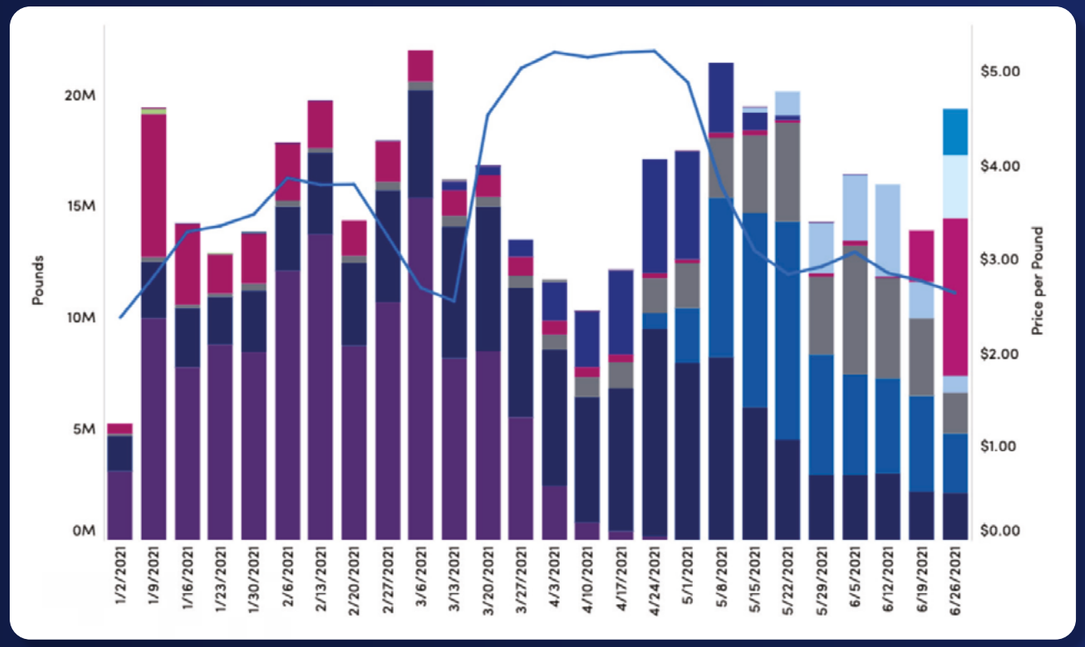
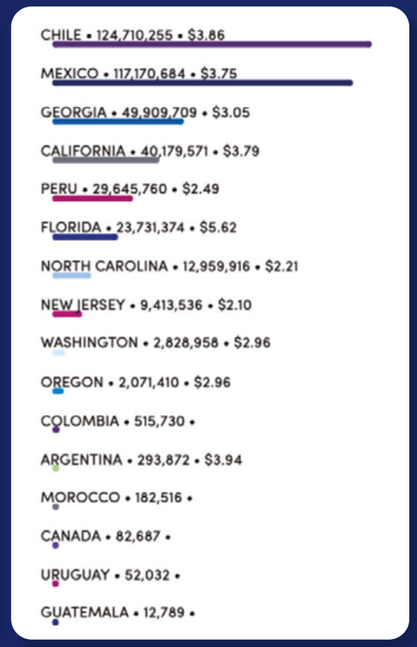
# Blueberries are your business.
# Growing the value of blueberries is ours.

The best business decisions are data-driven, and at the U.S. Highbush Blueberry Council we know relevant data points and actionable insights are what growers and marketers need as the blueberry industry enters a new era of innovation. Our new data and insights center can help prepare you for what's next.

## Blueberry Category Production and Pricing Trends




USDA Market News this year to date thru 6/26/2021




## Retail Category Performance

**Total Dollars** (Fresh)

$3,875,373,198

**% of Total Dollars** (Fresh)

88%

**Dollars % Change YoY** (Fresh)

+10% ▲

**Total Dollars** (Frozen)

$550,673,444

**% of Total Dollars** (Frozen)

12%

**Dollars % Change YoY** (Frozen)

+22% ▲

NielsenIQ syndicated data for Total US results thru week ending 4/24/2021

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- U.S. blueberry industry economic impact studies
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blueberries
U.S. Highbush Blueberry Council

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# INTRODUCTION



## FOREWORD

This 2021 State of the Blueberry Industry Report represents the 8th 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 in recent years to the IBO as the organization came into its own. 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.

The team behind this report has worked incredibly hard to produce the most complete overview of our industry that has been published to date. Matt Ogg, our new journalist, is a force of nature who has juggled more than 70 interviews with stakeholders all over the world and synthesized their stories into the Report Team Narratives that you can find on these pages. Claudio Riquelme's efforts should not be underestimated. The programs and systems he has created manage all the report's content and produce every chart and table in the report. Violeta Rodriguez has also put forward an extraordinary effort giving a face to the digital and PDF versions of the report, consolidating all the content in the PDF version and taking care of every minute detail that came up to ensure that this report could be the best it possibly could be. Diego Mulvey also deserves an honorable mention for reaching out and hounding industry members across the globe to collect the data the report offers.

***What's New?:*** As a result of the efforts of this outstanding team, the report is able to take a broader look at the industry focusing our narratives strategically on the areas that are most crucial as well as the data. This includes a deeper dive into hectares planted with an estimation of hectares that are in production and consequently hectares that are not. This has helped us calculate more accurate yields for every producing region. We have also expanded on the prediction methodology taking into consideration hectares that are not producing yet and projecting out future volumes based on when hectares are expected to generate comercial volumes and their expected yields, in order to establish a more accurate expectation of future production. This report also simplifies the trade data that was first presented in the 2019 report, improving the efforts to capture trends and painting a picture of how this global industry is tied together through trade.

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. For this reason, everyone involved has invested themselves into this initiative. Many thanks to the IBO board for this opportunity to serve the industry as well as funding the work by the hard-working members of the team. 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**
IBO SOTIR, Architect/Report Manager

**Matthew Ogg**
IBO SOTIR, Lead Journalist

# REPORT TEAM

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Editor, Data Collection, Narrative

**COLIN FAIN**
Architect / Project Manager

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**VIOLETA RODRIGUEZ**
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**DIEGO MULVEY**
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# SPECIAL THANKS

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



# 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:

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

# HEALTH RESEARCH UPDATE

**By Dave Brazelton**

Dave presents this update as chair of the USHBC Health Research Committee, a position he has held since 1995 when work began at the NABC.

In the global produce industry, blueberries are considered a minor crop with a big consumer brand. Throughout much of the world, blueberries have captured the attention of consumers as one of the super foods to include in your diet. This "health halo" provides a gateway for new consumers and encourages existing consumers to buy blueberries more often. During this very difficult pandemic, product demand and blueberry consumption increased significantly throughout the global consuming regions. Purchasing research tells us that the desire to eat healthier while at home drove these encouraging numbers.

This positive consumer reputation has been hard earned over the last 20 years with strategic investments by the USHBC. Investing in excellent science at great institutions, independent reliable research, and effective communication to consumers and health professionals have paid substantial dividends. These annual investments are ultimately funded by the domestic and international growers who sell their crop in the United States. In a recent survey of stakeholders, those efforts are strongly supported.

The future strategy of the USHBC Health Research Committee is to continue to explore the health benefits of blueberries and to share those results with consumers through the communication platforms of the USHBC. Even with the great success currently enjoyed, continued research is seen as critical to keep blueberries top of mind with consumers around the world. Emerging science allows new ways to discover and document effects. New consumers come into the market looking for current and reliable information on health, and quite simply, new health effects from this amazing fruit continue to be discovered.

A review of recently completed and ongoing studies provides a glimpse into the specifics of this research, and quite possibly, what might be the "next big story" on the health benefits of blueberries. Some of those specifics follow:

Work in the area of cardiovascular health continues to build on the previous finding that blueberry consumption decreased blood pressure in postmenopausal women who had slightly elevated blood pressures. A current study is exploring possible mechanisms for this effect while another study is examining the effect of blueberry consumption on the ability of blood vessels to dilate and increase blood flow and how this might affect cognitive function as well as the ability to exercise.

Type 2 diabetes is a global problem and an area of investigation since the first findings ten years ago showing blueberry consumption increased the response to insulin. The first study involving participants who have type 2 diabetes was funded and researchers found that after 6 weeks of consuming blueberries there was an improvement in glucose control as measured by hemoglobin A1C and fructosamine as well as a decrease in blood triglycerides.

Work in the area of brain health continues. Results of a recently completed study looking at the effect of blueberry consumption in middle-aged men should be completed soon. In the past, studies have focused on the elderly population, but researchers have found that amyloid plaques in the brain, which are associated with Alzheimer's Disease, begin to appear at an earlier age than previously assumed. If dietary modifications are going to have an effect, it may be important to proactively make those changes when individuals are in their 40's as opposed to their 60's. This is an area where continued research is being supported.

Science is constantly evolving and keeping informed of new advances in the field of brain health offers new opportunities to discover and document effects. A pilot study will be started to assess the effects of blueberry consumption on unique blood biomarkers of Alzheimer's disease. Another study about to be started will measure blood flow and antioxidant activity in the brain before and after blueberry consumption.

Participation is continuing in two large, multi-million-dollar clinical studies providing blueberries to researchers who are studying the effect of diet on brain health. In addition to the ongoing MIND study and the POINTER Study funded by NIH and the Alzheimer's Association, respectively, the USHBC Research Committee will also be providing blueberries to a new study funded by the NIH in which the effect of the MIND diet in patients who are recovering from a stroke will be investigated.

One effect of Covid on the research program has been the renewed interest in the effect of blueberries on the immune system. With its established health halo, many consumers in the U.S. assumed that blueberries would be important for immune

health and sales of fresh and frozen blueberries increased. Given the content of vitamin C, dietary fiber and anthocyanins in blueberries, the consumers were probably correct.

In past studies, researchers have observed that blueberry feeding led to increases in certain types of immune cells such as natural killer cells and dendritic cells. Recently, Dr. Marie-Claude Vohl and her group from the University of Laval in Quebec, Canada, found that when adults were given blueberries as freeze-dried blueberry powder or as placebo powder, there was a significant change in the expression of genes that were clustered in immune-related pathways in the participants who were given blueberries. The genes with the greatest change in expression were in immune-related pathways related to categories defined as “defense response to virus” and “response to molecules of bacterial origin”. In these studies, the effect of blueberries on the immune system were preliminary findings and more research is needed.

The immune system changes over people’s life span and investigating the effects of blueberry consumption on the immune system at all ages is of growing interest. A new study has been initiated with researchers who will study the effects of providing blueberries as a first food to infants and one of the areas they will be investigating is the immune function.

This change over the life span will also be evaluated from the other end of the spectrum. One such study is ongoing and involves a group of seniors who will be consuming blueberries for 12 weeks looking for any changes in their antibodies after this feeding period.

Lastly, another study has been commissioned to examine possible immune response to receiving the influenza vaccine in a group of older obese participants who are given blueberries or a placebo.

Over the next couple of years as these studies and others are completed, it is anticipated that more positive news about consuming blueberries for better health will be published and made available to consumers. Continuing the good news about blues will be good for consumers and growers, and all those connected with the crop.

# INDUSTRY TRENDS

The following Trends section attempts to provide the report teams’ summary of the dominant themes which arose from 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.

## Rising Blueberry Demand & Marketing Innovation

Covid-19 has often been described as a “great accelerator” of a wide variety of macro-trends such as business digitalisation, e-commerce and working from home. The same could very much be said for the trend of growing berry demand and healthy eating more broadly as the pandemic kicked blueberry consumption into overdrive in both the fresh and frozen categories, activating conscious and subconscious associations with high antioxidant levels, health benefits, and immunity that have been ingrained by decades of health messaging across the globe, underpinned by research that is ongoing.

Double-digit sales growth was a common feature for blueberries at retail in both mature and developing markets, offsetting reductions at foodservice due to the pandemic-related closures. Consumers stocked their freezers with frozen berries, fresh blueberry clamshells were in faster rotation and the continuous push to larger pack sizes helped move a rapidly-increasing supply. Considering just how dramatic the jump in production has been over the past two years, pricing held up well in 2020 and in the first half of 2021, albeit with a degree of quality- or varietal-related convergence that will be discussed in more detail later on.

Blueberries are now becoming more commonplace in markets where they were previously seen as a niche product, and greater counter-seasonal availability from burgeoning industries – Peru, Mexico, South Africa and Morocco to name a few – has put the fruit on the radar. This has encouraged more Northern Hemisphere growers to plant the crop throughout Europe, particularly in former Soviet or Yugoslav republics, not to mention China where aggressive planting has taken place and imported blueberries are now treated with more scrutiny than before with regards to firmness, size and flavor.

New sales channels and marketing methods are emerging as well that are driving the higher consumption trend. From direct-to-consumer online channels developed by grower-marketers to sophisticated targeting, economic digitalisation will work in the blueberry industry’s favor if the industry keeps pace with technological advances. As referenced in the U.S. section of this report, the North American Blueberry Council (NABC) and United States Highbush Blueberry Council have risen to the challenge of stimulating demand through the next generation of marketing tools that capitalize on newfound opportunities in the online marketplace. This could serve as an encouraging example for other blueberry industry organizations worldwide given the challenges associated with e-commerce. As often noted by New Zealand-based fresh produce marketing expert Lisa Cork, in online retail it is easier to lose control over your brand or the eye appeal of your product. This underscores the relevance of consistent quality and eating experience to encourage repeat purchases, given in an e-commerce environment there is less opportunity for impulse purchasing.

That said, the major piece of the marketing puzzle now is to actually make blueberries more of a staple purchase in either the real or online shopping basket. The versatility, flavor and healthiness of blueberries will be central to messaging to make that goal a reality. In some parts of the world, the backend of modern e-retail is being built on sophisticated algorithms that process consumer data and make suggestions in order to lift overall sales, irrespective of the product mix in order to maximize profits. When blueberries are recommended and there is a follow-through sale – and especially if there are repeat sales on many occasions – there is high potential for a positive feedback loop that instigates more routine consumption.

Innovative approaches will also be needed to develop new markets, especially in regions that have traditionally been more export-oriented. The Polish blueberry industry’s domestic marketing drive (referenced in that country’s section of this report) is noteworthy as it has successfully tapped into a population with a large demographic of health-conscious young people. These kinds of initiatives will likely gain relevance in exporting countries with a proportion of production which - despite being of delicious eating quality at harvest - struggles to achieve the same result after weeks at sea. If berries with that profile can be eaten closer to home, the development of a viable domestic market (even if it is small) serves to take some pressure off global supply and lift export quality consistency, not to mention faster payment times.

Two of blueberries’ greatest strengths are their versatility and relative convenience compared to other berries. Strawberries enjoy greater market penetration, but unlike strawberries you do not need to cut blueberries, and they are generally more durable with a longer shelf life than other berries.

Whether you’re eating blueberries with yogurt for breakfast, snacking on it for a freshness boost at work, putting it in a child’s lunchbox or serving it up in a cocktail with friends, the fruit can be used on so many occasions. It may seem expensive to some, but on a per pack basis blueberry prices are not too dissimilar to less healthy foods such as chocolate bars and potato chips.

For health-conscious families who want to instil good dietary habits in their children, blueberries are a perfect fit and the possibilities are huge for growing the cohort of consumers with inelastic demand for them. Newer varieties are also attracting a whole new segment of consumers who were previously unimpressed by the fruit, but who now recognize brands or retailers who stock spectacular blueberries that are to their taste. Marketers are finding these consumers are willing to pay a premium for a top-notch eating experience, and they are willing to pay it frequently.

## Proprietary Genetics, Divergent Consumer Experiences & Quality Stratification

A great shift is underway with producers renewing their blueberry farming operations with 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 or achieving a certain sweetness-to-acidity ratio), 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.

Within more mature industries, the response to new varietal offerings is mixed given the financial reality being faced amidst heightened competition that has increased availability during previously lucrative windows of scarcity. Significant investments have already been made with older varieties, and without external capital there may not be enough operating cash flow for growers to afford to replant. In Northern Highbush the transition takes longer than for Southern Highbush blueberries, the latter having been responsible for the greatest expansion into new growing regions, aided very often by substrate plantings that remove challenges around poor soils.

Industry engagement with banks and other lenders could play a role in securing the necessary credit lines to bridge this challenging period when so many farms – often kept within families for generations – will struggle to survive without varietal adaptation, or other forms of technological advancement such as automated sorting machines, cold stores, or structures such as tunnels that reduce weather risks.

The growth in new varieties has led to an identity crisis for blueberries, now a more heterogenous 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 sub-section 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 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 of 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 growing categories, 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 for the industry will be to achieve a 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.

## Integration and Maturation of 'Newer' Growing Regions

Much of the blueberry industry's discussion historically has been around where the next boom in production is going to come from, and how that's going to impact existing industries. As this report shows, there certainly are interesting regions of growth and opportunity – Zimbabwe, Zambia, Namibia, Serbia, Romania and the Ukraine to name a few – but for the most part it is expected future growth, at least in the medium term, will come from the consolidation of countries that have already transformed supply dynamics in recent years – Peru, Mexico, Morocco, South Africa and other new and existing players.

Through agronomic management, geographic and micro-climate selection and leveraging genetics, there is still plenty of room for growth in these countries, whether it be from new fields, or the renewal of existing operations with higher-yielding or next-generation genetics. While in the past a pioneer in a new growing country would ask what shoulder period they could sell their blueberries in, looking ahead the question could increasingly be about when and where they can sell the highest-quality, proprietary blueberry genetics at a premium, which feeds into the stratification theme mentioned earlier. For growers, marketers and breeders, it is much easier to use their available toolkits and expertise in well-established jurisdictions than to venture into new areas, where the perceived marginal benefit is less than it was before industries like Peru came into the picture.

That said, the underlying trend of increased consumption will ultimately lead to larger, newer blueberry industries all over the world, attracting growers from across the spectrum of sophistication and agronomic knowledge. These producers will likely continue to challenge the status quo as far as volume, season timing and lucrative market windows are concerned.

The great unknown at this point is Asia, where most of the world's population lives but where blueberry consumption rates per capita are nowhere near what is seen in regions such as North America or Northern Europe. Commercial trials are underway in India and some of the world's leading players have entered joint ventures in China, while major players have their eyes on Southeast Asia but that is still very much in the investigative stage. Moving to new jurisdictions implies risks around intellectual property, translocation effects on varieties, new regulations and political considerations, challenges with securing land and water, and a lack of blueberry expertise that must first be imported in conjunction with educational efforts in-country.

## Attrition & Grower Response

The mercantilist trend foreshadowed in the previous IBO State of the Industry Report in 2018 was realized earlier this year through the Section 201 investigation that sought to place limitations or duties on imported fruit in the U.S. While this specific case did not result in a regulatory trade response, the issues that created the rupture in the industry remain very real. This remains an open wound for so many longstanding blueberry industry leaders. The hardship and challenges caused by heightened competition pressuring returns - in combination with input, transport and labor cost inflation or scarcity - cannot be understated and are not limited to the USA. In mature industries such as Canada, Chile and Argentina, growers are facing similar existential struggles, while in the U.K. the blueberry industry has been blindsided by Brexit's limits on their previous labor supply from Eastern European EU countries.

The change afoot has already resulted in attrition, mergers and acquisitions in the industry, and has also tilted multi-generation farms in the direction of working with venture capital or selling up their farms entirely. Note that there have been exits of some growing operations already but the exit is often not visible in the data as the yields of those operations were generally not competitive. To set their paths for the future, there are two overarching grower responses that have been seen on a widespread scale to date: organic farming and machine harvesting experimentation for fresh.

Both the organic and machine harvesting for fresh scenarios are described in great detail within the regional and country sections of this report in areas where they are of relevance. Organic demand is on the rise with the USA as a key market, and has been embraced in particular by growers in California, Chile and Argentina. Machine harvesting experimentation – from perspectives of equipment, varieties and 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 fruit versus bruised or damaged fruit that would have been fine had it been picked by hand, but now will need to go to processing.

## Climate Change

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.

The other way of looking at how climate change will affect blueberries is from the perspective of consumers, who in the developed world are increasingly looking for local or low-carbon footprint food, not to mention a rising sense of patriotism that encourages the 'buy local' trend regardless of views on climate change.

## Corporate Social Responsibility

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.

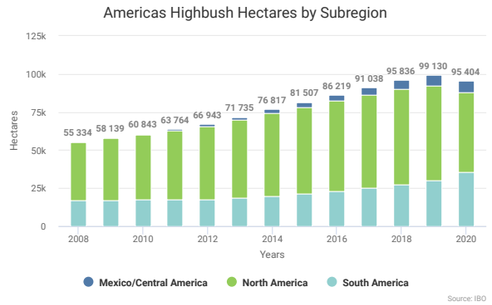
Blueberries are a very labor-intensive crop, directly generating a livelihood for tens of thousands of people worldwide and with an indirect economic impact of hundreds of thousands or more. From harvest workers, to packhouse employees, to all of the people who service the sector, and all of the industries in regional areas where itinerant workers and staff spend their earnings. It is for this reason that in regions with relatively lower labor costs, machine harvesting for fresh has not been widely embraced. 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.

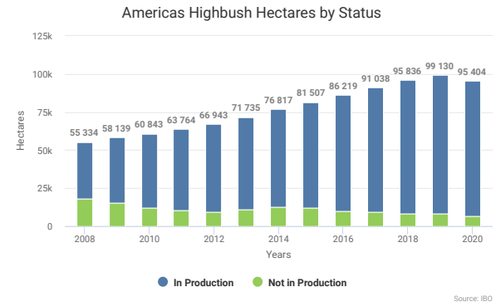
# AMERICAS

## Americas Data & Figures Production and Planting
*(Denominated in Hectares and Thousands of Metric Tons)*

### Americas Highbush Hectares by Subregion

| Americas | Planting | | | | | 2020 Production | | |
|---|---|---|---|---|---|---|---|---|
| Growth Totals | 2016 | 2017 | 2018 | 2019 | 2020 | Fresh | Process | Total |
| South America | 23,146 | 25,101 | 27,041 | 30,291 | 35,394 | 320.52 | 66.43 | 386.95 |
| North America | 59,093 | 61,181 | 63,265 | 62,104 | 52,570 | 184.11 | 180.36 | 364.47 |
| Mexico/Central America | 3,980 | 4,756 | 5,530 | 6,735 | 7,440 | 62.64 | 0.67 | 63.31 |
| Americas Totals | 86,219 | 91,038 | 95,836 | 99,130 | 95,404 | 567.27 | 247.46 | 814.73 |

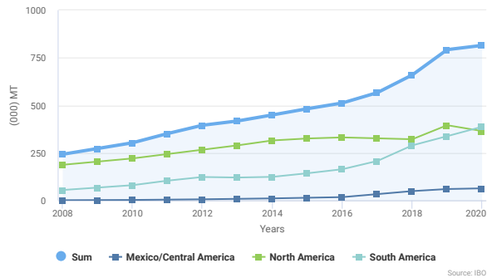


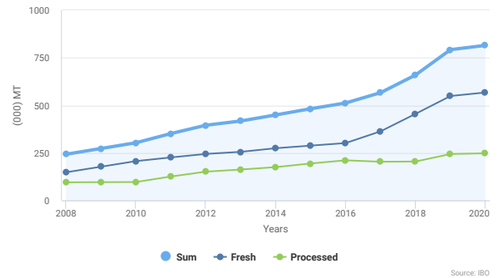

### Americas Highbush Production by Subregion

| Americas | 2018 | | | 2019 | | | 2020 | | |
|---|---|---|---|---|---|---|---|---|---|
| Productions Totals | Fresh | Process | Total | Fresh | Process | Total | Fresh | Process | Total |
| South America | 235.60 | 53.60 | 289.20 | 282.00 | 55.63 | 337.63 | 320.52 | 66.43 | 386.95 |
| North America | 171.35 | 150.06 | 321.41 | 207.59 | 187.60 | 395.19 | 184.11 | 180.36 | 364.47 |
| Mexico/Central America | 48.06 | 0.70 | 48.76 | 59.15 | 0.53 | 59.68 | 62.64 | 0.67 | 63.31 |
| Americas Totals | 455.01 | 204.36 | 659.37 | 548.74 | 243.76 | 792.5 | 567.27 | 247.46 | 814.73 |

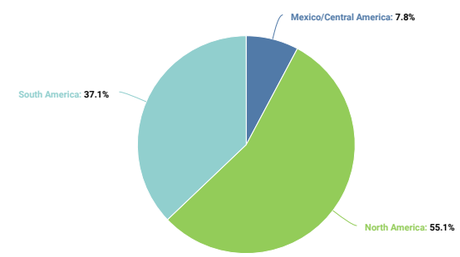
Americas Highbush Production by Subregion



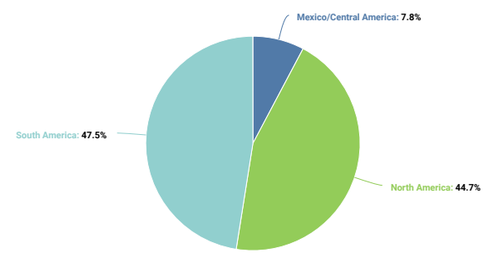

Americas Highbush Production by Use



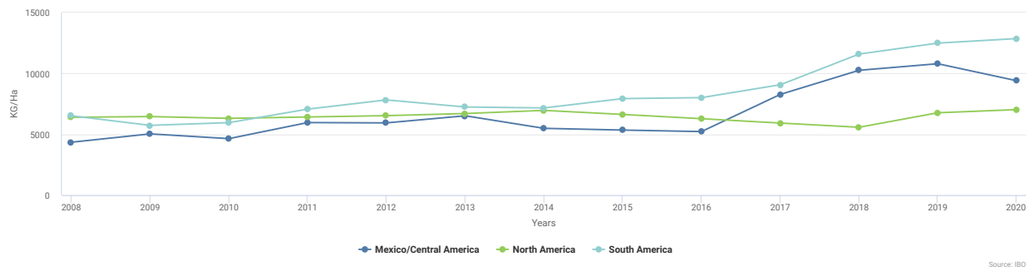

2020 Americas Highbush Hectares by Subregion




2020 Americas Highbush Production by Subregion




Americas Highbush Yield by Subregion



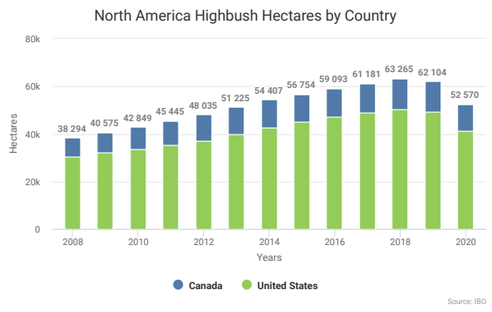
# NORTH AMERICA

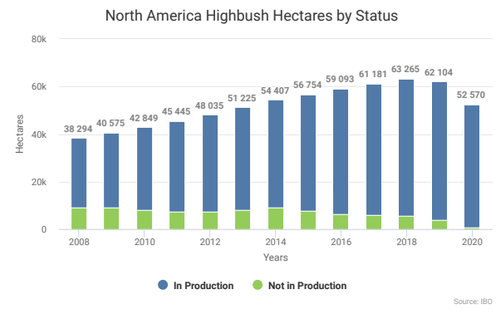
## Commentary on North America Data & Figures Production and Planting
*(Denominated in Hectares and Thousands of Metric Tons)*

### North America Highbush Hectares by Country

| North America | Planting | | | | | 2020 Production | | |
|---|---|---|---|---|---|---|---|---|
| **Growth Totals** | **2016** | **2017** | **2018** | **2019** | **2020** | **Fresh** | **Process** | **Total** |
| **United States** | **47,158** | **48,813** | **50,465** | **49,151** | **41,223** | **153.08** | **129.61** | **282.69** |
| **Western:** | **14,390** | **15,505** | **16,620** | **17,011** | **15,418** | **79.30** | **98.40** | **177.70** |
| Washington | 6,440 | 7,120 | 7,800 | 7,947 | 7,365 | 18.1 | 56.7 | 74.8 |
| Oregon | 5,100 | 5,200 | 5,300 | 5,685 | 5,463 | 33.1 | 34.5 | 67.6 |
| California | 2,850 | 3,185 | 3,520 | 3,379 | 2,590 | 28.1 | 7.2 | 35.3 |
| **Southern:** | **19,168** | **19,655** | **20,140** | **19,274** | **14,438** | **40.18** | **14.32** | **54.50** |
| Georgia | 9,550 | 9,675 | 9,800 | 9,554 | 6,475 | 20.4 | 9.1 | 29.5 |
| North Carolina | 3,793 | 3,972 | 4,150 | 4,098 | 4,047 | 9.1 | 5 | 14.1 |
| Florida | 3,000 | 3,100 | 3,200 | 2,632 | 2,104 | 7.7 | 0 | 7.7 |
| Texas | 580 | 590 | 600 | 600 | 655 | 1.4 | 0 | 1.4 |
| Miss/Louisiana | 1,730 | 1,790 | 1,850 | 1,850 | 607 | 0.91 | 0.22 | 1.13 |
| Southern Others | 260 | 270 | 280 | 280 | 290 | 0.62 | 0 | 0.62 |
| Arkansas | 255 | 258 | 260 | 260 | 260 | 0.05 | 0 | 0.05 |
| **MidWest:** | **9,745** | **9,795** | **9,845** | **9,037** | **7,889** | **19.82** | **14.19** | **34.01** |
| Michigan | 8,800 | 8,850 | 8,900 | 8,092 | 6,961 | 18.6 | 14.1 | 32.7 |
| Midwest Others | 645 | 645 | 645 | 645 | 645 | 0.86 | - | 0.86 |
| Indiana | 300 | 300 | 300 | 300 | 283 | 0.36 | 0.09 | 0.45 |
| **Northeastern:** | **3,855** | **3,858** | **3,860** | **3,829** | **3,478** | **13.78** | **2.70** | **16.48** |
| New Jersey | 3,300 | 3,300 | 3,300 | 3,269 | 2,913 | 13.6 | 2.7 | 16.3 |
| New York | 555 | 558 | 560 | 560 | 565 | 0.18 | 0 | 0.18 |
| **Canada** | **11,935** | **12,368** | **12,800** | **12,953** | **11,347** | **31.03** | **50.75** | **81.78** |
| British Columbia | 11,200 | 11,600 | 12,000 | 12,140 | 10,522 | 28.7 | 50.7 | 79.4 |
| Nova Scotia | 160 | 193 | 225 | 230 | 235 | 1.48 | 0.05 | 1.53 |
| Eastern Canada | 575 | 575 | 575 | 583 | 590 | 0.85 | 0 | 0.85 |
| **North America Totals** | **59,093** | **61,181** | **63,265** | **62,104** | **52,570** | **184.11** | **180.36** | **364.47** |

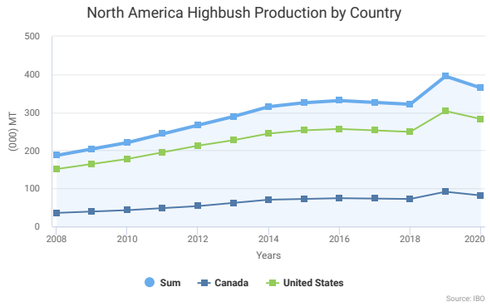


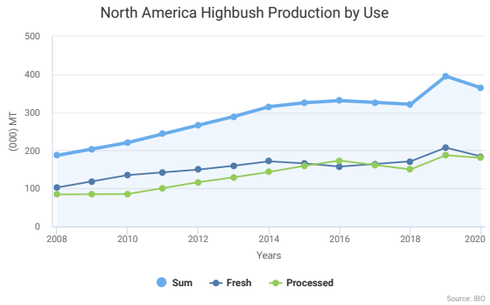


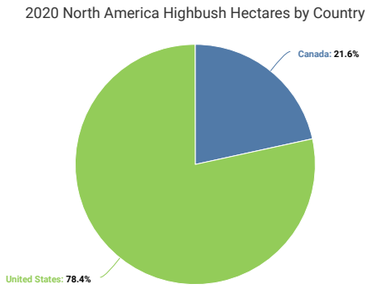



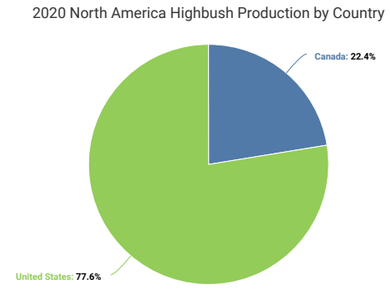

### North America Highbush Production by Country

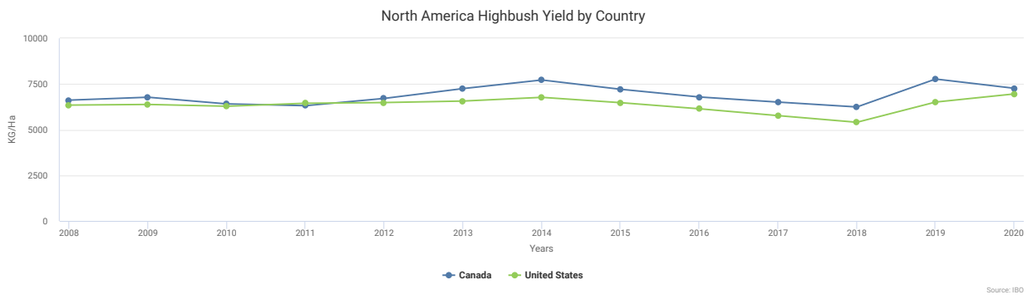
| North America | 2018 | | | 2019 | | | 2020 | | |
|---|---|---|---|---|---|---|---|---|---|
| **Productions Totals** | **Fresh** | **Process** | **Total** | **Fresh** | **Process** | **Total** | **Fresh** | **Process** | **Total** |
| **United States** | **137.40** | **111.51** | **248.91** | **168.30** | **135.39** | **303.69** | **153.08** | **129.61** | **282.69** |
| **Western:** | **68.84** | **79.61** | **148.45** | **78.00** | **96.50** | **174.50** | **79.30** | **98.40** | **177.70** |
| Washington | 18.12 | 40.83 | 58.95 | 21.8 | 50.8 | 72.6 | 18.1 | 56.7 | 74.8 |
| Oregon | 27.12 | 33.7 | 60.82 | 30.8 | 38.6 | 69.4 | 33.1 | 34.5 | 67.6 |
| California | 23.6 | 5.08 | 28.68 | 25.4 | 7.1 | 32.5 | 28.1 | 7.2 | 35.3 |
| **Southern:** | **37.26** | **13.15** | **50.41** | **54.15** | **17.45** | **71.60** | **40.18** | **14.32** | **54.50** |
| Georgia | 13.6 | 9.1 | 22.7 | 27.2 | 14.5 | 41.7 | 20.4 | 9.1 | 29.5 |
| North Carolina | 11.4 | 3.6 | 15 | 13.6 | 2.9 | 16.5 | 9.1 | 5 | 14.1 |
| Florida | 8.98 | 0 | 8.98 | 10.3 | 0 | 10.3 | 7.7 | 0 | 7.7 |
| Texas | 0.95 | 0 | 0.95 | 1.8 | 0 | 1.8 | 1.4 | 0 | 1.4 |
| Miss/Louisiana | 2.1 | 0.45 | 2.55 | 0.6 | 0.05 | 0.65 | 0.91 | 0.22 | 1.13 |
| Southern Others | 0.18 | 0 | 0.18 | 0.6 | 0 | 0.6 | 0.62 | 0 | 0.62 |
| Arkansas | 0.05 | 0 | 0.05 | 0.05 | 0 | 0.05 | 0.05 | 0 | 0.05 |
| **MidWest:** | **17.24** | **15.12** | **32.36** | **22.10** | **17.84** | **39.94** | **19.82** | **14.19** | **34.01** |
| Michigan | 16.56 | 14.97 | 31.53 | 19.7 | 17.7 | 37.4 | 18.6 | 14.1 | 32.7 |
| Midwest Others | 0.23 | 0 | 0.23 | 0.95 | - | 0.95 | 0.86 | - | 0.86 |
| Indiana | 0.45 | 0.15 | 0.6 | 1.45 | 0.14 | 1.59 | 0.36 | 0.09 | 0.45 |
| Northeastern: | 14.06 | 3.63 | 17.69 | 14.05 | 3.60 | 17.65 | 13.78 | 2.70 | 16.48 |
| New Jersey | 13.61 | 3.63 | 17.24 | 13.6 | 3.6 | 17.2 | 13.6 | 2.7 | 16.3 |
| New York | 0.45 | 0 | 0.45 | 0.45 | 0 | 0.45 | 0.18 | 0 | 0.18 |
| **Canada** | **33.95** | **38.55** | **72.50** | **39.29** | **52.21** | **91.50** | **31.03** | **50.75** | **81.78** |
| British Columbia | 31.7 | 38.5 | 70.2 | 36.99 | 52.16 | 89.15 | 28.7 | 50.7 | 79.4 |
| Nova Scotia | 1.35 | 0.05 | 1.4 | 1.42 | 0.05 | 1.47 | 1.48 | 0.05 | 1.53 |
| Eastern Canada | 0.9 | 0 | 0.9 | 0.88 | 0 | 0.88 | 0.85 | 0 | 0.85 |
| North America Totals | **171.35** | **150.06** | **321.41** | **207.59** | **187.6** | **395.19** | **184.11** | **180.36** | **364.47** |



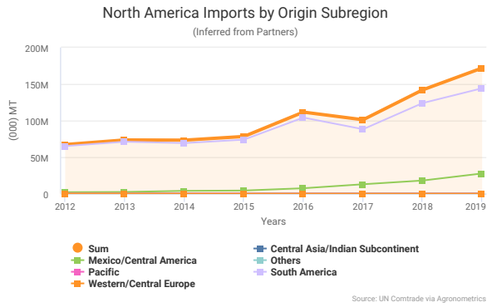



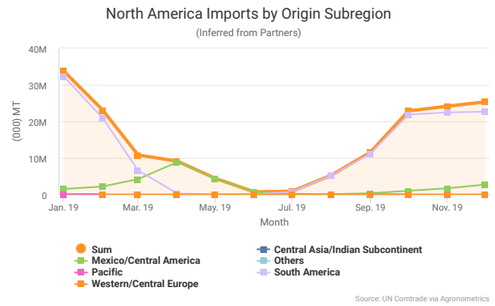






## North America Imports by Origin Subregion (Inferred from Partners)

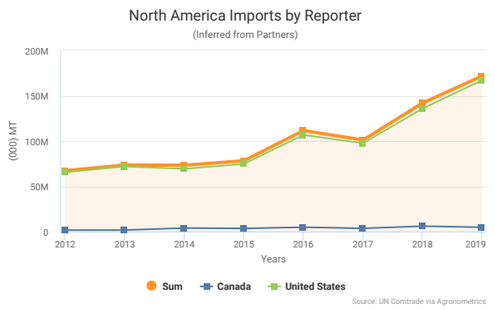
| Origin | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| **South America** | **104,113,351** | **88,199,999** | **123,943,119** | **144,195,387** |
| Mexico/Central America | 7,442,648 | 12,900,947 | 17,990,970 | 27,646,992 |
| Pacific | 24,103 | 8,295 | 3,420 | 19,342 |
| Central Asia/Indian Subcontinent | 11,300 | 14,113 | 5,000 | 17,297 |
| Eastern Europe | 1,858 | 2,831 | 18,431 | 454 |
| Asia | - | - | 28 | - |
| Western/Central Europe | 6,908 | 143 | 34 | 2,255 |
| Africa | - | 1,270 | 12,271 | - |
| Middle East | - | - | 325 | - |
| Southern Europe/North Africa | 29 | - | - | - |
| North America Totals | 111,600,197 | 101,127,598 | 141,973,598 | 171,881,727 |

