs such as fertilizers and crop protection chemicals, smaller farmers in South Africa are feeling the financial pinch. Increasing volumes from Peru, and to a lesser extent South

Africa itself as more large farms enter maturity, will create further strain. There is a broad consensus that more farm-level consolidation is likely, and a lot of farms of less than 10-hectares in size, particularly if their genetics is mostly from public varieties, will fall by the wayside in this environment. Labor costs have also risen sharply but are widely seen as manageable, so much so that interest in machine harvesting is practically nil.

In this context, banks are giving out fewer loans to local South African growers, and most industry insiders expect planting growth to slow down. However, international markets will not feel that volume-wise in the short-term because so much planting has taken place in recent years that is still yet to reach maturity, so healthy growth will nonetheless continue.

South Africa's fruit brand image is highly regarded globally, and it still maintains a competitive advantage in proximity to the European market versus other Southern Hemisphere countries. It is likely for this reason that there is still significant interest to invest in blueberry operations in South Africa, in addition to other nearby countries such as Namibia, Zambia and Zimbabwe. So while there is less conversion happening with, for example, apple farms switching to blueberries with local financing, global berry companies and private equity players are continuing to roll out greenfield projects. In South Africa, this is mostly happening in the Western Cape and Limpopo to the north.

At the same time, more international plant breeders, nurseries and growers are entering the region that already is home to the world's leading names in genetics. Three leading Australian breeding programs have historically accounted for the lion's share of growth in the proprietary genetics space in southern Africa. Now other programs are present and expanding from the U.S., both private and university-based, Spain and elsewhere, including a fourth, recently introduced Australian program.

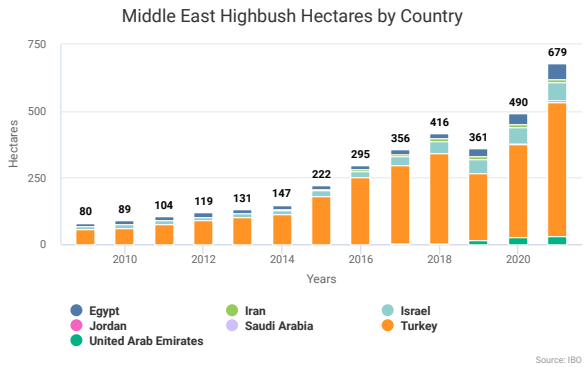
The UK remains South Africa's largest market, followed by Europe where the industry is attempting to lift its market share in Germany specifically where earlier this year Berries ZA launched a business-to-business promotional campaign. The country exports some volume to the Middle East, and is behind its Southern Hemisphere peers in negotiating access to the biggest blueberry markets of Asia, but the industry has a presence in that continent's open markets such as Malaysia, Singapore and Hong Kong.

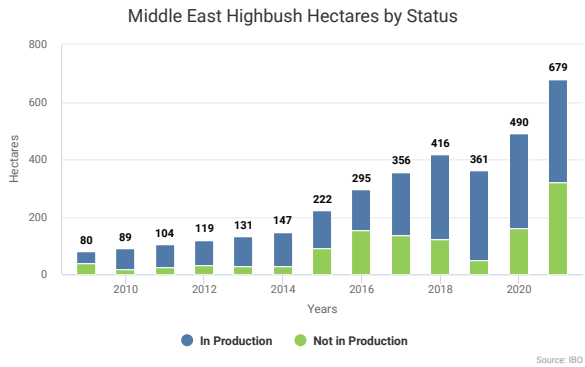
MIDDLE EAST

Planting and Production Data, Figures & Commentary
(Denominated in Hectares and Thousands of Metric Tons)

Middle East Highbush Hectares by Country

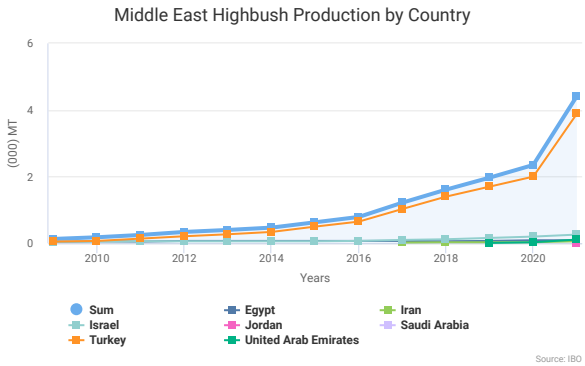
Middle East	Planting					2021 Production		
Growth Totals	**2017**	**2018**	**2019**	**2020**	**2021**	**Fresh**	**Process**	**Total**
Turkey	292	335	250	350	500	3.72	0.17	3.89
Israel	35	45	52	60	68	0.26	-	0.26
United Arab Emirates	2	5	15	25	32	0.11	-	0.11
Egypt	18	20	30	40	60	0.09	-	0.09
Iran	8	10	10	10	12	0.06	-	0.06
Jordan	0	0	2	4	6	0.01	-	0.01
Saudi Arabia	0	1	1	1	1	-	-	0.01
Middle East Totals	**356**	**416**	**360**	**490**	**679**	**4.25**	**0.17**	**4.42**

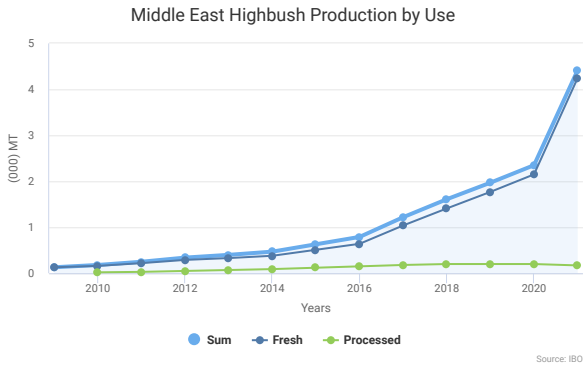




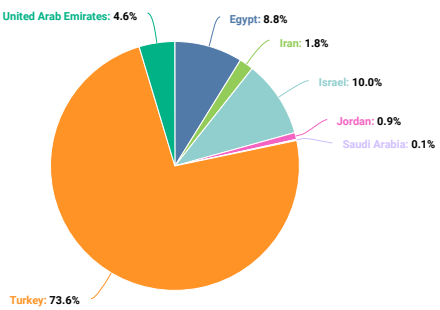
Middle East Highbush Production by Country

Middle East	2019			2020			2021		
Productions Totals	**Fresh**	**Process**	**Total**	**Fresh**	**Process**	**Total**	**Fresh**	**Process**	**Total**
Turkey	1.50	0.20	1.70	1.80	0.20	2.00	3.72	0.17	3.89
Israel	0.16	-	0.16	0.20	-	0.20	0.26	-	0.26
United Arab Emirates	0.01	-	0.01	0.03	-	0.03	0.11	-	0.11
Egypt	0.07	-	0.07	0.09	-	0.09	0.09	-	0.09
Iran	0.03	-	0.03	0.03	-	0.03	0.06	-	0.06
Jordan	-	-	0.06	-	-	0.06	0.01	-	0.01
Saudi Arabia	-	-	0.01	-	-	0.01	-	-	0.01
Middle East Totals	**1.77**	**0.20**	**1.97**	**2.15**	**0.20**	**2.35**	**4.25**	**0.17**	**4.42**

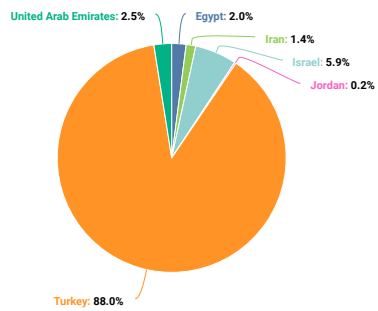




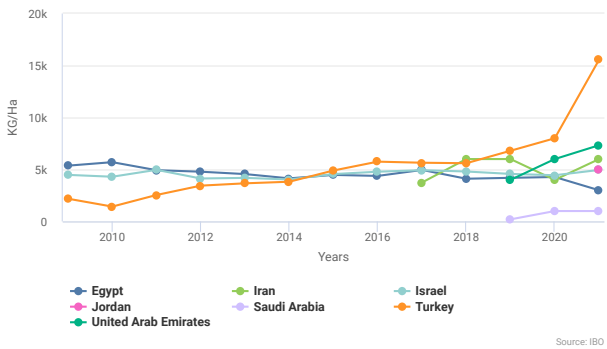
2021 Middle East Highbush Hectares by Country



2021 Middle East Highbush Production by Country



Middle East Highbush Yield by Country



Source: IBO

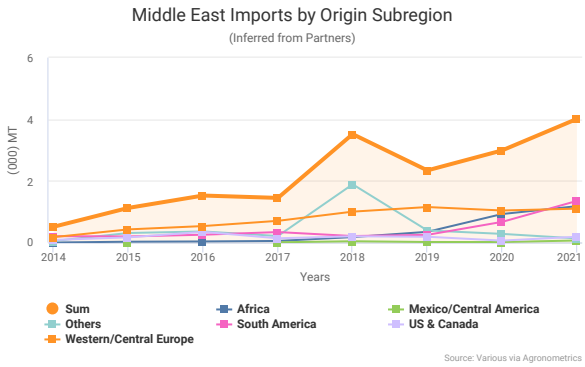
Middle East 2021 Production Metrics

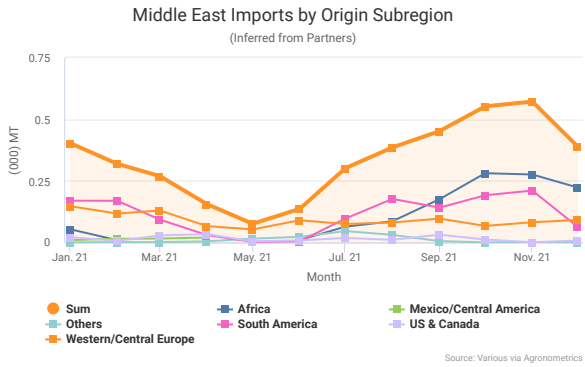
Hectares Planted:	**679.0 Ha**
Hectares in Production:	**360.5 Ha**
Production:	**4.42 (000) MT**
Growth in Production[1]:	▲2.1 (000) MT (46.83%)
Growth from Hectares[2]:	▲0.14 (000) MT (6.76%)
Growth from Yield[3]:	▲1.92 (000) MT (92.75%)
Yield:	**12,263.52 (Kg/Ha)**
Exports:	**0.00 (000) MT**
Imports:	**4.01 (000) MT**

[1] Growth in volume produced compared to previous season
[2] Volume increase from new hectares coming into production
[3] Volume increase from higher yields

Middle East Imports by Origin Subregion (Inferred from Partners)

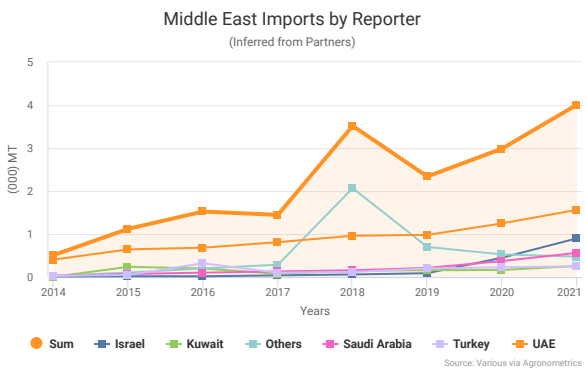
Origin	2018	2019	2020	2021
South America	0.21	0.25	0.67	1.35
Africa	0.18	0.35	0.92	1.18
Western/Central Europe	1.00	1.15	1.04	1.10
US & Canada	0.20	0.19	0.06	0.19
Mexico/Central America	0.04	0.02	0.02	0.06
Others	1.89	0.39	0.28	0.13
Middle East Totals	**3.52**	**2.34**	**2.99**	**4.01**

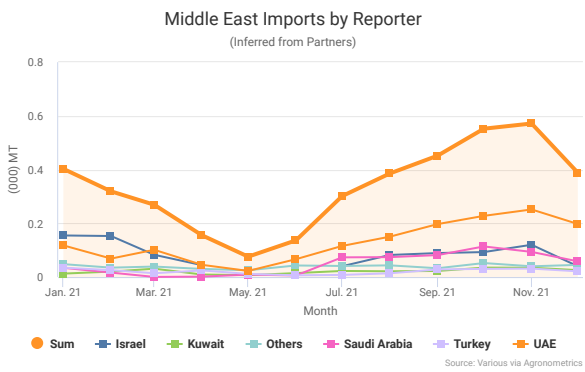




Middle East Imports by Reporter (Inferred from Partners)

Reporter	2018	2019	2020	2021
UAE	0.96	0.98	1.25	1.56
Israel	0.06	0.09	0.45	0.90
Saudi Arabia	0.16	0.21	0.37	0.56
Kuwait	0.15	0.16	0.16	0.26
Turkey	0.12	0.20	0.23	0.25
Others	2.07	0.70	0.53	0.48
Middle East Totals	**3.52**	**2.34**	**2.99**	**4.01**





Middle East Report Team Narrative

Turkey

With Turkey accounting for most of the growth, the Middle East's blueberry volume is rising rapidly off a low base. Between 2019 and 2021 the country's surface area dedicated to the crop doubled, and is projected to double again by the end of 2022. Although Turkey has been a veritable food bowl for the region and Europe, a challenging plant breeders' rights situation has historically impeded development for blueberries.

Nonetheless, a leading U.S. nursery and a local nursery with family ties to one of the country's largest cherry and fig exporters are among the players that have given impetus to an emerging industry, for which this year the season began in March with harvests around Antalya on the southern coast, where the warm climate is comparable to Huelva in Spain. Varieties such as Ventura, Suziblue, Star and Biloxi have been planted in the area as well as newer proprietary genetics. 2021-22 saw abnormally high levels of snow during winter in many areas, delaying the commencement of the campaign.

Growers are aiming to be able to produce earlier inside heated tunnels in Antalya (and managed to do so in small volumes in February 2022), and thanks to Turkey's diverse geographies, altitude and microclimates, blueberries can be grown until October.

There are also blueberry industry operations around the ancient capital of Bursa close to the Marmara Sea and the nation's capital Istanbul, as well as in Salihli, which sits inland from Izmir on the western, Aegean coast. In Salihli there are trials taking place for 15-20 different blueberry varieties. For cooler areas, mid-chill and high-chill varieties – Legacy and Duke respectively – have been planted with the European market in mind.

There are currently fewer than a handful of what could be described as large blueberry growers in Turkey, but industry insiders note great interest from investors to scale up production, often starting with trials with plans to implement more aggressive plantings if their experiments prove successful. Currently most of the production is for the domestic market, although there are hopes within Turkey that a sizable export industry will be developed over time. Exports more than doubled to approximately 194MT in 2021, of which almost two-thirds was sold in Germany. The budding industry is also positive about the flight connectivity of Turkish Airlines in Asia where there are plans to develop the markets of Hong Kong and Singapore, the latter having received trial shipments of Turkish blueberries last year.

Given the young nature of the country's blueberry fields the exponential effect of volume growth could be a few years away, but for context of where the sector might be headed, the level of plantings at the end of 2021 was roughly equivalent to the Moroccan blueberry industry's size in 2015, albeit with fewer proprietary, next-gen varieties than this North African counterpart. If Turkey's plans for growth materialize, by 2025 some speculate that it may have as many hectares dedicated to the crop as South Africa does today, for example.

Egypt

On a smaller scale, Egypt (already one of the world's top strawberry exporters), Israel, and the UAE all have small commercial projects underway which are focused on supplying local demand, although in Egypt there is some export potential and there are least two foreign investors – one Spanish, the other Dutch – aiming to roll out projects with proprietary genetics there.