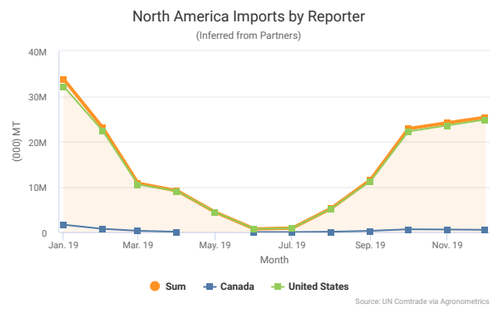


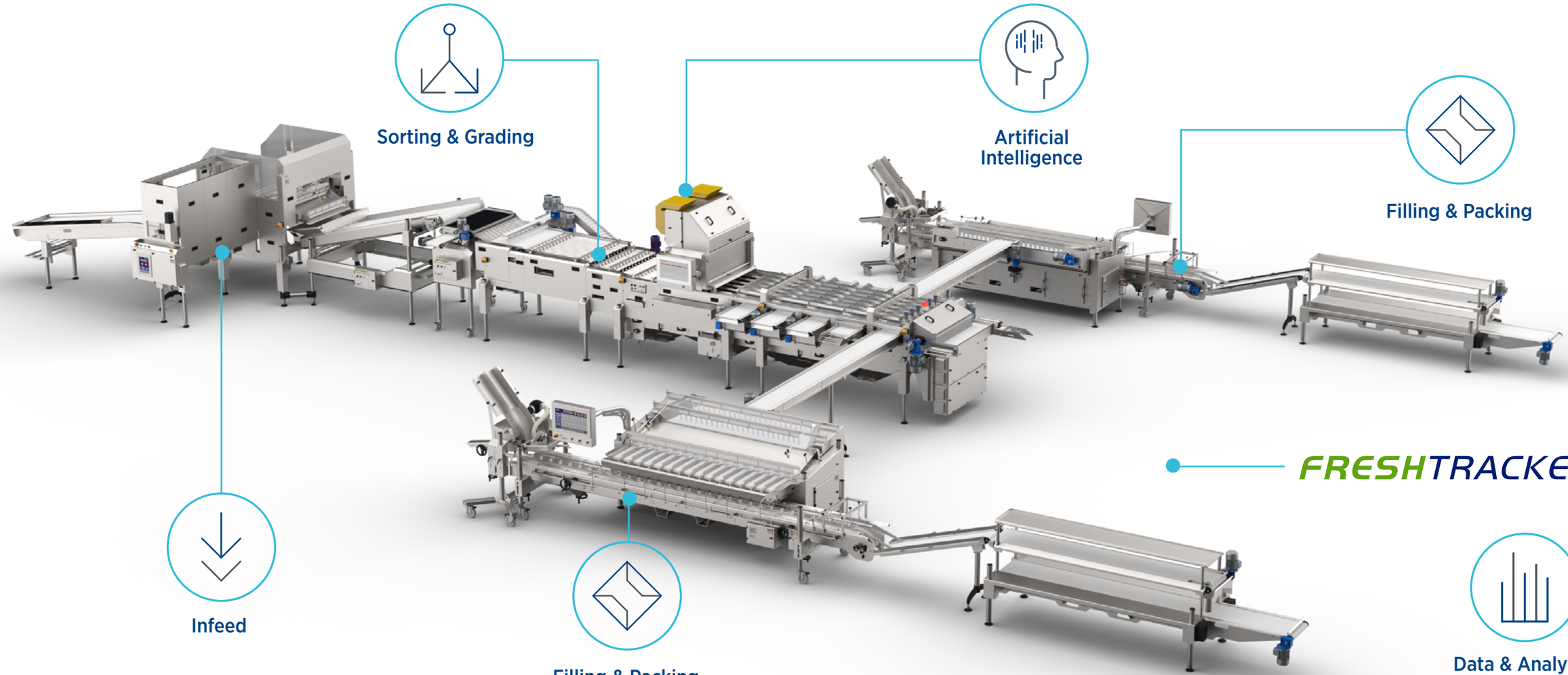




## North America Imports by Reporter (Inferred from Partners)

| Reporter | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| United States | 106,782,894 | 97,566,779 | 135,971,523 | 167,140,455 |
| Canada | 4,817,303 | 3,560,819 | 6,002,075 | 4,741,272 |
| North America Totals | 111,600,197 | 101,127,598 | 141,973,598 | 171,881,727 |



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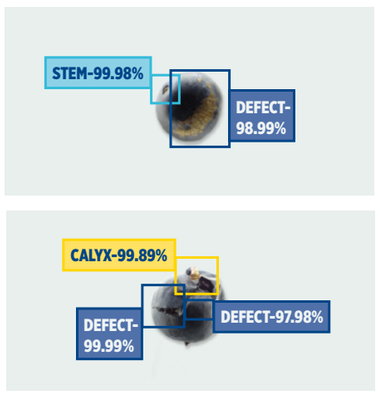
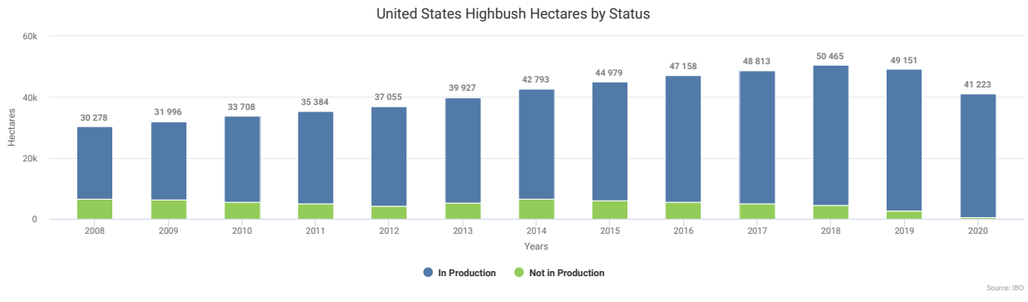



# UNITED STATES

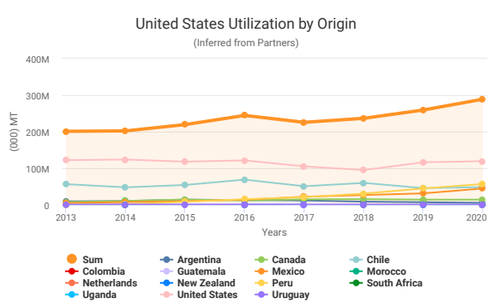


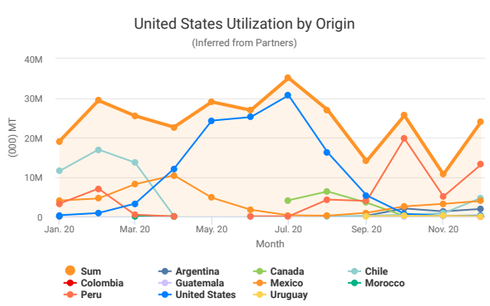
## Commentary on United States Data & Figures Production and Planting
*(Denominated in Hectares and Thousands of Metric Tons)*



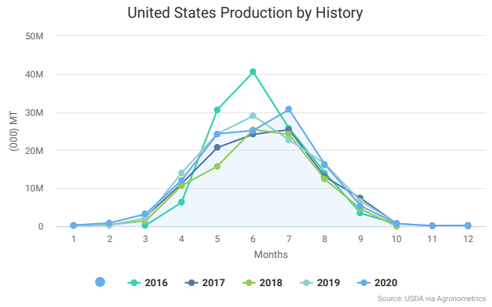

### United States Utilization by Origin (Inferred from Partners)

| Reporter | 2017 | 2018 | 2018 | 2020 |
|---|---|---|---|---|
| United States | 105,067,368 | 94,983,840 | 116,334,792 | 119,178,864 |
| Peru | 20,743,128 | 30,613,464 | 44,634,240 | 56,931,336 |
| Chile | 50,698,872 | 59,811,696 | 45,582,264 | 48,294,792 |
| Mexico | 21,963,312 | 26,630,856 | 31,175,928 | 44,607,024 |
| Canada | 14,778,288 | 15,277,248 | 14,020,776 | 14,029,848 |
| Others | 12,351,528 | 9,289,728 | 7,511,616 | 5,842,368 |
| United States Totals | 225,602,496 | 236,606,832 | 259,259,616 | 288,884,232 |






### United States Summary Statistics

| | |
|---|---|
| **Hectares Planted:** | **41,223 (Ha)** |
| **Production:** | **282.69 (000) Metrics Tons** |
| Organic: | 20% (from Aggregate) |
| Under Structure: | Not Reported |
| Hydroponics: | Not Reported |
| New Genetics: | Not Reported |
| **Estimated Yield:** | **6,955.78 (Kg/Ha)** |
| **Exports*:** | **0.00 (000) Metrics Tons** |
| **Imports*:** | **167.14 (000) Metrics Tons** |

*** DATA ONLY AVAILABLE THROUGH 2019, ONLY DATA FROM CHARTS ABOVE USED**

## United States of America Report Team Narrative

The US remains the epicenter of the blueberry world in many regards. It is the endemic origin of domesticated highbush blueberries (*Vaccinium Corymbosum*), is the world's largest producer, the largest single market for domestic production and imports, the engine room of health research and marketing that has fueled consumption growth globally, and is at the forefront of a transition to machine harvesting for fresh fruit in developed nations as a survival mechanism in an environment of higher labor costs and greater competition; a practice that at least in the short-term will reduce marketable yields per acre where applied, although the model's premise is that this reduction will be offset by higher profitability at the farm level and eventually, through continued innovation, improved mechanized harvest quality.

As a primary market focus of booming export industries such as Peru and Mexico, what occurs in the USA has ripple effects throughout the global blueberry industry, not just in terms of where incoming volumes go, but the cues and lessons its experience will give about how to respond to a rapidly-changing production paradigm. "We're the bullseye for everybody," as one blueberry industry veteran summed it up.

The country is also 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. Adoption of the latest genetics varies greatly between and within states, but overall it is increasing as growers recalibrate their cultivar mixes in pursuit of higher yields that may buffer the blow of competitive price pressure, along with more desirable fruit characteristics such as firmness, eye appeal and flavor, not to mention timing shifts to encourage harvests outside of more congested periods of supply.

At the time of writing, blueberry pricing in the USA has held up remarkably well in 2021 to date despite a much larger volume in the first half. In 16 of the first 26 weeks of this year the average price of blueberries was above pre-pandemic levels, and in some periods was even higher than during the Covid-triggered spending surge witnessed in 2020. At the peak of the Florida and Mexico seasons in week 16, even though both industries combined had delivered almost 4 million extra pounds of blueberries into the market year-over-year (an increase of 41%), the average price in that week was 91% higher. On the other hand, it must be noted that inflation has been significant across most inputs for the blueberry industry as well, from labor to fertilizers to packaging to pallets to freight costs.

Despite the logistical challenges faced by blueberry growers in getting to the market in 2020 when the pandemic began, the rally in demand for fresh and frozen blueberries was the silver lining with double-digit retail sales growth in both categories. This result is not to be taken for granted. Had it not been for the decades of health research and messaging undertaken by the U.S. Highbush Blueberry Council and partner research initiatives, the sales growth that has been witnessed may not have been as buoyant. USHBC generic promotion initiatives have also no doubt had a marked influence on total consumption growth over the 2+ decades since the organization's inception.

This is the backdrop for what some have described as a "second blue wave" for the U.S. blueberry industry, with a health halo clearly in its favor but in continued need of reinforcement, and supply availability like never before combined with the next generation of genetics. The task at hand throughout the supply chain will be to ensure demand outpaces supply growth, and while the prospect can be daunting, there is indeed room for growth with the category well below the household penetration rates of strawberries for example

which are at 62-78%, versus blueberries at 38-44% (Note that this household penetration for blueberries has markedly increased since the onset of the pandemic).

Contributors to this year's report from the U.S. industry have been consistent in their messaging that anyone involved with blueberries needs to have consumer experience with the end product as top of mind, with a clear objective to get blueberries consistently on more shopping lists as a staple with versatile usage options. The rise of e-commerce means fewer opportunities for impulse buys based on attractive presentation – consistency and instilling regular consumption behavior will be key (closely tied to consumer purchase satisfaction), along with nudging retailers toward larger pack sizes, remembering they tend to think in units and not pounds.

Social media marketing will also play a major role in boosting demand, while last year the Blueberry Council started using geofencing and geotargeting to get more consumers thinking about blueberries before they visited the store. This shows how the same degree of technological sophistication that is utilized in the packhouse will be needed at the marketing level too, leveraging data, to increase stomach share for the category.

At a national level there is an impetus for more data and transparency to help growers and marketers improve decision making. California has set a good example where there is state-mandated daily reporting of prices and pack styles - the USHBC is looking to put a similar system in place nationwide which, although voluntary unlike in California, to help track pricing and volume.

## Export development

Rapid domestic market growth has kept the U.S. blueberry industry locally focused as the returns closer to home have traditionally made export less of an imperative. Fresh blueberry shipments to Canada are commonplace but exports anywhere else represent low single-digit percentages of the total crop. The bulk of exports are from the Pacific Northwest where more technologically advanced systems are often in place, there is greater adoption of varieties able to handle the long journey, and relationships have been fostered with Asian importers by various growers and packers with a culture of exporting.

Around 4% of the U.S. blueberry crop is exported (ex-Canada), split 50-50 between fresh and frozen. The USHBC (USDA Commission) and North American Blueberry Council (NABC - the voluntary organization) aims to help lift that proportion to 10%.

South Korea, Japan and Singapore were the USA's leading blueberry export markets outside of North America last year, but the NABC's efforts to secure export protocols achieved important breakthroughs over 2019 and 2020 to secure fresh blueberry market access in Vietnam, mainland China and the Philippines.

Vietnam was the biggest success story of these three markets in 2020 as the industry partnered with the country's largest retailers, leveraging their strong e-commerce and social media clout to capture demand and achieve fast sales rotation. More U.S. blueberries would have very likely been sold in the Southeast Asian nation if it weren't for the boom in the U.S. itself. California growers in particular are upbeat about the market – having traditionally shipped a lot of volume via airfreight into Asia, they are now able to use sulphur dioxide pads to extend shelf life, making sea voyages to Southeast Asia more viable than in the past.

The Philippines is more of 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.

The nuances of the Chinese market are analyzed in greater depth in the China section of this report, but what the U.S. industry has secured there is a systems approach for California, Oregon and Washington State, while a pilot is underway for states east of the Rocky Mountains to prove a systems approach can work without methyl bromide to treat blueberry maggot. Exporting to China from these US origins while in theory actionable, remain complex in practice and are subject to high tariffs.

The industry is also working on securing access to Australia, New Zealand, South Africa and Israel.

Export programs come with inherent risk and require significantly more work in managing protocol issues such as residues, but development of this channel will be essential to relieve some of the volume pressure in the U.S. market, as well as allowing U.S. growers to share in the spoils of potential future global market mainstays. The NABC is active throughout Asia and is cognizant of the cultural differences within the continent. For example, in South Korea where importers drive a harder bargain on price, blueberries are highly associated with skin health. Meanwhile, in Japan and China blueberries are linked to eye health. In China importers require large berries, while in Japan there is a greater acceptance of smaller blueberries.

Europe, especially the U.K., has also been a traditional destination for U.S. blueberries but the trend over time is marked with peaks and valleys based on speculative shipments as opportunities arise.

Adopting more of an export mindset would benefit the U.S. blueberry industry in multiple ways. Firstly, more global frozen blueberry market development would help absorb processed fruit inventories, with secondary benefits to farmgate pricing for both fresh and processed channels. Secondly, some of the regions that have been most affected by competition from imports – such as Florida, Georgia and California – harvest during periods of relative scarcity in Asia.

## Domestic challenges

In September 2020 a Section 201 global safeguard investigation was launched into the effects of imported blueberries on domestic U.S. growers in an attempt to reduce supply or impose duties. But in February a ruling by the U.S. International Trade Commission (ITC) determined volumes from abroad were not causing serious injury to American growers amidst a litany of complex issues, and diverse factors affecting variable levels of industry competitiveness.

The decision was a serious disappointment for many growers in the U.S. whose livelihoods have been challenged by imports from Mexico, Peru and Canada in particular. This increased competition comes on the heels of increasing operating costs, fixed costs, labor availability and cost issues, new regulations, and increasing pressure for increased quality, just to name a few of the challenges facing the industry. Historically states have had their market windows tightened over time by rising domestic supply from different competing regions in-country, but there was a sense that everyone would "stick to their lane" and each major production region would "have its time in the sun" to reference commentary by one contributor. Now, Mexican supply arrives with overlap during Florida's season and intrudes in what were previously the early season windows for California, Georgia, North Carolina and elsewhere.

It is now an 'innovate or perish' scenario for the Southeast, where acreage is contracting with the attrition and consolidation of operations afoot. Those who have the scale and capability are trying their luck with machine harvesting for fresh, although in some circles within the region there is an opposition to the practice, whether it be because there is already an ample labor supply because of other crops or the enormous fixed cost of harvesters in the hundreds of thousands of dollars. The increased demand for quality also struggles to align with today's reality of machine harvest for fresh systems. Some have successfully switched to organics – a very tough task in the pest- and weed-ridden humid south – and varietal conversion is happening as well. But financial constraints are ever present in highly leveraged growing states such as Georgia, and banks are not always amenable to the idea of further investment in new varieties when plants are already in the ground. As is happening in many parts of the world, even in Mexico, multi-generational family farms are selling up to real estate investment trusts, institutional investors, or other corporate investor groups.

At the tail-end of the season, growers in the Pacific Northwest and Michigan are also seeing their late season fruit in storage come under pressure from Peru. These are both very mature industries where replanting of new varieties also requires patient capital, as northern highbush blueberries take longer to come into full production than their southern highbush counterparts.

Weather considerations are also being taken into account, whether it's the drought-hardiness of varieties in California, or short bloom-to-ripening intervals in places like North Carolina where unseasonably mild spells in winter have damaged certain early varieties in recent years, while this year a highly unusual hailstorm slashed what was supposed to be a very large crop for the state. 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.

None of these problems have easy, quick-fix solutions, but in addition to aforementioned initiatives there are other avenues being explored in order to support the hardest-hit American growers and exploit the opportunities that come with the current dynamic rather than it being a burden that leaves some of the blueberry industry's longest-standing proponents by the wayside.

These include plans to get import growth beneficiaries and supplying countries to further contribute to marketing initiatives in moves that would mimic the success of the Hass Avocado Board (HAB), albeit with a much lower budget. In a similar vein, there are also calls amongst some growers to introduce quality grading like what is seen in the avocado or table grape sectors. However, this would put exporters and domestic producers under immense pressure and if implemented abruptly would be devastating for those suppliers who are still in the transitional stage out of large plantings of varieties that would likely fail to meet firmness, size, and/or brix benchmarks. The catch 22 would be that in such a situation, domestic growers who are already under great pressure would also have to grapple with the new requirements.

There is much to be said for the local-for-local trend that exists in places such as Northern Europe, and whether a marketing boost in tandem with retailers around locally-grown could have a tangible impact on U.S. consumers, likely in the form of a sub-section of the retail landscape that uses an American fruit preference as a point of difference. There could also certainly be more marketing efforts to make consumers aware of the heritage and provenance of blueberries in growing regions that have been around for longer such as New Jersey, North Carolina and Michigan. These and other initiatives are actively under consideration and development, led by the voluntary NABC and USHBC where appropriate for a USDA commission to engage.

## Adaptation

Apart from varietal reconversion, there are two main trends across the board that have emerged in response to ongoing competitive supply pressures – a move to organics and/or machine harvesting.

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, Oregon, 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, is close to 50% 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.

While many consumers prefer 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 to rotating significant volume at premiums with consistency. 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.

As mentioned at the start of this narrative, the U.S. is at the forefront of what may be a global trend of machine harvesting for fresh in the developed world. "We're at that point where it's not because we want to do it, but because we have to do it," as one grower explained.

It is a move that in some quarters is seen as running counter to the overarching increased emphasis on quality in the industry, with the belief that hand-picked fruit will always be better. 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 potentially reducing shelf life), as well as the fact the harvesters will take off berries that are unripe and would otherwise have been handpicked later. Just how much this expected yield drop-off is could only be expressed as a rule of thumb in this incipient stage, as the science and art of the practice are still being developed.

The learning curve is steep, but northern highbush blueberry breeders are getting closer to what they believe are varieties that are durable enough to withstand bruising and damage and deliver fruit that is indistinguishable from hand-picked fruit. The industries in North America's higher latitudes already have sizable operations designed around a mix of hand-picked fresh and machine harvested processed blueberries, so the transition is less of a stretch. There are also companies with notable economies of scale – one packhouse of many in Oregon can process in a week an equivalent of the entire blueberry crop of France, for example.

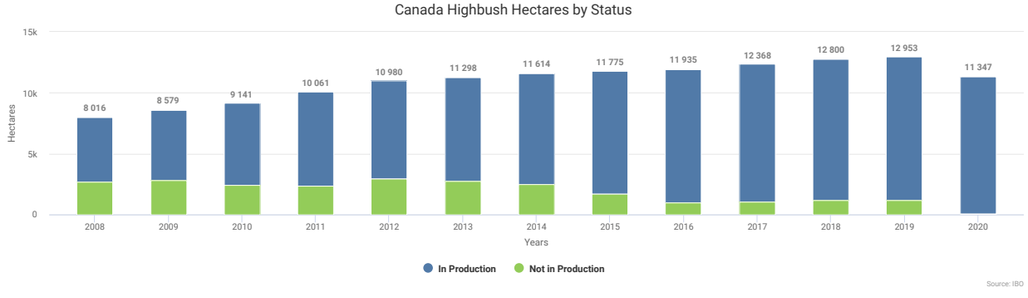
The development of machine harvest-oriented southern highbush varieties has been slower in the USA, although growers in states such as Florida and California have embarked on the challenge with existing cultivars. It probably won't be long before genetics companies from the US and elsewhere are also introducing southern highbush varieties for this segment on a larger scale. There is a general consensus that growers would like to see agricultural machinery companies develop more targeted machine harvesters that preserve fresh blueberry quality rather than tweaking existing machinery designed for processed fruit.

To be contacted by the report team and add your voice to the 2022 edition of this report **sign up here →**

# CANADA

## Commentary on Canada Data & Figures Production and Planting

*(Denominated in Hectares and Thousands of Metric Tons)*

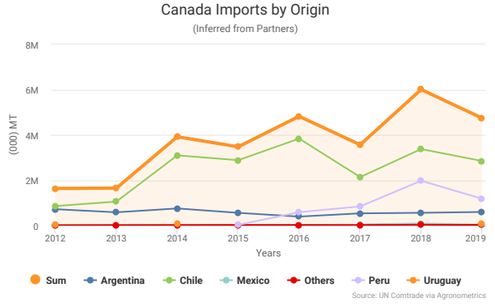



Source: IBO

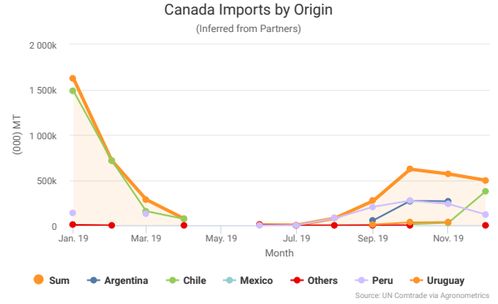


## Canada Imports by Origin (Inferred from Partners)

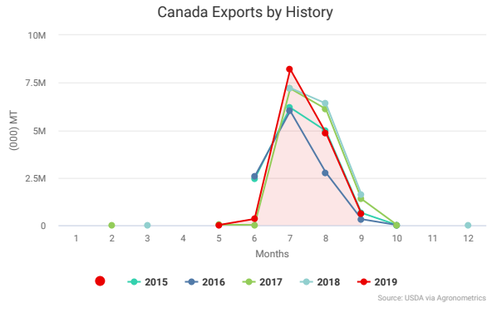
| Reporter | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| Chile | 3,831,457 | 2,133,113 | 3,369,340 | 2,843,277 |
| Peru | 581,051 | 837,254 | 1,969,625 | 1,178,424 |
| Argentina | 386,906 | 530,627 | 554,160 | 591,576 |
| Uruguay | - | - | - | 79,040 |
| Mexico | - | 44,656 | 82,516 | 29,930 |
| Others | 17,889 | 15,169 | 26,434 | 19,025 |
| Canada Totals | 4,817,303 | 3,560,819 | 6,002,075 | 4,741,272 |




Source: UN Comtrade via Agronometrics




Source: UN Comtrade via Agronometrics




Source: USDA via Agronometrics

## Canada Summary Statistics

| | |
|---|---|
| **Hectares Planted:** | **11,347 (Ha)** |
| **Production:** | **81.78 (000) Metrics Tons** |
| Organic: | 1% (from Aggregate) |
| Under Structure: | 0.3% (from Aggregate) |
| Hydroponics: | 0% |
| New Genetics: | 0.05% (from Aggregate) |
| **Estimated Yield:** | **7,265.26 (Kg/Ha)** |
| **Exports*:** | **0.00 (000) Metrics Tons** |
| **Imports*:** | **4.74 (000) Metrics Tons** |

*** DATA ONLY AVAILABLE THROUGH 2019, ONLY DATA FROM CHARTS ABOVE USED**

# Canada
# Country Member Summary

### Adapted from the Report by the BC Blueberry Council

## 2020 Season Overview

British Columbia (BC) produced an average-sized blueberry crop in 2020, estimated at 175 million pounds (79 (000) MT). Labor shortages resulted in more blueberries being harvested by machine and a greater proportion of the crop destined for processing. The weather through spring and summer was challenging. Rainy weather coincided with bloom and berry development, impacting pollination, trafficability of fields, and fruit firmness. The harvest season started in mid-July with 'Duke' and (ended in early October with 'Aurora' and 'Elliott'. 'Duke' yields were down by 20-30% in many fields, and second pick 'Duke' fruit were small. 'Bluecrop' had an unconcentrated ripening period that made it challenging to harvest. 'Draper' was one of the few cultivars that yielded well.

## Varieties and New Plantings

'Duke', 'Bluecrop' and 'Elliott' remain the three most widely grown varieties 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 favor of other varieties. New plantings of 'Duke' are still very common, and an increasing amount of acreage has been planted to 'Calypso' in the past few years. The varieties 'Top Shelf', Valor and 'Last Call' are also of interest to BC growers.

## Production Challenges and Opportunities

Variable weather patterns are impacting plant development and making it difficult to predict the timing of harvest each year. The overlap of 'Duke' and 'Bluecrop' harvests in recent years have created challenges for growers and taxed the packing and processing capacity of the industry.

The rising cost and limited availability of labour is of primary concern for producers. Costs of production are high in BC due to high labor 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. The high amount of precipitation in the spring and fall makes it difficult to control fungal diseases such as Phomopsis and Godronia cankers, mummyberry and Botrytis and Anthracnose fruit rots. Pollination is often impacted when alternately rainy or overly warm weather conditions coincide with bloom. The BC region primarily produces conventional product, due to challenges in producing high quality organic fruit in a wet climate.

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 improving pollination and developing new varieties. In particular, the British Columbia Blueberry Council (BCBC) breeding program is entering its thirteenth 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 over 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 processed 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 China. Canada has had fresh market access to China since 2016, but exports have been limited due to high tariffs.

# Canada
# Report Team Narrative

The BC Blueberry Council, whose province represents around 96% of Canada's highbush blueberry production, has provided an extensive overview of the industry's situation. Growers are highly dependent on the U.S. market which received 96% of their fresh blueberry exports in 2020, with the remainder split between the Netherlands and Poland along with very small volumes to markets such as Belgium and China.

The dominance of a highly developed processed blueberry industry has created a dilemma for the nation's blueberry sector, but has arisen as a survival mechanism in response to high volumes during the peak season as well as Canada's aforementioned challenges such as labor scarcity, other requirements for labor such as farmworker accommodation standards, pesticide limitations relative to the U.S., and high input costs including for beehives which are substantially more expensive than in neighboring Washington State.

In order to develop export markets, Canadian growers recognize the advantages of proprietary varieties with better shelf life. However, in an industry where a large portion of the crop goes to processing there is a certain risk aversion towards new cultivar adoption, not only because of the associated extra cost that is not compensated for if harvests end up being processed, but also because some processors are reluctant to receive these new varieties. It is a confluence of factors that slow down the conversion of fields and progress along the learning curve to ascertain which genetics are best suited for BC's unique climate and conditions.

But the disadvantages BC currently faces with its existing varietal selection in the fresh blueberry market are undeniable in the data. In July and August last year, USDA shipping point prices for Canadian blueberries were trending between $0.90 and $1.46 less per pound than their counterparts in Washington State and Oregon. Export volume barely changed between 2017 and 2020, yet export returns declined by almost 17%.

# MEXICO / CENTRAL AMERICA

## Commentary on Mexico / Central America Data & Figures Production and Planting
*(Denominated in Hectares and Thousands of Metric Tons)*

A 30% tariff has made it tough for Canada to fully capitalize on its market access to China, especially given the need for large, crunchy, highly flavorful varieties that will last the journey in high-quality conditions for a selective, picky market. 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. The BC Blueberry Council is also working with authorities to try to open up fresh market access to South Korea and Vietnam.

Efforts to grow domestic consumption through promotional activities within Canada for the country's local berries are underway, as there appears to be room to grow given fresh blueberry imports rose by 65% in volume terms between 2015 and 2019. This compares to a growth rate of 35% in the U.S. over the same period. And the average prices achieved for imported fresh blueberries in Canada are at least double what Canadian exporters receive for their shipments abroad.

There is also some concern in BC that the increased usage of mechanized harvest for fresh both there and in the Pacific Northwest has created high inventories of juice-grade blueberry concentrate, even though a lot of processed inventories have cleared out due to high demand since the pandemic began.

Also worth mentioning is the close relationship between the BC and Washington industry. A substantial portion of the new plantings in Washington State, particularly the counties in the northwest of Washington state, are driven by Canadian investors and operators from British Columbia.

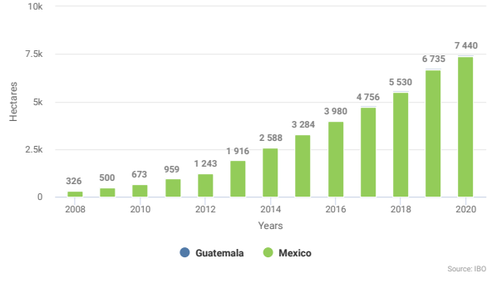
To be contacted by the report team and add your voice to the 2022 edition of this report **sign up here →**

### Mexico/Central America Highbush Hectares by Country

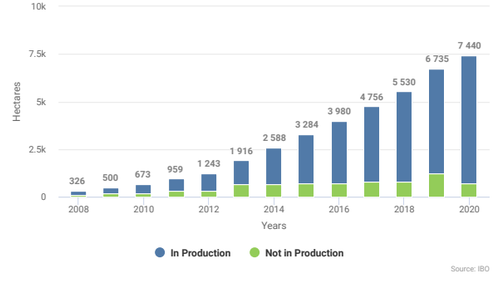
| Mexico/Central America | Planting | | | | | 2020 Production | | |
|---|---|---|---|---|---|---|---|---|
| Growth Totals | 2016 | 2017 | 2018 | 2019 | 2020 | Fresh | Process | Total |
| Mexico | 3,965 | 4,733 | 5,500 | 6,700 | 7,400 | 62.38 | 0.67 | 63.05 |
| Guatemala | 15 | 23 | 30 | 35 | 40 | 0.26 | - | 0.26 |
| Mexico / Central America Totals | 3,980 | 4,756 | 5,530 | 6,735 | 7,440 | 62.64 | 0.67 | 63.31 |



Mexico/Central America Highbush Hectares by Country



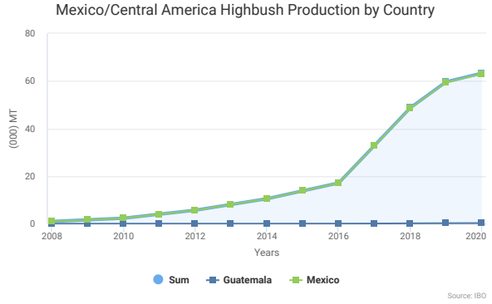

Mexico/Central America Highbush Hectares by Status




### Mexico/Central America Highbush Production by Country

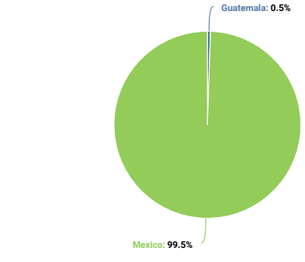
| Mexico/Central America | 2018 | | | 2019 | | | 2020 | | |
|---|---|---|---|---|---|---|---|---|---|
| Productions Totals | Fresh | Process | Total | Fresh | Process | Total | Fresh | Process | Total |
| Mexico | 47.90 | 0.70 | 48.60 | 58.93 | 0.53 | 59.46 | 62.38 | 0.67 | 63.05 |
| Guatemala | 0.16 | 0.00 | 0.16 | 0.22 | - | 0.22 | 0.26 | - | 0.26 |
| Mexico / Central America Totals | 48.06 | 0.7 | 48.76 | 59.15 | 0.53 | 59.68 | 62.64 | 0.67 | 63.31 |

Mexico/Central America Highbush Production by Country

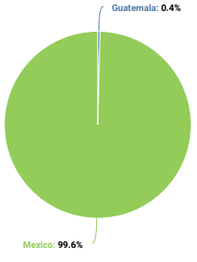


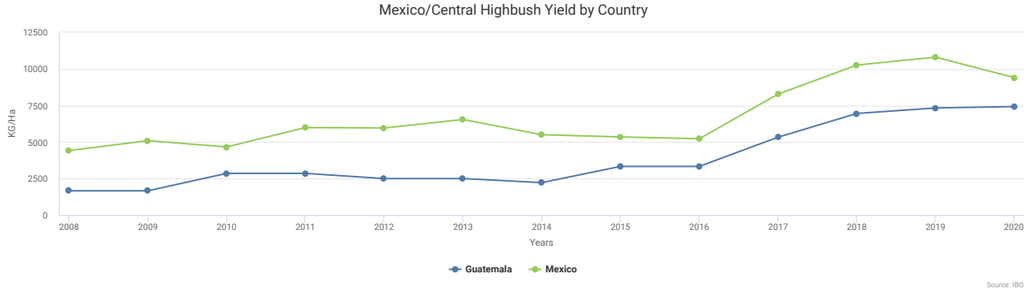

Mexico/Central America Highbush Production by Use


2020 Mexico/Central America Highbush Hectares by Country



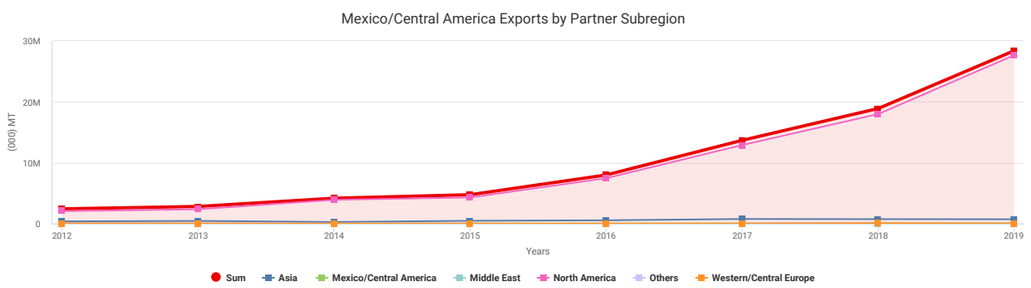

2020 Mexico/Central America Highbush Production by Country






## Mexico/Central America Exports by Partner Subregion

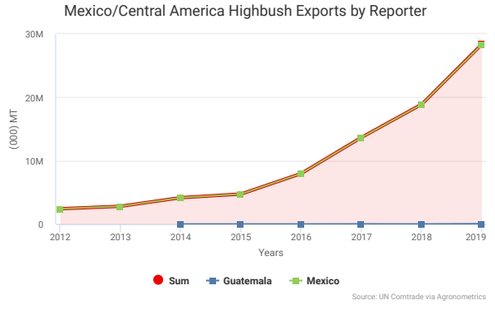
| Subregion | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| North America | 7,442,648 | 12,900,947 | 17,990,970 | 27,646,992 |
| Asia | 532,187 | 745,085 | 720,318 | 702,492 |
| Western/Central Europe | 43 | 4,667 | 77,232 | 9,861 |
| Southern Europe/North Africa | - | 9,299 | 74,096 | - |
| Middle East | - | 7,290 | 40,688 | 16,451 |
| Mexico/Central America | 2,365 | 12,022 | 3,268 | 16,743 |
| Eastern Europe | - | 1,921 | - | - |
| Mexico/Central America Totals | 7,977,243 | 13,681,231 | 18,906,572 | 28,392,539 |

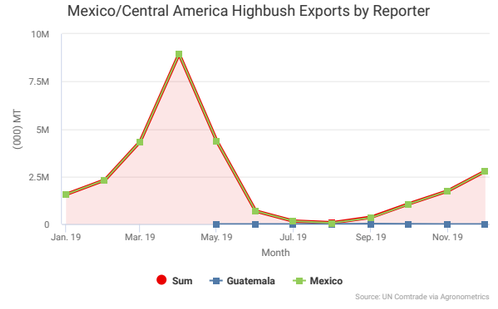



## Mexico/Central America Exports by Reporter

| Reporter | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| Mexico | 7,976,808 | 13,663,484 | 18,902,348 | 28,343,796 |
| Guatemala | 435 | 17,747 | 4,224 | 48,743 |
| Mexico/Central America Totals | 7,977,243 | 13,681,231 | 18,906,572 | 28,392,539 |

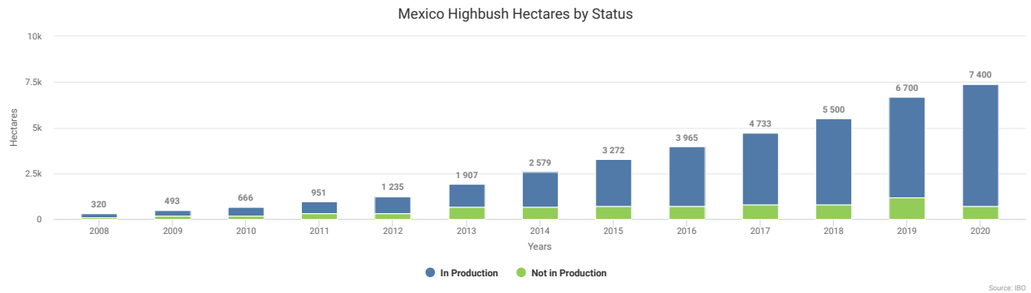





# MEXICO

## Commentary on Mexico Data & Figures Production and Planting
*(Denominated in Hectares and Thousands of Metric Tons)*




## Mexico Exports by Partner

| Reporter | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| United States | 7,442,648 | 12,852,511 | 17,906,518 | 27,590,514 |
| Japan | 532,187 | 729,804 | 656,911 | 702,492 |
| Canada | - | 44,656 | 82,516 | 29,930 |
| UAE | - | 7,290 | 40,688 | 13,982 |
| Central America Others | 1,930 | 10,575 | 3,268 | 4,409 |
| Others | 43 | 18,648 | 212,447 | 2,469 |
| Mexico Totals | 7,976,808 | 13,663,484 | 18,902,348 | 28,343,796 |


### Mexico Summary Statistics

| | |
|---|---|
| **Hectares Planted:** | **7,400 (Ha)** |
| **Production:** | **63.05 (000) Metrics Tons** |
| Organic: | 14% |
| Under Structure: | 92% |
| Hydroponics: | 52% |
| New Genetics: | 6% |
| **Estimated Yield:** | **9,410.45 (Kg/Ha)** |
| **Exports*:** | **28.34 (000) Metrics Tons** |
| **Imports*:** | **0.00 (000) Metrics Tons** |

*** DATA ONLY AVAILABLE THROUGH 2019, ONLY DATA FROM CHARTS ABOVE USED**

# Mexico Report Team Narrative

With more than two decades of blueberry production under its belt including 14 with commercial production success, and the distinction of being a pioneer in 'tropicalizing' the fruit, Mexico has marked out its position as a winter and springtime supplier of fresh blueberries to the U.S. market where the vast majority of its volume is destined.