United Arab Emirates

In blueberry circles the Middle East is more commonly viewed through the lens of an importer with the UAE historically a leading market that has paid attractive prices by international standards as well. Leading traditional suppliers to the country include Spain, South Africa, Mexico, Chile and the USA - the latter selling air-freighted berries at substantially higher average prices than its competitors. South Africa saw the most growth in the market in recent years, while the emerging Zimbabwean blueberry sector has also made its mark.

Israel

Israel's blueberry imports are also steadily increasing, with Chile and Argentina as key suppliers.

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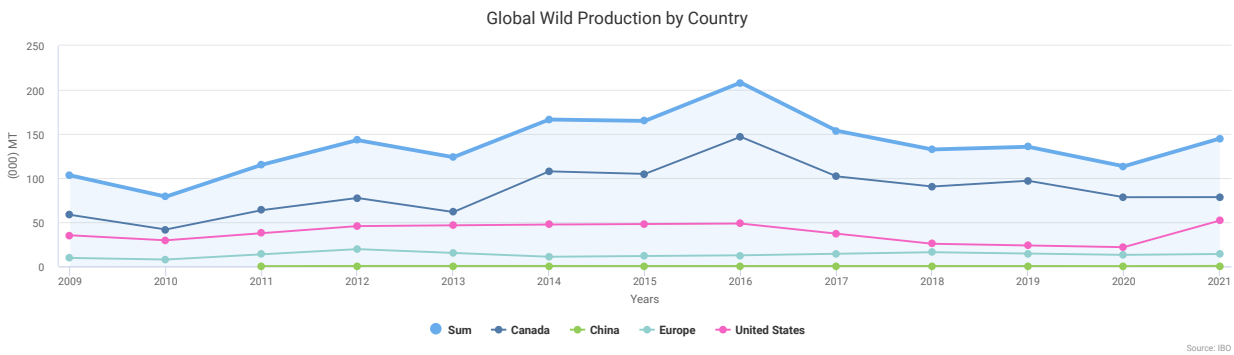
GLOBAL WILD AND COMBINED PRODUCTION

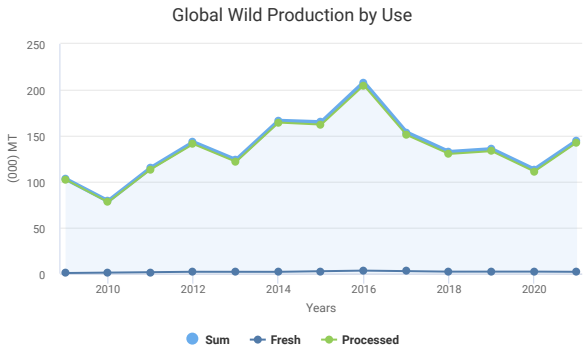
GLOBAL WILD PRODUCTION

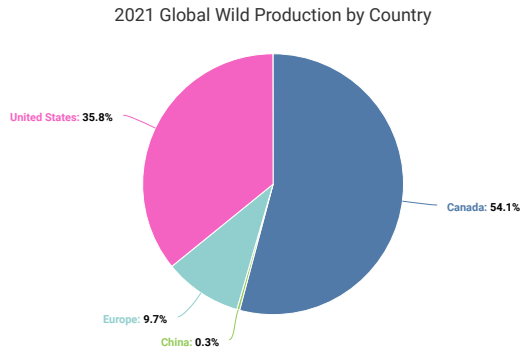
Planting and Production Data, Figures & Commentary
(Denominated in Hectares and Thousands of Metric Tons)

Global Wild Production by Country

Global Wild Blueberry	2019			20210			2021		
Productions Totals	**Fresh**	**Process**	**Total**	**Fresh**	**Process**	**Total**	**Fresh**	**Process**	**Total**
Canada	-	96.95	96.95	-	78.31	78.31	-	78.41	78.41
United States	0.20	20223.45	23.65	0.22	21.50	21.72	-	51.90	51.90
Europe	2.00	12.50	14.50	2.00	11.00	13.00	2.00	12.00	14.00
China	-	0.35	0.35	-	0.30	0.30	-	0.50	0.50
Global Wild Totals	**2.20**	**133.25**	**135.45**	**2.22**	**111.11**	**113.33**	**2.00**	**142.81**	**144.81**







Global Wild Production Report Team Narrative

Wild blueberries have seen a rebound in pricing worldwide since the pandemic began, prompting the reactivation of blueberry barrens in Maine that had been left temporarily fallow following the impacts of oversupply problems in 2016. However, other contributing factors to the steady production decline in the state in the years preceding the pandemic have not gone away – pest and disease pressure, volatile climatic conditions, aging wild blueberry farmers with succession challenges, and the opportunity costs of holding coastal land where these berries are picked that in some cases is being converted to wind and solar farms.

Maine and eastern Canada account for the largest share of global wild blueberry production with the native Vaccinium angustifolium as the main species representing 95% of North America's crop while the remaining 5% is Vaccinium myrtilloides, also known as the velvet leaf blueberry. Because of the difficulty transporting wild blueberries fresh in marketable condition, 99% of the fruit is frozen with the berries put in the freezer within 24 hours of harvest and stored for up to three years.

A variable climate with a combination of frosts, freezes, drought and higher temperatures has negatively impacted the productivity of wild blueberry fields, which in the lead-up to the 2016 peak season were in a state of expansion in Canada and overall decline in Maine. In 1995 both Maine and Canada had equivalent levels of wild blueberry production, but the Canadian Government released tracts of Crown land to private growers and encouraged growth in the Canadian sector which now produces a much larger volume than the U.S. North America's 2021 wild crop would have been significantly larger if it weren't for weather- and drought-related conditions experienced in Quebec.

With an industry spread across different Canadian provinces plus one principal U.S. state, there is a degree of diversification at play with wild blueberries picked – predominantly by machine – in areas with very different conditions, which somewhat, but far from entirely, offsets production volatility. For example, in 2020 Quebec produced by far the largest volume in the continent, but in 2021 it was well behind Maine, and grew less than New Brunswick and Nova Scotia. Prince Edward Island is another production region of note, while Newfoundland has miniscule volumes.

Quebec has a continental climate unlike other Canadian wild blueberry growing provinces with more maritime climate conditions, and the province suffered a crop failure in 2021 prompted by drought and spring frosts, setting it back below levels it had been tracking at for more than a decade. It is worth highlighting Quebec still has opportunity to grow, and the number of acres where wild blueberries have been activated has approximately tripled within two decades. In New Brunswick there is a new strategic plan to release more Crown land, which if implemented would unlock a 69% increase in land for the crop by 2035. Meanwhile, in Nova Scotia some less productive land is due to be taken out of production, but the industry projects it can double output by increasing production inputs. A major limiting factor in Canada will be the availability of pollinators as the native overwintering hives are not strong and the hives produced from Ontario are variable. Maine, in contrast, can source strong, active hives from the southern US and so does not have this limitation.

The fruit is grown in naturally occurring wild stands in the northeast of North America that evolved after glacial retreat 10,000 years ago, and based on observations of the average plant cover, experts estimate an average of 270 different genotypes can be found per hectare. Growers believe it is this diversity that gives the fruit its unique character. Wild blueberries are also smaller than highbush blueberries, and the wild blueberry industry's proponents claim they also have more antioxidants. The wild blueberry industry continues to invest heavily in lowbush blueberry-specific health research and promotions.

In an environment where demand is currently exceeding supply, the Maine industry has a large domestic focus in addition to Canada-oriented exports, but the state also exports to Japan, South Korea and the EU with overseas shipments aimed at preserving customer bases. Canada exports about half its wild crop to the U.S., in addition to others such as Germany, Japan and China.

Wild production outside of North America is difficult to track and is based on best estimates from industry sources.

In terms of European wild blueberry production, Vaccinium myrtillus or the European bilberry is native to the continent as well as the Caucuses and much of Asia. Scandinavia is a major source of production with bilberry bushes to be found throughout the forests of Norway and Sweden, although only the latter has a sizable commercial industry. However, crops are extremely variable as is access to labor with pickers needing to be flown into the harvest regions in many cases. It is also highly likely, but not corroborated, that the conflict in Ukraine has disrupted wild blueberry harvests in Eastern Europe.

Chinese Wild blueberries

'Chinese Wild': Vaccinium Uliginosum L. and Vaccinium Vitis Idaea are native to China, particularly the forested northern provinces of the country. The native Vaccinium Uliginosum is often dark reddish-blue, red or dark blue and often referred to as "蓝莓"(pronounced "Lan Mei"). "Lan Mei" is the most common word used for blueberries in China and now applies to highbush as well. Meanwhile the Vaccinium Vitis Idaea, or Lingonberries, are a deep red and also native to the northern reaches of Europe, especially Scandinavia. These berries are harvested most often by villagers who live near the forested areas where these species grow. The fruit is then sold on to brokers who process the fruit or resell it to processors who sell the finished product. Most of the fruit is now sold domestically, often as a health product in teas, powders, dried fruit, extracts and even cosmetics. Annual production is largely contingent on the amount harvested from the wild and the impact of winter weather on the crop.

'Chinese Cultivated Lowbush': Another interesting segment of Chinese domestic blueberry production is the 'Cultivated Lowbush' industry. In the far northern provinces of Jilin, Heilongjiang and the continental north of Liaoning, the extreme winters have proven a challenge for traditional highbush production. Early trials conducted in the late 1990s and early 2000's led by Jilin Agricultural University, showed that the cold hardy Lowbush and 'Half High' cultivars were more likely to crop and survive in the harsh conditions. Most of these varieties are considered ornamentals in the rest of the world while a few others represent exemplary selections from Wild patches in North America sourced from the USDA germplasm repository in the 1990's. Cold hardiness, increased likelihood of protection from snow cover (due to plant height) and apparent tolerance of difficult soil and moisture conditions have led to the large-scale planting of Cultivated Lowbush (in rows) and 'Half High' blueberries. Due to mixed information available from China, it is likely that most of the 'cultivated lowbush' production from China is represented in the Highbush production and acreage figures for China.

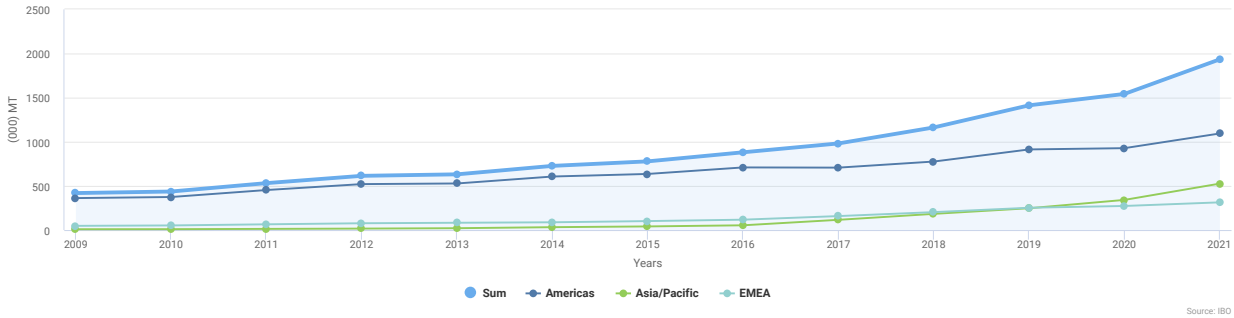
GLOBAL HIGHBUSH AND WILD COMBINED

Commentary on Global Highbush and Wild Combined Data & Figures Production
(Denominated in Hectares and Thousands of Metric Tons)

Highbush and Wild Blueberry Combined Production by Region

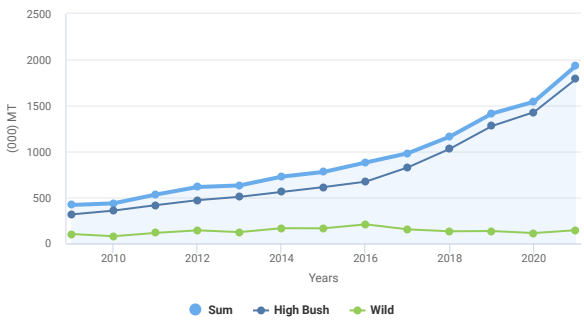
Global Highbush and Wild Blueberry Combined	2019			2020			2021		
Productions Totals	**Fresh**	**Process**	**Total**	**Fresh**	**Process**	**Total**	**Fresh**	**Process**	**Total**
Americas	549.15	364.10	913.25	568.15	359.52	927.67	676.59	417.61	1,094.20
US & Canada	207.99	307.94	515.93	185.01	280.12	465.13	210.48	328.46	538.94
South America	282.01	55.63	337.64	320.50	78.73	399.23	382.51	87.65	470.16
Mexico/Central America	59.15	0.53	59.68	62.64	0.67	63.31	83.60	1.50	85.10
Asia/Pacific	137.89	109.29	247.18	184.59	156.79	341.38	253.24	273.03	526.27
Asia	115.78	108.70	224.48	157.02	155.85	312.87	223.31	271.33	494.64
Pacific	20.43	0.50	20.93	24.55	0.70	25.25	26.17	1.40	27.57
Central Asia/ Indian Subcontinent	1.68	0.09	1.77	3.02	0.24	3.26	3.76	0.30	4.06
EMEA	224.51	28.14	252.65	239.71	33.05	272.76	273.81	40.12	313.93
So. Europe/N. Africa	116.67	7.74	124.41	118.45	13.14	131.59	128.66	13.94	142.60
Eastern Europe	56.17	3.00	59.17	70.59	4.67	75.26	79.21	4.71	83.92
Western/Central Europe	33.51	3.56	37.07	27.46	3.37	30.83	28.24	7.10	35.34
Africa	14.39	1.14	15.53	19.06	0.67	19.73	31.45	2.20	33.65
Europe	2.00	12.50	14.50	2.00	11.00	13.00	2.00	12.00	14.00
Middle East	1.77	0.20	1.97	2.15	0.20	2.35	4.25	0.17	4.42
Highbush and Wild Blueberry Combined Totals	**911.55**	**501.53**	**1,413.08**	**992.45**	**549.36**	**1,541.81**	**1,203.64**	**730.76**	**1,934.40**