While peak harvests take place between February and April, the Mexican season technically runs from September to June; the earlier and middle part coinciding with South American suppliers over whom it has a freshness advantage given its trucking distance to the market, and the latter stage overlapping with earlier U.S. growers over whom it has a labor cost advantage.

Mexico's shipments to its northern neighbor almost tripled in the three years to 2020, although the average return per pound fell 15% over that time amidst heightened competition. A proliferation of young plantings indicates volume growth trends will continue, and even more so if the industry is able to lift yields. Room for improvement is evident when you compare with an industry such as Spain, which grows an equivalent volume to Mexico but on half the land. This diversity of yield is tied to the variability among growers, regions, varieties, plant quality, field investment, knowledge, experience, and expertise.

The country exhibits a wide spectrum of grower sophistication in terms of genetics and growing methods. Some of the world's leading blueberry companies have invested heavily in the northern state of Sinaloa in recent years, adding to an already booming sector in the Central Mexican states of Jalisco and Michoacan. These three states represent the bulk of cultivation, with a mostly substrate-based crop in the north that is often under netting, and a mix of both substrate and in-ground farms under tunnels in Central Mexico. The states of Baja California, Guanajuato, and Colima also have commercial plantings of scale with Guanajuato beginning to take a more competitive scaling position in recent years.

Mexico has seen significant growth in organics but the astronomical rise of organic blueberries from Chile serves as a disincentive during the peak springtime production window for Mexico, given this is when a lot of Chilean fruit arrives in the market.

## Market Development

Market diversification is a key strategy for the Mexican industry, but this is not so easily achieved when such an attractive market exists next door to the north and shipping route options are limited elsewhere. Nonetheless, the industry association Aneberries has for the past two years been running a global promotion campaign to raise awareness about Mexican blueberries. Even though 95% of Mexico's blueberry exports go to North America, the industry has managed to carve out import market leadership in Japan, its second-largest destination, serviced by a combination of air freight and sea freight. For more than six years Mexico has had export protocols with China, but with high tariffs and in the absence of a free trade agreement, this has resulted in very little volume. Port infrastructure and less experience in maritime shipments are also limiting factors for expanding fresh exports.

A group of exporters is currently in the process of negotiating an express, 14-day shipping route from Mexico's Atlantic port of Veracruz to Rotterdam in the Netherlands as well.

Aneberries is also in the early stages of negotiations for fresh blueberry market access in South Korea, Indonesia, India and Malaysia, but the pandemic has delayed the process.



Mexican blueberries are present in 22 countries worldwide, although in most cases this is just a trickle compared to the flow of fruit that is sent to the U.S. In Mexico itself there is virtually no cultural or historic connection to blueberries, unlike blackberries and strawberries, but Aneberries is attempting to lift 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 from the U.S. which in 2020 were only worth $545,000.

Aneberries increasingly collaborates with the U.S. Highbush Blueberry Council (USHBC) and hopes to have a place at the North American Blueberry Council (NABC) as well, where it intends to contribute to efforts around studying the effects of blueberry consumption on nutrition and health in order to help raise consumption.

## Varietal Transition

Another limiting factor for Mexico's export potential outside of North America – and with some U.S. retailers - is the dominance of Biloxi, a variety that doesn't achieve the berry size demanded by the Chinese market, for example, and often lacks the flavor profile desired by many markets. In Europe where the Mexican industry wants to find favor, fruit quality will need to be outstanding if it is to be differentiated from more established Moroccan and Spanish supply deals.

At least six major international companies have brought new genetics to Mexico (with some international companies operating long time breeding programs locally), and as these plantings enter maturity the country will then be better placed to reach its potential. One of these international companies (headquartered in the US) has its no chill breeding program based in Jalisco since 2009. Within each state different microclimates, soil quality and the kinds of pest pressures can vary greatly, underscoring the importance of appropriate growing methods and nuanced varietal selection in consideration of any given terroir.

The high fixed costs of investments have already been made with Biloxi though and it will continue to be an integral part of the Mexican blueberry industry for some years to come. If grown well and distributed with a keen attention to the cold chain, the variety is able to arrive in markets in a desirable condition but growers and exporters must stay clear of more finicky markets or risk rejections. New plantings are mostly utilising newer, firmer, larger fruited varieties with more desirable flavor profiles, and some pundits believe Biloxi could reduce to a third of blueberry planting surface area within the next three years.

New blueberry genetics, some developed in Mexico and others in other low and no chill geographies, are changing the paradigm for yield and quality in the country and their adoption is accelerating.

# Central America Report Team Narrative

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.

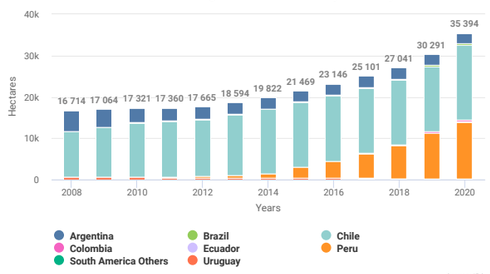
# SOUTH AMERICA

## Commentary on South America Data & Figures Production and Planting
*(Denominated in Hectares and Thousands of Metric Tons)*

### South America Highbush Hectares by Country

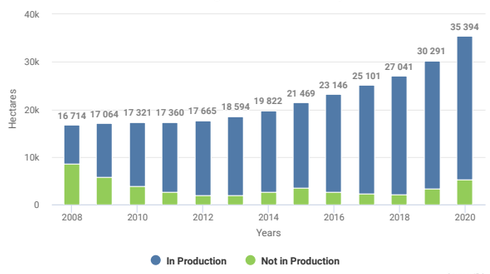
| South America | Planting | | | | | 2020 Production | | |
|---|---|---|---|---|---|---|---|---|
| Growth Totals | 2016 | 2017 | 2018 | 2019 | 2020 | Fresh | Process | Total |
| Chile | 15,800 | 15,754 | 15,708 | 15,784 | 18,185 | 138.78 | 44.68 | 183.46 |
| Peru | 4,100 | 5,992 | 7,884 | 10,964 | 13,613 | 162.73 | 16.85 | 179.58 |
| Argentina | 2,650 | 2,700 | 2,700 | 2,650 | 2,515 | 13.70 | 4.80 | 18.50 |
| Colombia | 65 | 145 | 225 | 320 | 500 | 3.10 | 0.10 | 3.20 |
| Uruguay | 346 | 300 | 290 | 273 | 241 | 1.30 | - | 1.30 |
| Brazil | 185 | 203 | 220 | 220 | 220 | 0.70 | - | 0.70 |
| Ecuador | 0 | 2 | 4 | 80 | 120 | 0.18 | 0.00 | 0.18 |
| South America Others | 0 | 5 | 10 | - | - | 0.03 | - | 0.03 |
| South America Totals | 23,146 | 25,101 | 27,041 | 30,291 | 35,394 | 320.52 | 66.43 | 386.95 |

South America Highbush Hectares by Country




Source: IBO

South America Highbush Hectares by Status



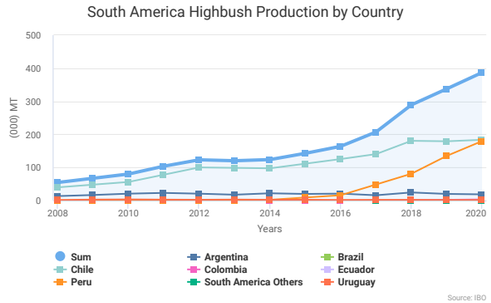

Source: IBO



### South America Highbush Production by Country

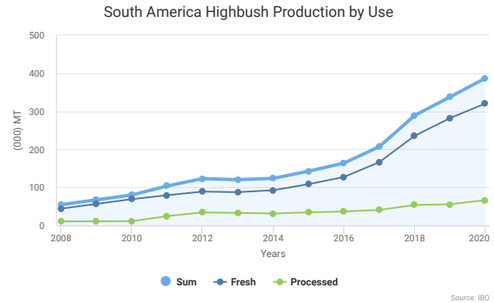
| South America | 2018 | | | 2019 | | | 2020 | | |
|---|---|---|---|---|---|---|---|---|---|
| Productions Totals | Fresh | Process | Total | Fresh | Process | Total | Fresh | Process | Total |
| Chile | 135.49 | 45.00 | 180.49 | 136.96 | 42.10 | 179.06 | 138.78 | 44.68 | 183.46 |
| Peru | 78.90 | 2.00 | 80.90 | 125.40 | 9.43 | 134.83 | 162.73 | 16.85 | 179.58 |
| Argentina | 17.78 | 6.50 | 24.28 | 15.82 | 4.00 | 19.82 | 13.70 | 4.80 | 18.50 |
| Colombia | 1.10 | 0.10 | 1.20 | 1.90 | 0.10 | 2.00 | 3.10 | 0.10 | 3.20 |
| Uruguay | 1.80 | - | 1.80 | 1.28 | - | 1.28 | 1.30 | - | 1.30 |
| Brazil | 0.50 | 0.00 | 0.50 | 0.60 | - | 0.60 | 0.70 | - | 0.70 |
| Ecuador | 0.00 | 0.00 | 0.00 | 0.01 | - | 0.01 | 0.18 | 0.00 | 0.18 |
| South America Others | 0.03 | 0.00 | 0.03 | 0.03 | - | 0.03 | 0.03 | - | 0.03 |
| South America Totals | 235.6 | 53.6 | 289.2 | 282 | 55.63 | 337.63 | 320.52 | 66.43 | 386.95 |

South America Highbush Production by Country



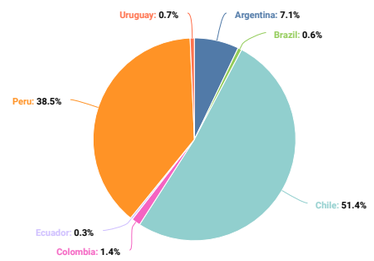

Source: IBO

South America Highbush Production by Use

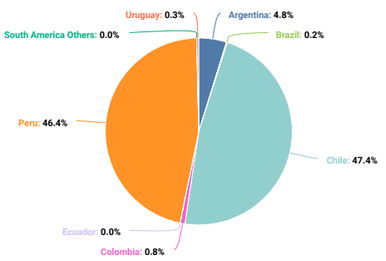


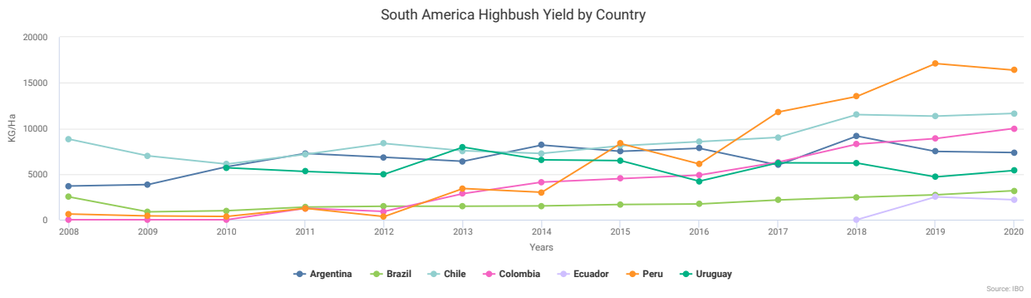

Source: IBO

2020 South America Highbush Hectares by Country



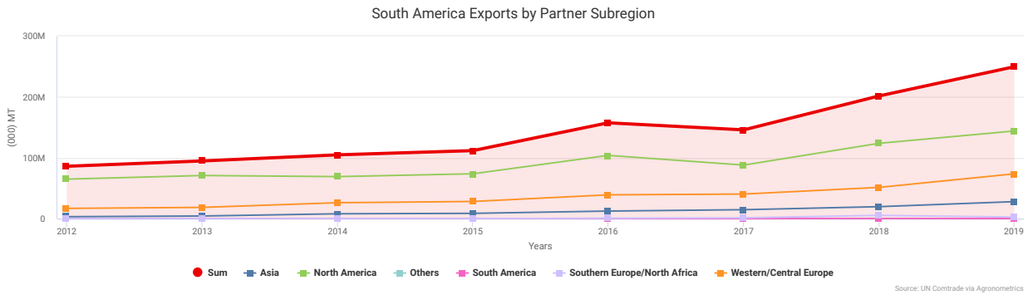

2020 South America Highbush Production by Country






## South America Exports by Partner Subregion

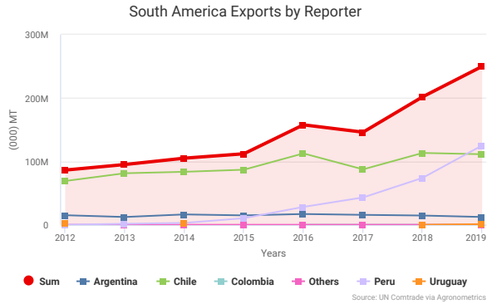
| Subregion | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| North America | 104,113,351 | 88,199,999 | 123,943,119 | 144,195,387 |
| Western/Central Europe | 39,312,075 | 40,597,567 | 51,550,015 | 73,810,037 |
| Asia | 12,647,755 | 14,900,183 | 19,875,468 | 28,134,577 |
| Southern Europe/North Africa | 798,997 | 1,592,887 | 5,589,476 | 2,765,725 |
| South America | 144,532 | 313,436 | 274,714 | 429,423 |
| Middle East | 252,413 | 335,601 | 206,991 | 241,475 |
| Mexico/Central America | 281,312 | 53,202 | 62,455 | 55,882 |
| Eastern Europe | 36,435 | 31,588 | 196,576 | 76,840 |
| Pacific | 25,586 | 4,687 | 43,348 | 8,679 |
| Central Asia/Indian Subcontinent | 1,081 | 360 | 8,684 | 17,799 |
| Africa | 2,520 | 6,487 | 11 | 1,310 |
| South America Totals | 157,616,057 | 146,035,997 | 201,750,857 | 249,737,134 |

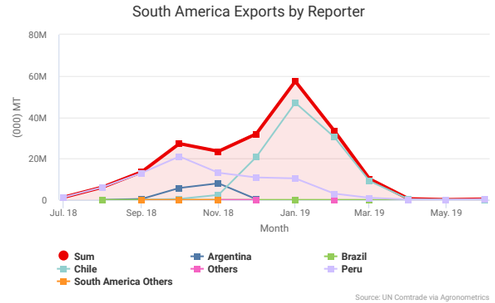





## South America Exports by Reporter

| Reporter | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| Chile | 112,515,078 | 87,370,319 | 113,256,180 | 111,251,047 |
| Peru | 28,154,315 | 43,038,977 | 73,930,972 | 125,055,846 |
| Argentina | 16,941,778 | 15,626,558 | 14,551,968 | 12,279,651 |
| Uruguay | - | - | 11 | 1,028,095 |
| Colombia | 13 | 16 | 1,361 | 99,025 |
| Brazil | - | - | 7,094 | 16,990 |
| South America Others | 4,342 | 127 | 3,271 | 6,480 |
| Ecuador | 531 | - | - | - |
| South America Totals | 157,616,057 | 146,035,997 | 201,750,857 | 249,737,134 |

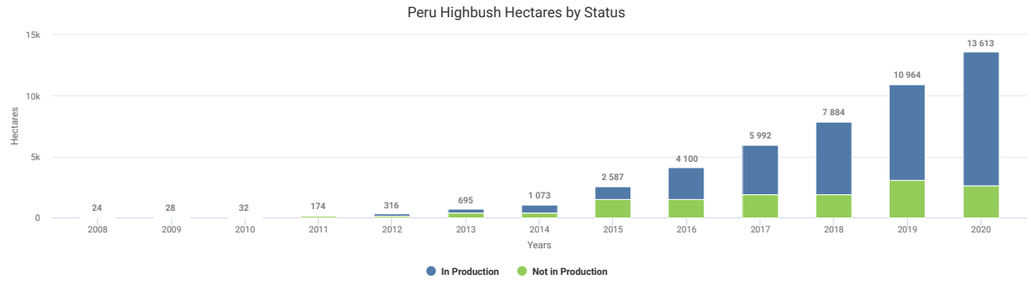


# PERU

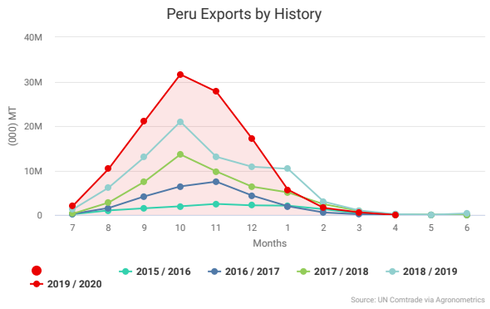


## Commentary on Peru Data & Figures Production and Planting
*(Denominated in Hectares and Thousands of Metric Tons)*




### Peru Exports by Partner

| Reporter | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| United States | 15,261,654 | 19,112,535 | 39,624,523 | 71,245,881 |
| Netherlands | 6,835,717 | 11,334,169 | 15,527,130 | 27,760,196 |
| China | 463,520 | 5,790,347 | 6,335,649 | 13,131,719 |
| United Kingdom | 3,768,956 | 4,702,850 | 7,296,220 | 9,718,711 |
| Canada | 581,051 | 837,254 | 1,969,625 | 1,178,424 |
| Others | 1,243,417 | 1,261,822 | 3,177,825 | 2,020,915 |
| Peru Totals | 28,154,315 | 43,038,977 | 73,930,972 | 125,055,846 |




### Peru Summary Statistics

| | |
|---|---|
| **Hectares Planted:** | **13,613 (Ha)** |
| **Production:** | **179.58 (000) Metrics Tons** |
| Organic: | Not Reported |
| Under Structure: | Not Reported |
| Hydroponics: | Not Reported |
| New Genetics: | Not Reported |
| **Estimated Yield:** | **16,379.06 (Kg/Ha)** |
| **Exports*:** | **125.06 (000) Metrics Tons** |
| **Imports*:** | **0.00 (000) Metrics Tons** |

*** DATA ONLY AVAILABLE THROUGH 2019, ONLY DATA FROM CHARTS ABOVE USED**



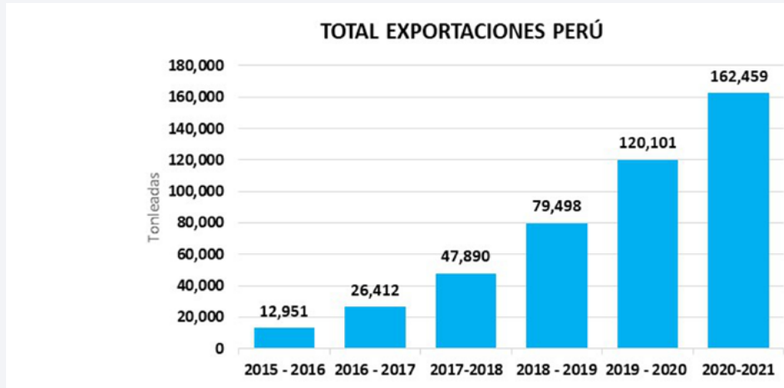
PROARANDANOS
ASOCIACIÓN DE PRODUCTORES DE ARÁNDANOS DEL PERÚ

# Peru
# Country Member Summary
### Adapted from the report by PROARANDANOS

## Evolution of Blueberry Exports through to the 2020-21 campaign

Blueberries are part of the fruit sub-sector of Peruvian agricultural exports, which have seen significant growth in recent years in response to growing global demand. This growth would not have been possible if it weren't for the professionalism of the Peruvian industry's agricultural operations, phytosanitary care, and the opening and improvement of access to international markets.

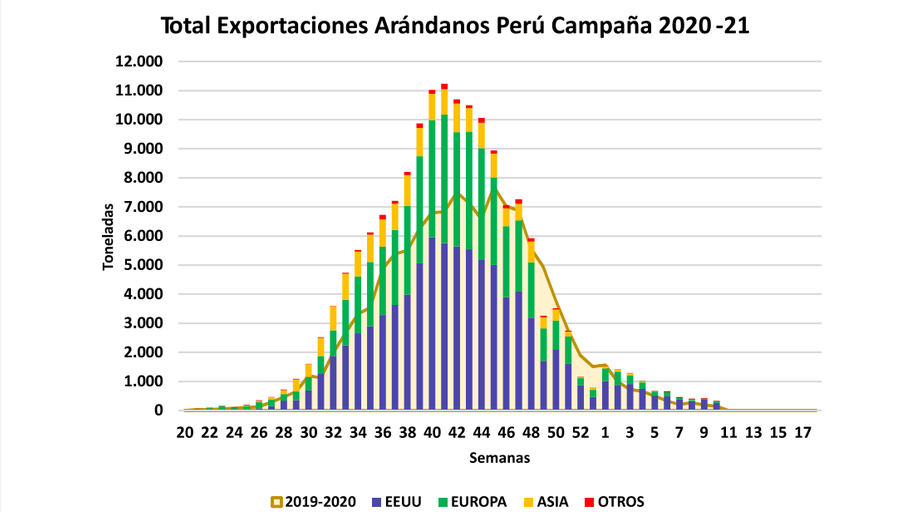
Peru has gone from exporting a total of 12,951 metric tons at the end of the 2015-16 season to 162,459 metric tons in the recent 2020-21 campaign, consolidating itself for the second consecutive year as the world's leading exporter of fresh blueberries. Figures and growth percentages can be seen in the graph below:




**Fuente: SENASA**
**Elaboración: PROARANDANOS**

The export peak during the 2020-21 season occurred in week 41 with a total of 11,239 tons, representing an increase of 46% compared to the peak of 7,689 tons in week 45 of the previous season, and growth of 107% compared to the 2018-19 peak of 5,423 tons during week 40. It can also be added that during 2020-21 there were weekly exports above 5,000 tons registered for 15 straight weeks (weeks 34-48); in the previous season that benchmark was achieved in 12 straight weeks (weeks 37-48), and for just two weeks (weeks 40 and 41) in the season before that in 2018-19.

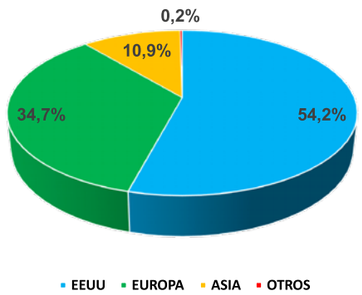
The following graph shows weekly volume exports during the 2020-21 campaign:




Fuente: SENASA
Elaboración: PROARANDANOS

## Leading Export Destinations for Peruvian Blueberries in the 2020-21 Campaign

The main destination was the United States with a participation of 54.16% of the total exported volume, followed by Europe with 34.73%, Asia with 10.88% and others with 0.24%. Peru shipped to 32 destination markets globally during the season.




Fuente: SENASA
Elaboración: PROARANDANOS



**U.S.** - During the 2020-21 season there were 87,957 tons of fresh blueberries exported to the U.S., representing a 32% rise compared to the previous season in which 67,048 tons were exported.

**Europe** - During the 2020-21 season there were 56,402 tons of fresh blueberries exported to Europe, representing a 46% rise compared to the previous season in which 38,677 tons were exported. In percentage terms, Europe grew significantly more than the U.S. and Asia in the recent campaign, and in absolute terms it grew by a bit more than 17,000 tons – a volume close to the growth seen in shipments to the U.S. which were up by 21,000 tons year-over-year.

**Asia** - During the 2020-21 season there were 17,663 tons of fresh blueberries exported to Asia, representing a 28.8% rise compared to the previous season in which 13,712 tons were exported. 94% of the volume sent to Asia went to mainland China or Hong Kong, with the remaining 6% going to Singapore, Thailand and Taiwan, the latter having been opened since September 2020.

**Air Freight** - During the 2020-21 campaign a total of 1,486 tons of fresh blueberries were shipped via airfreight, representing 0.9% of the total exported volume. This airfreight volume is lower than what was registered during the previous campaign when 2,292 tons were exported, representing 2% of the volume of that campaign.

## Hectares by Region and Varietal Growth:

The regions of Peru that exported the most blueberries during the 2020-21 campaign were La Libertad with a 55% representation, consolidating itself as the most important export region for this crop, followed by Lambayeque with a representation of 21% and Lima with 9% of the total.

| DEPARTMENT | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|
| LA LIBERTAD | 2,085 | 3,308 | 4,978 | 6,679 | 7,518 |
| LAMBAYEQUE | 77 | 809 | 1,593 | 2,152 | 2,879 |
| LIMA | 120 | 461 | 952 | 938 | 1,168 |
| ANCASH | 31 | 128 | 219 | 573 | 795 |
| ICA | 2 | 126 | 177 | 364 | 762 |
| PIURA | 0 | 2 | 20 | 222 | 438 |
| MOQUEGUA | 0 | 0 | 0 | 33 | 45 |
| CAJAMARCA | 2 | 3 | 1 | 2 | 0 |
| TOTAL | 2,316 | 4,837 | 7,939 | 10,964 | 13,605 |

In terms of blueberry varieties in Peru, during 2020 there were 46 different blueberry varieties certified; a significant rise given in 2016 only 13 were registered and 30 were registered in 2019. In the table below you can see the hectares planted for each variety at the end of 2020:

| | 2020 (HECTAREAJE) | | |
|---|---|---|---|
| | TOTAL | 13,613 | 100% |
| 1 | BILOXI | 5,296 | 39% |
| 2 | VENTURA | 4,710 | 35% |
| 3 | ROCIO | 861 | 6% |
| 4 | EMERALD | 784 | 6% |
| 5 | FCM12-045 (ATLASBLUE) | 245 | 2% |
| 6 | RIDLEY 1403 (EUREKA) | 225 | 2% |
| 7 | SCINTILLA | 221 | 2% |
| 8 | MAGICA | 168 | 1% |
| 9 | DRISBLUESEVEN (STELLA BLUE) | 142 | 1% |
| 10 | C99-42 (KIRRA) | 103 | 1% |
| 11 | DRISBLUETHIRTEEN (TERRAPIN) | 78 | 1% |
| 12 | FCM12-131 (JUPITERBLUE) | 72 | 1% |
| 13 | BELLA | 61 | 0% |
| 14 | KESTREL | 58 | 0% |
| 15 | SPRINGHIGH | 57 | 0% |
| 16 | BONITA | 56 | 0% |
| 17 | FCM14-052 (SEKOYA POP) | 55 | 0% |
| 18 | SNOWCHASER | 47 | 0% |
| 19 | FCM12-097 (SEKOYA BEAUTY) | 45 | 0% |
| 20 | MAGNIFICA | 35 | 0% |
| 21 | FIRST BLUSH | 34 | 0% |
| 22 | SALVADOR | 32 | 0% |
| 23 | RIDLEY 1602 (EUREKA SUNRISE) | 32 | 0% |
| 24 | ARANA | 29 | 0% |
| 25 | FCM12-087 (BIANCABLUE) | 25 | 0% |

| | 2020 (HECTAREAJE) | | |
|---|---|---|---|
| | TOTAL | 13,613 | 100% |
| 26 | BB06-50FL-1 (STELLAR) | 24 | 0% |
| 27 | JEWEL | 23 | 0% |
| 28 | PLABLUE 15.25 (MASIRAH) | 14 | 0% |
| 29 | JULIETA | 12 | 0% |
| 30 | RIDLEY 1212 (SPLASH) | 9 | 0% |
| 31 | FL07-399 (ARCADIA) | 8 | 0% |
| 32 | RIDLEY 3402 (MERIDIAM) | 8 | 0% |
| 33 | PLABLUE 15.122 (MALIBU) | 6 | 0% |
| 34 | BB07-210FL-18 (DAYBREAK) | 6 | 0% |
| 35 | DRISBLUENINETEEN (CORRINA) | 6 | 0% |
| 36 | OZBLU ELAINA | 6 | 0% |
| 37 | PLABLUE 15.02 (MADEIRA) | 4 | 0% |
| 38 | OZBLU OLIVIA | 4 | 0% |
| 39 | PRELUDE | 3 | 0% |
| 40 | FARTHING | 2 | 0% |
| 41 | OZBLU RAQUELLE | 2 | 0% |
| 42 | BB07-7FL-4 (PRESTO) | 1 | 0% |
| 43 | MILLENNIA | 1 | 0% |
| 44 | TH-929 (VICTORIA) | 1 | 0% |
| 45 | OZBLU ANDREA | 1 | 0% |
| 46 | FCM12-038 (DUPREE) | 1 | 0% |

**Fuente: SENASA**

At the end of 2020 there were 13,613 hectares of blueberries certified, representing an increase of 25% (2,701 hectares) compared to 2019 – a period in which 10,912 hectares were registered. Between 2019 and 2018, 7,499 hectares were registered, constituting an increase of 45% (3,413 hectares).

## Opening of New Markets

**Taiwan** - On the 2nd of September 2020 during a bilateral meeting between the phytosanitary authorities of Peru and Taiwan (SENASA and BAPHIQ respectively), and in close coordination with ProArandanos, access was achieved to export fresh blueberries to this destination.

**Port of Hueneme (California)** - On the 12th of November 2020 the Port of Hueneme in California secured authorization for the cold treatment of imported Peruvian blueberries in-port.

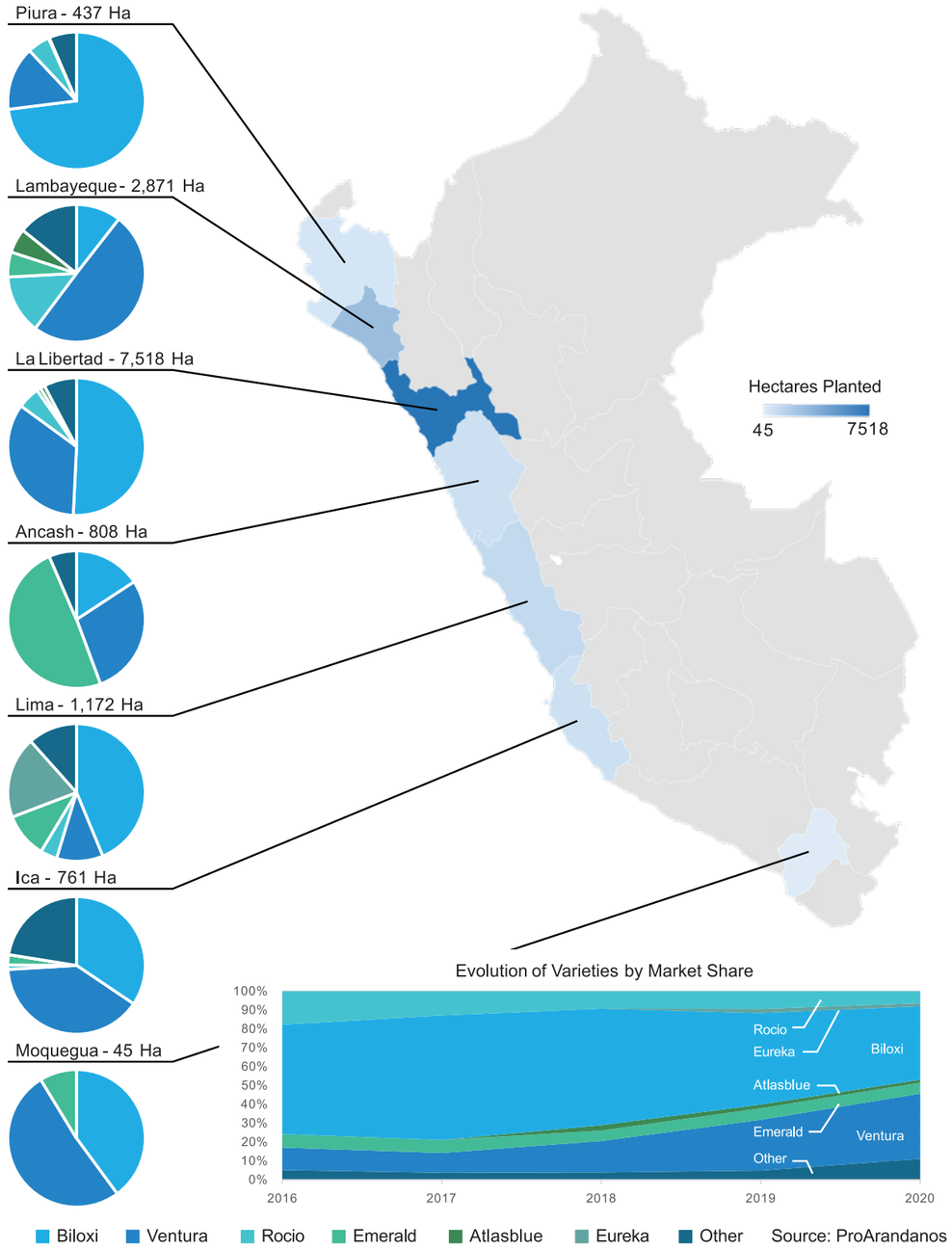
**New Market Openings in Process** - Currently work is being done to secure access for the following markets: China (frozen blueberries), South Korea, India, Indonesia, Japan, Malaysia and Vietnam.

## Forecasts for the 2021-22 Campaign

For the 2021-22 campaign it is expected that Peru will surpass the 200,000-ton mark for exported fresh blueberries. The initial forecasts show 211,371,060kg of exports, which would represent a 30% increase compared to the 2020-21 campaign. It is expected that 7% of the projected volume will be exported as organic. At the same time, it is forecast that weekly shipments above 5,000 tons will be achieved from weeks 33 to 50, with week 41 as the peak at more than 12,000 tons.



## Peruvian Hectares Planted and Evolution of Varieties



# Peru
# Report Team Narrative

Now carrying the mantle of the world's leading blueberry exporter for two years running, Peru has shaken off its emerging industry status but is still far from reaching full maturity amidst ongoing genetic conversion and new plantings that enter production within a uniquely short period of time, with higher average yields compared to other parts of the world.

Peru's buoyant growth has facilitated a consolidation of the calendar for 52-week programs at supermarkets, with 'eternal spring' conditions along much of its desertic Pacific coast making it possible to grow blueberries from May until March, although most is shipped from September to December before Chilean fruit hits the market at commercial scale.

Chilean, Spanish, and US 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 become industry leaders in their own right, some of whom have undertaken ventures north in the same expansive, pioneering fashion to produce blueberries in such countries as Colombia and Mexico.

More than half of Peru's blueberry plantings are in the department 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 berries 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 an earlier window than La Libertad.

Both these irrigation projects were undertaken by the Brazilian engineering multinational Odebrecht, whose corruption scandals have plagued an unstable political environment in Peru whereby a rolling door of leadership has led to five presidents in five years. Both projects also contemplate plans for upgrades that have been on hold for years. An expansion of Chavimochic could potentially unlock 40,000ha of agricultural land, but that possibility still remains uncertain for the medium term. Meanwhile the Majes Siguas project near Arequipa in the south has also been subject to perennial delays.

## Emerging regions and growing methods

Aside from the two leading production regions La Libertad and Lambayeque, which in 2020 demonstrated impressive planting growth rates of 12% and 33% respectively, there are three emerging departments that are growing more rapidly in percentage terms.

The largest of these is the department of Ancash, whose plantings rose by 41% in 2020 to 795ha, which is impressive but is just over 10% of the total planting in La Libertad, to put the figure into context. But what makes this production quite unique in the Peruvian context of predominantly coastal production is that one of Ancash's two main production areas – Huaylas – comprises higher-altitude farms in the Peruvian Andes Mountains.

This Andean blueberry production – backed by a heavy social emphasis on generating employment in one of Peru's poorest and most malnourished areas – was spearheaded by a Peruvian family company that had traditionally grown other crops, and after experimenting with blueberries in the Carás area for eight years is ramping up production. The challenges in the mountains are completely different, with high solar radiation necessitating tunnels (as is common in similar regions of central Mexico) which are mostly absent in the rest of the Peruvian blueberry industry, not to mention greater difficulty in securing contiguous tracts of land in the hilly terrain where longstanding subsistence family farmers reside. One of Carás' advantages is its greater diurnal variance of temperature relative to coastal Peru, which makes it easier to produce rich-flavoured fruit; a similar argument that is often put forward by Argentine and Chilean growers with respect to their comparative advantages. European and U.S.-based breeders are also experimenting with their varieties in the area.