Global Production by Region



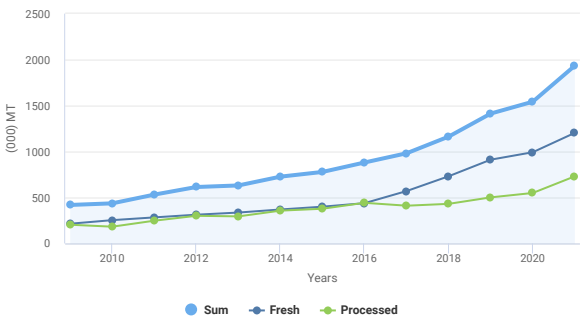
Source: IBO

Global Production by Category



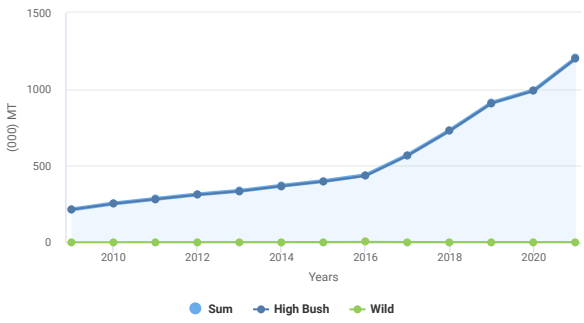
Source: IBO

Global Production by Use



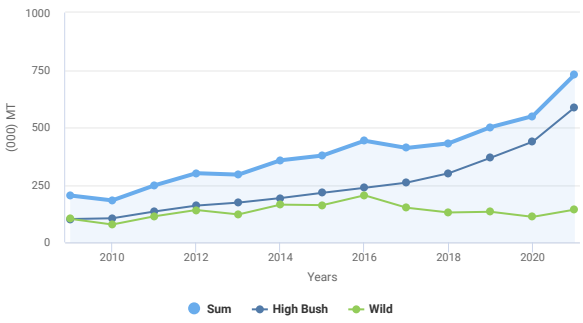
Source: IBO

Global Fresh Production by Category



Source: IBO

Global Processed Production by Category



Source: IBO

CLOSING COMMENTS FROM THE EDITOR

CLOSING COMMENTS FROM THE EDITOR

Another Bumpy Year for the World Beyond Blueberries

It's difficult to provide an overview of any industry without taking into account the macroeconomic and geopolitical context of recent years. On top of the ongoing (though ebbing) pandemic, we have the added complexity of a year of geopolitical upheaval emanating from two major epicenters of the world - one in Eastern Europe and the other in China - since the last publication. Supply chains, logistics, and markets have been disrupted across the global economy. Those macro factors have had a profound impact on both supply creation and developments in the markets themselves. Put simply, aggregate demand for blueberries has grown throughout the COVID pandemic in most markets but supply creation, while still continuing, has experienced plenty of headwinds.

Tying The Trends to the Data: *Industry Growth, Professionalization, and Maturation Continues*

For those using this document as a tool for decision making, the development of informed strategies, and various other purposes, please periodically review the Industry Trends section in this report in addition to the data. While the blueberry industry continues to rapidly grow and change, the trends have held surprisingly consistent over the past years. A short peek at the previous reports of recent years will reveal a high level of overlap in the trends. Importantly, these trends also indicate the drivers that the report team, and the many industry contributors to this report, believe will most influence future developments on a macro level.

Reflecting on Supply & The Market Trends

Fresh Market Dynamics: While volumes continue to increase (dominated by China for internal consumption and a short list of exporting countries), fresh blueberry supply has been disrupted in many weeks of the last year, highly impacted by maritime shipping challenges and crop loss in some regions. As a result, particularly in the US, year-on-year category unit volume has been down in some weeks. With that said, category demand growth, average unit values, category value, and retailer buyer behavior, have been aggressive in North America and Europe. On the China side of the equation, the story is more messy to say the least. China's critically important role in global supply chains for so many products has been felt throughout the global economy as the disruption of COVID and then Zero COVID policy and 'Wolf Warrior Diplomacy' has come to bear on the system. Meanwhile this critical market for so many products proved incredibly difficult to serve. China's internal market continues to grow for blueberries but exporters have struggled to manage port disruptions, logistical issues, and a litany of other challenges leading them to divert fruit elsewhere. Meanwhile, greater Europe and the UK are proving to be a consistent and expanding source of consumption growth for the blueberries category.

Expanding our Base: Excitingly, there is strong evidence that blueberries now have an increasingly diverse consumer base. During the last major economic downturn in 2008-2012, a large portion of blueberry category growth was driven by existing consumers buying more. In recent years we have seen consumers from a broader swath of income brackets who buy blueberries a couple of times a year, and that trend has strengthened in the last 12 months. Additionally, many new markets for blueberries continue to develop. Also importantly, the growth in movement and category value of processed frozen blueberries at retail has been nothing short of exceptional in recent years, well after the panic buying of the pandemic subsided.

Processed Market Commentary: One of the perennial challenges on the processed side of the blueberry industry is the consistent disconnect between the data available on the crop and market behavior. While the opacity of inventories remains a challenge (the Public Cold Storage report in the US does not indicate grade, whether product is sold or unsold, and does not reflect private inventories for example), there are also other issues at play. The current market behavior at the writing of this commentary (end of August 2022) illustrates the point - the processed crop is lighter this year in North America (still the source of the vast majority of frozen product) yet rumors of quotes below previous assumed market prices from South America are already resulting in assumptions about crop and pricing that don't align with the data. South America's processed crop is less than half the size of North America's and tends to offer a lower grade (IE a separate category), especially from Peru as the frozen product from that country is almost entirely byproduct that cannot ship fresh. Additionally a large portion of the South American crop is exported to Asia and markets other than North America.

Although there is some consolidation underway, the fragmentation among processed packers and sellers in the highbush crop also contributes to the dynamic. The processed market is not only a critical stabilizing force for the fresh side of the pricing equation, it is also a diverse category with the higher grades produced and packed by companies often solely focused on growing, harvesting, and processing high grade blueberries (based on size, brix, color, and increasingly variety). The reality that quotes for grade outs from the southern hemisphere that may or may not materialize in the coming months could have such an impact on the market says a great deal about the opportunity for the processed industry to increase efforts to organize and work off of accurate data on crop, inventories, and grade to say the least.

Where is the Growth Coming From?: *Yield Increases vs. New Platings*

Since the arrival of the 'health Halo' thanks to research empowered by the NABC and USHBC Research Committee, blueberries have grown from a tiny regional crop with a handful of limited markets in the 1990's to one of the leading produce items by value in the world today. Over this 25+ year period, the global crop and global consumption has grown considerably. By far the primary driver for that growth historically has been one single factor - new plantings of blueberries coming into production.

This is starting to change with a greater share of growth coming from yield, and new analysis from the Agronometrics team lays out the dynamic well. This development also helps explain why global volumes have increased faster than previously anticipated.

The Yield Paradigm Shift: We estimate that one third (⅓) of the recent volume growth can be attributed to increases in yields rather than from new plantings alone. This development is driven by accelerated adoption of improved growing systems and new genetics; particularly in the fast growing low and no chill regions as well as some mid and high chill regions.

The *Yield Paradigm Shift* is not coming, it has arrived.

If we project this trend forward, it is reasonable to assume that the average yield of a competitive farm in the coming years will be markedly higher than the past averages.

This development, when coupled with the increasing demand for quality and challenges of controlling both fixed and variable costs at the farm provide plenty of food for thought.

Advice to Growers Looking to the Horizon

The IBO is a grower organization that serves the world's growers. While we don't have a crystal ball and predicting the future is a fool's errand, we can certainly assert trends that are likely to influence the next year and beyond. Three trends standout for growers to consider.

Firstly, supply creation is likely to continue aggressively in the coming 2-3 years in many geographies in the form of both new plantings and in a growing number of cases, variety replacement, better quality plant material, and farm upgrades resulting in higher yields.

Secondly, as the supply of improved quality blueberry fruit has increased in recent years, the bar has risen on the market side. Retail buyers are increasingly selective and focused on year-round sourcing of better, more consistent berries on the fresh side. On the processed side, the standards, while less intense, are also increasing.

The third and last trend worth emphasizing is the challenge on the horizon in our biggest variable cost - harvest. Considering the relative labor scarcity built into the demographics in most countries around the world and the (hopefully) continued development of the world economy (economic development creates more blueberry consumers), our industry's reliance on hand labor for harvest will continue to face pressure in cost and availability. Increasing the harvest efficiencies of the labor we have now through field practices, genetics, technology, and other tools is critical, as are the longer term innovation solutions that may bring a sea change in mechanization of the fresh harvest while preserving quality.

While there are more trends to consider, this Editor recommends growers prioritize keeping an eye on these three aforementioned trends as they apply to their businesses. The first (accelerated supply creation) will have an impact on the competitive environment in years to come, both from an operating perspective (for example as companies compete for resources) as well as the new options and competition this will create on the market side. The bar for competitive yields will, without a doubt, rise. On the second (increased pressure for quality) we must ask what the future cost of entry to play will entail and how we as an industry get ahead rather than play catch up on quality. This is easier said than done. On the third (harvest cost) we have diverse scenarios in different growing regions but the trend is the trend. The solutions may vary, but creative and multi-faceted solutions are needed if we are to maintain and grow the offering. Reflecting increasing harvest costs in pricing is part of the equation but it cannot be the only solution. In all cases these three trends challenge growers to focus on the decisions they can make that affect the outcomes of yield, harvest cost, and increased quality. Putting those three filters first will serve our decision making as growers and as an industry as we navigate the coming years.

Editor Thanks to the Team

The 2022 Global State of the blueberry Industry Report is intended to serve the industry with consistent information and intelligence to empower informed decision making; and a healthier more connected industry. This year we offer some updates to the new approach to this product that began last year. The report is and will be in future, produced and led by an expanded professional team.

Special thanks to Colin, Matt, Claudio, Violeta, and Sarah for their tenacious and tireless work to both collect and synthesize the data as well capture the trends and tell the story. You have done a great service to the industry and I hope to see you all in the next round.

–Cort Brazelton,
IBO Global State of the Blueberry Industry Report Editor

SUPPORT THE IBO

If you are a participant in the industry and are not an IBO member, please join this voluntary organization. There is active global coordination and promotional work ahead and we need support. The organization's budget is remarkably small for what is done year in and year out. And, without the IBO, there is no State of the Industry Report or member library!

We need your help and support, please consider joining.
https://www.internationalblueberry.org/become-a-member/

Until next time, best wishes and enjoy your blueberries!
Best Regards,

- The IBO State of the Industry Report Team

SUPPORT

ACKNOWLEDGMENTS

The quality of the narratives in this report depends on the insights provided by interviewees. We would like to thank all the participants who volunteered their time and expertise to make this report a reality. The list below includes many of the names of those who have contributed, although it is not an all-inclusive list as many contributors have chosen not to be mentioned.

Abdelhadi Zougui
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Francisco Javier Ortiz
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Juan Jose Flores
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ABOUT THIS DATA

Introduction

The Global State of the Blueberry Industry Report exists for the purpose of empowering participants throughout the blueberry industry with improved information. The IBO holds a conviction that a more informed industry and market is a healthier one.

Disclaimer

Collecting, synthesizing, and presenting data on a dynamic and diverse industry such as the global blueberry industry begs for a disclaimer, or perhaps more appropriately, a request for forgiveness.

Without a doubt there are regions with commercial plantings and production that have been neglected in this report. Over-reporting in some regions is also a possibility. The precision of planting and production figures provided varies widely, from very accurate to simplistic best guesses. The data and analysis presented in this document is therefore not intended to be presented as hard fact, but rather to capture trends - both macro and micro - to achieve a better understanding of where the blueberry industry has been, where it is today, and, ultimately, to speculate as to where it is going. Please, the authors request understanding for any omissions, errors and other weaknesses in this report.

Should you encounter such a discrepancy please inform us at info@agronometrics.com

Units of Measure

Please note, all production and planting data in this report are presented using the Metric system, specifically thousands of metric tons and hectares. For conversion to the English Imperial system, there are 2,204 lbs. in a metric ton and 2.47 acres in a hectare.

Structure

Organizing Geography: Parties familiar with previous reports will note a few changes to the structure. The report is broken down by geography which presents the world in vertical 'thirds', consisting of the Americas, Europe-Middle East-Africa (EMEA), and the Asia-Pacific. Within those regions are the respective sub-regions and countries which in some cases are further broken out into Country regions and producing areas. The content of this report is organized using the described hierarchy and ranked by the 2021 production volume.

Subregions - Subregions are disgregations of the regions grouped geographically into areas with similar, or related characteristics for the production of Blueberries:

- Americas - South America, North America, and Mexico and Central America.
- Asia - Asia, Pacific, and Central Asia/Indian Subcontinent
- EMEA - Southern Europe/North Africa, Eastern Europe, Western/Central Europe, Africa, and the Middle East.

Counter Cyclical Production

Wherever possible the annual aggregations of this report intend to capture the complete season of production. The first year of a season is used to compare between calendar year producers and split year producers. This means that the 2021 season in the northern hemisphere is comparable to the 2021/2022 season for the southern hemisphere.

An example of this would be the totals for the Americas, where North America uses the normal calendar as its season, while South America is a split year producer. When both are presented at the same time they would both be reported using the year initiating the season.

IBO Hectare, Production Statistics and Narratives

Sources of Information and Methodology

Country Members of the IBO: Are the leading source for data and information on individual countries in this report when available. When country member data was not available, more emphasis was placed on individual contributors.

IBO Associate & Marketer Members: Volunteer members of the IBO from throughout the private sector have been generous with data and intelligence on the regions where they are active. They have provided particularly unique insight on key trends and intelligence.

Interviews with Industry Leaders: There is no replacement for person-to-person interviews and discussion. The information shared in these conversations has been invaluable to improving the amount of intelligence available to the industry via this report. Care has been given to not disclose sensitive information that is meant to remain private. Thank you to all who took their time to be interviewed and particularly their willingness to be open and share their knowledge, experience, and insights.

Note on Individual Contributors: Many thanks to the independent parties and individuals who provided valuable input and intelligence to the report team. It has enhanced the quality of the information in the report.

Anonymity: For reasons of confidentiality and/or privacy, many contributors are anonymous. Their willingness to provide information, insight, perspective, and intelligence was invaluable.

Media: The quality of media reporting on the blueberry industry has improved in recent years. Although many trade publications still tend toward general treatment of basic market issues or advertorials, there are new sources of information, largely online, which are beginning to focus on issues and stories which provide valuable reporting on the industry. Work by Fresh Fruit Portal/Portal Fruticola, Fruitnet, Fresh Plaza, and The Business of Blueberries Podcast have proven particularly useful in cases.

Interviews with Retailers, Buyers, and End Users: Without the input of the final purchasers this report would be incomplete. They are the ones who deliver the product to the consumer and, as such, have a significant impact on decisions regarding products, promotion, and pricing, to name a few. As a result, buyers for supermarkets, consultants in marketing, food companies, and other purchasers were interviewed to ensure their perspective and input was included. Special thank you to those who help get our product to consumers and for your willingness to take the time to share insights.

Changes to IBO Data Compared with Last Year

In an effort to continually improve upon the report there have been several changes to the number of origins reported on. Our goal is to capture global trends to the best of our ability. Great care has been taken to accurately reconstruct historical data to ensure that growth trends are accurately represented.

- **North America** - Eastern Canada, New Brunswick, Newfoundland, Nova Scotia, PEI and Quebec have been consolidated into Canada Others.
- **Western Europe** - Spain has been disaggregated into Huelva and Spain Others. Finland and Norway have been added as new producing regions.
- **Eastern Europe** - The baltic States have been broken up into Estonia, Latvia and Lithuania. Hungary, Slovenia, Kosovo and Bosnia/Herzegovina have been added as new producing regions.
- **Central Asia/Indian Subcontinent** - Uzbekistan has been added as a new producing region.

Missing or Anomalous Production Data

Below is a list of issues that have been identified by the report team to have an effect over the statistics being reported and where practical to do so the steps taken to mitigate the adverse effects on the content being presented in this report.

China – The data used by this report for Chinese hectares planted and production are the best efforts of the report team to consolidate variable reports made available from within China against qualitative assessments made through the interview process and technical analysis of historic volumes to publish the data that we feel is most representative of the growth and development of the internal Chinese market. While we have concerns about the accuracy of this data, it is also, put simply, the best data we have today.

Trade Data

Agronometrics Trade Data

Through a massive undertaking of the technical team behind this report our best efforts have been made to offer up to date trade data for the complete 2021 or 2021/2022 season to the best of our abilities. This effort was achieved by merging the data reported by:

- UN COMTRADE
- USDA FAS (United States)
- EUROSTAT (EU 27)
- SUNAT (Peru)
- Aduanas Chile
- SARS (South Africa)

To better use this dataset within the report and to match up trade statistics with The IBO data, the groupings and associations within the dataset have been modified extensively through the Agronometrics platform.

Below is some helpful terminology to help understand the titles of the charts produced for this report and other nomenclature:

Reporter - Reporter, or country being written about
Partner - Partner, or country outside of the region being written about, when talking about Exports.
Origin - Partner, or country outside of the region being written about, when talking about Imports.