At the opposite end of the diurnal variance scale is Piura, a hot and humid area close to the Ecuadorian border that is better known for its banana and mango production. The number of hectares planted in 2020 almost doubled year-on-year, attracted by the area's ideal soils, water pH levels 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 muggy conditions make 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 the fastest growth in blueberry plantings last year at 109%. Several major Peruvian blueberry players have aggressive planting projections for the area, including high-density plantings in substrate pots – a practice less common in Peru where most coastal production is open field, but the very salty soils war-

rant alternative growing methods that are more in line with what can be seen in southern Morocco. A lot of these projects harness reverse osmosis plants as well for irrigation, which is especially critical for achieving optimal pH levels and electric conductivity in substrate pots.

Organics currently constitute around 5% of Peruvian blueberry production, which has been a fairly consistent proportion over the past few years. As other producing nations in South America turn to organics in a bid to find new opportunities in the marketplace, it is likely Peru will follow suit to some extent. The country's dry climate along the coast may be conducive to organics just as it has been in California, although the mushrooming of new farms of all crop types throughout its newly irrigated deserts has led to increased pest pressures as what were once 'oases' become ever closer.

## Varieties

In its early stages the Peruvian blueberry industry was an experiment chasing supply shoulder periods when prices were high for any blueberry variety, regardless of flavor so long as it was firm and attractive enough. This meant there wasn't any great incentive to harness leading genetics, and for the first part of its evolution the sector was dominated by the Biloxi variety, replicating its success in previous years in Mexico, which under Peruvian conditions and appropriate farm management can achieve firmness, and some sweetness and flavour balance levels that are acceptable for some global markets.

Not all retailers want or accept Biloxi, and whilst its yield at around 15,000kg/ha is high compared to some parts of the world, Peruvian conditions are amenable to a much higher output. Ventura - a proprietary but open market variety that is early, large and high-yielding - has gained massive traction in Peru, but it too faces pushback from some retailers.

Around two in every five hectares of blueberries planted in Peru are Biloxi, and Ventura is close behind at 35% of the total surface area. Compared to 2016 when there were only a handful of varieties in Peru, there were 46 registered as of the end of 2020. The best genetics the world has to offer are slowly developing in the country, but it could be 5-10 years before Biloxi plantings are replaced.

As is the case for so many blueberry farmers worldwide, premiums are not necessarily guaranteed when a grower adopts the most advanced genetics, requiring either marketing (based on brand more than varieties per se) or close relationships with retailers who appreciate a particular variety's value in order to maximise returns and not be conflated with the overall Peruvian supply that is dominated today by two cultivars.

Many Peruvian and foreign companies operating in Peru are investing heavily in establishing new scaled plantings of new genetics ranging from proprietary and exclusive, to controlled access models and some openly available Patented/PVR protected material.

This is easily overcome for five of the top 10 most planted blueberry varieties in Peru as they are linked to major berry brands whose reputations are leveraged by high-quality genetics. Half of the top 10 varieties in Peru come from U.S.-based breeders, three are from Australia and one is from a vertically integrated Spanish company.

## Political situation & CSR

At the time of writing, Peru has just held divisive and extremely tight elections between the right-wing candidate Keiko Fujimori – the daughter of former leader Alberto Fujimori, who fled the country to Japan only shortly after congress passed the very agricultural reforms that have enabled the farming boom of the past two decades - and left-wing candidate Pedro Castillo, who has often been conflated with the Chavista movement of Venezuela; an assertion he denies, but that hasn't alleviated serious concerns from the business community around the worrying potential for land expropriation. Castillo narrowly won the vote count in the election, and after a long wait of deliberation while Fujimori contested the result, Peru's election authority eventually confirmed his win and Castillo officially took office on July 28. The new president's party does not, however, have a majority in the Peruvian Congress.

Historically, economic development has been decoupled from politics in Peru regardless of left or right leadership. If this is to remain the case, SOTIR report contributors indicate that the blueberry industry will need to double down on its corporate social responsibility (CSR) efforts and the active role it plays in alleviating poverty, particularly in the context of hardship wrought by the pandemic. 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, will be unaffected by these changes as their worker remuneration policies and benefits around food and transport already go beyond the minimum requirements established in the new law.

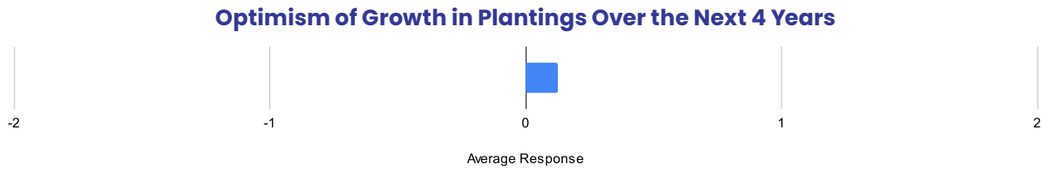


# Peru Grower Survey

Growth in Peruvian fresh blueberry export volumes has transformed the industry as we know it, but to get a better sense of where it might be heading this SOTIR has trialed a pilot qualitative survey of the Peruvian sector's outlook.

With a 25% participation rate from members of industry association ProArandanos, participants gave a response just above neutral regarding expectations for future plantings growth, meaning they are only marginally optimistic that new plantings will take place. To interpret and quantify the results, the report weight for each response is as follows:

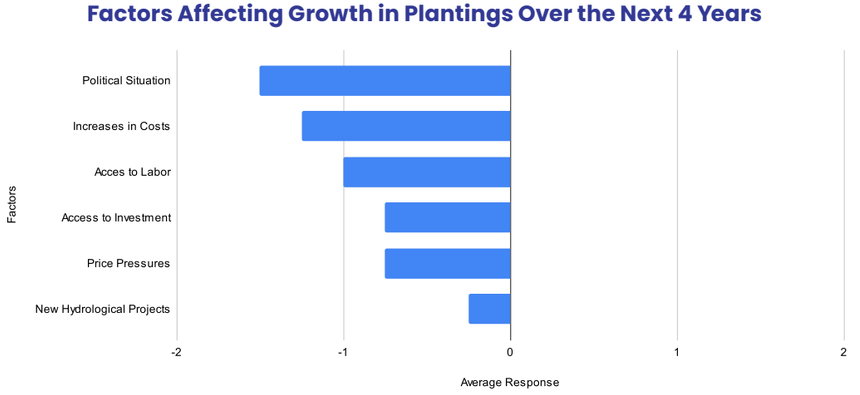
| Ranking | Pessimistic | Less Pessimistic | Neutral | Less Optimistic | Optimistic |
|---|---|---|---|---|---|
| Score | -2 | -1 | 0 | 1 | 2 |




This may have implications for the onset of maturity in production from South America, however such effects would not be felt for several years due to the prevalence of plantings in Peru that are not yet in full production. In addition, the sample size was small and the response was also overshadowed by a divisive election and ongoing uncertainty about the ramifications of a new presidency.

When asked what factors are likely to affect the growth of the Peruvian blueberry industry, respondents ranked the following factors from very positive to very negative. Similar to the first question, to interpret and quantify the results, the report weight for each response is as follows:

| Ranking | Very Negative | Negative | No Effect | Positive | Very Positive |
|---|---|---|---|---|---|
| Score | -2 | -1 | 0 | 1 | 2 |



All factors submitted elicited a negative response from the survey respondents, with the greatest pessimism revolving around the political situation, while input inflation and labor costs were also seen as having a negative effect on growth prospects. There was a marginally negative outlook regarding the impacts of matters surrounding access to investment and price pressures, and to an even lesser degree, new hydrological projects.

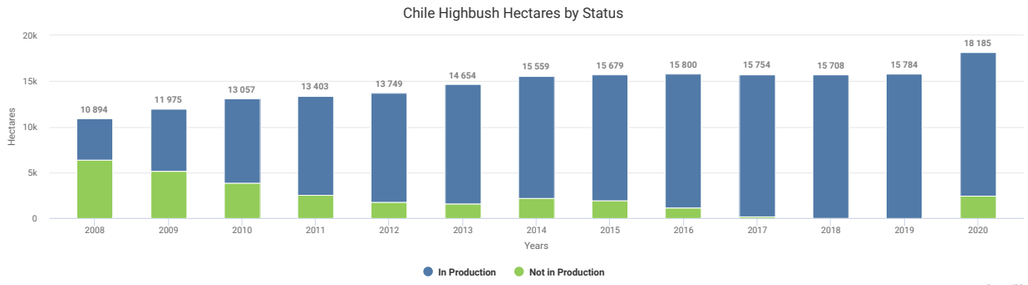
Politics can be fickle, and given there has been a hotly contested election in Peru it is not a great surprise that politics is seen as the most important factor expected to affect growth over the next four years. Time will tell if the new government's political agenda will actually impact the blueberry industry.

Meanwhile, cost increases are likely to be more sustained over time and will stick around even through the next election cycle. However, the pressure is not coming from pricing, which indicates that for now the industry is able to bear its rising costs.

# CHILE



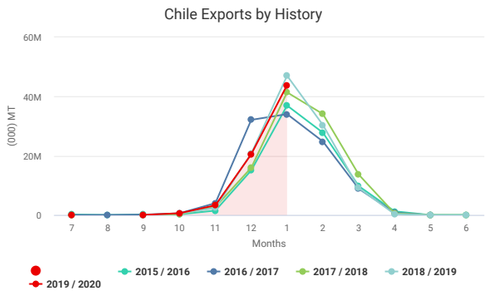
## Commentary on Chile Data & Figures Production and Planting
*(Denominated in Hectares and Thousands of Metric Tons)*




### Chile Exports by Partner

| Reporter | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| United States | 73,055,297 | 55,734,193 | 69,361,343 | 60,636,160 |
| Netherlands | 10,875,367 | 9,062,477 | 11,928,170 | 17,186,898 |
| China | 8,992,889 | 6,576,875 | 10,145,951 | 11,609,814 |
| United Kingdom | 11,660,881 | 9,765,172 | 9,975,041 | 10,602,602 |
| Germany | 565,729 | 1,039,704 | 2,090,727 | 3,683,927 |
| Others | 7,364,915 | 5,191,898 | 9,754,948 | 7,531,646 |
| Chile Totals | 112,515,078 | 87,370,319 | 113,256,180 | 111,251,047 |






### Chile Summary Statistics

| | |
|---|---|
| **Hectares Planted:** | **18,185 (Ha)** |
| **Production:** | **183.46 (000) Metrics Tons** |
| Organic: | Not Reported |
| Under Structure: | Not Reported |
| Hydroponics: | Not Reported |
| New Genetics: | Not Reported |
| **Estimated Yield:** | **11,644.98 (Kg/Ha)** |
| **Exports*:** | **111.25 (000) Metrics Tons** |
| **Imports*:** | **0.00 (000) Metrics Tons** |

*** DATA ONLY AVAILABLE THROUGH 2019, ONLY DATA FROM CHARTS ABOVE USED**

Chilean Blueberry Committee

## Chile
## Country Member Summary

### Adapted from Report by Chilean Blueberry Committee, ASOEX

Every year it is said that the season that passed was more special and complex than the last. The 2020-21 campaign was no exception, but we must ask ourselves whether our challenges were overcome, or if we seized the opportunities available.

At the beginning of the season we already knew that we would have to deal with the restrictions imposed by Covid-19, as well as the continued growth in blueberry supply from other countries. We also had the benefit of a systems approach for growers in the Ñuble and Biobio regions to avoid fumigation when exporting to the U.S. The investigation into imported blueberries in the U.S. had not been on the radar, and if it were successful that would have led to significant consequences that are difficult to quantify.

There was a good response from the industry to implement Covid protocols to prevent contagions and maintain operations, although some processes were slowed down. There was also an impact on the availability of labor, either because people preferred not to expose themselves to the virus and used government incentives, or because of the lower presence of temporary migrants. Finally, and perhaps the most critical, were the logistical problems with slower transit times to the main markets and operational delays in the ports of destination.

Reviewing the Numbers: Our exports of fresh blueberries reached a record, exceeding 117,800 metric tons, with an increase of 8% over last season. U.S. shipments grew 14% after two seasons with decreasing volumes. An important part of this growth came from Ñuble and Biobio organic fresh blueberries, which did not lose their condition for that market because of the systems approach.

Another part of the growth is explained by the increase in consumption and also in the shipments during the last third of the season, surpassing market demands and marking a negative end of the season that had showed positive results until then. Europe continues to grow, rising 13% this past season and finishing shipments in time when the market began to migrate to supply from other origins. In the case of Asia, the volume fell 27% due to the significant decrease of 46% of shipments to China, where companies were more cautious as a result of the uncertainties caused by Covid.

Other destinations such as Korea and Taiwan showed interesting dynamism, and, although volumes are relatively low, it is worth noting the growth in India and Israel, markets where exports were nil a few years ago.

It is remarkable to see that despite the increase in world supply and increased competition, Chile has been able to maintain its export volumes of fresh blueberries, and even increase them, as has been the case in 2020-21. Without a doubt, the focus on quality, the renewal of varieties and the care taken with the harvesting processes stood out, allowing Chile to maintain a competitive offer for several weeks.

The industry was able to adapt to the Covid restrictions, we successfully faced the investigation process for imported blueberries in the U.S., and we greatly took advantage of the opportunities offered by the systems approach. It will be necessary, of course, to better manage the expectations and the availability of information, and ultimately, we need to remember that there is simply no market for fruit that does not meet the quality and condition standards that markets demand today.

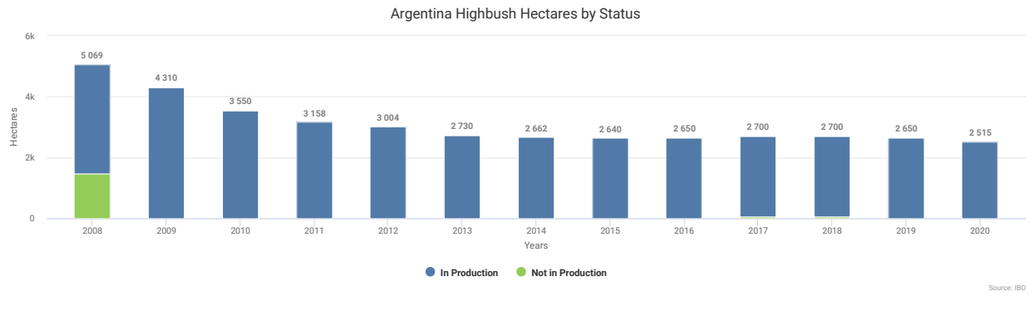




# ARGENTINA

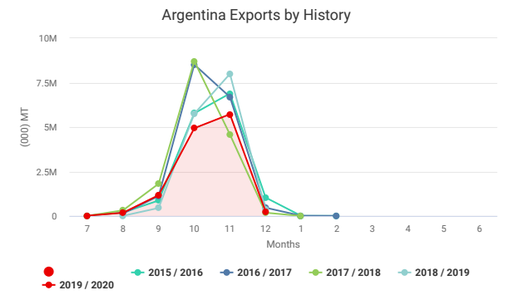


## Commentary on Argentina Data & Figures Production and Planting
*(Denominated in Hectares and Thousands of Metric Tons)*




### Argentina Exports by Partner

| Reporter | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| United States | 10,996,986 | 9,852,277 | 9,062,967 | 6,962,673 |
| Netherlands | 765,689 | 1,123,910 | 1,256,103 | 2,247,598 |
| Germany | 1,380,322 | 786,398 | 993,512 | 983,015 |
| Spain | 93,974 | 327,365 | 448,878 | 717,924 |
| Canada | 386,906 | 530,627 | 554,160 | 591,576 |
| Others | 3,317,901 | 3,005,981 | 2,236,348 | 776,865 |
| Argentina Totals | 16,941,778 | 15,626,558 | 14,551,968 | 12,279,651 |




### Argentina Summary Statistics

| | |
|---|---|
| **Hectares Planted:** | **2,515 (Ha)** |
| **Production:** | **18.50 (000) Metrics Tons** |
| Organic: | 33% |
| Under Structure: | 53% |
| Hydroponics: | Not Reported |
| New Genetics: | 5% |
| **Estimated Yield:** | **7,355.86 (Kg/Ha)** |
| **Exports*:** | **12.28 (000) Metrics Tons** |
| **Imports*:** | **0.00 (000) Metrics Tons** |

*** DATA ONLY AVAILABLE THROUGH 2019, ONLY DATA FROM CHARTS ABOVE USED**

# Argentina
# Country Member Summary

## Adapted from the Report by the Argentinean Blueberry Committee

Despite the challenges presented by the pandemic, Argentina exported 11,000 metric tons (MT) of fresh blueberries and 3,500MT of frozen blueberries in the 2020 season, meeting the initial projections.

The pandemic has greatly modified the situation in terms of working, harvesting, packing (with strict operating protocols established) and markets. Nonetheless, Argentina managed to keep its production volume stable at around 18,000MT, of which 3,000MT were sold in the domestic market.

Argentina's commercial strategy has focused on improving quality, and increasing the share of sea freight shipments and organic fruit. The distribution of exports was similar to previous years, allocating 65% to the U.S. and Canada, 30% to the European Union and the United Kingdom, and 5% to Asia.

The greatest impact of the pandemic was the reduction in the number of planes and flights, and therefore the increase in airfares which forced the sector to send much of the fruit by ship. The cost of transportation is crucial for competitiveness, so Argentina managed to send 60% of its exports via maritime shipments in 2020, compared to in the past when this percentage had never exceeded 30%.

From a strictly logistical point of view, this campaign has been decisive in terms of adapting to the new regional scenario, and Argentina has done its job. Large exporters have already consolidated the change from air shipments to sea shipments, while smaller-scale exporters have managed with a lot of effort, to successfully adapt to this complex scheme. In addition, it is important to highlight that the season started in early August with shipments ending in the first weeks of December, which considerably widened the loading window and avoided the famous bottlenecks or peaks in the provision of logistics services.

## Forthcoming Campaign

Many challenges remain to be solved, such as greater varietal replacement, the shift towards maritime shipping, increasing productivity, reducing local costs and incorporating more advanced technologies. However, the Argentinean blueberry sector will continue working along the same lines of action. The differentiation strategy will continue, and it is going to be based on four pillars: flavor, organic cropping, social responsibility and environmental care.

## Argentinean blueberry sector highlights

As one of the main players in the global market, Argentina has a great deal of know-how after growing and exporting blueberries for more than 20 years, with stable growth and quality that have been driven by great efforts in varietal replacement, high-density planting, and choosing the right varieties for the right climates. There has also been an adoption of new technologies such as tunnels to reduce the effects of inclement weather, while there are also investments in post-harvest technology and automation, cold chain improvements, and efforts focused on natural products, treatments and practices to increase shelf life.

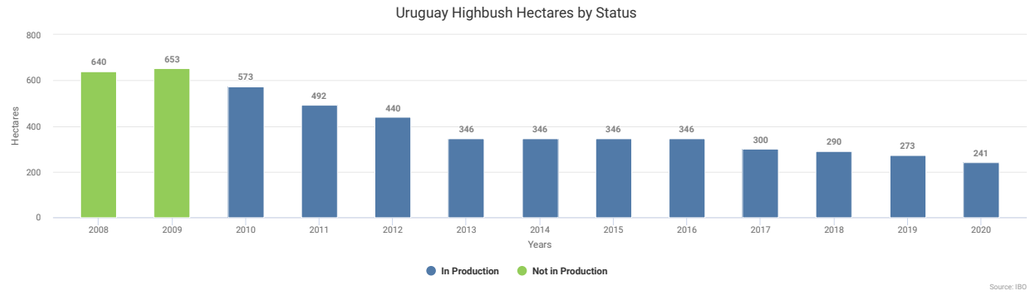
Our production is focused on taste which is helped by fulfilling chill hours and temperature amplitude. We promote this through our 'Taste the sweetness & enjoy the difference" campaign.

As previously mentioned, there has been a major transition to sea freight and organic production has increased. Meanwhile, we continue to develop new international markets as well as the Argentinean domestic market itself. For the fifth 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.

Social and environmental responsibility are a key part of our vision as well. The ABC is part of the Enterprise Network against Child Labor, and is part of a national plan for the prevention and elimination of child labor and protecting adolescent labor. Most exporters have social certifications. The UN Sustainable Development Goals are at the heart of our vision.

# URUGUAY

## Commentary on Uruguay Data & Figures Production and Planting
*(Denominated in Hectares and Thousands of Metric Tons)*




### Uruguay Exports by Partner

| Reporter | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| United States | - | - | - | 559,608 |
| Netherlands | - | - | - | 190,238 |
| Germany | - | - | - | 100,436 |
| Canada | - | - | - | 79,040 |
| Argentina | - | - | - | 54,264 |
| Others | - | - | 11 | 44,509 |
| Uruguay Totals | - | - | 11 | 1,028,095 |


### Uruguay Summary Statistics

| | |
|---|---|
| **Hectares Planted:** | **241 (Ha)** |
| **Production:** | **1.30 (000) Metrics Tons** |
| Organic: | 0% |
| Under Structure: | Not Reported |
| Hydroponics: | 0% |
| New Genetics: | Not Reported |
| **Estimated Yield:** | **5,394.19 (Kg/Ha)** |
| **Exports*:** | **1.03 (000) Metrics Tons** |
| **Imports*:** | **0.00 (000) Metrics Tons** |

*** DATA ONLY AVAILABLE THROUGH 2019, ONLY DATA FROM CHARTS ABOVE USED**



Uruguay Fruits

# Uruguay
# Country Member Summary

### Adapted from the Report by Uruguay Fruits

The Uruguayan blueberry sector is very small compared with our peers in South America and the world. In fact, the area has been decreasing over the last few years due to lack of competitiveness from small and medium growers, particularly in the southern part of the country.

Some of our main assets have been our longstanding blueberry production traditions, our natural resources, and our transparent rules, along with continuous efforts to be a responsible and sustainable sector under the strictest good practices requirements. We estimate the sector employs around 4,600 people between permanent and seasonal workers, operating in a complementary way with the citrus sector.

Nevertheless, there has been a change in the sector's structure as a whole because of an increase in costs, the shift from air freight to maritime transportation to faraway markets, and quality attributes expected by customers in our principal markets.

Our main strategy focuses on internal quality, color and new varieties, adapting to changes in consumer preferences, and also the requirements of shipping to long distance markets via sea freight.

Today, there are 241 hectares in the northern region of the country, 20% of which is with new varieties imported from Australia. Our production now stands at 1,300 metric tons (MT).

The total planted area is expected to remain stable as new plantings that have gone in the ground have been replanted. New varieties will bring the highest levels of productivity and the best attributes to reach long-distance markets with good sizing, excellent internal quality and reasonable shelf life. Additionally, frost protection and new packing technology are set to fulfill expectations of doubling productivity to 20MT/ha and export value.

As far as markets are concerned, during the 2020 season Europe and the USA were our main destinations. Even though access to China improved as the tariff was reduced from 30% to 15% during the last season, we have not been able to increase our participation in that market. The pandemic has also brought some logistic constraints that can be seen in some of the shift of production towards the domestic market.

The change from air to maritime freight will help to close the gap with our regional competitors.

Finally, a small but steady increase in the domestic market and the frozen market has brought some benefit to the sector, and is estimated to be linked to more than 50 hectares of production.

# South America Report Team Narrative

## Adaptation is key for Southern Cone blueberry industry stalwarts Chile, Argentina and Uruguay

The 2020-21 season was an 'against all odds' story for Chile, which managed to achieve a new fresh blueberry export record despite heightened competition in overseas markets and a shortage of farm labor. The boom across Chile's summer fresh fruit industry, particularly in cherries, has made it increasingly difficult for growers, including blueberry growers, to secure farm labor - a situation that was exacerbated by Covid-related border restrictions for foreign workers, and a portion of the older workforce choosing to stay at home in light of the pandemic and state subsidies.

These challenges were compounded by less availability of agricultural inputs such as fertilizers and agri-chemicals, while at times there were delays for growers in obtaining packaging materials, not to mention the difficulties of container shortages, while in some regions a cold and wet spring affected berry quality.

Yet somehow Chilean blueberry production was stable and the industry exported substantially more fresh blueberries, exceeding its own export growth forecasts by six percentage points to 8%. A major trigger for this increase was the unlocking of fresh supply from Nuble and BioBio, where the implementation of a systems approach to phytosanitary restrictions on the Lobesia Botrana (European Grapevine moth) resulted in a fumigation-free channel to the U.S. market, resulting in large volumes of berries that previously would have been frozen but were instead sold as fresh.

The two aforementioned regions account for almost a third of Chile's organic plantings, and exports of fresh organic blueberries overall were up by 32% this past season, signifying a significant outpacing of conventional blueberry export growth. The northern region of Coquimbo was also one of the leading sources of growth in organic blueberries.

Chile's great impetus with organics has been a natural response to supply pressures in the Northern Hemisphere from Peru, which has higher yields than its South American peers and has been eating into their market windows. Chile used to have an export window from October to April, but now that's been effectively narrowed to December-January/early February.

The impact of Peru's rise has logically been felt more keenly by Chile's earlier and later season growers, but segments of the industry are optimistic about the implications for the continuity of supply established by Peru, which means they need not fight for blueberry shelf space at retail as Peru will have already created it in the lead-up to the bulk of Chile's volumes.

Chile is slowly pulling out older varieties that struggle to arrive in good condition in destination markets, and in the interim a lot of fruit that is not up to fresh export standard is destined for Chile's sizable frozen/processed blueberry sector. It could take 10 years or more for the country's weaker performing non-proprietary cultivars to be out of circulation, but the country has top class soil and climatic conditions for growing blueberries generally, which translates to optimal flavor, high yield potential, firmness and appearance when advanced genetics are planted and managed well.

"Chile's growth has to bet on quality, not volume. We're not in a race with Peru to say we have more volume," as one industry player noted.

As a veteran industry in blueberries, Argentina too has needed to rise to the challenge presented by larger emerging competitors, with its earlier season than its Chilean neighbors meaning its short market window is head on with Peru, in addition to South Africa in the European market.

With production volumes that are about 10% of Chile's, Argentina is a niche blueberry industry in the context of the enormous growth witnessed in the continent over the past decade. But it has carved out a comparative advantage for itself in organics as a differentiator – now representing almost half its exports – and vertical integration by embracing technology. Most Argentine growers close the containers for export within their own packhouses.

Argentina is handicapped against Peru when it comes to yield today, so organics and quality are major themes in the industry's strategic plans. However, economic instability and a frequent changing of the 'rules of play' politically make long-term planning tough, although the Argentine peso's dramatic decline relative to other blueberry-growing nations' currencies does assist the industry's competitiveness, and the latest government has removed an export tariff that had hampered the sector.

Prior to Covid-19 Argentina was exporting around 60% of its fresh blueberry shipments via airfreight, but the lack of flights due to the pandemic hastened the inevitable shift to maritime shipments with a goal to now export 80% via seafreight.

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. Its hectarage dedicated to the crop has roughly halved over that period as the industry looks to do more with less land, turning to such innovations as substrate production, anti-hail nets and automated sorting technology. Uruguay now has less blueberry plantings than Colombia, which is a much newer industry with little exports to speak of.

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 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.

Like Argentina, Uruguay too has historically had a strong air-freight focus but must turn to seafreight to stay relevant, and in tandem growers are looking for varieties that are better suited to the long journeys.



## Market Developments

As the largest single fresh blueberry import market in the world, the U.S. is and will likely remain the leading destination for Peru, Chile, Argentina and Uruguay for a long time still to come. As the origin of blueberries with the world's highest per capita consumption of the fruit, the U.S. accounts for 54% of Peru's exports and 53% of Chile's, while for the smaller suppliers of Argentina and Uruguay the percentage share is greater still. And for those who have made the transition to organics, the focus on North America is accentuated.

These producers are however seeking to diversify their markets and find new consumers, most notably in Europe but also in China where all four have access but with varying tariff rates (see China section for more detail).

Chile, which along with Peru has a unique position globally of tariff-free access to the Chinese blueberry market, nonetheless saw its export volumes to the country fall by 46% in the 2020-21 season. This decline reflected a trepidation amongst the Chilean industry after an influx of cherries flooded the summer fruit market, exacerbated by false rumours regarding Covid risk on Chinese social media during the early stages of the pandemic about Chilean fruit.

This fall in exports to mainland China dragged Chile's total shipments to Asia down by 27%, but these figures belie large volume upticks to South Korea and Taiwan, as well as green shoots in India with a tripling of volume although with tonnages still at very low levels. Chile's growth rates to Europe and the U.S. were very similar, but for Peru the sharpest rise was seen in Europe with a 46% surge year-on-year.

Domestic markets are by no means anywhere near as lucrative to Southern Cone growers as the Northern Hemisphere, but they do have the potential to absorb supplies of certain older varieties planted which, despite having ideal characteristics at harvest, have high rejection rates on arrival in North America and Europe due to fruit softness. In an environment with increasingly demanding retailers in the world's largest markets, for some producers – particularly in Chile and Argentina – domestic sales offer a solution to help soften the blow from increased competition, in addition to faster payment windows and a premium to the other option of IQF processing.

Poland's success in lifting blueberry consumption (see Eastern European section) could serve as an inspiring example for Chile, whose GDP per capita is not too dissimilar.

## Emerging blueberry growers – Colombia and Ecuador

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 and the U.S. that entered Colombia have planted at between 2,600-3,000 meters above sea level, under the moniker of 'tropical blueberries at altitude'.

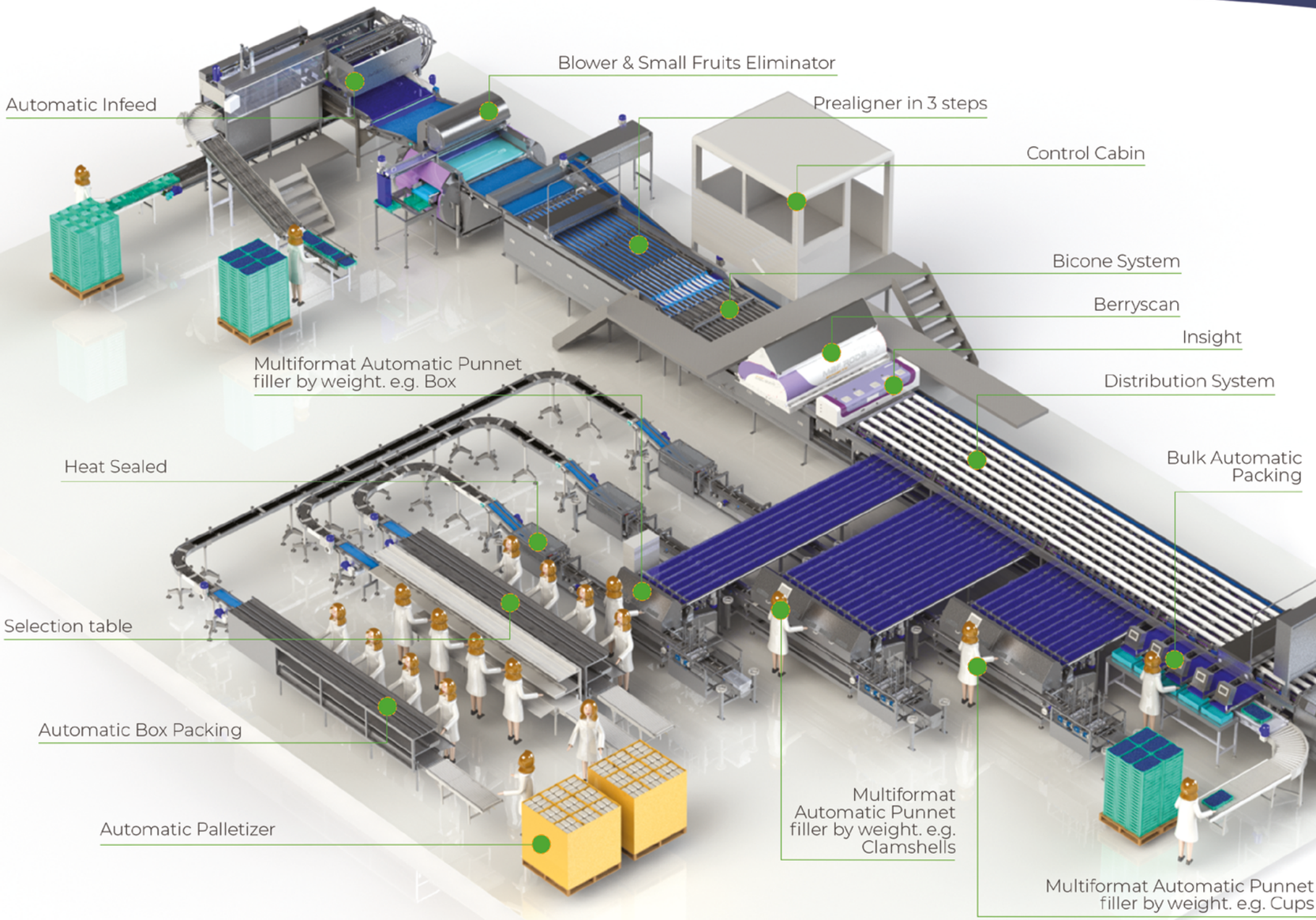
Around 90% of this production sits in the mountainous plains of Boyacá and Cundinamarca to the north of Colombia's capital Bogota, where very little difference in daylight hours throughout the year allows for pruning to induce production as desired by farm managers. The remainder is split between the department Antioquia and in the country's south near the border with Ecuador.

Colombia's population of more than 50 million has shown sufficient demand to absorb the volumes being produced, although there do appear to be intentions to develop an export-oriented industry at some stage, likely directed more towards Europe first due to the protracted timeline of applying for U.S. market access.

The political instability of Colombia has kept this export development on pause and growth has been slow due to a shortage of plant material given there are no major commercial blueberry nurseries in operation. If Colombia does establish an export industry it will have some comparative advantage over other South American peers in terms of closeness to Northern Hemisphere markets and port access to both the Pacific Ocean and the Caribbean Sea.

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.

Two varieties dominate Ecuador's blueberry production with all volume destined for the domestic market, although an exporter association has formed by consolidating around half the surface area planted with a view to opening overseas markets.

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# EMEA
(EUROPE, MIDDLE EAST & AFRICA)

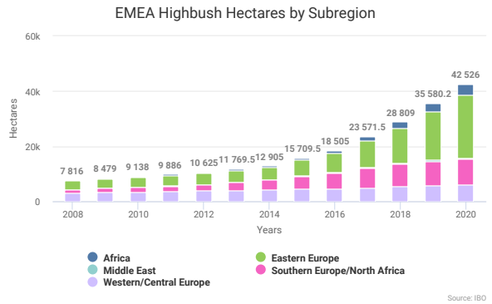


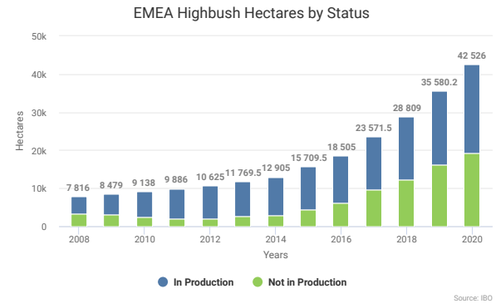
# EMEA
*Europe, Middle East & Africa*

## EMEA Data & Figures Production and Planting
*(Denominated in Hectares and Thousands of Metric Tons)*

### EMEA Highbush Hectares by Subregion

| EMEA | Planting | | | | | 2020 Production | | |
|---|---|---|---|---|---|---|---|---|
| Growth Totals | 2016 | 2017 | 2018 | 2019 | 2020 | Fresh | Process | Total |
| Southern Europe/North Africa | 5,741 | 7,001 | 8,273 | 8,847 | 9,419 | 117.13 | 12.17 | 129.30 |
| Eastern Europe | 6,795 | 9,596 | 12,562 | 17,488 | 22,728 | 55.23 | 4.50 | 59.73 |
| Western/Central Europe | 4,639 | 4,974 | 5,305 | 5,753 | 5,881 | 27.11 | 4.37 | 31.48 |
| Africa | 1,040 | 1,646 | 2,253 | 3,131 | 4,008 | 19.58 | 0.47 | 20.05 |
| Middle East | 290 | 354 | 416 | 361 | 490 | 2.11 | 0.20 | 2.31 |
| EMEA Totals | 18,505 | 23,572 | 28,809 | 35,580 | 42,526 | 221.16 | 21.71 | 242.87 |

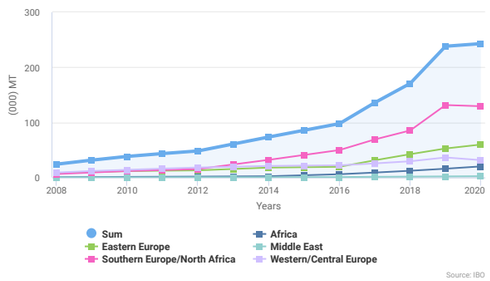


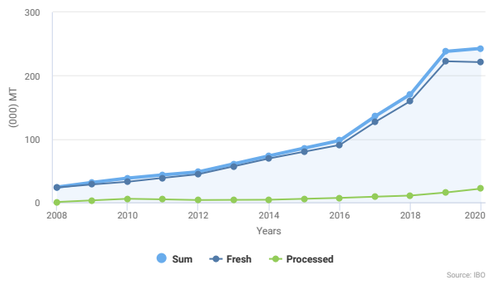

### EMEA Highbush Production by Subregion

| EMEA | 2018 | | | 2019 | | | 2020 | | |
|---|---|---|---|---|---|---|---|---|---|
| Productions Totals | Fresh | Process | Total | Fresh | Process | Total | Fresh | Process | Total |
| Southern Europe/North Africa | 81.71 | 3.59 | 85.30 | 123.52 | 7.92 | 131.44 | 117.13 | 12.17 | 129.30 |
| Eastern Europe | 40.71 | 1.53 | 42.24 | 49.64 | 2.93 | 52.57 | 55.23 | 4.50 | 59.73 |
| Western/Central Europe | 25.65 | 3.75 | 29.40 | 32.76 | 3.56 | 36.32 | 27.11 | 4.37 | 31.48 |
| Africa | 10.48 | 1.70 | 12.18 | 14.89 | 0.99 | 15.88 | 19.58 | 0.47 | 20.05 |
| Middle East | 1.36 | 0.20 | 1.56 | 1.73 | 0.20 | 1.93 | 2.11 | 0.20 | 2.31 |
| EMEA Totals | 159.91 | 10.77 | 170.68 | 222.54 | 15.6 | 238.14 | 221.16 | 21.71 | 242.87 |

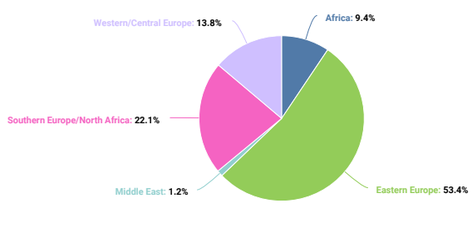
EMEA Highbush Production by Subregion



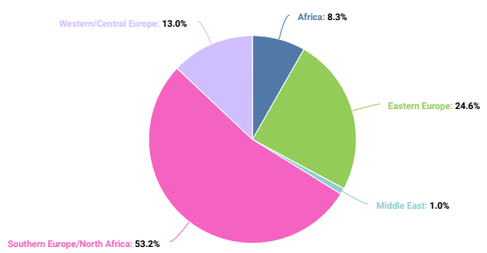

EMEA Highbush Production by Use



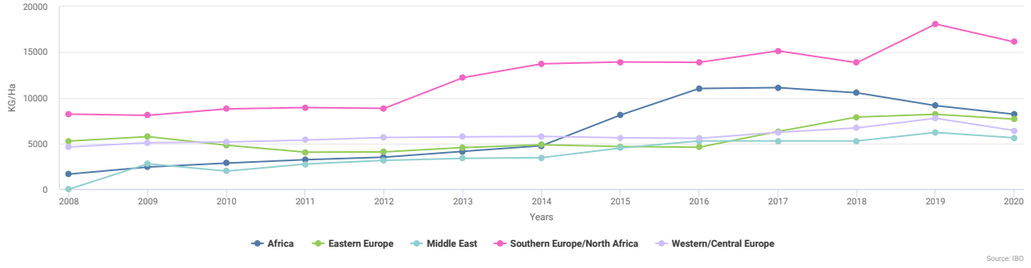

2020 EMEA Highbush Hectares by Subregion




2020 EMEA Highbush Production by Subregion




EMEA Highbush Yield by Subregion






# WESTERN / CENTRAL EUROPE

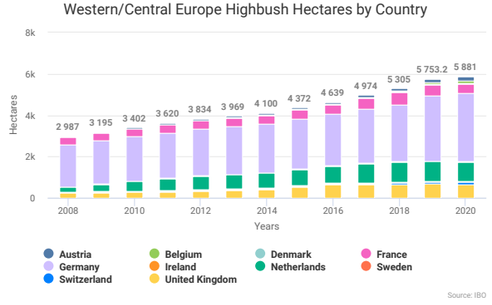
## Commentary on Western / Central Europe Data & Figures Production and Planting

*(Denominated in Hectares and Thousands of Metric Tons)*

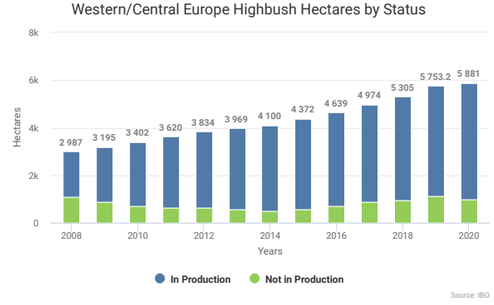
### Western/Central Europe Highbush Hectares by Country

| Western/Central Europe | Planting | | | | | 2020 Production | | |
|---|---|---|---|---|---|---|---|---|
| **Growth Totals** | **2016** | **2017** | **2018** | **2019** | **2020** | **Fresh** | **Process** | **Total** |
| Germany | 2,500 | 2,625 | 2,750 | 3,162 | 3,289 | 9.61 | 1.70 | 11.31 |
| Netherlands | 820 | 900 | 980 | 950 | 920 | 8.40 | 2.20 | 10.60 |
| United Kingdom | 635 | 648 | 660 | 673 | 653 | 4.75 | 0.15 | 4.90 |
| France | 450 | 515 | 580 | 515 | 450 | 2.00 | 0.10 | 2.10 |
| Austria | 90 | 100 | 110 | 156 | 202 | 1.08 | 0.12 | 1.20 |
| Belgium | 0 | 30 | 60 | 95 | 130 | 0.40 | 0.02 | 0.42 |
| Switzerland | 40 | 45 | 50 | 79 | 107 | 0.32 | 0.08 | 0.40 |
| Ireland | 25 | 28 | 30 | 35 | 40 | 0.20 | - | 0.20 |
| Denmark | 32 | 34 | 35 | 37 | 38 | 0.20 | - | 0.20 |
| Sweden | 47 | 49 | 50 | 51 | 52 | 0.15 | 0.00 | 0.15 |
| Western/Central Europe Totals | 4,639 | 4,974 | 5,305 | 5,753 | 5,881 | 27.11 | 4.37 | 31.48 |

Western/Central Europe Highbush Hectares by Country



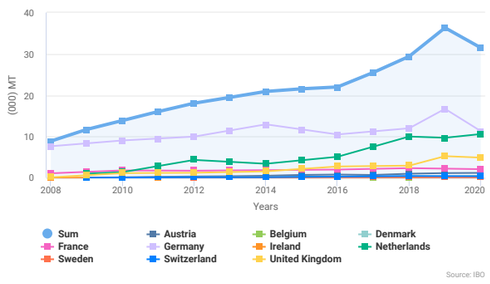

Western/Central Europe Highbush Hectares by Status



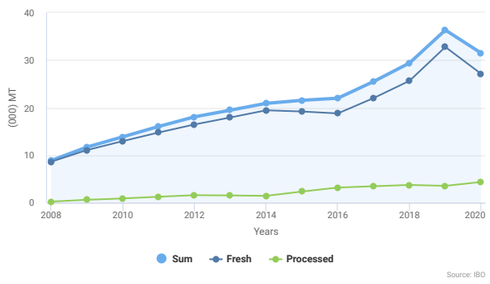
## Western/Central Europe Highbush Production by Country

| Western/Central Europe | 2018 | | | 2019 | | | 2020 | | |
|---|---|---|---|---|---|---|---|---|---|
| Productions Totals | Fresh | Process | Total | Fresh | Process | Total | Fresh | Process | Total |
| Germany | 10.00 | 2.00 | 12.00 | 14.85 | 1.85 | 16.70 | 9.61 | 1.70 | 11.31 |
| Netherlands | 8.50 | 1.50 | 10.00 | 8.35 | 1.35 | 9.70 | 8.40 | 2.20 | 10.60 |
| United Kingdom | 2.80 | 0.15 | 2.95 | 5.10 | 0.15 | 5.25 | 4.75 | 0.15 | 4.90 |
| France | 2.25 | 0.10 | 2.35 | 2.13 | 0.10 | 2.23 | 2.00 | 0.10 | 2.10 |
| Austria | 1.00 | 0.00 | 1.00 | 1.09 | 0.06 | 1.15 | 1.08 | 0.12 | 1.20 |
| Belgium | 0.10 | 0.00 | 0.10 | 0.30 | 0.01 | 0.31 | 0.40 | 0.02 | 0.42 |
| Switzerland | 0.45 | 0.00 | 0.45 | 0.39 | 0.04 | 0.43 | 0.32 | 0.08 | 0.40 |
| Ireland | 0.20 | 0.00 | 0.20 | 0.20 | - | 0.20 | 0.20 | - | 0.20 |
| Denmark | 0.20 | 0.00 | 0.20 | 0.20 | - | 0.20 | 0.20 | - | 0.20 |
| Sweden | 0.15 | - | 0.15 | 0.15 | - | 0.15 | 0.15 | 0.00 | 0.15 |
| Western/Central Europe Totals | 25.65 | 3.75 | 29.4 | 32.76 | 3.56 | 36.32 | 27.11 | 4.37 | 31.48 |

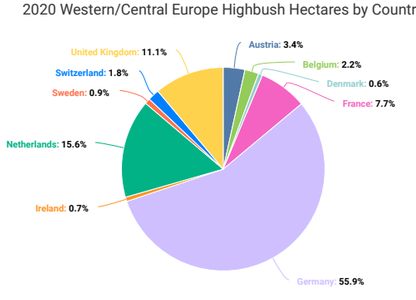
Western/Central Europe Highbush Production by Country



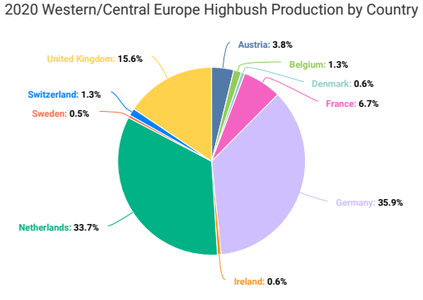

Western/Central Europe Highbush Production by Use




2020 Western/Central Europe Highbush Hectares by Country

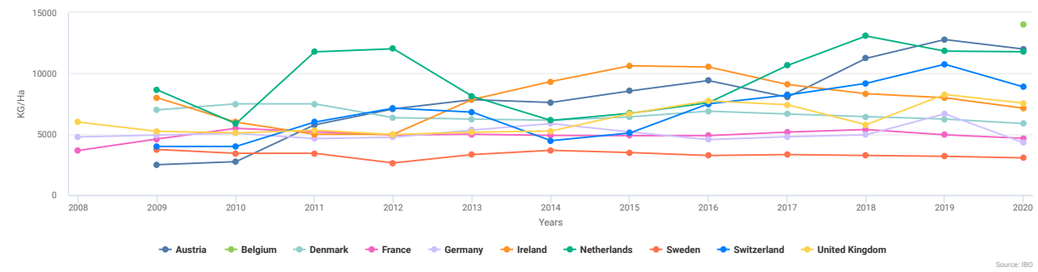



2020 Western/Central Europe Highbush Production by Country





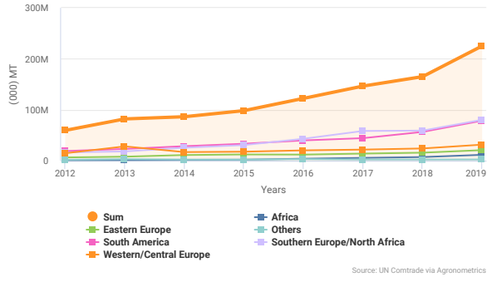

Western/Central Europe Highbush Yield by Country



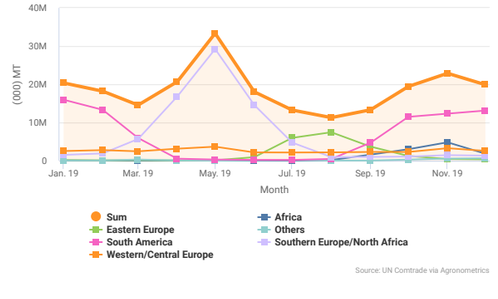

## Western/Central Europe Imports by Origin Subregion

| Origin | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| Southern Europe/North Africa | 43,102,917 | 58,395,783 | 59,122,458 | 80,284,716 |
| South America | 39,849,491 | 44,304,648 | 56,527,638 | 78,583,903 |
| Western/Central Europe | 20,315,920 | 21,844,190 | 24,081,241 | 31,544,251 |
| Eastern Europe | 12,007,502 | 14,004,931 | 15,780,335 | 20,781,432 |
| Africa | 3,921,207 | 5,605,173 | 7,198,917 | 11,567,856 |
| North America | 2,723,636 | 2,187,700 | 1,810,087 | 2,022,248 |
| Mexico/Central America | 340,352 | 175,741 | 509,535 | 407,350 |
| Asia | 7,511 | 12,982 | 17,122 | 4,544 |
| Middle East | 14,174 | 516 | 3,929 | 12,901 |
| Pacific | 29,191 | 170 | 18 | 984 |
| Central Asia/Indian Subcontinent | 900 | 225 | 6,849 | 8,994 |
| Western/Central Europe Totals | 122,312,801 | 146,532,059 | 165,058,129 | 225,219,179 |

Western/Central Europe Imports by Origin Subregion

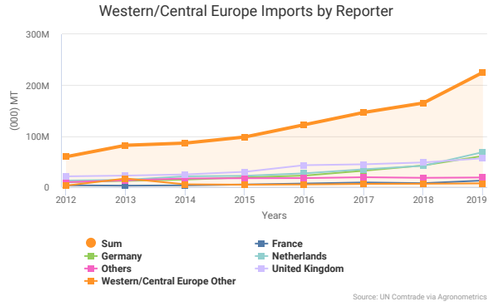


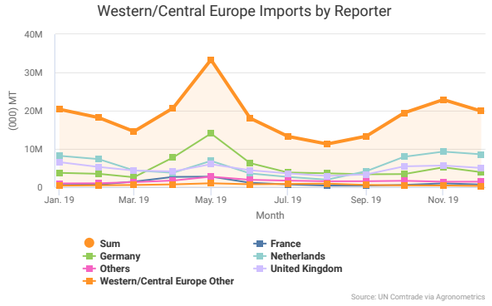

Western/Central Europe Imports by Origin Subregion



### Western/Central Europe Imports by Reporter

| Reporter | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| United Kingdom | 42,984,036 | 44,757,300 | 48,365,874 | 56,524,391 |
| Netherlands | 26,958,023 | 34,934,783 | 41,764,349 | 68,611,930 |
| Germany | 22,533,586 | 32,103,823 | 42,494,625 | 61,063,161 |
| France | 6,989,672 | 9,097,752 | 7,688,922 | 12,894,793 |
| Western/Central Europe Other | 5,203,306 | 6,329,767 | 6,567,233 | 7,306,258 |
| Belgium | 4,563,598 | 5,203,226 | 6,000,231 | 6,920,457 |
| Switzerland | 4,669,935 | 5,149,348 | 5,337,311 | 6,292,360 |
| Denmark | 2,398,576 | 2,799,209 | 3,245,268 | 3,292,433 |
| Sweden | 2,496,000 | 2,473,172 | 2,531,856 | 1,309,999 |
| Austria | 2,719,568 | 2,672,758 | - | - |
| Ireland | 796,501 | 1,010,921 | 1,062,460 | 1,003,397 |
| Western/Central Europe Totals | 122,312,801 | 146,532,059 | 165,058,129 | 225,219,179 |




### Western/Central Europe Exports by Sub Region

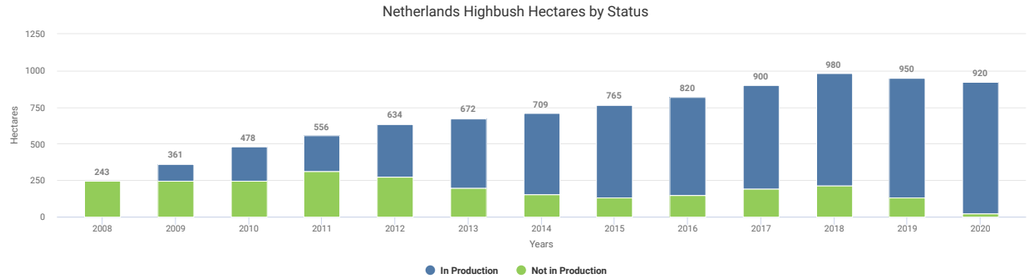
| Subregion | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| Western/Central Europe | 20,315,920 | 21,844,190 | 24,081,241 | 31,544,251 |
| Eastern Europe | 5,152,006 | 5,845,549 | 6,328,625 | 7,566,901 |
| Southern Europe/North Africa | 2,530,103 | 3,382,909 | 4,246,425 | 5,315,729 |
| Asia | 107,937 | 153,246 | 91,231 | 87,861 |
| Middle East | 14,557 | 80,125 | 37,946 | 51,256 |
| Africa | 6,504 | 14,773 | 21,362 | 21,900 |
| Central Asia/Indian Subcontinent | 5,412 | 10,868 | 16,332 | 14,293 |
| North America | 2,365 | 39 | 16,295 | 3,094 |
| South America | 390 | 2,095 | 136 | 1,782 |
| Pacific | - | 67 | 207 | - |
| Mexico/Central America | 25 | - | - | - |
| Western/Central Europe Totals | 28,135,219 | 31,333,861 | 34,839,800 | 44,607,067 |



# NETHERLANDS

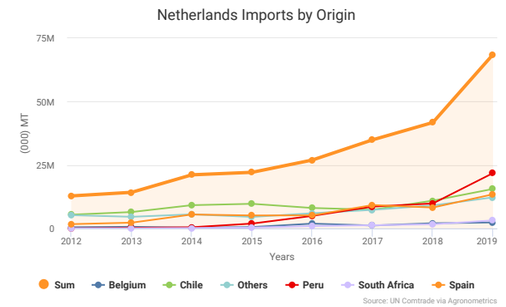
## Commentary on Netherlands Data & Figures Production and Planting

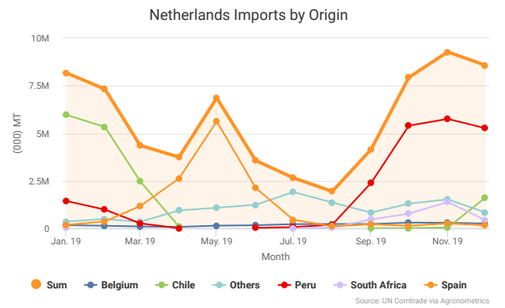
*(Denominated in Hectares and Thousands of Metric Tons)*




### Netherlands Imports by Origin

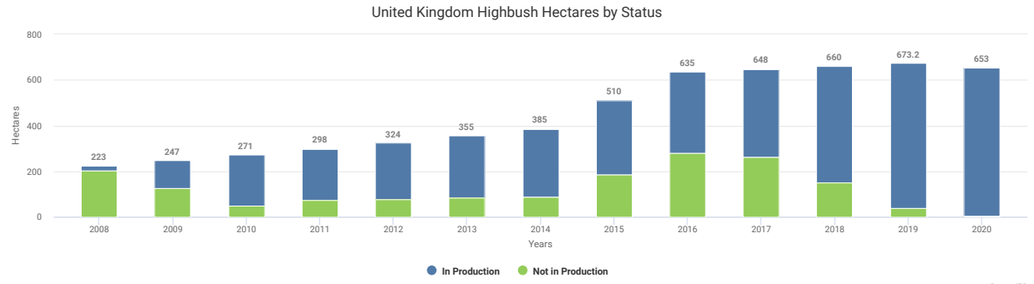
| Reporter | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| Peru | 4,934,810 | 8,607,582 | 9,837,101 | 21,817,393 |
| Chile | 8,058,060 | 7,386,454 | 10,946,011 | 15,567,542 |
| Spain | 5,151,495 | 9,217,313 | 8,242,174 | 13,453,652 |
| South Africa | 945,475 | 1,250,963 | 1,634,295 | 3,171,972 |
| Belgium | 1,885,390 | 1,153,744 | 2,038,017 | 2,350,383 |
| Others | 5,982,793 | 7,318,727 | 9,066,751 | 12,250,988 |
| Netherlands Totals | 26,958,023 | 34,934,783 | 41,764,349 | 68,611,930 |



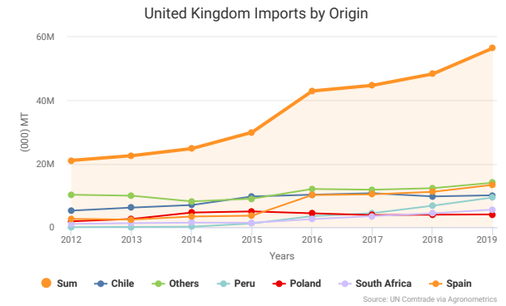
# UK

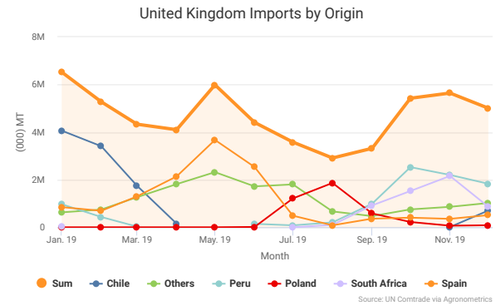
## Commentary on UK Data & Figures Production and Planting
*(Denominated in Hectares and Thousands of Metric Tons)*




## United Kingdom Imports by Origin

| Reporter | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| Spain | 10,172,807 | 10,385,183 | 11,171,874 | 13,374,138 |
| Chile | 10,268,511 | 10,730,217 | 9,728,309 | 10,079,754 |
| Peru | 3,515,928 | 4,443,343 | 6,799,126 | 9,402,386 |
| South Africa | 2,556,610 | 3,535,512 | 4,374,484 | 5,580,883 |
| Poland | 4,401,966 | 3,822,573 | 3,967,216 | 4,040,340 |
| Others | 12,068,214 | 11,840,472 | 12,324,865 | 14,046,890 |
| United Kingdom Totals | 42,984,036 | 44,757,300 | 48,365,874 | 56,524,391 |



## Country Member - *United Kingdom*

# United Kingdom Country Member Summary

### Adapted from the report by a UK-based Founding Board Member representing the UK Industry

In 2020 there was a decrease in tonnes produced in the UK on 2019 for a variety of reasons – first was that the UK weather was favourable to a good crop in 2019, and less so in 2020, so this compounded the difference and gives a misleading trend which is still a small increase year over year. There were a few hectares removed and a few that were spaced out as potted plants got bigger.

On the sales side, UK sales are not heavily related to UK production as users do not see blueberries in the same patriotic way that they see strawberries. This means consumers are used to seeing blueberries all year round and are used to them being an imported fruit, and less worried if the fruit is English or not. Also, English blueberries have no point of difference to imported fruit, as has historically been the case with strawberries.

Around 50% of UK blueberry production is tunnelled, mostly to maximise the value of pot-grown fruit. More than 80% of the UK production is now in pots, and some of the area removed was for soil-grown fruit that did not suit the combination of the soils and sites.

Pot (substrate) production as a proportion of the total is likely to slowly increase and will probably reach 90% over the next two to three years as productivity and economic picking becomes more important as labour gets shorter, and also as the more lucrative September slot has its margin eroded with cheaper Peruvian and South African fruit being available sooner, and of more reliable quality in most cases given late UK Aurora and other late varieties currently grown do not taste great if grown in a colder ripening period.

UK growers aim mostly for early or late production as they cannot compete with Polish production from the second week of of July to the end of August. Varieties such as Duke are still widely grown. Growers will then have varieties such as Liberty to hit the later slots and try to have minimum production from the third week of July to the third week of August.

Scotland targets the late market but that window has been dealt a severe blow in the the past couple of years with increased availability from the Southern Hemisphere. Given the less favourable climate in Scotland, even with tunnels, and also the increase in labour cost and decreased availability, Scottish blueberry production in my view has hit its peak and if anything will now slowly decrease as when blocks are removed, I don't see them being replanted with blueberries.

New plantings in the UK are now small and likely to remain limited in 2021 and 2022 due to the labour effect of BREXIT. Labour on farms for harvesting was tight in 2020 and in 2021; some crops are likely to go unpicked due to the UK government stopping EU citizens freely working in the UK. Given over 95% of UK produce is harvested by Eastern Europeans this is a catastrophic blow to the industry, and we are already seeing a reduction in new plant orders of all soft fruits for 2022 due to growers not having the certainty that they will get enough labour to harvest the fruit after all the investment.

Labour shortages also mean higher than inflationary harvesting cost increases each year, and this is set to be a continued trend over the coming two to three years at least, depending on how the UK Government reacts to the labour shortages. Unlike the situation in some other countries, the UK is self-inflicting this blow to the fruit industry as there are people from Europe who are keen to come to the UK to work, but are just not allowed to.



Sales in the UK however are likely to be not affected by this for reasons previously stated, and the trend of circa 10% per annum sales increases in volume is expected to continue over the coming two years at least. This is partly driven by cheaper fruit available, particularly from countries such as Peru that are expanding fast, but also as people continue to want to consume a healthy diet. COVID-19 has also dramatically increased online shopping, and consumers have gained confidence in buying perishable items such as fruit online. This is likely to have a positive impact going forward as well as the natural increase in the sales. During the pandemic, supermarket and online sales went up for blueberries as people were obviously eating at home as restaurants shut. This has led to a massive reduction in fruit sales to the hospitality sector, but this has been more than offset by the increase in other channels.

Therefore, overall sales for 2020 and 2021 look to have been unaffected by COVID-19. From the marketing data we have seen for April 2021, about 60% of the 10% increase in sales has come from higher penetration, which has now topped 50% for the first time.

# Western and Central Europe Report Team Narrative

As the consumers of Western and Central Europe develop more of a taste for blueberries and get accustomed to 52-week fresh supply thanks to a surge in imports from South America, Morocco and South Africa in recent years, growers in the region are aiming to capitalize on the newfound opportunities.

None more so than the Netherlands where "every square centimetre" of farmland and greenhouses seeks to optimize its wherewithal to grow primarily horticultural crops. The country's proud tradition in high-density, high-yielding fruit and vegetable production has been successfully applied to blueberries with production that is rapidly catching up to the region's leading player Germany; an industry whose planted area has been rising, but yields are well below their Dutch counterparts due to a prevalence of older orchards with less uptake on proprietary genetics.

Dominated by five organizations 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.

Germany still has by far the most planted hectares of blueberries in the region, however, and is Europe's largest blueberry import market as well, having overtaken the UK last year. Imports have been rising steadily in the UK though, and in an attempt to keep up the local production more than doubled between 2015 and 2020. As per the commentary in the UK member summary, labour shortages due to Brexit have the potential to stunt this growth.

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.

Of great interest is the rise of French retailer Grand Frais which has succeeded in one of the world's most saturated retail markets, built on a premise of fresh foods and vertical integration that has even extended to investments in nurseries, breeding programs and farms. Like most blueberry industries in this region, French production is nowhere near large enough to satisfy demand. Year-on-year production in the country doesn't change much. There are blueberry farms all over France, but there is a large concentration in the country's southwest, to the south of Bordeaux. This is where larger, higher-yielding farms by French standards can be found, although these yields are low compared to global industry standards. There is a push toward growing mid-chill varieties that will grow earlier to obtain better prices, although the risk of spring frosts is quite high.

From a growing perspective, one possible early-stage trend to watch is the experiments with greenhouse blueberry production in the Netherlands under lights, similar to what is already done with other crops such as leafy greens and tomatoes. It is a system that can allow for much earlier harvests, and if sufficient yields and retail prices are achieved to make the method viable, it will tick a lot of boxes for the Dutch retailers – local, low carbon footprint, consistency of supply, and consistent flavour as well with the appropriate varieties.

There are also machine harvester innovators in the Netherlands that are focused on harvesting for fresh, and their developments are yielding promising early results with good reception from retail. One of these companies has already been rolling out its product in the Netherlands, Belgium and Germany, with the intention of expanding Europe-wide and into North America in 2021.

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 the high labor cost in Europe.

To be contacted by the report team and add your voice to the 2022 edition of this report **sign up here →**



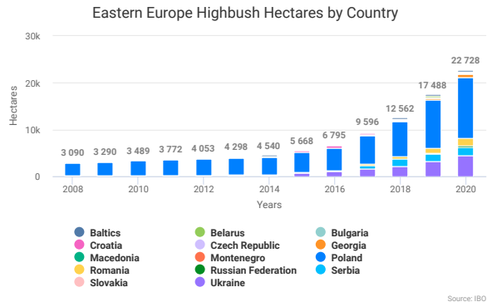


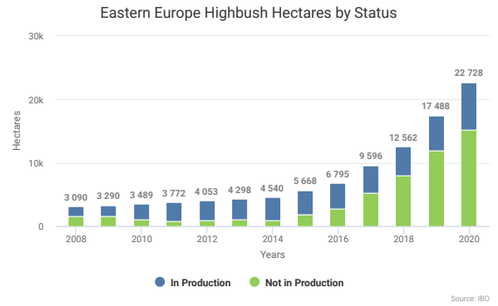
# EASTERN EUROPE

## Commentary on Eastern Europe Data & Figures Production and Planting
*(Denominated in Hectares and Thousands of Metric Tons)*

### Eastern Europe Highbush Hectares by Country

| Eastern Europe | Planting | | | | | 2020 Production | | |
|---|---|---|---|---|---|---|---|---|
| Growth Totals | 2016 | 2017 | 2018 | 2019 | 2020 | Fresh | Process | Total |
| Poland | 4,750 | 6,075 | 7,400 | 10,200 | 13,000 | 39.10 | 2.00 | 41.10 |
| Romania | 250 | 400 | 550 | 1,025 | 1,500 | 4.68 | 0.83 | 5.51 |
| Serbia | 0 | 770 | 1,539 | 1,612 | 1,800 | 3.10 | 0.77 | 3.87 |
| Ukraine | 1,045 | 1,530 | 2,183 | 3,183 | 4,383 | 3.49 | 0.00 | 3.49 |
| Belarus | 0 | 125 | 250 | 270 | 290 | 1.26 | 0.54 | 1.80 |
| Baltics | 250 | 270 | 290 | 310 | 330 | 0.88 | 0.22 | 1.10 |
| Croatia | 450 | 270 | 90 | 95 | 100 | 0.85 | - | 0.85 |
| Georgia | 50 | 80 | 110 | 405 | 700 | 0.67 | 0.09 | 0.76 |
| Bulgaria | 0 | 40 | 80 | 85 | 90 | 0.50 | - | 0.50 |
| Russian Federation | 0 | 5 | 10 | 205 | 400 | 0.45 | 0.05 | 0.50 |
| Montenegro | 0 | 8 | 15 | 15 | 15 | 0.10 | - | 0.10 |
| Czech Republic | 0 | 15 | 30 | 50 | 70 | 0.10 | - | 0.10 |
| Macedonia | 0 | 5 | 10 | 10 | 10 | 0.03 | - | 0.03 |
| Slovakia | 0 | 3 | 5 | 23 | 40 | 0.02 | - | 0.02 |
| Eastern Europe Totals | 6,795 | 9,596 | 12,562 | 17,488 | 22,728 | 55.23 | 4.5 | 59.73 |

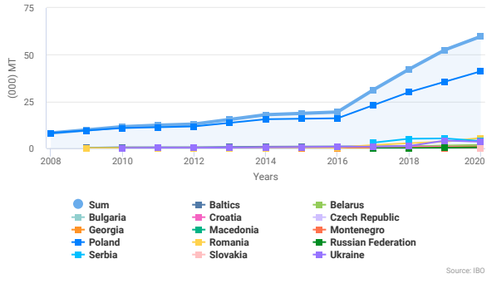


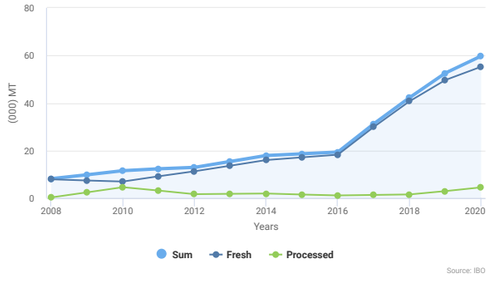
## Eastern Europe Highbush Production by Country

| Eastern Europe | 2018 | | | 2019 | | | 2020 | | |
|---|---|---|---|---|---|---|---|---|---|
| Productions Totals | Fresh | Process | Total | Fresh | Process | Total | Fresh | Process | Total |
| Poland | 28.50 | 1.50 | 30.00 | 33.80 | 1.75 | 35.55 | 39.10 | 2.00 | 41.10 |
| Romania | 2.70 | 0.00 | 2.70 | 3.18 | 0.32 | 3.50 | 4.68 | 0.83 | 5.51 |
| Serbia | 5.08 | - | 5.08 | 4.84 | 0.40 | 5.24 | 3.10 | 0.77 | 3.87 |
| Ukraine | 1.20 | 0.00 | 1.20 | 4.10 | - | 4.10 | 3.49 | 0.00 | 3.49 |
| Belarus | 1.00 | 0.00 | 1.00 | 1.13 | 0.27 | 1.40 | 1.26 | 0.54 | 1.80 |
| Baltics | 1.00 | 0.00 | 1.00 | 0.94 | 0.11 | 1.05 | 0.88 | 0.22 | 1.10 |
| Croatia | 0.80 | 0.00 | 0.80 | 0.83 | - | 0.83 | 0.85 | - | 0.85 |
| Georgia | 0.28 | 0.03 | 0.31 | 0.42 | 0.05 | 0.47 | 0.67 | 0.09 | 0.76 |
| Bulgaria | 0.00 | 0.00 | 0.00 | 0.00 | - | 0.00 | 0.50 | - | 0.50 |
| Russian Federation | 0.05 | 0.00 | 0.05 | 0.25 | 0.03 | 0.28 | 0.45 | 0.05 | 0.50 |
| Montenegro | 0.00 | 0.00 | 0.00 | 0.05 | - | 0.05 | 0.10 | - | 0.10 |
| Czech Republic | 0.10 | 0.00 | 0.10 | 0.10 | - | 0.10 | 0.10 | - | 0.10 |
| Macedonia | 0.00 | 0.00 | 0.00 | 0.00 | - | 0.00 | 0.03 | - | 0.03 |
| Slovakia | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | - | 0.02 |
| Eastern Europe Totals | 40.71 | 1.53 | 42.24 | 49.64 | 2.93 | 52.57 | 55.23 | 4.5 | 59.73 |

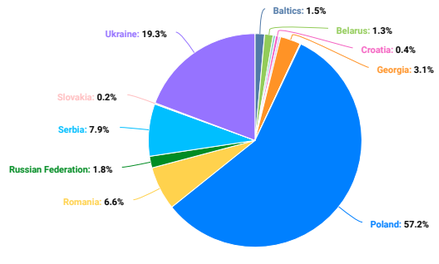
Eastern Europe Highbush Production by Country



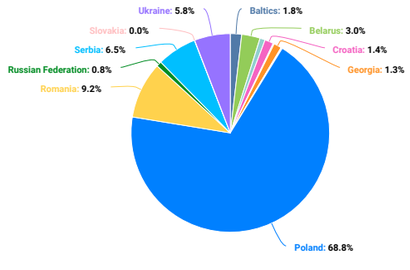

Eastern Europe Highbush Production by Use




2020 Eastern Europe Highbush Hectares by Country

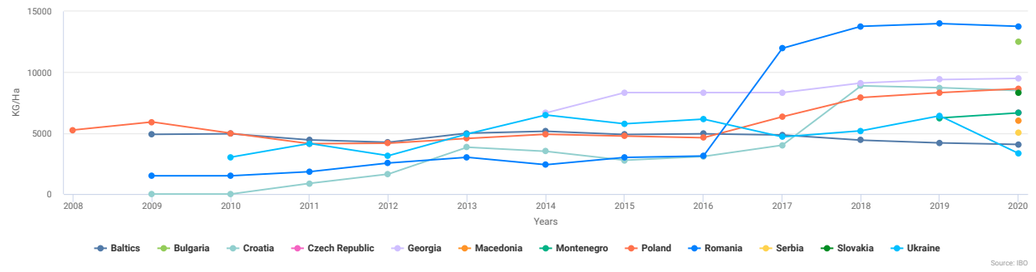



2020 Eastern Europe Highbush Production by Country





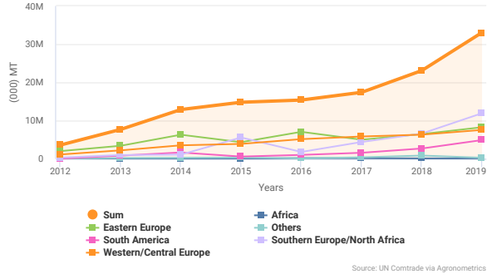

Eastern Europe Highbush Yield by Country



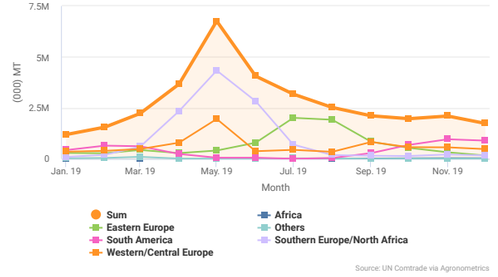

## Eastern Europe Imports by Origin Subregion

| Origin | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| Eastern Europe | 7,064,893 | 5,006,590 | 6,482,670 | 8,265,213 |
| Southern Europe/North Africa | 1,802,230 | 4,406,844 | 6,616,241 | 11,935,500 |
| Western/Central Europe | 5,152,006 | 5,845,549 | 6,328,625 | 7,566,901 |
| South America | 1,025,392 | 1,587,331 | 2,705,708 | 4,907,866 |
| Middle East | 8,679 | 261,609 | 426,060 | 65,068 |
| Africa | 199,332 | 167,574 | 115,849 | 113,551 |
| North America | 111,896 | 42,603 | 224,726 | 16,428 |
| Mexico/Central America | 18,752 | 25,879 | 87,211 | 105,055 |
| Asia | 137 | 45,439 | 49,414 | 83,827 |
| Central Asia/Indian Subcontinent | 366 | 14,827 | 69,210 | 7,437 |
| Pacific | 1,345 | 351 | 390 | 6,909 |
| Eastern Europe Totals | 15,385,028 | 17,404,596 | 23,106,104 | 33,073,755 |

Eastern Europe Imports by Origin Subregion



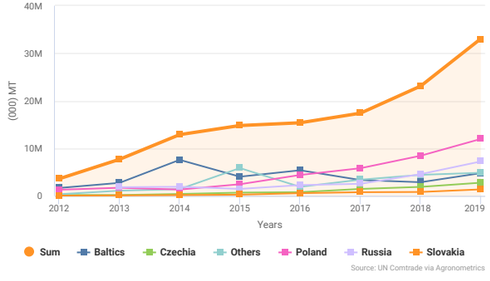

Eastern Europe Imports by Origin Subregion



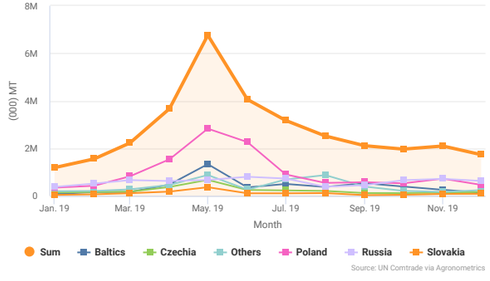
## Eastern Europe Imports by Reporter

| Reporter | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| Poland | 4,406,618 | 5,831,576 | 8,455,350 | 11,987,510 |
| Baltics | 5,396,200 | 3,343,782 | 2,887,975 | 4,795,377 |
| Russia | 2,283,194 | 2,551,655 | 4,588,166 | 7,252,042 |
| Czechia | 795,451 | 1,473,177 | 1,904,869 | 2,782,683 |
| Belarus | 962,471 | 1,397,369 | 1,194,494 | 1,022,439 |
| Croatia | 167,202 | 221,170 | 218,694 | 402,868 |
| Romania | 273,871 | 997,604 | 1,705,487 | 1,349,230 |
| Slovakia | 585,714 | 786,273 | 835,830 | 1,379,414 |
| Eastern Europe Other | 283,229 | 448,701 | 839,241 | 1,343,349 |
| Bulgaria | 177,384 | 278,734 | 315,680 | 460,574 |
| Ukraine | 30,710 | 53,117 | 114,221 | 200,596 |
| Serbia | 10,272 | 7,600 | 29,483 | 72,386 |
| Montenegro | 12,394 | 12,771 | 15,043 | 16,571 |
| Georgia | 293 | 1,028 | 1,269 | 7,138 |
| North Macedonia | 25 | 39 | 302 | 1,578 |
| Eastern Europe Totals | 15,385,028 | 17,404,596 | 23,106,104 | 33,073,755 |