Missing or Anomalous Trade Data

Another limiting factor of the HS Code resolution offered by the UN COMTRADE dataset is that there are no practical volumes of processed blueberries that can be used to measure the growth of the industry, limiting all trade statistics to fresh fruit.

North America – Because of the large number of cranberries traded by and within the North American subregion the trade from Canada to the US is being dramatically overstated. To Compensate for this additional data in the dataset, intergroup trade between countries in this region has been omitted, admittedly undercounting the significant trade between Canada and the United States.

Canada – Since we don't have a source for Canadian trade that excludes cranberries, the imports are implied from Canada's trade partners.

Morocco - Unfortunately, the trade statistics out of Morocco are rather limited. This has a large impact on the numbers for Southern Europe/Northern Africa as Morocco is the second-largest producing origin in the region and accounts for a large percentage of the production volume. To account for this and present as complete a picture as possible. The statistics for the sub-region and the country are being implied from the imports of trade partners like Germany which does report on imports from Morocco.

Fruit from Morocco is also partially double counted in the Spanish export statistics.

China - The data offered for imports by the Chinese authorities show strong inconsistencies compared to their export partners. Having validated extensively the export data from origins like Chile and Peru, China's largest trading partner, the report team feels more comfortable reporting the data inferred from trade partners.

In order to limit confusion and correctly report the volumes arriving to the Chinese market, the country name China includes imports into Hong Kong, Macau and mainland China. The report excludes trade between these three destinations as they mostly consist of re-exports from Hong Kong to mainland China, which would otherwise double-count imports.

Netherlands - Similar to Hong Kong, the Netherlands is an important transit point for imports into the EU. As such the volumes being re/exported may be double-counted in our statistics. In this year's report no effort has been taken to remove these movements.

Other Origins/Destinations - Similar calculations inferring imports or exports from trade partners were made for the subregions Middle East, Asia in most cases due to lack of available data from the countries being reported on.

Accuracy - Much of the Trade Data used by the report is sourced under the HS code 081040 which includes the imports and exports of Fresh Cranberries, Blueberries and Other Fruits of The Genus Vaccinium. For many countries, six digits of resolution is a limitation of the data available, meaning that there is no way of differentiating between a cranberry and a blueberry. Fortunately, for most of the world this aggregation is not an issue as all major production of cranberries and other fruits of the Genus Vaccinium family is concentrated in North America. With this in mind, a substantial effort has been made to tell the blueberry story as completely as possible, for example by including USDA FAS data from the United States, which allows us to report exclusively on blueberry production for this origin/market, excluding commodities that fall outside the scope of this report.

Data Availability - To report on global imports and exports of blueberries from around the world, this report depends on the UN COMTRADE data set. which works with governments from around the world to collect and make global trade data available to the general public. This said, because the source relies on individual governments to report on blueberry imports and exports, the availability is dependent on the collection and dissemination efforts of local authorities/associations, data discrimination policies and politics for more than 150 contributing countries. As such, not all origins provide perfectly accurate or timely information for us to work with.

Yield Calculation Methodology

The yield figures of this report are calculated by dividing the production total in kilos by the hectares hypothetically of an age to be in production for each producing region as volunteered by IBO members and individual contributors.

Calculation of Growth from Hectares and Yield

The metrics of growth from hectares and growth from yields are a useful tool to help understand the driving forces behind the increase, or decrease in production observed within the different producing areas and regions. Where growth from yield exceeds growth from hectares this points to most of the growth coming from increased efficiencies in production, through new cultivars or farming methodologies. Whereas, when growth comes mostly from hectares, this indicates that increases in volume are primarily being driven by expansion of land dedicated to the commercial production of blueberries.

Below are the equations used to calculate the different types of growth being measured. For regions composed of several producing areas, the results of these equations are added up to form a total.

$$Growth\ from\ Yield = \Delta\ Yield * Ha\ in\ Production$$

$$Growth\ from\ Hectares = \Delta\ Production - Growth\ from\ Yield$$

PRODUCTION FORECAST METHODOLOGY

Recognizing the importance of accurate projections to the development of the industry, the methodology used to forecast methodology attempts to use the available information to its fullest extent. Our projections have been upgraded to include a machine learning technique that allows us to personalize the regressions to the individual characteristics of each producing region.

Agronometrics Disclaimer

The forecast being presented in this report has been created by Agronometrics for the benefit of the industry. IBO members have been consulted in the process of creating the projections published, however, the work and projections are solely of Agronometrics and do not necessarily reflect the views, opinions, or outlook of the IBO as an organization.

The forecasts have been created in as objective a way as Agronometrics feels is reasonable and responsible based on the best information available and in good faith. These predictions are only meant as a guide and Agronometrics accepts no responsibility for any financial or legal issues that may arise from the use of the forecasts.

Methodology

The methodology we chose was to infer the projection of volumes based on the independent forecasts of hectares in production and yields.

Projecting Hectares

Using an estimated delay in production calculated internally for each producing region, oir methodology infers from the hectares planted the hectares that will be coming into production in the coming years. Because Hectares are expensive to plant, and the physical characteristics of a geography are difficult to change, using hectares planted as an indicator is by its nature a very stable indicator of the hectares that will come into production given the respective delays.

The survey sent out to producing regions allowed for the inclusion of estimated future plantings. In the cases these were made available, they were used as the best estimate of future plantings for 2022.

Where the delays to production are less than four years and forward-looking planting data has not been volunteered, linear regression is used to project the remaining periods necessary to cover the four-years being forecast by the report. A machine learning technique explained below was used to personalize the amount of history that is used for the linear regression to best represent the data of each origin being projected.

Projecting Yields

Yields are a great metric to forecast. Because we use hectares that are already in production in the calculation, both the numerator (production) and the denominator (hectares in production) grow at similar rates canceling out large increases that many origins have experienced with a more stable rate of kilos/hectare. Linear regression can be used on this line to have an accurate idea of how yields will then likely change over the coming years. If we dive deeper into the data, a general trend of increasing yields which is rather prevalent in the world is a sign of modernization in production standards and/or varietal changes.

As a calculated value using production, there is no indicator that can be used to anticipate how yields will perform in the future, however it is a stable enough metric that we are able to create accurate forecasts by simply using linear regression. As a safeguard, yields were capped at 25,000 kilos per hectare, which is viewed by experts as a realistic theoretical limit for production efficiencies.

As with hectares, a ML tool was used to identify the most relevant regressions for each origin as explained below.

Production Projections Volunteered by Member Organizations

The input survey sent to each producing region allows for member organizations to input their estimates for the upcoming season. Where it has been made available, this is the value used for the first period being projected. Any future volumes volunteered by member organizations farther out than one period are discarded in favor of using the methodology described here.

Compared to the methodology being run without the production projections volunteered by member organizations, the Americas was decreased by 30.7 (000) MT and EMEA was increased by 12.7 (000) MT. There were no projections volunteered for Asia/Pacific.

Machine Learning Methodology for Regressions

This year's version of the forecast was created using a custom designed Machine Learning (ML) tool to help personalize the regressions used to reflect the reality of each producing region in the forecasts. The ML tool was trained by backdating the report and testing how much history should be used to best represent the forecasts of that individual origin. This means that every possible length of history was used to forecast each origin with linear regression. This exercise was then repeated back dating the data and recreating the information that would have been available for each year from 2010 to 2020. The results of every forecast created were then compared to the actual values for the time periods being forecasted, offering a measure of how accurate each forecast was. The regression that offered the least amount of error was chosen on a origin by origin basis.

Linear regression was used in order to avoid overfitting the data which may otherwise overly distort the results, especially as it is widely believed that the industry may be in the process of transitioning to more stable levels of growth in production.

Interestingly, the amount of history that the methodology selected to create the forecasts generally lined up with how developed each origin was, using longer history with more established producers and shorter projections for newer entrants into the market.