Eastern Europe Imports by Reporter




Eastern Europe Imports by Reporter

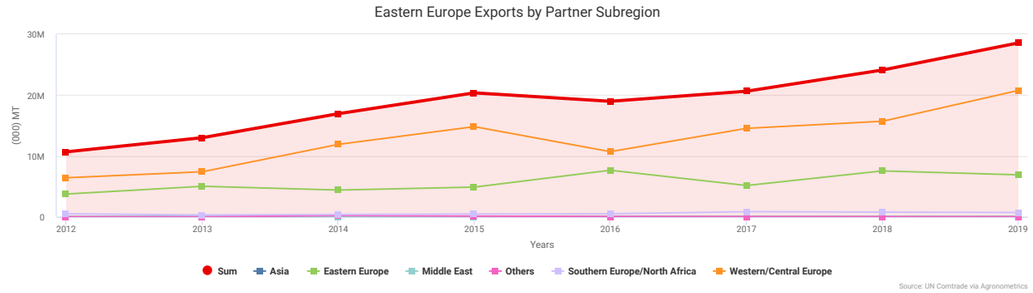



## Eastern Europe Exports by Partner Subregion

| Subregion | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| Western/Central Europe | 10,706,800 | 14,536,214 | 15,701,807 | 20,763,134 |
| Eastern Europe | 7,649,768 | 5,146,713 | 7,543,985 | 6,899,448 |
| Southern Europe/North Africa | 496,922 | 844,743 | 774,833 | 715,413 |
| Asia | 60,630 | 35,278 | 27,609 | 86,365 |
| Central Asia/Indian Subcontinent | 45,953 | 39,233 | 8,841 | 18,516 |
| Middle East | 16,500 | 29,572 | 43,190 | 87,248 |
| North America | 1,858 | 2,831 | 18,431 | 454 |
| Pacific | 14 | - | - | - |
| Africa | - | - | - | - |
| Eastern Europe Totals | 18,978,445 | 20,634,584 | 24,118,696 | 28,570,578 |



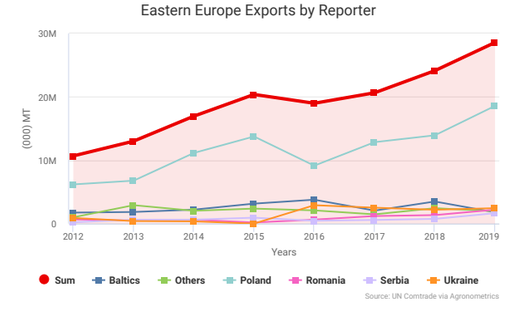
Eastern Europe Exports by Partner Subregion



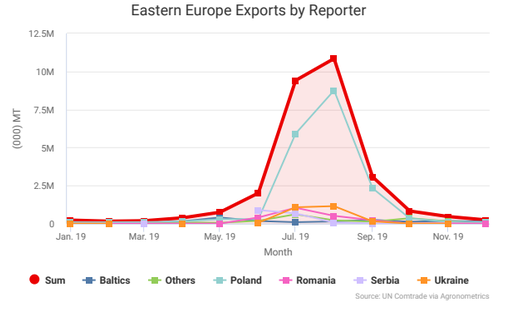

## Eastern Europe Exports by Reporter

| Reporter | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| Poland | 9,136,678 | 12,845,544 | 13,925,837 | 18,567,836 |
| Baltics | 3,770,335 | 2,053,095 | 3,484,038 | 1,780,250 |
| Ukraine | 2,902,407 | 2,510,431 | 2,189,766 | 2,433,231 |
| Belarus | 1,301,772 | 808,274 | 1,865,060 | 1,237,047 |
| Romania | 631,044 | 1,194,109 | 1,341,656 | 2,193,939 |
| Serbia | 452,248 | 574,716 | 742,555 | 1,646,703 |
| Russia | 527,166 | 147,697 | 128,590 | 166,787 |
| Georgia | 84,906 | 111,306 | 104,461 | 199,418 |
| Montenegro | 8 | 155,718 | 25,612 | - |
| Czechia | 80,120 | 96,777 | 26,870 | 84,941 |
| Bulgaria | 29,642 | 60,793 | 113,544 | 52,596 |
| Croatia | 7,784 | 41,486 | 113,608 | 104,114 |
| Slovakia | 34,002 | 24,484 | 27,748 | 90,584 |
| North Macedonia | 414 | 337 | 253 | 1,400 |
| Eastern Europe Other | 19,919 | 9,817 | 29,098 | 11,732 |
| Eastern Europe Totals | 18,978,445 | 20,634,584 | 24,118,696 | 28,570,578 |

Eastern Europe Exports by Reporter




Eastern Europe Exports by Reporter

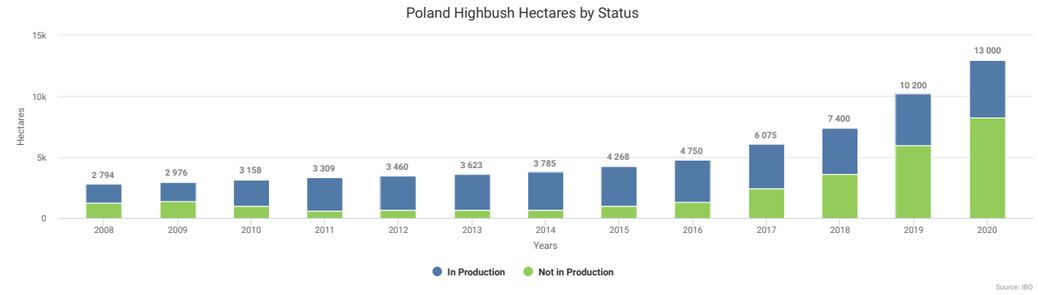


# POLAND



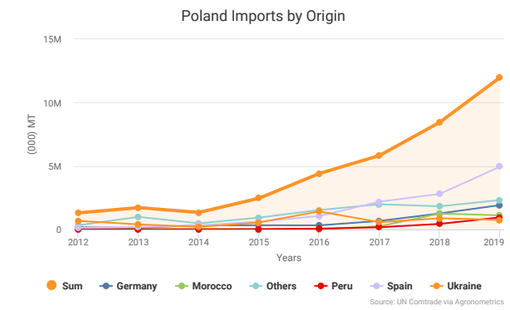
## Commentary on Poland Data & Figures Production and Planting

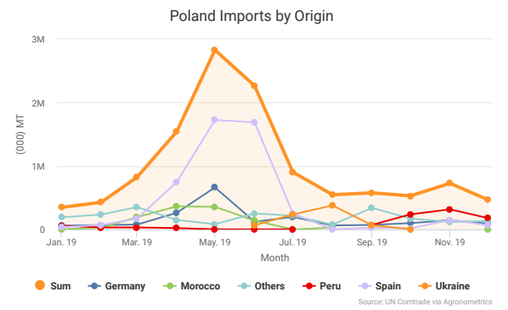
*(Denominated in Hectares and Thousands of Metric Tons)*




## Poland Imports by Origin

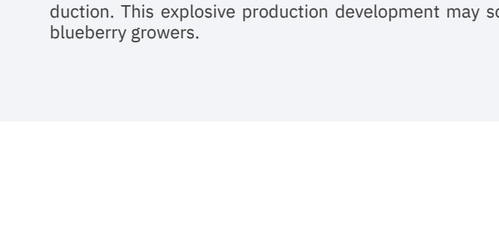
| Reporter | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| Spain | 1,058,062 | 2,187,612 | 2,802,528 | 4,949,436 |
| Germany | 320,691 | 669,999 | 1,260,449 | 1,914,393 |
| Morocco | 19,176 | 249,315 | 1,251,221 | 1,110,758 |
| Peru | 61,349 | 171,090 | 435,719 | 949,246 |
| Ukraine | 1,418,100 | 569,705 | 884,055 | 748,435 |
| Others | 1,529,240 | 1,983,855 | 1,821,378 | 2,315,242 |
| Poland Totals | 4,406,618 | 5,831,576 | 8,455,350 | 11,987,510 |



### Poland Exports by Partner

| Reporter | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| Germany | 1,726,045 | 3,400,693 | 4,086,559 | 6,165,393 |
| United Kingdom | 3,367,828 | 3,936,743 | 4,264,044 | 4,865,041 |
| Netherlands | 1,393,993 | 1,775,113 | 1,723,159 | 1,863,622 |
| Sweden | 184,602 | 373,359 | 617,376 | 1,067,493 |
| Western/Central Europe Other | 778,011 | 976,289 | 1,139,926 | 978,580 |
| Others | 1,090,101 | 1,677,989 | 1,164,154 | 1,987,932 |
| Poland Totals | 8,540,580 | 12,140,186 | 12,995,218 | 16,928,061 |




### Poland Summary Statistics

| | |
|---|---|
| **Hectares Planted:** | **13,000 (Ha)** |
| **Production:** | **41.10 (000) Metrics Tons** |
| Organic: | 2% |
| Under Structure: | 3% |
| Hydroponics: | 0.5% |
| New Genetics: | 5% |
| **Estimated Yield:** | **8,652.63 (Kg/Ha)** |
| **Exports*:** | **16.93 (000) Metrics Tons** |
| **Imports*:** | **11.99 (000) Metrics Tons** |

*** DATA ONLY AVAILABLE THROUGH 2019, ONLY DATA FROM CHARTS ABOVE USED**

FUNDACJA PROMOCJI POLSKIEJ BORÓWKI

# Poland
# Country Member Summary

**Adapted from Report Provided by the Polish Blueberry Promotion Foundation with contributions from Dominika Kozarzewska, Stanisław *(Stan)* Pluta, Mariusz Podymniak, Mateusz Pilch.**

## Planted area and yields in 2020

According to data published by Statistics Poland (GUS), the total acreage of blueberry plantings in 2020 amounted to 13,000ha and total fruit production to 41,100 metric tons (MT), an increase of 18.1% compared to 2019. This resulted from a continuing increase in the planted area as well as from young plantings entering into full fruit production. This explosive production development may soon lead to increasing problems of profitability for Polish blueberry growers.



According to our estimates, fresh fruit production constitutes 39,100MT and fruit for processing and IQF freezing 2,000MT.

Blueberry production under covers (tunnels and rain sheds) has been developing steadily, but it is still relatively small, reaching about 500-600ha.

## Production

Northern highbush blueberries have been grown commercially in Poland for more than 40 years, but it is during the last 20 years that rapid development of production took place. The Polish blueberry producer base is highly fragmented, with farms below 5ha constituting around two-thirds of all farms. However, the largest farms (over 50ha) account for about 30% of the total planted area.

New production areas are now being established in Central Poland, on apple farms. Seeking to diversify their production, apple growers are planting blueberries on land from which apple orchards had been removed. These plantings, rapidly increasing in scale, will significantly contribute to the development of Polish blueberry production in the coming years.

At present, approximately 380 blueberry producers and 14 producer organizations are GlobalG.A.P. certified - an increase of about 100 certificates compared to 2018.

In recent years, the trend towards removing old varieties such as ‘Nelson’, ‘Patriot’, ‘Spartan’, ‘Bluecrop’, ‘Darrow’ and ‘Brigitta Blue’ has become more and more prominent. The most favoured replacements include ‘Draper’ and ‘Liberty’, while recent releases such as ‘Last Call’, ‘Megas Blue’, ‘Valor’, ‘Cargo’ and ‘Calypso’ are also gaining popularity. Many test plantings of these new varieties have been put in place with the aim of verifying their suitability for Poland’s climate, including winter hardiness. While the severe (frosty) and snowy winter of 2020-21 already allowed growers to gain some valuable information, 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.

At present, blueberry fruit for the fresh market is hand-picked. In the spring of 2020, many farmers were concerned that access to pickers from Eastern Europe, in particular Ukraine, would be extremely limited due to pandemic restrictions; fortunately, this did not turn out to be true. Machine harvesting of fruit for processing is taking place on a small scale, only on a few bigger farms. Usually only the last fruit of the season is picked in this way (‘clean up’) using various types of harvesters.

The pandemic further drove up the already rising cost of fertilizers, plant protection products and packaging. With regards to pests, in 2020 Drosophila suzukii (also known as Spotted Wing Drosophila or SWD) became a serious threat for blueberry production in Poland.

In 2019, Poland saw the second major foreign company producing a range of soft fruit, including blueberries, using the latest technologies.

## Sales

Domestic demand for blueberry fruit increased sharply within the last 2-3 years. This can partly be attributed to the “Time for Polish Superfruit” promotional campaign, which is run jointly by growers of various small berries. The monthly “National fruit and vegetables consumption survey”, initiated in 2020, provided for the first time much needed data on blueberry consumption (market penetration, consumer profile). The last two years saw a very rapid increase in the consumption of imported (“off season”) fruit, particularly in the spring (market penetration in May being comparable to August, i.e. the height of the Polish season). Blueberry fruit is now available year-round in most

retail chains, even in rural areas. According to Europanel, in Poland blueberries are driving the development of the entire soft fruit category.

Most of the fruit produced in Poland (estimated at 75-85%) is exported. The biggest export markets include the UK, Germany, the Netherlands and Scandinavian countries. The smaller, albeit rapidly growing markets include the Baltic states, the Czech Republic, Hungary and Croatia. In 2020 the demand for Polish blueberry fruit, especially organic, grew quite rapidly – with speculation that this is tied to the pandemic.

# Eastern Europe Report Team Narrative

This Eastern European summary was informed by numerous sources in the region *(see acknowledgments section)*, as well as a study by Fruitinform

Blueberries have become something of a panacea in recent years for those farmers across Eastern Europe who can afford the relatively higher capital outlay required in comparison to other crops, although the degree of agronomic sophistication, knowledge and collaborative organisation varies greatly.

The region's blueberry industry is most easily understood through the division into two segments, each of which predominantly targets Western European markets but with different motivations and levels of development:

- A substantially larger and more mature industry with harvests in the mid-to-late European summer, led by Poland and to a lesser extent the Ukraine. In absolute terms, these two countries represent the vast majority of the region's production and recent growth.
- An agglomeration of geographically and culturally diverse emerging regions that cater to the late May-June period when blueberry supplies are lowest in Europe, with Serbia and Romania being the most noteworthy while Kosovo is also on the rise.

Portions of the Eastern European blueberry industry can also be viewed through the lens of Russia as the target market. There is more on that subject towards the end of this section.

## Poland and Ukraine develop new channels for higher incoming volumes

Despite a large increase in volume, Poland's export returns per kilo have strengthened in USD terms over the past five years, while at the same time the industry has been able to foment strong domestic demand thanks to concerted marketing and the help of a genuine 52-week supply deal that now exists with higher-quality fruit, buoyed by the increased availability of Moroccan and Peruvian fruit in even remote townships outside the European season.

Poland is the fifth-largest country by population in the EU and is also demographically one of the youngest, presenting an auspicious outlook given marketing to health-conscious Millennials and young families is positively correlated with blueberry consumption worldwide.

It is a prospect that has prompted a Spanish-headquartered, Polish-owned fruit company to redouble its blueberry production and infrastructure investments in the country, appealing to local-for-local trends and establishing Poland as a distribution hub for nearby countries such as Czechia, Slovakia and Hungary.

Attempts to crack the Asian market have not achieved the necessary scale and were more or less abandoned pre-COVID due to tough competition and distance. Instead, Polish exporters have made more fruitful developments elsewhere; the German market no longer plays second fiddle to the UK in terms of Polish blueberry quality expectations and pricing, and Mediterranean countries are increasingly importing Polish blueberries as well.

In contrast, the Ukraine's lower purchasing power means its blueberry imports are miniscule compared to Poland's even though its population is larger. However, last season the Ukraine's domestic blueberry prices were much higher than in 2019 and proved an attractive outlet for a supply that was hit hard due to frosts early in the season.

Intellectual property rights issues have hindered the Ukraine's progress genetically, even though the industry itself has been spearheaded by highly professionalized growers who are benefiting from the adoption of cooling systems and advanced sorting lines.

In both the Ukraine and Poland, blueberry sector prosperity has, perhaps inevitably, spawned an influx of smallholder growers. In the Ukraine's case, this trend will soon flip the current majority of large farms and could be detrimental to recent trends around favourable domestic pricing.

For most of the past five years Poland has had its blueberry season begin two weeks earlier at the start of July, although 2021 is an exception due to the cold spring that affected most of Europe. As highlighted in the association's report, the spotted wing drosophila (SWD) threat looms large and experts are aggressively pushing to educate growers around the country to prevent a future outbreak. The sector has been lucky thus far as in some areas the pests have ravaged blackberries and raspberries but left blueberries fairly unscathed. Detection focal points have to date been in the west near the German border and in the north, but not in Eastern Poland where the largest growing operations are situated.

## Strategic positioning for Serbia, Kosovo, Romania, and Republic of Georgia

With the help of USAID agriculture programs and European experts who see great potential in the country, Serbia's blueberry industry is blossoming with free access to both the EU and Russian markets.

The mountainous terrain allows for the manipulation of harvest windows with different varieties. While most growers are smallholders, they have embraced substrate cultivation methods with around 80% of plantings using this system. However, 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.

A combination of market scarcity in the June window it targets and the quality of its fruit allowed Serbia to achieve a comparable per kilo return to Poland last year, even though its genetics are arguably far inferior with a predominance of one public high-chill northern highbush variety.

Private genetics companies and growers from outside the country are dipping their toes into the Serbian market to train farmers with the necessary skillsets before taking the plunge into partnering on larger-scale commercial programs for proprietary varieties.

With substrate, the cost per hectare in Serbia is around €40,000, although growers focused on non-EU markets need not spend as much on certifications as their Western European-oriented counterparts.

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.

Also boosted by USAID, Kosovo's production has been growing rapidly with a window between late May and July, but around half the crop was lost to hail last year. In fact, both Kosovo and Serbia have a distinct lack of hail netting, although Kosovan growers have learned from the mistakes of 2020 disaster and are looking to change that.

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.

Romania has also been on an upward trajectory after a doubling of planted hectares in the space of three years, some of which was supported by EU subsidies. The bulk of 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. 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.

The Republic of Georgia continues to develop its industry and is coming into its own as a commercial producer of late spring and summer blueberries. Product ships both locally as well as to Russia, parts of the Middle East, and further west.

Turkey has developed a sizable domestic industry in recent years having begun planting blueberries commercially in the early 2000's at a much smaller scale in the Black Sea regions. Today production begins with spring supply in Mediterranean and Aegean growing regions to summer supply in the Northwest and northern Black Sea growing regions. As domestic prices continue to be higher than those of most export markets, a majority of the fruit remains in-country. This trend is anticipated to change as the industry scales.

## Russian market opportunities

As a market, Russia is also an important driver of growth in the region and producers are taking notice. Some forecast new orchard plantings will lead domestic production to double within three years, and some genetics companies and nurseries from outside Russia are bringing in plant materials for early-stage, cautious trials.

In 2019 alone Russia's blueberry imports grew by almost 60%; a growth rate that slowed somewhat with the emergence of Covid-19, but consumption is likely to continue its upward trajectory in the years to come and has been significantly influenced by healthy eating trends.

Almost the entirety of Russia's land dedicated to blueberries was planted in the last three or four years. Production is still extremely low compared to the nation's demand, but the prices consumers are willing to pay in the wealthier metropolises have attracted new growers across a dispersed geographic range. Those Russian growers who have taken the plunge with blueberries tend to find eager interest from large chains and retailers to buy up volume, but these pioneer farmers are cognizant of the steep learning curves they face.

As the world's largest nation geographically, Russia has a very diverse range of climates and growing conditions, but even in the Central Russian region which is relatively close to Moscow, micro-climates vary greatly. Growers are finding the areas of Voronezh, Kursk and Belgorod to be suitable for more well-known commercial varieties, while classic winter-hardy cultivars are required in the Moscow, Tambov and Lipetsk regions.

Some of Russia's largest growing operations can be found in the Northern Caucuses region of Kobardino-Balkaria. This is close to the country of Georgia which also has a fast-growing nascent industry that could increasingly fill the lucrative May-June window.

Against the backdrop of a longstanding trade embargo on fruit imports from the EU and a war with the Ukraine, Russian retailers have turned to Serbia as their main summertime blueberry supplier, even though the Serbians still export most of their blueberries to the EU. Neighbouring Belarus has traditionally served a re-export role in Russia, but its own blueberry production is increasing too albeit with very low levels of technological adoption.

To be contacted by the report team and add your voice to the 2022 edition of this report **sign up here →**

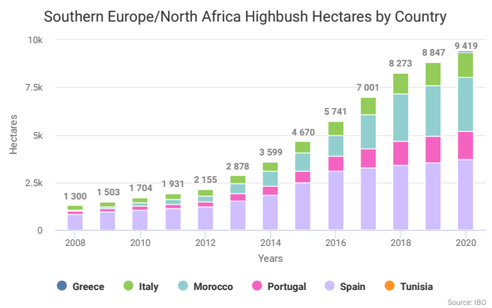
# SOUTHERN EUROPE / NORTH AFRICA

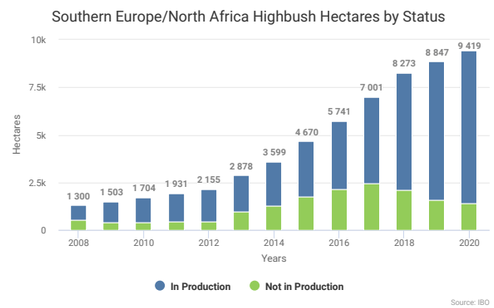
## Commentary on Southern Europe/North Africa Data & Figures Production and Planting *(Denominated in Hectares and Thousands of Metric Tons)*

### Southern Europe/North Africa Highbush Hectares by Country

| Southern Europe/ North Africa | Planting | | | | | 2020 Production | | |
|---|---|---|---|---|---|---|---|---|
| **Growth Totals** | **2016** | **2017** | **2018** | **2019** | **2020** | **Fresh** | **Process** | **Total** |
| Spain | 3,120 | 3,265 | 3,410 | 3,553 | 3,695 | 57.97 | 6.44 | 64.41 |
| Morocco | 1,120 | 1,810 | 2,500 | 2,675 | 2,850 | 34.20 | 1.80 | 36.00 |
| Portugal | 750 | 1,000 | 1,250 | 1,375 | 1,500 | 17.85 | 3.15 | 21.00 |
| Italy | 750 | 925 | 1,100 | 1,200 | 1,300 | 7.02 | 0.78 | 7.80 |
| Greece | 0 | 0 | 12 | 41 | 70 | 0.08 | - | 0.08 |
| Tunisia | **1** | **1** | **1** | **3** | **4** | **0.01** | - | **0.01** |
| Southern Europe/ North Africa Totals | 5,741 | 7,001 | 8,273 | 8,847 | 9,419 | 117.13 | 12.17 | 129.3 |

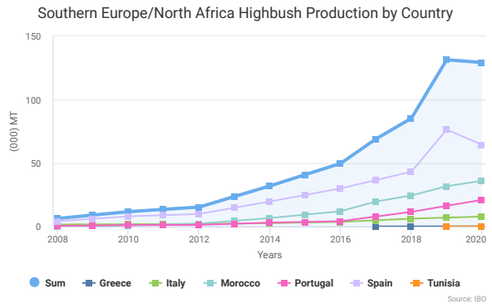


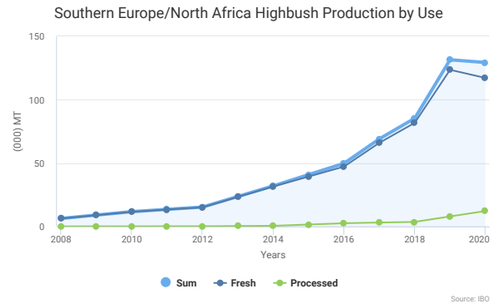


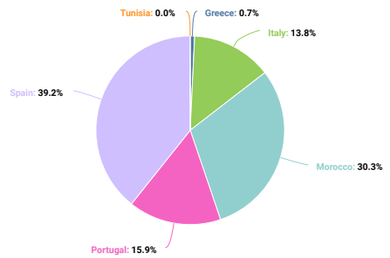

### Southern Europe/North Africa Highbush Production by Country

| Southern Europe/North Africa | 2018 | | | 2019 | | | 2020 | | |
|---|---|---|---|---|---|---|---|---|---|
| **Productions Totals** | **Fresh** | **Process** | **Total** | **Fresh** | **Process** | **Total** | **Fresh** | **Process** | **Total** |
| Spain | 40.70 | 2.50 | 43.20 | 71.90 | 4.47 | 76.37 | 57.97 | 6.44 | 64.41 |
| Morocco | 23.96 | 0.44 | 24.40 | 30.60 | 1.15 | 31.75 | 34.20 | 1.80 | 36.00 |
| Portugal | 11.00 | 0.50 | 11.50 | 14.43 | 1.83 | 16.26 | 17.85 | 3.15 | 21.00 |
| Italy | 6.00 | 0.15 | 6.15 | 6.51 | 0.47 | 6.98 | 7.02 | 0.78 | 7.80 |
| Greece | 0.05 | - | 0.05 | 0.07 | - | 0.07 | 0.08 | - | 0.08 |
| Tunisia | 0.00 | 0.00 | 0.00 | 0.01 | - | 0.01 | 0.01 | - | 0.01 |
| Southern Europe/North Africa Totals | 81.71 | 3.59 | 85.3 | 123.52 | 7.92 | 131.44 | 117.13 | 12.17 | 129.3 |

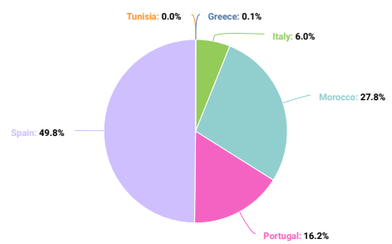


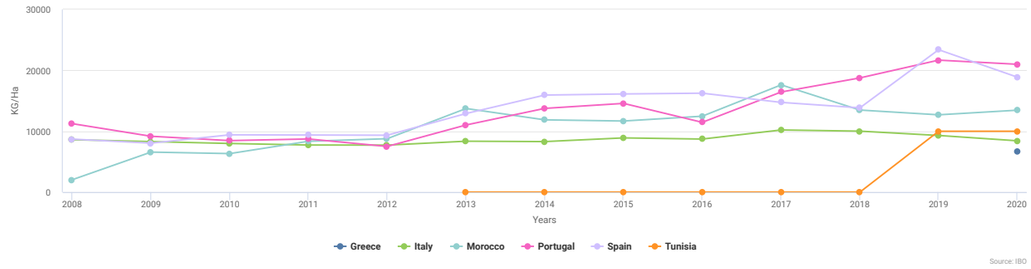
2020 Southern Europe/North Africa Highbush Hectares by Country




2020 Southern Europe/North Africa Highbush Production by Country




Southern Europe/North Africa Highbush Yield by Country



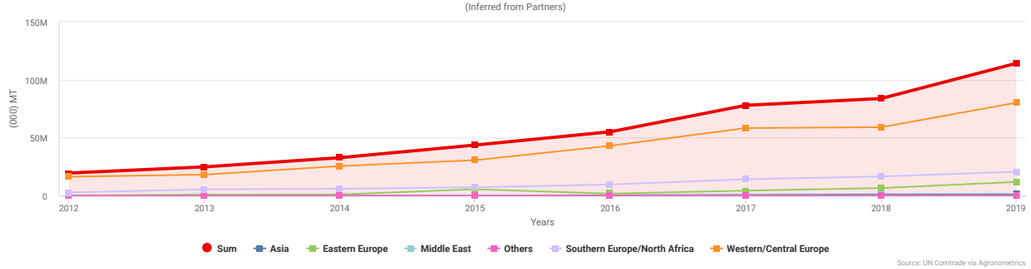

Source: IBO

## Southern Europe/North Africa Exports by Partner Subregion (Inferred from Partners)

| Subregion | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| Western/Central Europe | 43,102,917 | 58,395,783 | 59,122,458 | 80,284,716 |
| Southern Europe/North Africa | 9,690,080 | 14,197,418 | 16,644,533 | 20,729,595 |
| Eastern Europe | 1,802,230 | 4,406,844 | 6,616,241 | 11,935,500 |
| Asia | 484,222 | 722,497 | 1,112,342 | 1,152,526 |
| Middle East | 58,106 | 292,997 | 380,366 | 144,012 |
| North America | 54,581 | 897 | 80 | 8,319 |
| Africa | 2,366 | 10,149 | 17,249 | 22,719 |
| South America | 3,374 | 835 | 4,349 | 17,842 |
| Central Asia/Indian Subcontinent | 268 | 195 | 1,337 | 3,121 |
| Southern Europe/North Africa Totals | 55,198,144 | 78,027,615 | 83,898,955 | 114,298,350 |

Southern Europe/North Africa Exports by Partner Subregion

(Inferred from Partners)



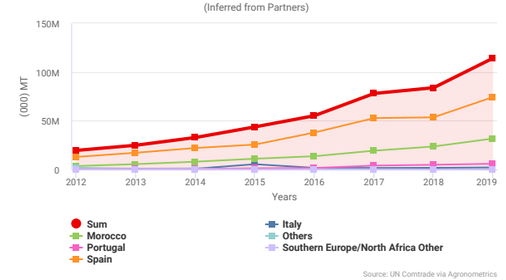

Source: UN Comtrade via Agronometrics

## Southern Europe/North Africa Exports by Reporter (Inferred from Partners)

| Reporter | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| Spain | 37,922,214 | 52,751,512 | 53,547,331 | 74,349,604 |
| Morocco | 13,646,400 | 19,317,884 | 23,620,486 | 31,774,643 |
| Portugal | 1,577,416 | 4,014,650 | 4,845,472 | 5,895,809 |
| Italy | 1,718,750 | 1,592,394 | 1,745,130 | 2,111,242 |
| Greece | 165,836 | 255,296 | 48,616 | 66,073 |
| Southern Europe/North Africa Other | 167,528 | 95,879 | 91,350 | 100,979 |
| Tunisia | - | - | 570 | - |
| Southern Europe/North Africa Totals | 55,198,144 | 78,027,615 | 83,898,955 | 114,298,350 |

Southern Europe/North Africa Exports by Reporter

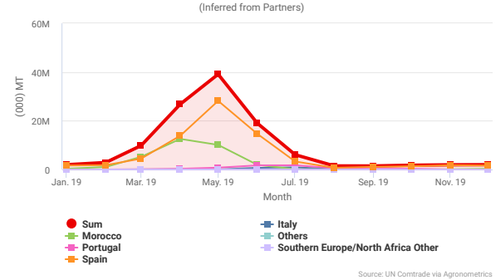
(Inferred from Partners)




Source: UN Comtrade via Agronometrics

Southern Europe/North Africa Exports by Reporter

(Inferred from Partners)

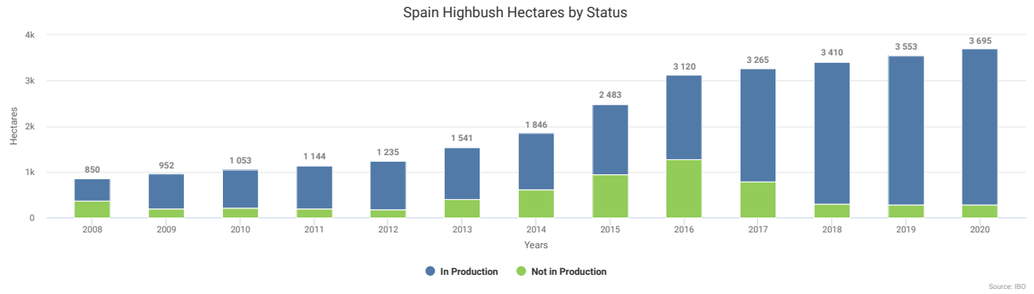



Source: UN Comtrade via Agronometrics

# SPAIN

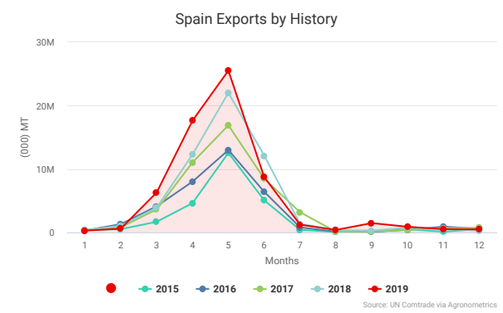


## Commentary on Spain Data & Figures Production and Planting
*(Denominated in Hectares and Thousands of Metric Tons)*




### Spain Exports by Partner

| Reporter | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| Germany | 11,698,203 | 17,165,369 | 21,238,787 | 24,950,562 |
| United Kingdom | 10,980,348 | 10,859,956 | 11,979,891 | 11,855,093 |
| Netherlands | 4,858,029 | 6,487,433 | 6,517,446 | 10,520,512 |
| Poland | 563,506 | 1,145,179 | 1,948,701 | 3,666,011 |
| France | 2,042,934 | 2,719,734 | 2,593,338 | 2,033,938 |
| Others | 5,920,192 | 8,133,833 | 11,011,330 | 11,000,137 |
| Spain Totals | 36,063,212 | 46,511,504 | 55,289,493 | 64,026,253 |




### Spain Summary Statistics

| | |
|---|---|
| **Hectares Planted:** | **3,695 (Ha)** |
| **Production:** | **64.41 (000) Metrics Tons** |
| Organic: | Not Reported |
| Under Structure: | Not Reported |
| Hydroponics: | Not Reported |
| New Genetics: | Not Reported |
| **Estimated Yield:** | **18,888.56 (Kg/Ha)** |
| **Exports*:** | **64.03 (000) Metrics Tons** |
| **Imports*:** | **0.00 (000) Metrics Tons** |

*** DATA ONLY AVAILABLE THROUGH 2019, ONLY DATA FROM CHARTS ABOVE USED**

# 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 3,000 hectares planted in 2020, while hectarage is rising every year with production from March to July. Earlier varieties that are well adapted to the climate are increasingly being introduced into the supply mix, allowing for production as early as mid-February.

In total, as of last year there were 3,695ha of blueberries in Spain, of which 92 per cent were grown in Huelva. We estimate that there were 181ha of blueberries planted in Asturias and 118ha in Galicia; combined, these plantings in northern Spain are of a similar size to the total amount of organic blueberries planted in Huelva, which grew by 29% over a two-year period.

Spain's total production in 2020 was approximately 64,408MT, representing a 10 per cent decline over 2019.

Following two years of annual export volume growth of around a quarter, in 2019 growth slowed by six percentage points due to an increase in domestic consumption in Spain itself. This was fuelled by promotional activities over recent years to encourage Spaniards to eat more blueberries. These include the social media campaign #diloconarandanos (#sayitwithblueberries) undertaken by Freshuelva in April and May 2018, and the International Berry Fruit Congress run by our association which will celebrate its sixth edition in September 2021.

These activities add to numerous promotions from associated companies highlighting the value of blueberries as a superfood with numerous health benefits. These include actions in schools undertaken by Plus Berries and Cuna de Platero, participation in medical conferences, and marketing at sporting competitions. All of this has led to much more interest in blueberries within Spain and has undoubtedly led to an increase in consumption.

On the other hand, there was a decline of 3.47% in export volumes in 2020, thus breaking the upward trend that had been seen year after year. The state of alarm generated in the first half of 2020 in Europe led to difficulties for commercial exchange, the transport of goods and the availability of labor for blueberries, especially in Huelva where blueberry farms sit side-by-side with strawberry, raspberry and blackberry farms that are in full production in March and April.

The situation was exacerbated by impacts on the foodservice chain for hotels, restaurants and cafes, which reduced demand for the product and therefore consumption and exports.

Germany continues to be the leading export market for Spanish blueberries accounting for almost two-fifths of total Spanish blueberry shipments abroad. Although Germany received around 10% less in 2020, in absolute terms it has seen by far the most growth since 2017 with additional consumption of close to 8,000MT, roughly equivalent to the rise seen in the Netherlands, UK and Poland combined.

These four northern European countries are the top four markets for Spanish blueberries, while the UK, Belgium and Ireland were the only markets to see a substantial rise in imports last year.

At Freshuelva we continue to work on opening new markets such as China and India for Spanish blueberries, however the process is slow, bureaucratic, and doesn't always yield results.

However, it must be noted that in late 2020 we satisfactorily concluded the process for Brazilian market access for Spanish blueberries, giving us an open door for shipping to Brazil in 2021 in compliance with protocols.

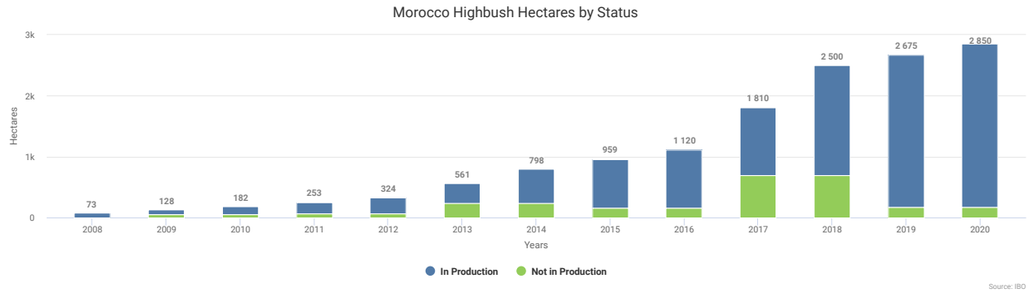


# MOROCCO



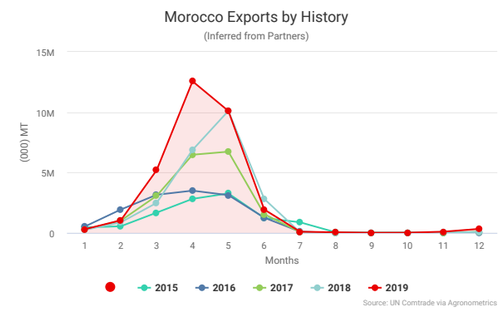
## Commentary on Morocco Data & Figures Production and Planting

*(Denominated in Hectares and Thousands of Metric Tons)*




### Morocco Exports by Partner

| Reporter | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| Spain | 7,592,527 | 10,769,428 | 12,538,646 | 15,139,899 |
| Germany | 1,491,146 | 1,918,452 | 3,120,689 | 5,189,196 |
| France | 117,147 | 832,370 | 1,175,057 | 3,342,707 |
| United Kingdom | 1,438,184 | 1,860,456 | 1,750,420 | 2,548,703 |
| Western/Central Europe Other | 1,754,776 | 1,973,903 | 1,618,530 | 1,694,364 |
| Others | 1,252,620 | 1,963,275 | 3,417,144 | 3,859,774 |
| Morocco Totals | 13,646,400 | 19,317,884 | 23,620,486 | 31,774,643 |




### Morocco Summary Statistics

| | |
|---|---|
| **Hectares Planted:** | **2,850 (Ha)** |
| **Production:** | **36.00 (000) Metrics Tons** |
| Organic: | Not Reported |
| Under Structure: | Not Reported |
| Hydroponics: | Not Reported |
| New Genetics: | Not Reported |
| **Estimated Yield:** | **13,457.94 (Kg/Ha)** |
| **Exports*:** | **31.77 (000) Metrics Tons** |
| **Imports*:** | **0.00 (000) Metrics Tons** |

*** DATA ONLY AVAILABLE THROUGH 2019, ONLY DATA FROM CHARTS ABOVE USED**

# Southern Europe and North Africa Report Team Narrative

## Morocco's star is rising

As Europe's largest blueberry exporter and the continent's top supplier in springtime, Spain is increasingly under competitive pressure from its southern neighbor across the Gibraltar Strait – Morocco.

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.

Enticed by returns 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 with increased activity in the districts around and further to the south of Agadir.

The 28,816MT exported by the North African country last year was close to Spain's export volumes as recently as 2015, reflecting the scale achieved through expansion south into the traditionally tomato-growing Agadir region, which unlike the growing area around Rabat and Larache in the north does not tend to have adequate soils for the field planting of blueberries. By harnessing substrate cultivation methods (now used in around two-thirds of Moroccan fields), proprietary southern highbush genetics, good agronomic management and tall 'canary greenhouse' protection, this geographical expansion has allowed the country to produce earlier with a peak production curve from late January to April.

Multinational growers and genetics companies that have traditionally placed more focus on the Iberian Peninsula have now expanded their bets on Morocco, not only for its advantages for timing but also relatively lower labor costs and availability. However, 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. The costs of this practice have reduced over time though, and the total CAPEX cost can range between €70,000/ha to €100,000/ha.

Construction of a desalination plant is currently underway in the Agadir region, primarily focused on drinking water for the local population and the tourism sector but with an agricultural allocation that could be transformational for blueberries in Agadir. The project is due to be operational in late 2021, although the date could be extended out to 2022. This water source could very well increase production capacity for agriculture in the region, though the cost will be prohibitive for all but the most economically competitive crops.

Just as the Moroccan blueberry industry was born by growers crossing into Northern Africa to try their luck more than 15 years ago, the sector's next frontier lies beyond the boundary of the disputed territory of Western Sahara. At least three companies – both with genetics from U.S. breeders – are currently trialling substrate blueberry production in the practically no chill zone of Dakhla, almost 1,200km to the south of Agadir.

Dakhla has mild weather and its low chill climate allows for production at least a month earlier than in Agadir, but it too has challenges with water access. The Kingdom of Morocco is planning a desalination project for the area with ambitious plans to open up large swathes of agricultural land to domestic and overseas investment. These promises have been made possible by an improved geopolitical situation for the region, which however is still technically in a conflict that has been ongoing for more than half a century. Other issues with Dakhla include access to labor as workers need to be brought in, and harvests will take two more days to get to the European market than fruit from Agadir.

## Genetic and Production Trends

Morocco has a wide range of varieties planted, but compared to Europe it has a greater prevalence of proprietary genetics due to its origins that were pioneered by multinationals with their own southern highbush varieties, which has set the scene for a preponderance of large-scale, export-oriented farms that also focus on club or licensed varieties from private breeders or universities. Attracted by blueberries' higher margins, growers who used to grow tomatoes and vegetables have been incorporated into the berry ecosystem.

Earlier blueberry cultivars are most in demand in Morocco, which shows growers are emboldened by their success to date and proximity to the European market with a willingness to face Chilean and Peruvian competition directly. If Dakhla-based ventures prove successful this trend will be accentuated, with the potential to grow as early as September.

Morocco's later season overlap with Spain is somewhat alleviated by Morocco's access to and dominant springtime position in Russia – a market it can access whereas EU nations cannot. Overall, Morocco's peak production is rising every year but the shoulders of the curve are increasing too, leading to a more stable extended supply.

Like so many mature industries globally, some Spanish blueberry growers are responding to the tightening margins with either a transition to organic, higher yielding varieties, different timing or a mix of all three. The move towards trialling machine harvesting for fresh, as seen in North America, is not so pronounced in Spain where low chill genetics usually allow for multiple picks.

Spanish cooperatives are starting to trial blueberries that have come out of their own breeding programs, while some are embracing proprietary genetics from international breeder licences, leaning towards shelf life and flavor as key characteristics, while spreading out timing to as early as November or later into June.

The June window is highly sought after by the European blueberry industry at the moment as a bridge between the southern highbush and northern highbush seasons. Spanish producers are trying to get as close to it as possible, but Portugal currently has a natural advantage during this timeframe.

Portugal is able to grow blueberries from south to north, but central Portugal has proven the most conducive to harvests in the lucrative June window, attracting large investments with varieties that tailor to that period. Southern coastal regions of Portugal have competitive overlap with the Huelva region, while inland central and northern regions cover the late spring and summer window with mid and high chill varieties. A guest worker program in Portugal has historically helped sustain the industry though this source of labor has been directly impacted by the limitations of the pandemic.

The northern Spanish areas of Galicia, Asturias and Cantabria – where blueberries are more often grown in the open air rather than the common macro-tunnel method of Huelva - can also grow in June and throughout the summer and early fall months, but the mountainous coastal terrain and land access challenges make large-scale investments more difficult.

## Italy's potential

From a blueberry 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 significant fresh blueberry production growth off a very low base over the past decade.

The country's leading cooperatives have expanded plantings into new regions, with many becoming marketers that either source or grow blueberries in multiple areas in order to extend market windows.

There are currently small-scale substrate plantings in southern regions such as Sicily, whose climate allows for production during the European winter and at a similar time to Morocco. It is possible that such early harvests, in combination with utilising hybridized mid-chill genetics and substrates in Central Italy, could in future lead to a 9 or 10-month season for Italian blueberries with the appropriate varietal mix.

Currently however, the bulk of Italy's fresh blueberry production is in the north with high chill genetics allowing for a season that lasts from June to August in that part of the country.

Genetically speaking, in northern Italy in almost every region there are older public varieties but most new plantings are leveraging proprietary genetics. The small production that currently exists in southern Italy is dominated by one licensed variety from a U.S. breeder.

## Southern European Market Development

Across the Mediterranean there is enormous potential to lift per capita blueberry consumption, which is lagging well behind Northern Europe. As referred to by Freshuelva, promotional activities can go a long way towards putting blueberries on consumers' radars and into their shopping trolleys.

Spain's leading supermarket chain Mercadona is an illustrative example, having only started to stock fresh blueberries in its stores around 2016-17 with around 1.5kg of blueberries per day in each shop. That figure has now lifted to approximately 8kg per day across Mercadona's network of 1,600 stores, triggering flow-on effects with other retailers too as consumers increasingly demand the product on shelves.

In northern Italy's largest cities blueberry consumption per capita is close to that of northern Europe, while in contrast the fruit is barely consumed at all in the country's south.

Blueberry production in Greece is still extremely low compared to the Western Mediterranean, but the country's supermarkets are increasingly requesting the fruit from established strawberry growers in the Patras region which has a similar climatology to Huelva in Spain but with much more rainfall. Most new blueberry production at present is from these strawberry growers who are catering to domestic retail demand.

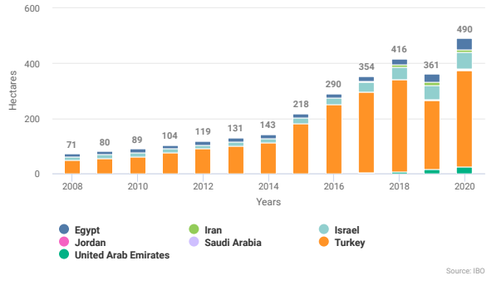
# MIDDLE EAST

## Commentary on Middle East Data & Figures Production and Planting
*(Denominated in Hectares and Thousands of Metric Tons)*

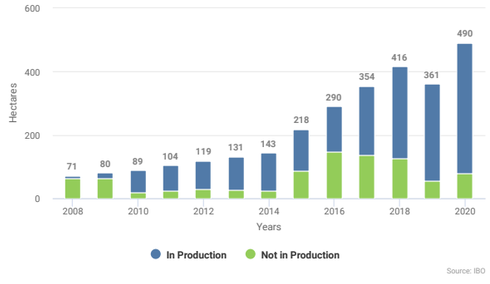
### Middle East Highbush Hectares by Country

| Middle East | Planting | | | | | 2020 Production | | |
|---|---|---|---|---|---|---|---|---|
| Growth Totals | 2016 | 2017 | 2018 | 2019 | 2020 | Fresh | Process | Total |
| Turkey | 250 | 293 | 335 | 250 | 350 | 1.80 | 0.20 | 2.00 |
| Israel | 25 | 35 | 45 | 53 | 60 | 0.20 | - | 0.20 |
| Egypt | 15 | 18 | 20 | 30 | 40 | 0.05 | - | 0.05 |
| United Arab Emirates | 0 | 2 | 5 | 15 | 25 | 0.03 | - | 0.03 |
| Iran | 0 | 5 | 10 | 10 | 10 | 0.03 | - | 0.03 |
| Jordan | 0 | 0 | 0 | 2 | 4 | - | 0.00 | 0.00 |
| Saudi Arabia | 0 | 0 | 1 | 1 | 1 | - | 0.00 | 0.00 |
| Middle East Totals | 290 | 354 | 416 | 361 | 490 | 2.11 | 0.2 | 2.31 |

Middle East Highbush Hectares by Country



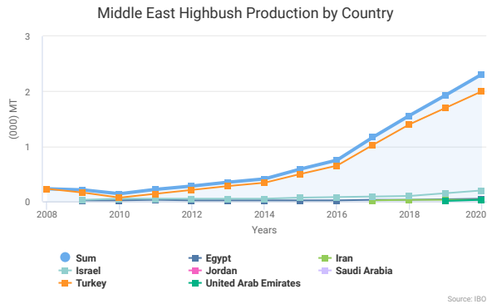

Middle East Highbush Hectares by Status



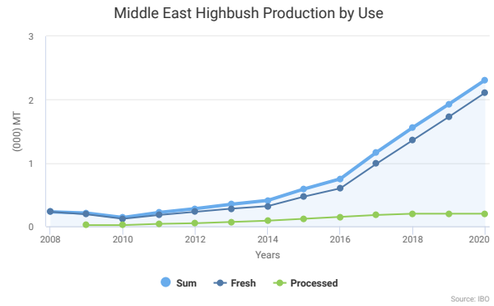

### Middle East Highbush Production by Country

| Middle East | 2018 | | | 2019 | | | 2020 | | |
|---|---|---|---|---|---|---|---|---|---|
| Productions Totals | Fresh | Process | Total | Fresh | Process | Total | Fresh | Process | Total |
| Turkey | 1.20 | 0.20 | 1.40 | 1.50 | 0.20 | 1.70 | 1.80 | 0.20 | 2.00 |
| Israel | 0.10 | 0.00 | 0.10 | 0.15 | - | 0.15 | 0.20 | - | 0.20 |
| Egypt | 0.03 | 0.00 | 0.03 | 0.04 | - | 0.04 | 0.05 | - | 0.05 |
| United Arab Emirates | - | - | - | 0.01 | - | 0.01 | 0.03 | - | 0.03 |
| Iran | 0.03 | - | 0.03 | 0.03 | - | 0.03 | 0.03 | - | 0.03 |
| Jordan | - | - | - | - | - | - | - | 0.00 | 0.00 |
| Saudi Arabia | - | - | - | - | - | - | - | 0.00 | 0.00 |
| Middle East Totals | 1.36 | 0.2 | 1.56 | 1.73 | 0.2 | 1.93 | 2.11 | 0.2 | 2.31 |

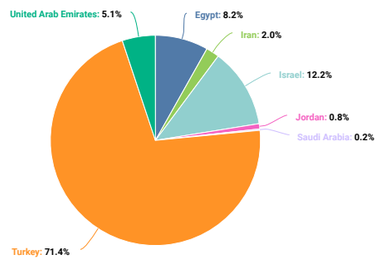
Middle East Highbush Production by Country



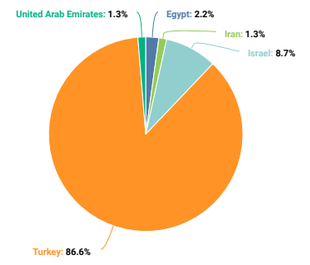

Middle East Highbush Production by Use



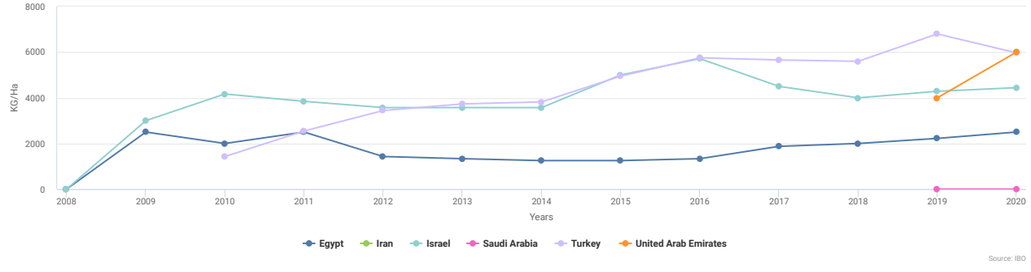

2020 Middle East Highbush Hectares by Country




2020 Middle East Highbush Production by Country

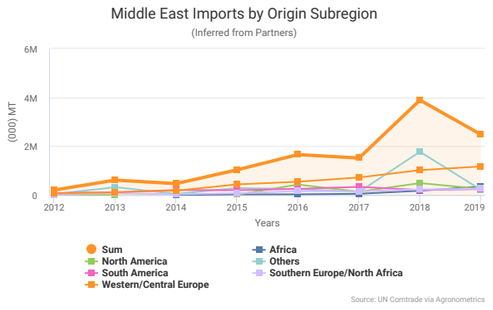


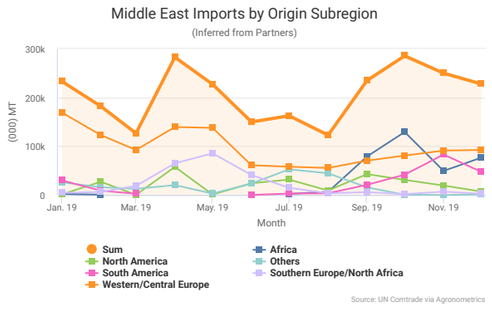

Middle East Highbush Yield by Country



## Middle East Imports by Origin Subregion (Inferred from Partners)

| Origin | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| Western/Central Europe | 544,886 | 719,964 | 1,019,847 | 1,171,645 |
| Middle East | 155,150 | 38,427 | 1,575,290 | 42,085 |
| North America | 429,682 | 134,480 | 489,545 | 253,129 |
| South America | 252,413 | 335,601 | 206,991 | 241,475 |
| Southern Europe/North Africa | 160,196 | 149,990 | 228,866 | 256,911 |
| Africa | 29,925 | 50,322 | 175,672 | 346,006 |
| Central Asia/Indian Subcontinent | 42,161 | 32,154 | 113,855 | 65,716 |
| Eastern Europe | 16,500 | 29,572 | 43,190 | 87,248 |
| Mexico/Central America | - | 7,290 | 40,688 | 16,451 |
| Pacific | 29,150 | 16,453 | 1,044 | 3,099 |
| Asia | - | 3,159 | 985 | 2,036 |
| Middle East Totals | 1,660,063 | 1,517,412 | 3,895,973 | 2,485,801 |

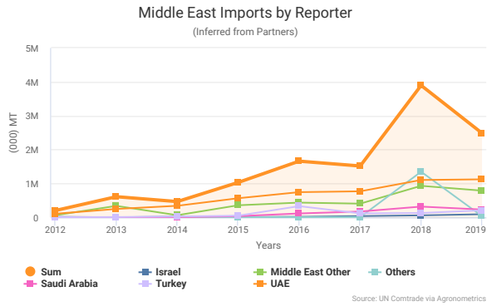


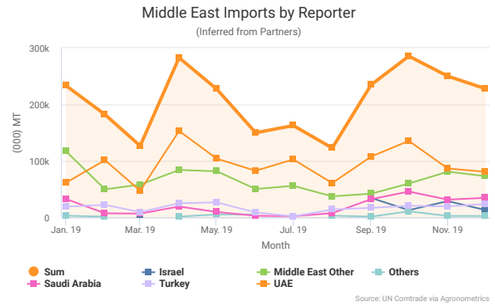




## Middle East Imports by Reporter (Inferred from Partners)

| Reporter | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| UAE | 745,529 | 770,664 | 1,104,793 | 1,123,996 |
| Middle East Other | 437,238 | 406,039 | 932,225 | 790,116 |
| Iran | - | - | 1,339,170 | - |
| Saudi Arabia | 116,987 | 173,798 | 319,391 | 232,459 |
| Turkey | 332,691 | 119,506 | 130,295 | 208,140 |
| Israel | 18,232 | 39,226 | 60,669 | 94,325 |
| Jordan | 1,423 | 3,858 | 9,414 | 35,875 |
| Egypt | 7,963 | 4,321 | 16 | 890 |
| Middle East Totals | 1,660,063 | 1,517,412 | 3,895,973 | 2,485,801 |






# Middle East Report Team Narrative

Representing a miniscule fraction of the world's blueberry production, the Middle East's total planted area almost doubled between 2017 and 2020 off a low base, primarily coming from Turkey but also with increases from Israel and Egypt. A quarter of its hectares are not yet in production, demonstrating the likelihood of further volume growth in the coming years.

Turkey is one of the world's leading fresh fruit exporters with a diverse basket of commodities, but for its incipient blueberry industry the focus has been on the domestic market. The country has low, mid and high chill growing regions, and would be capable of supplying Europe in the more attractive June shoulder period that transitions between major growing origins, but genetics companies have been hesitant to set roots in Turkey due to IP protection concerns. Turkey also has a small but growing domestic market for blueberries with pricing that has tended to incentivize domestic fruit in-country to date.

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.

In blueberry circles the Middle East is more commonly viewed through the lens of an importer with the UAE as the top market, and one that pays attractive prices by international standards as well. Leading 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 has seen the most growth in the market in recent years, while the emerging Zimbabwean blueberry sector is also making its mark. That said, the UAE's imported blueberry market at the moment is still small, bringing in less blueberry volume than what Australia – a generally self-sufficient producer - imports from New Zealand each year.

Within the Middle Eastern context, of note is the huge almost six-fold jump in Israel's fresh blueberry imports in 2020, sourced from Argentina and Chile.

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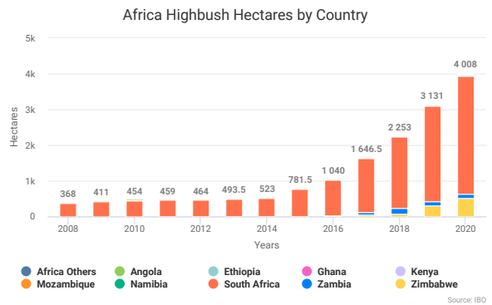
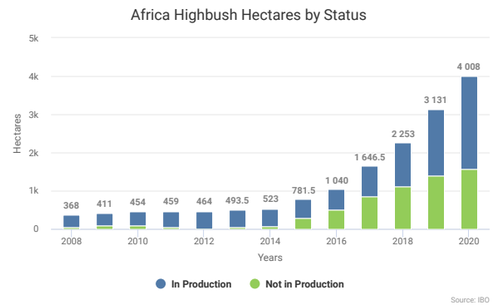
# AFRICA

## Commentary on Africa Data & Figures Production and Planting
*(Denominated in Hectares and Thousands of Metric Tons)*

### Africa Highbush Hectares by Country

| Africa | Planting | | | | | 2020 Production | | |
|---|---|---|---|---|---|---|---|---|
| Growth Totals | 2016 | 2017 | 2018 | 2019 | 2020 | Fresh | Process | Total |
| South Africa | 1,016 | 1,508 | 2,000 | 2,661 | 3,322 | 15.33 | 0.47 | 15.80 |
| Zimbabwe | 15 | 45 | 75 | 296 | 518 | 3.00 | 0.00 | 3.00 |
| Zambia | 0 | 75 | 150 | 125 | 100 | 1.00 | - | 1.00 |
| Namibia | 0 | 1 | 2 | 13 | 23 | 0.17 | 0.00 | 0.17 |
| Kenya | 0 | 4 | 7 | 16 | 26 | 0.02 | - | 0.02 |
| Ethiopia | 0 | 1 | 2 | 2 | 2 | 0.02 | - | 0.02 |
| Mozambique | 0 | 2 | 3 | 3 | 3 | 0.01 | - | 0.01 |
| Angola | 1 | 1 | 1 | 1 | 1 | 0.01 | - | 0.01 |
| Ghana | 0 | 0 | 1 | 1 | 1 | 0.01 | - | 0.01 |
| Africa Others | 8 | 10 | 12 | 12 | 12 | 0.01 | - | 0.01 |
| Africa Totals | 1,040 | 1,646 | 2,253 | 3,131 | 4,008 | 19.58 | 0.47 | 20.05 |

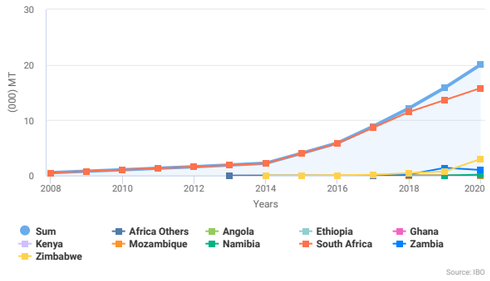


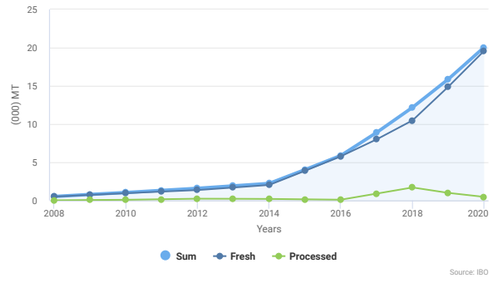
## Africa Highbush Production by Country

| Africa | 2018 | | | 2019 | | | 2020 | | |
|---|---|---|---|---|---|---|---|---|---|
| Productions Totals | Fresh | Process | Total | Fresh | Process | Total | Fresh | Process | Total |
| South Africa | 10.00 | 1.50 | 11.50 | 12.66 | 0.99 | 13.65 | 15.33 | 0.47 | 15.80 |
| Zimbabwe | 0.44 | 0.00 | 0.44 | 0.75 | - | 0.75 | 3.00 | 0.00 | 3.00 |
| Zambia | 0.00 | 0.20 | 0.20 | 1.40 | - | 1.40 | 1.00 | - | 1.00 |
| Namibia | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.01 | 0.17 | 0.00 | 0.17 |
| Kenya | 0.00 | 0.00 | 0.00 | 0.02 | - | 0.02 | 0.02 | - | 0.02 |
| Ethiopia | 0.01 | - | 0.01 | 0.02 | - | 0.02 | 0.02 | - | 0.02 |
| Mozambique | 0.01 | 0.00 | 0.01 | 0.01 | - | 0.01 | 0.01 | - | 0.01 |
| Angola | 0.01 | - | 0.01 | 0.01 | - | 0.01 | 0.01 | - | 0.01 |
| Ghana | - | - | - | - | - | - | 0.01 | - | 0.01 |
| Africa Others | 0.01 | 0.00 | 0.01 | 0.01 | - | 0.01 | 0.01 | - | 0.01 |
| Africa Totals | 10.48 | 1.7 | 12.18 | 14.89 | 0.99 | 15.88 | 19.58 | 0.47 | 20.05 |

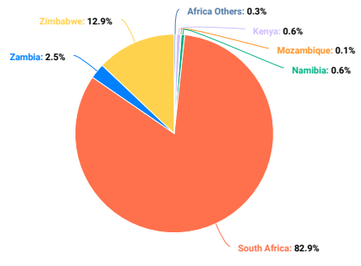
Africa Highbush Production by Country



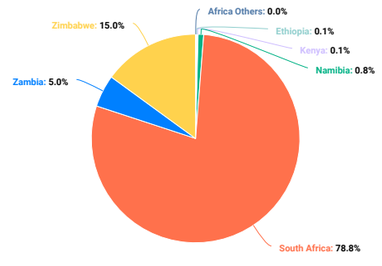

Africa Highbush Production by Use




2020 Africa Highbush Hectares by Country

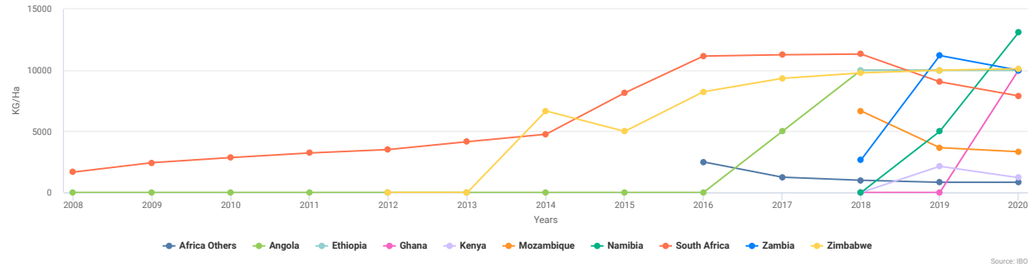



2020 Africa Highbush Production by Country






Africa Highbush Yield by Country

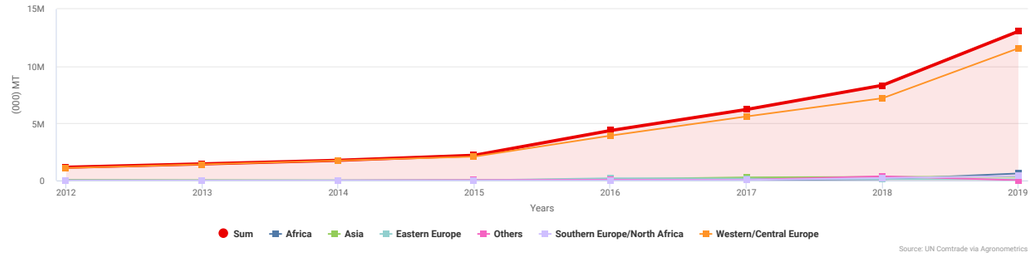



## Africa Exports by Partner Subregion (Inferred from Partners)

| Subregion | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| Western/Central Europe | 3,921,207 | 5,605,173 | 7,198,917 | 11,567,856 |
| Asia | 123,573 | 273,440 | 315,958 | 331,388 |
| Africa | 40,232 | 61,258 | 109,298 | 616,459 |
| Southern Europe/North Africa | 12,189 | 44,184 | 217,070 | 398,971 |
| Eastern Europe | 199,332 | 167,574 | 115,849 | 113,551 |
| Middle East | 71,534 | 62,823 | 361,943 | 25,418 |
| North America | - | 231 | 11,120 | 95 |
| Pacific | - | - | - | - |
| Central Asia/Indian Subcontinent | 11 | - | 507 | - |
| Africa Totals | 4,368,078 | 6,214,683 | 8,330,662 | 13,053,738 |

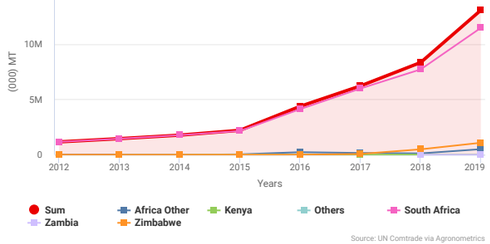
Africa Exports by Partner Subregion

(Inferred from Partners)

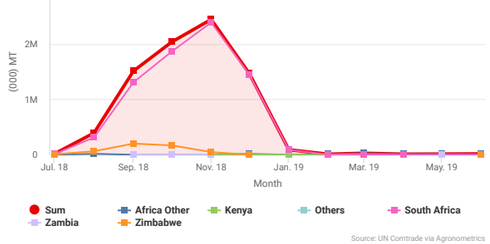


## Africa Exports by Reporter (Inferred from Partners)

| Reporter | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| South Africa | 4,117,737 | 5,981,002 | 7,705,577 | 11,456,806 |
| Zimbabwe | 6 | 71,802 | 490,474 | 1,080,719 |
| Africa Other | 231,272 | 159,607 | 120,672 | 503,138 |
| Kenya | 18,899 | 2,272 | 8,294 | 13,038 |
| Zambia | - | - | 4,637 | 37 |
| Namibia | 164 | - | 1,008 | - |
| Ethiopia | - | - | - | - |
| Ghana | - | - | - | - |
| Mozambique | - | - | - | - |
| Angola | - | - | - | - |
| Africa Totals | 4,368,078 | 6,214,683 | 8,330,662 | 13,053,738 |




Source: UN Comtrade via Agronometrics



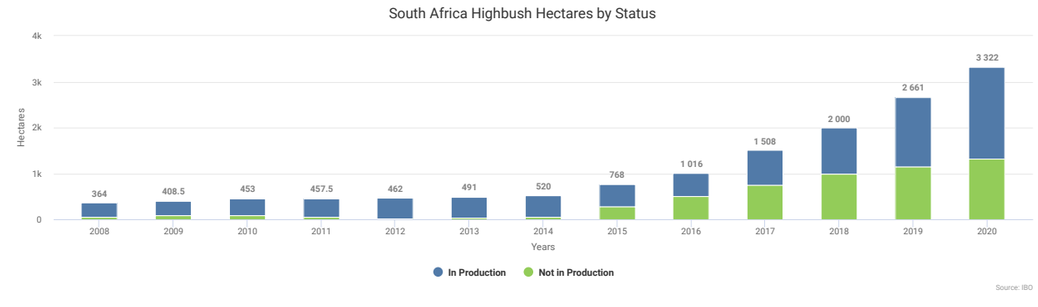

Source: UN Comtrade via Agronometrics





# SOUTH AFRICA

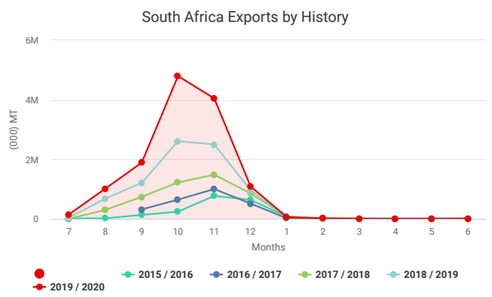
## Commentary on South Africa Data & Figures Production and Planting
*(Denominated in Hectares and Thousands of Metric Tons)*




Source: IBO

## South Africa Exports by Partner

| Reporter | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| United Kingdom | 1,609,880 | 2,523,702 | 4,454,734 | 5,701,904 |
| Netherlands | 622,059 | 1,129,590 | 1,663,961 | 4,198,964 |
| Germany | 79,626 | 218,564 | 622,194 | 1,169,622 |
| Ireland | 81,120 | 357,731 | 487,421 | 456,780 |
| Spain | 12,806 | 48,749 | 230,151 | 397,915 |
| Others | 151,178 | 343,747 | 624,619 | 1,138,414 |
| South Africa Totals | 2,556,669 | 4,622,083 | 8,083,080 | 13,063,599 |




Source: UN Comtrade via Agronometrics

## South Africa Summary Statistics

| | |
|---|---|
| **Hectares Planted:** | **3,322 (Ha)** |
| **Production:** | **15.80 (000) Metrics Tons** |
| Organic: | Not Reported |
| Under Structure: | Not Reported |
| Hydroponics: | Not Reported |
| New Genetics: | Not Reported |
| **Estimated Yield:** | **7,900.00 (Kg/Ha)** |
| **Exports*:** | **13.06 (000) Metrics Tons** |
| **Imports*:** | **0.00 (000) Metrics Tons** |

*** DATA ONLY AVAILABLE THROUGH 2019, ONLY DATA FROM CHARTS ABOVE USED**

# South Africa
# Country Member Summary

## Adapted from the report by Berries South Africa

South Africa has seen another year of wonderful growth in the blueberry industry. Not only have we surpassed the 3,200ha mark, but our projected exports for this coming year will be approximately 10,000MT more than the previous year. That represents a 63% increase from the past season during which we exported 15,800MT. We estimate that we will be producing 36,000MT this year and exporting 25,000MT.

Currently, our main markets are still the UK and Continental Europe. The Middle East and certain Far East countries remain important as well. The quest for new market access remains a challenge for our industry, but also for other fruit industries in South Africa. The COVID-19 pandemic has certainly delayed these already tedious processes.

Berries South Africa, the industry body for blueberries, raspberries and blackberries has focused on a number of different aspects the past year, ranging from trial work for the registration of new chemicals, accurate information gathering, incorporating new databases, cold-sterilisation and pollination research, establishing Joint Marketing Forums, launching industry orientated webinars and launching our industry body under a new name with a new logo and a beautiful industry video.

This is an exciting time for the South African Blueberry industry, and together with the growers, the plant breeders, the nurseries and exporters and all the other stakeholders, we are definitely here to stay.

# Africa
# Report Team Narrative

Following a 10-fold export volume increase over five years to 2020, the burgeoning South African blueberry industry has staked its claim as an integral part of the counter-seasonal fresh blueberry trade in Europe and the UK, along with small shipments to the Middle East and Asia.

A mix of new substrate production systems and genetics has enabled cultivation all over South Africa, though currently around 60% of volume comes from the Western Cape where the industry saw its genesis and the season peaks in October-November. The vast majority of the South African and southern African season overlaps directly with Peru, providing an alternative and closer-to-market source for Europe as well as the Middle Eastern markets. The bulk of the season volumes occur from August to late December.

Though comparatively small, South Africa has, unlike many of its Southern Hemisphere competitors, a growing domestic market for fresh blueberries.

The northern parts of the country tend to start harvests earlier in June and July, but some areas have challenges with hail while an unusually cold 2020 led to unexpected frosts in some parts. These harvest windows result in maritime arrivals to Europe from later July through early September.

Both shipping and labor costs have come to the forefront as challenges to scaling. The industry has had to contend with logistical setbacks at ports and new legislation limiting pallet transport weights, in addition to a 16% rise in the minimum wage.

South Africa has embraced proprietary genetics more than many competing geographies. For most of the sector until recently, this has translated to strictly stratified alignments with a few major, vertically integrated companies and their export programs; a trend that will likely dominate the industry for some time, although new genetics sources and plant material providers from private and university breeding programs are arriving that is unencumbered by 'club' and exclusive genetics and marketing access model requirements.

This focus on genetics and relative closeness to market compared to South America has given South Africa an edge that can be seen in its higher average returns per kilo, but a continued emphasis on quality will be essential for industry viability as more fields come on-line. A 2019 survey by Berries South Africa found respondents' farms comprised 53% of fields with new or replaced plantings, a uniquely high figure relative to global norms.

South Africa's volume ambitions for the next few years are beyond what Peru was exporting just four years ago, and the sector's audacious goals for the end of the decade would make it a top-five blueberry exporter if achieved.

Reaching that potential however depends on market access breakthroughs, most notably in China where it has to wait in a line behind other South African commodities pending approval. As a credit to the industry's great strides in banding together towards common interests, Berries South Africa late last year was accepted into the non-profit company Fruit SA– a critical step in its evolution, giving blueberries in particular a seat at the table in lobbying efforts. In a country where more than one in every four people in the labor force is unemployed, the economic contribution and high job generation of blueberries relative to other crops could be leveraged on a political level to the industry's benefit.

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.

Neighbouring Zimbabwe has matured significantly over the past two years, having attracted at least seven of the world's top blueberry groups and breeders. Zimbabwe presents the opportunity to stretch out the Southern African blueberry season with harvests starting in mid-to-late May, although the landlocked country has limited flight options, and the fact fruit must cross an international border by truck before being shipped via seafreight makes a focus on durability and shelf life a heightened priority.

Industry players 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. Commercial plantings and trials are also underway in Namibia, both in the country's Rundu region and in the south where an existing export-oriented industry is already well established in table grapes.

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.

While the potential scale of long-term development remains an open question for southern Africa, the region has established itself as a viable competitor to serve Northern Hemisphere export markets from late summer into winter, as well as showing potential to be a market in and of itself.

SEKOYA™

*The Better Berry inside*

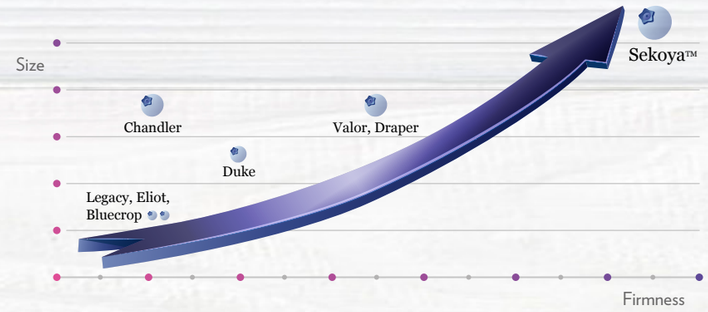
# Sekoya™ varieties:

## The next generation of blueberry genetics with great size, excellent flavour, firmness and outstanding shelf life.

SEKOYA™ THE BETTER BERRY INSIDE



SEKOYA™ THE BETTER BERRY INSIDE




### MID-HIGH CHILL

**Sekoya Crunch™ FC13-083** is an early-mid season mid/high chill variety producing large, heavy berries with exceptional firm, crisp, crunchy, jumbo, flavorful fruit. The berries are very light blue, with an aromatic flavor.

POSTHARVEST AND STORAGE: Sekoya Crunch has unparalleled consistent firmness for over more than 60 days.

**Sekoya Grande™ FC13-122** is a mid-late season mid/high chill variety, with the largest, heaviest fruit and with stand-out fruit quality. The berries have a sweet aromatic flavor, and are very light blue. The fruit is round with a uniform, attractive calyx and small dry scar.

POSTHARVEST AND STORAGE: Sekoya Grande has consistent firmness for over more than 45 days.