Assumptions

Due to the issues identified with Chinese data, not only this year, but also throughout the history available through the data set, our forecast assumes that the real growth rate of plantings in hectares in China is 6% while yields have been maintained at their 2021 levels.

Forecast Error

The only thing that is definitive about a forecast is that it is wrong; the question is how wrong. The methodology that is being offered by this publication is only meant to serve as a guide for how the industry will likely develop. Although it is our best attempt at projecting how the industry will develop, we realize that as detailed as we attempt to be, any mathematical model is merely making broad stroke assumptions about how hundreds of thousands of participants in this industry are making the millions of decisions that will actually change how the industry will develop over the next four years that we are attempting to project.

In order to offer context and help build credibility in the work being published by the report, we offer in the table below the values predicted last year for the 2021 season compared to the actual data collected.

Geography	2021 Forecast	2021 Results	% Error
Global	**1,631.47**	**1,788.80**	**-8.80%**
Americas	**902.47**	**963.90**	**-6.37%**
South America	436.79	470.17	-7.10%
US & Canada	391.30	408.63	-4.24%
Mexico/Central America	74.38	85.10	-12.60%
Asia/Pacific	**437.55**	**524.96**	**-16.65%**
Asia	403.92	494.14	-18.26%
Central Asia/Indian Subcontinent	3.37	4.06	-17.06%
Pacific	30.27	26.76	13.10%
EMEA	**291.45**	**300.00**	**-2.85%**
So. Europe/N. Africa	146.31	142.61	2.59%
Eastern Europe	73.57	83.92	-12.33%
Western/Central Europe	37.22	35.34	5.33%
Africa	32.04	33.65	-4.78%
Middle East	2.31	4.42	-47.70%

2021 READER SURVEY

31% of Respondents are IBO Members

JOBS OF RESPONDENTS

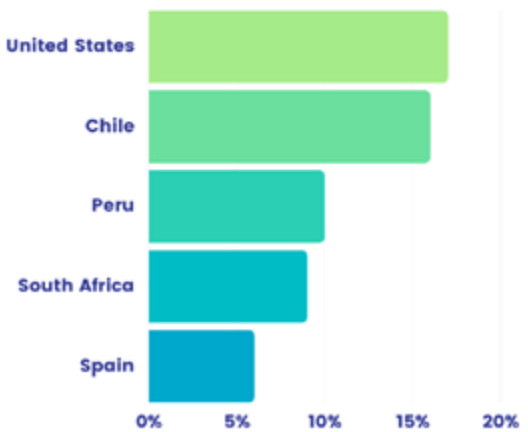
39% Management
14% Executives
11% Agronomists

RESPONDENTS' COMPANY TYPES

31% Producer
13% Exporter
11% Importer

59% of Respondents have 11+ Years of Experience

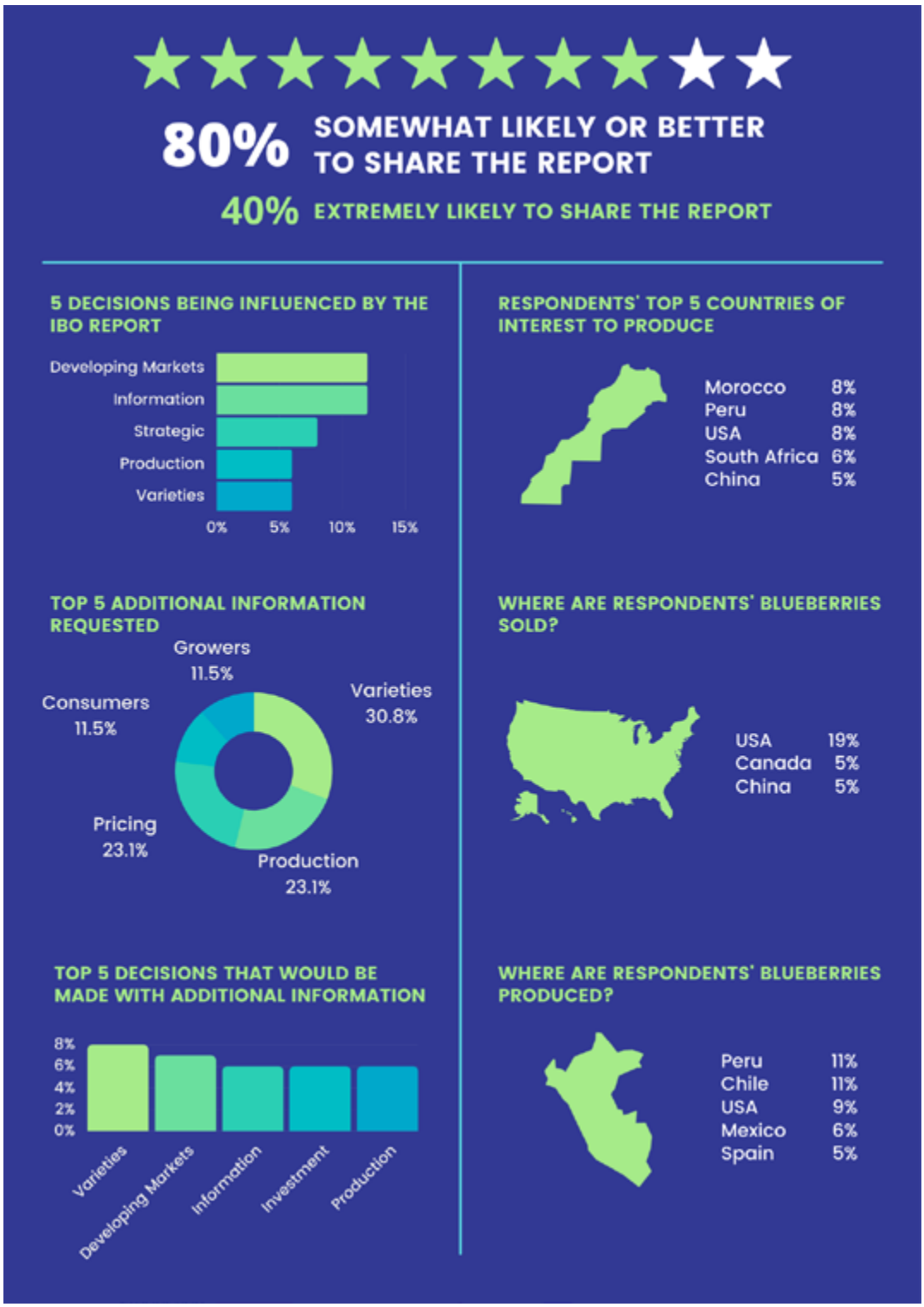
TOP 5 RESPONDENTS' LOCATIONS



1,012 Report Downloads

138 Survey Responses

16 Survey Interviews


80% SOMEWHAT LIKELY OR BETTER TO SHARE THE REPORT
40% EXTREMELY LIKELY TO SHARE THE REPORT
5 DECISIONS BEING INFLUENCED BY THE IBO REPORT
Developing Markets
Information
Strategic
Production
Varieties
0%
5%
10%
15%
RESPONDENTS' TOP 5 COUNTRIES OF INTEREST TO PRODUCE
Morocco 8%
Peru 8%
USA 8%
South Africa 6%
China 5%
TOP 5 ADDITIONAL INFORMATION REQUESTED
Growers 11.5%
Varieties 30.8%
Consumers 11.5%
Pricing 23.1%
Production 23.1%
WHERE ARE RESPONDENTS' BLUEBERRIES SOLD?
USA 19%
Canada 5%
China 5%
TOP 5 DECISIONS THAT WOULD BE MADE WITH ADDITIONAL INFORMATION
8%
6%
4%
2%
0%
Varieties
Developing Markets
Information
Investment
Production
WHERE ARE RESPONDENTS' BLUEBERRIES PRODUCED?
Peru 11%
Chile 11%
USA 9%
Mexico 6%
Spain 5%

GLOBAL STATE OF THE BLUEBERRY REPORT | 2022