### LOW-ZERO CHILL

**Sekoya Beauty™ FCM12-097** is a southern highbush variety selected for zero chill climates, with adaptability to low chill.

It was introduced to the Sekoya program for its unique, differentiated fruit quality and yield in the early-mid window.

POSTHARVEST AND STORAGE: Sekoya Beauty has consistent firmness for over more than 45 days.

**Sekoya Pop™ FCM14-052** is a southern highbush variety whose distinguishing attribute is fruit quality, 'pop' and extreme earlyness. It has been selected to contribute to the Sekoya platform in order to fit the outstanding Sekoya fruits quality requirements during the very early production of low chill and zero chill areas.

POSTHARVEST AND STORAGE: Sekoya Pop has exceptional consistent firmness for over more than 60 days.

Sekoya™ is a platform designed to deliver the Sekoya Eating Experience – crunchy, long-lasting & tasty blueberries, every day for you, through Our Global Partners:

abb Growers · AGROVISION · Alpine Fresh · Berry Fresh · Berry Gardens · berry lovers · North Bay Produce · Paradise · Prize · Rainier Fruit · Sanfucar · surexport · RKGrowers · ZUR GROUP

# ASIA / PACIFIC

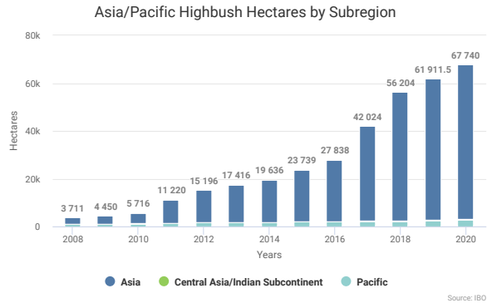


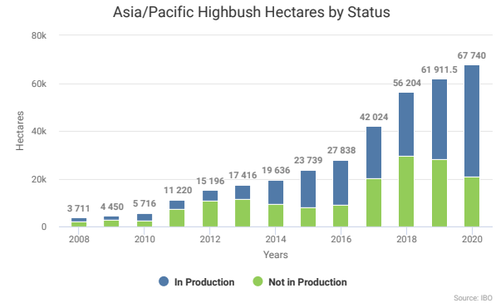
# ASIA / PACIFIC

## Asia / Pacific Data & Figures Production and Planting
*(Denominated in Hectares and Thousands of Metric Tons)*

### Asia/Pacific Highbush Hectares by Subregion

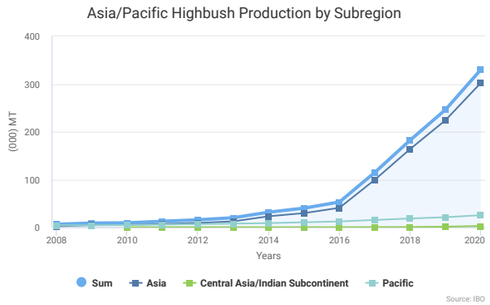
| Asia/Pacific | Planting | | | | | 2020 Production | | |
|---|---|---|---|---|---|---|---|---|
| Growth Totals | 2016 | 2017 | 2018 | 2019 | 2020 | Fresh | Process | Total |
| Asia | 25,632 | 39,646 | 53,653 | 59,103 | 64,553 | 146.71 | 155.54 | 302.25 |
| Pacific | 2,141 | 2,196 | 2,251 | 2,458 | 2,787 | 24.55 | 0.70 | 25.25 |
| Central Asia/Indian Subcontinent | 65 | 182 | 300 | 350 | 400 | 2.36 | 0.24 | 2.60 |
| Asia/Pacific Totals | 27,838 | 42,024 | 56,204 | 61,912 | 67,740 | 173.62 | 156.48 | 330.1 |

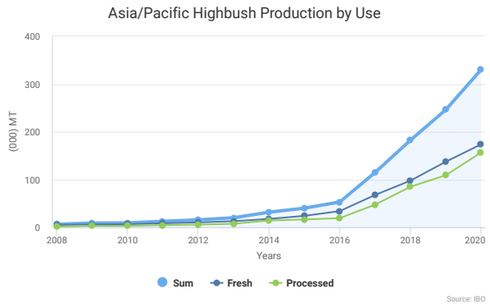


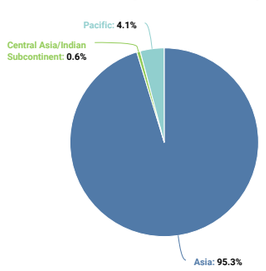



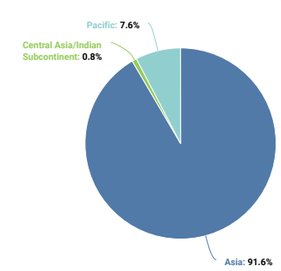

### Asia/Pacific Highbush Production by Subregion

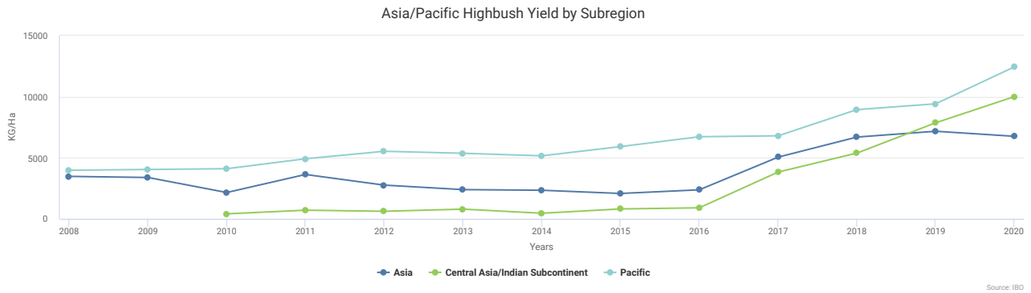
| Asia/Pacific | 2018 | | | 2019 | | | 2020 | | |
|---|---|---|---|---|---|---|---|---|---|
| Productions Totals | Fresh | Process | Total | Fresh | Process | Total | Fresh | Process | Total |
| Asia | 80.01 | 83.75 | 163.76 | 115.77 | 108.35 | 224.12 | 146.71 | 155.54 | 302.25 |
| Pacific | 17.27 | 1.00 | 18.27 | 20.44 | 0.50 | 20.94 | 24.55 | 0.70 | 25.25 |
| Central Asia/Indian Subcontinent | 0.33 | 0.02 | 0.35 | 1.03 | 0.09 | 1.12 | 2.36 | 0.24 | 2.60 |
| Asia/Pacific Totals | 97.61 | 84.77 | 182.38 | 137.24 | 108.94 | 246.18 | 173.62 | 156.48 | 330.1 |



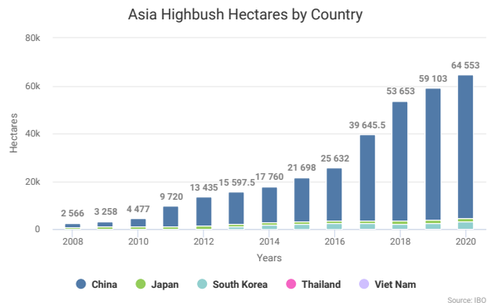


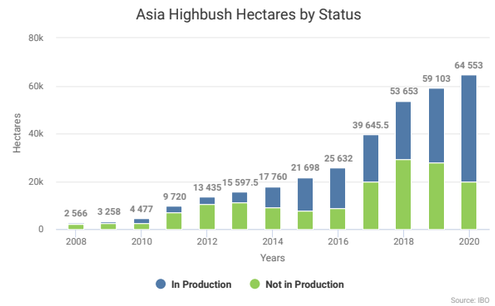

# ASIA

## Commentary on Asia Data & Figures Production and Planting
*(Denominated in Hectares and Thousands of Metric Tons)*

### Asia Highbush Hectares by Country

| Asia | Planting | | | | | 2020 Production | | |
|---|---|---|---|---|---|---|---|---|
| **Growth Totals** | **2016** | **2017** | **2018** | **2019** | **2020** | **Fresh** | **Process** | **Total** |
| China | 21,999 | 36,051 | 50,097 | 55,122 | 60,147 | 131.55 | 153.50 | 285.05 |
| Guizhou | 8,204 | 11,958 | 14,967 | 14,984 | 15,000 | 8.5 | 76.5 | 85 |
| Liaoning | 2,455 | 4,240 | 6,134 | 6,967 | 7,800 | 17.5 | 17.5 | 35 |
| Shandong | 2,124 | 3,786 | 5,600 | 6,466 | 7,333 | 23.1 | 9.9 | 33 |
| Yunnan | 915 | 1,999 | 3,333 | 4,166 | 5,000 | 25.2 | 2.8 | 28 |
| China Others | 1,099 | 2,000 | 3,000 | 3,500 | 4,000 | 8 | 12 | 20 |
| Sichuan | 732 | 2,133 | 4,000 | 5,334 | 6,667 | 8 | 12 | 20 |
| Anhui | 1,373 | 2,199 | 3,000 | 3,250 | 3,500 | 20 | 0 | 20 |
| Jilin | 2,197 | 3,199 | 4,000 | 4,000 | 4,000 | 4.5 | 10.5 | 15 |
| Hubei | 842 | 1,453 | 2,100 | 2,384 | 2,667 | 7.7 | 3.3 | 11 |
| Jiangsu | 1,318 | 1,840 | 2,200 | 2,100 | 2,000 | 5 | 5 | 10 |
| Chonqing | 467 | 740 | 1,000 | 1,075 | 1,150 | 2 | 2 | 4 |
| Zhejiang | 165 | 320 | 500 | 600 | 700 | 2 | 2 | 4 |
| Shaanxi | 108 | 184 | 263 | 296 | 330 | 0.05 | - | 0.05 |
| South Korea | 2,500 | 2,350 | 2,200 | 2,600 | 3,000 | 12.60 | 1.40 | 14.00 |
| Japan | 1,133 | 1,242 | 1,350 | 1,375 | 1,400 | 2.56 | 0.64 | 3.20 |
| Asia Totals | 25,632 | 39,646 | 53,653 | 59,103 | 64,553 | 146.71 | 155.54 | 302.25 |

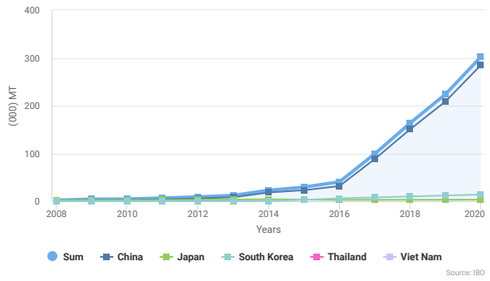


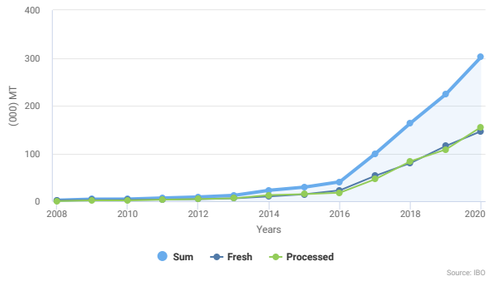
## Asia Highbush Production by Country

| Asia | 2018 | | | 2019 | | | 2020 | | |
|---|---|---|---|---|---|---|---|---|---|
| **Productions Totals** | **Fresh** | **Process** | **Total** | **Fresh** | **Process** | **Total** | **Fresh** | **Process** | **Total** |
| China | 68.31 | 82.45 | 150.76 | 102.34 | 106.68 | 209.02 | 131.55 | 153.50 | 285.05 |
| Guizhou | 5.5 | 49.5 | 55 | 5.8 | 52.2 | 58 | 8.5 | 76.5 | 85 |
| Liaoning | 18 | 7 | 25 | 17.75 | 12.25 | 30 | 17.5 | 17.5 | 35 |
| Shandong | 17.14 | 5.86 | 23 | 23.55 | 9.05 | 32.6 | 23.1 | 9.9 | 33 |
| Yunnan | 4.5 | 0.5 | 5 | 13.95 | 1.55 | 15.5 | 25.2 | 2.8 | 28 |
| China Others | 2.84 | 4.26 | 7.1 | 5.42 | 8.13 | 13.55 | 8 | 12 | 20 |
| Sichuan | 2.86 | 1.14 | 4 | 6.5 | 7 | 13.5 | 8 | 12 | 20 |
| Anhui | 10 | 4 | 14 | 15 | 0 | 15 | 20 | 0 | 20 |
| Jilin | 1 | 5 | 6 | 2.75 | 7.75 | 10.5 | 4.5 | 10.5 | 15 |
| Hubei | 2.17 | 0.93 | 3.1 | 4.94 | 2.12 | 7.06 | 7.7 | 3.3 | 11 |
| Jiangsu | 2.75 | 2.75 | 5.5 | 3.88 | 3.88 | 7.76 | 5 | 5 | 10 |
| Chonqing | 0.5 | 0.5 | 1 | 1.25 | 1.25 | 2.5 | 2 | 2 | 4 |
| Zhejiang | 1 | 1 | 2 | 1.5 | 1.5 | 3 | 2 | 2 | 4 |
| Shaanxi | 0.05 | 0.01 | 0.06 | 0.05 | - | 0.05 | 0.05 | - | 0.05 |
| South Korea | 9.00 | 1.00 | 10.00 | 10.80 | 1.20 | 12.00 | 12.60 | 1.40 | 14.00 |
| Japan | 2.70 | 0.30 | 3.00 | 2.63 | 0.47 | 3.10 | 2.56 | 0.64 | 3.20 |
| Asia Totals | 80.01 | 83.75 | 163.76 | 115.77 | 108.35 | 224.12 | 146.71 | 155.54 | 302.25 |

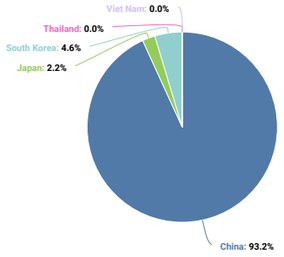
Asia Highbush Production by Country



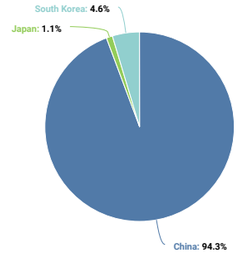

Asia Highbush Production by Use




2020 Asia Highbush Hectares by Country

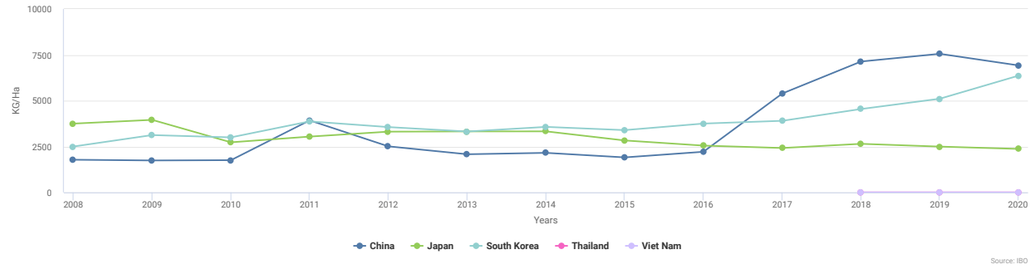



2020 Asia Highbush Production by Country





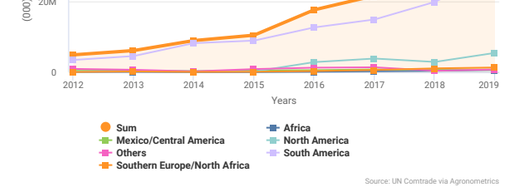

Asia Highbush Yield by Country



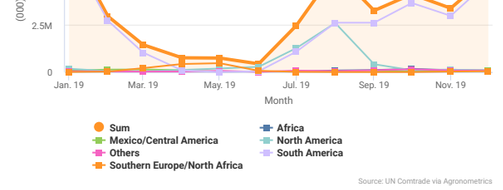

## Asia Imports by Origin Subregion (Inferred from Partners)

| Origin | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| South America | 12,647,755 | 14,900,183 | 19,875,468 | 28,134,577 |
| North America | 2,819,842 | 3,825,754 | 2,870,278 | 5,427,849 |
| Southern Europe/North Africa | 292,867 | 585,670 | 1,050,846 | 1,295,154 |
| Mexico/Central America | 532,187 | 745,085 | 720,318 | 702,492 |
| Western/Central Europe | 661,997 | 632,492 | 44,839 | 73,198 |
| Pacific | 387,895 | 273,069 | 234,524 | 473,374 |
| Africa | 97,692 | 236,150 | 357,375 | 583,238 |
| Asia | 133,366 | 412,662 | 83,682 | 92,825 |
| Eastern Europe | 60,630 | 35,278 | 27,609 | 86,365 |
| Middle East | - | 200 | 263 | 5,977 |
| Central Asia/Indian Subcontinent | 93 | - | 1 | 4,547 |
| Asia Totals | 17,634,324 | 21,646,543 | 25,265,203 | 36,879,596 |

Asia Imports by Origin Subregion
(Inferred from Partners)

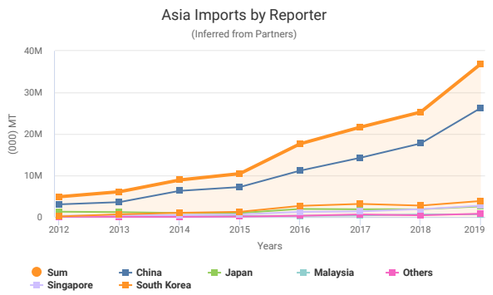


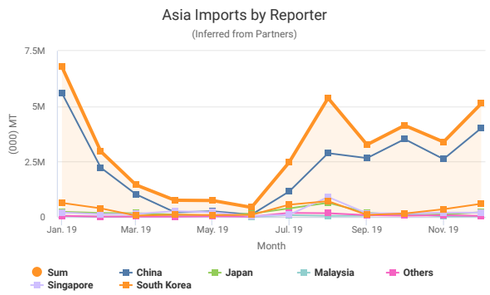

Asia Imports by Origin Subregion
(Inferred from Partners)



## Asia Imports by Reporter (Inferred from Partners)

| Reporter | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| China | 11,168,373 | 14,272,592 | 17,713,698 | 26,267,800 |
| South Korea | 2,683,185 | 3,156,544 | 2,750,400 | 3,859,574 |
| Japan | 1,944,777 | 1,864,032 | 1,874,338 | 2,567,597 |
| Singapore | 1,234,486 | 1,356,603 | 1,896,085 | 2,737,149 |
| Malaysia | 299,347 | 377,612 | 617,728 | 653,860 |
| Thailand | 181,590 | 254,375 | 360,151 | 350,945 |
| Viet Nam | 94,267 | 334,903 | 22,079 | 417,582 |
| Asia Other | 28,299 | 29,882 | 30,724 | 25,089 |
| Asia Totals | 17,634,324 | 21,646,543 | 25,265,203 | 36,879,596 |

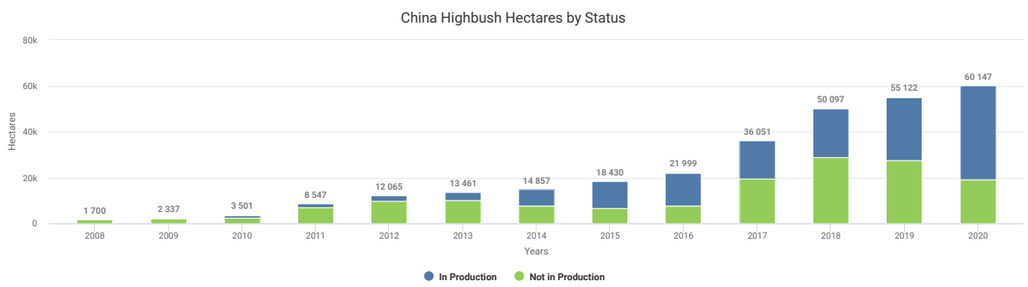


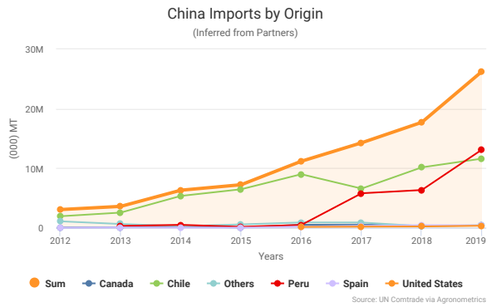

# CHINA

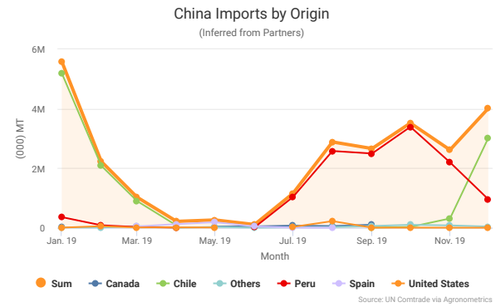


## Commentary on China Data & Figures Production and Planting
*(Denominated in Hectares and Thousands of Metric Tons)*






## China Imports by Origin (Inferred from Partners)

| Reporter | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| Peru | 463,520 | 5,790,347 | 6,335,649 | 13,131,719 |
| Chile | 8,992,889 | 6,576,875 | 10,145,951 | 11,609,814 |
| Spain | 183,874 | 318,540 | 424,630 | 403,462 |
| Canada | 495,688 | 519,541 | 329,199 | 364,477 |
| United States | 140,323 | 183,852 | 212,188 | 340,836 |
| Others | 892,079 | 883,437 | 266,081 | 417,492 |
| China Totals | 11,168,373 | 14,272,592 | 17,713,698 | 26,267,800 |

# China Report Team Narrative

Home to the world's largest population with 1.4 billion mouths to feed, China is the world's leading fruit producer and therefore it should come as no surprise that it is on a trajectory to reach comparable distinctions as a consumer of blueberries. Chinese data requires critical inspection and the figures presented in this report represent our best approximation of the true situation by triangulating diverse sources of data, but the analysis shows growth in recent years has now put China just behind the U.S. in blueberry volume, and ahead of the U.S. and Canada combined in terms of planted area for the fruit.

Divergent pricing structures depending on quality, pronounced market windows and rapidly changing consumer trends are all features of a fragmented Chinese blueberry industry where industry outlooks are in stark contrast to one another depending on the time of year and the growing region concerned.

For the outside and domestic observer, the most relevant region to monitor is the Chinese southwest as it is the most novel and transformative for a national industry since the high chill industry began planting in the early 1990s. Home to the provinces of Sichuan and Yunnan, each producing about as many fresh blueberries annually as British Columbia, this is the region that has experienced the most significant growth in modern, substrate-based blueberry systems under tunnels with proprietary genetics bred overseas. The entrance of these regions has substantially extended the seasonal availability of domestic fresh blueberries into the spring and late winter period by replicating the successes of other low and no chill growing regions in the world.

Yunnan in particular has a provincial government that is amenable to modern agricultural development and attracting foreign direct investment (FDI). The vast majority of blueberry growers in China use publicly available varieties, and incoming global companies tend towards caution in protecting their intellectual property in genetics and know-how. There are now two major joint venture partnerships (one between a Chilean multinational and a local partner, the other being American/Australian) growing proprietary blueberry varieties in Yunnan and securing significant premiums over average market prices. Other international breeding companies, including one from the U.S. and another from Spain, are also in the early

stages of nursery and varietal development and varietal introductions respectively to China.

Yunnan's blueberry production starts in December with small volumes, peaks in February-March and continues until May. These are all times of relative scarcity in the Chinese domestic blueberry market, and Yunnan growers are able to 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.

Both these provinces border China's largest blueberry-growing province Guizhou. Most of its production is in older rabbiteye varieties produced by small growers and goes to processing with minimal engagement in the fresh blueberry market. China's fresh blueberry prices usually start to plummet though 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 through the use of specially designed greenhouses with north-facing earthen walls.

The dynamic of concentrated volumes coming and going after just a few summer months paves the way for Peru (subject to zero tariffs) to enter the market in September, joined later in the year potentially by Uruguay and Argentina (whose tariffs were both cut in half to 15% in late 2020), followed by Chile (also zero tariffs) in the lead-up to and after Chinese New Year, and then Mexico (subject to a declining tariff schedule) in the spring. Chile and Peru have an advantage over other importers with zero tariffs.

Both the U.S. and Zambia have recently gained access to the Chinese market but have only sent small volumes to date as they test the waters. Meanwhile, Canada (subject to 30% tariffs) has had access for several years but has to date been unable to finesse the export techniques and quality control consistency that yield any meaningful success. Shipping to China is a learning curve for far-flung producers, but in Chile and Peru measures that have aided success range from packing in clamshells at the farm level to rigorous China-focused quality selection and the adoption of more durable varieties that are aligned with Chinese demand.

In the case of Mexico, tariffs and its varietal mix skewed towards the smaller variety Biloxi – whose size doesn't usually hit Chinese retailer benchmarks – have been to its detriment, but this is evolving as fields of new genetics, with larger-sized berry varieties that can last the journey with longer shelf life, come into production in Mexico.

The U.S. officially gained access to the Chinese market last year under a systems approach for California, Oregon and Washington State, with the breakthrough happening in May with little time to prepare before harvests. It is understood a more substantial effort has been made in 2021 to capitalize on the Chinese market opportunity. Growers in any state east of the Rocky Mountains wanting to ship to China must apply methyl bromide which industry representatives view as a trade deterrent, but a systems approach pilot to address the pest concern – blueberry maggot – is underway in southern states of the U.S., who would have a timing advantage in China over their Pacific Northwest counterparts provided they send the varieties and sizes Chinese retailers are willing to accept.

For many blueberry industry leaders who work in China, the country is seen as a barometer of broader stratification with tiering trends that are either taking place or in the pipeline globally. The Chinese intermediary buyer as well as the consumer is fastidious in identifying premium product, and this is translated in heady price premiums for jumbo, firm and sweet-tasting berries, and industry insiders are adamant this can be achieved regardless of the time of year. Run-of-the-mill genetics tend to be less welcomed by the market which is reflected in pricing. A large berry is also no guarantee of success if it isn't sweet or crunchy enough, especially after a long journey.

Hong Kong was once the leading source of blueberry imports for the Chinese market, particularly via the gray market, but its importance has faded over time with more fruit in general shipped directly to mainland China.

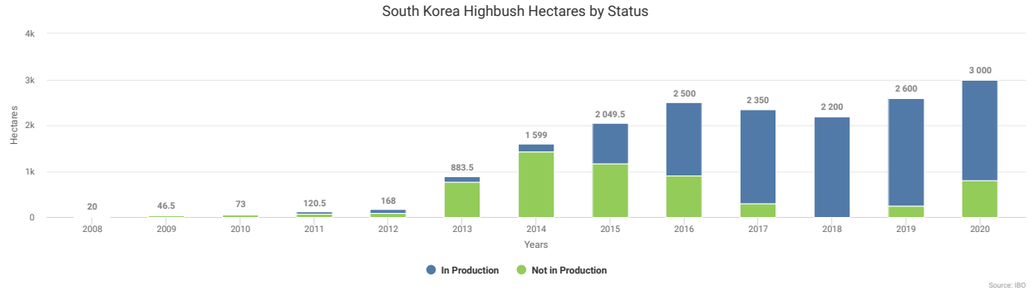




# SOUTH KOREA

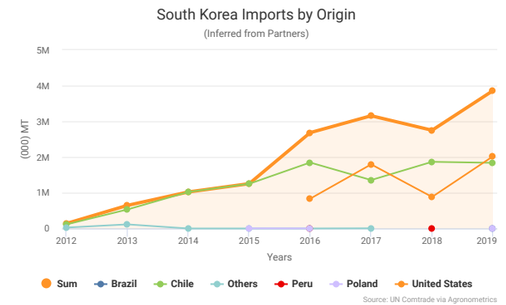


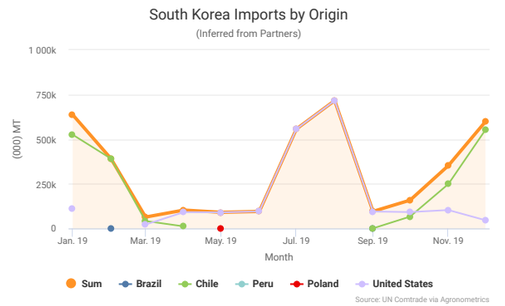
## Commentary on South Korea Data & Figures Production and Planting
*(Denominated in Hectares and Thousands of Metric Tons)*




## South Korea Imports by Origin (Inferred from Partners)

| Reporter | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| United States | 833,065 | 1,795,524 | 883,373 | 2,020,897 |
| Chile | 1,847,404 | 1,356,010 | 1,866,713 | 1,838,342 |
| Poland | 1,620 | - | - | 320 |
| Brazil | - | - | - | 15 |
| Others | 1,096 | 5,010 | 314 | - |
| South Korea Totals | 2,683,185 | 3,156,544 | 2,750,400 | 3,859,574 |



## Country Member - *South Korea*

# South Korea Country Member Summary

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

South Korea is currently home to an estimated 3,000 hectares of blueberries producing an estimated 13,000 tons of fresh and 1,000 tons of processed, signifying 40% growth since 2018.

Government Support: The industry has come a long way since 2016 when the Korean Government began a free trade agreement (FTA) impacts alleviation program that paid for and subsidized the closure of 535 hectares of the crop which accounted for 15% of production at the time. This occurred after blueberries were selected as one of six 'most damaged' fruits by FTAs. The government compensation for farm shutdowns was USD$50 per plant.

Industry Renewal: When blueberries were first introduced to Korea, the choice of varieties planted meant the first generation of farms were producing low-quality berries, but after the 2016 support scheme the arrival of new genetics programs from U.S. university and private breeders helped improve the varietal mix, combined with better growing techniques. As better-quality blueberries have become more available, retailers have sold and marketed the fruit more aggressively, pushing up domestic blueberry consumption.

Planting growth: Blueberries are considered a higher income crop than other more traditional fruits in Korea such as apples, pears or grapes, and as such more farmers have been planting them. Traditional farmers initially lacked interest in blueberries due to a shortage of information on varieties or growing techniques, but 10 years on since the first commercial plantings there is more information available thanks to government-organized education programs about cultivating the fruit. As more blueberries have been demanded from the market side, plantings have grown consistently.

Premium Blueberries: As the market grows, more efforts are underway to differentiate product in various respects, including fruit size which is a key influencing factor to purchase for Korean consumers. Blueberry sizing of 18mm, 20mm or larger is classed as premium fruit, with variety- or size-specific orders now common from retailers and importers. Blueberries are priced based on their size, and in some cases for their variety. Because overall quality has improved and there are more premium blueberries in the market, low-quality blueberries are being gradually pushed out of the market.

# Rest of Asia Report Team Narrative

After overtaking Japan in 2014 as the leading blueberry producer in Asia outside China, South Korea has almost tripled its volume with a sharp upward trajectory since the industry transformation that began in 2016 (as explained in Mr CS Rim's summary). This growth looks set to continue as there are still many fields that are not yet in production.

Following a dip in production between 2014 and 2016 for Japan, the country's planted hectares and volume have grown marginally, but the lion's share of growth from the two nations has come from South Korea.

Japan has been a market of considerable importance for fresh and processed blueberries over the last 20 years. In fact, in 2013 Japan's fresh blueberry imports in dollar value terms were higher than mainland China's at the time. Until last year Japan was the second-largest fresh blueberry import destination in Asia, but in 2020 it was overtaken by both Singapore and South Korea which both had more than $27 million in imports.

Singapore imported a much larger volume than South Korea however, reflecting more price competition in the non-protocol Singaporean market from a greater number of suppliers including the USA, Chile, Peru, South Africa, Spain, Morocco, Australia and Mexico.

In contrast, South Korea's import statistics are dominated by two players – Chile and the USA, while in Japan most of the volume is split between Mexico, the USA and Chile.

Meanwhile, Peru is by far the leading supplier to the fast-growing Thai market and South Africa accounts for the bulk of blueberries imported by the even faster-growing Malaysian market.

With Singapore as its leading market, Southeast Asia is showing strong signs of fresh blueberry consumption demand. In that part of Asia the next-largest market is Malaysia whose volume shot up by 46% in the two years to reach more than $7 million in 2020, then Thailand which recorded 41% growth to hit $5.8 million, and Vietnam – due to recent import programs of note from New Zealand and the USA – recorded 857% growth in that timeframe to reach $3.4 million.

To put the relevance of the region in context, at $90.5 million the five largest Asian markets ex-China imported just under half the value of fresh blueberries as the Chinese mainland did in 2020. This is greater, for example, than Belgium or France, even though the latter exceeds them in terms of total imported volume.

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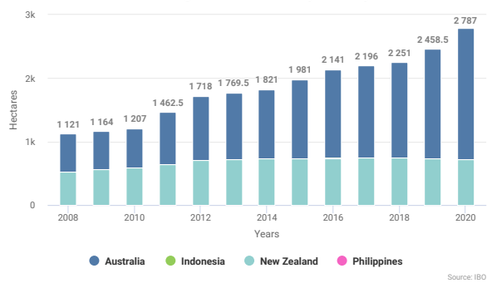
# PACIFIC

## Commentary on Pacific Data & Figures Production and Planting
*(Denominated in Hectares and Thousands of Metric Tons)*

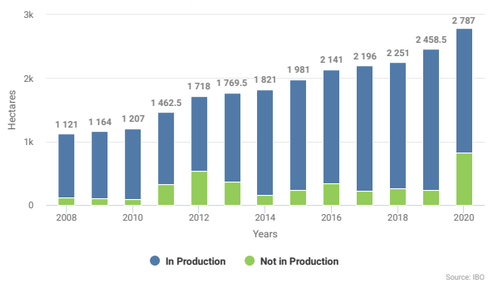
### Pacific Highbush Hectares by Country

| Pacific | Planting | | | | | 2020 Production | | |
|---|---|---|---|---|---|---|---|---|
| Growth Totals | 2016 | 2017 | 2018 | 2019 | 2020 | Fresh | Process | Total |
| Australia | 1,400 | 1,450 | 1,500 | 1,722 | 2,066 | 20.11 | - | 20.11 |
| NSW (New South Wales) | 1400 | 1262.5 | 1125 | 1474.5 | 1824 | 17.5 | - | 17.5 |
| Queensland | 0 | 125 | 250 | 163.5 | 77 | 1.1 | - | 1.1 |
| Western Australia | 0 | 62.5 | 125 | 84.5 | 44 | 0.7 | - | 0.7 |
| Tasmania | - | - | - | - | 91 | 0.6 | - | 0.6 |
| Victoria | - | - | - | - | 30 | 0.21 | - | 0.21 |
| New Zealand | 740 | 745 | 750 | 735 | 720 | 4.44 | 0.70 | 5.14 |
| Pacific Totals | 2,141 | 2,196 | 2,251 | 2,458 | 2,787 | 24.55 | 0.7 | 25.25 |

Pacific Highbush Hectares by Country

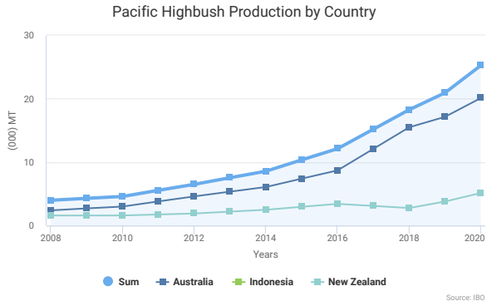


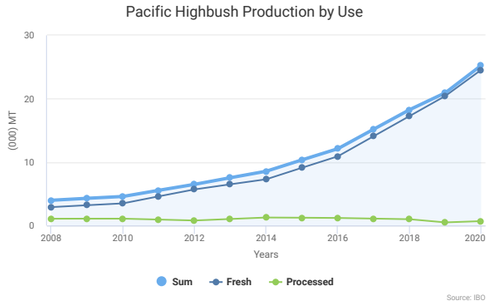

Pacific Highbush Hectares by Status

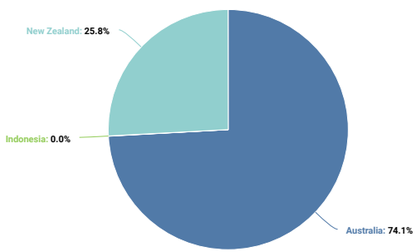


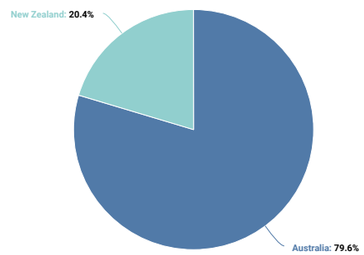

### Pacific Highbush Production by Country

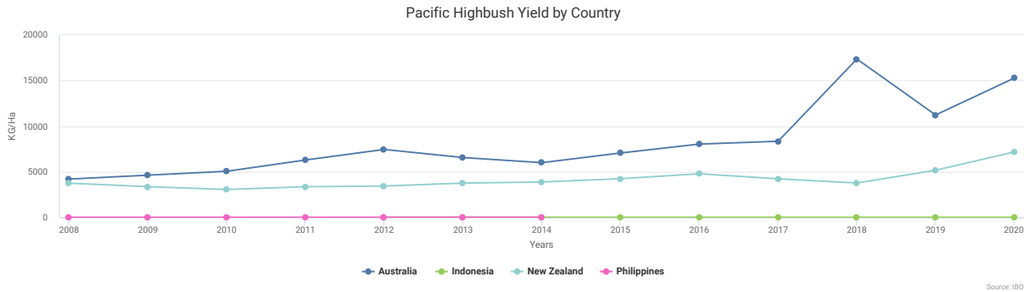
| Pacific | 2018 | | | 2019 | | | 2020 | | |
|---|---|---|---|---|---|---|---|---|---|
| Productions Totals | Fresh | Process | Total | Fresh | Process | Total | Fresh | Process | Total |
| Australia | 15.00 | 0.50 | 15.50 | 17.15 | - | 17.15 | 20.11 | - | 20.11 |
| NSW (New South Wales) | 11.5 | 0.5 | 12 | 14.5 | - | 14.5 | 17.5 | - | 17.5 |
| Queensland | 3 | 0 | 3 | 2.05 | - | 2.05 | 1.1 | - | 1.1 |
| Western Australia | 0.5 | 0 | 0.5 | 0.6 | - | 0.6 | 0.7 | - | 0.7 |
| Tasmania | - | - | - | - | - | - | 0.6 | - | 0.6 |
| Victoria | - | - | - | - | - | - | 0.21 | - | 0.21 |
| New Zealand | 2.27 | 0.50 | 2.77 | 3.29 | 0.50 | 3.79 | 4.44 | 0.70 | 5.14 |
| Pacific Totals | 17.27 | 1 | 18.27 | 20.44 | 0.5 | 20.94 | 24.55 | 0.7 | 25.25 |



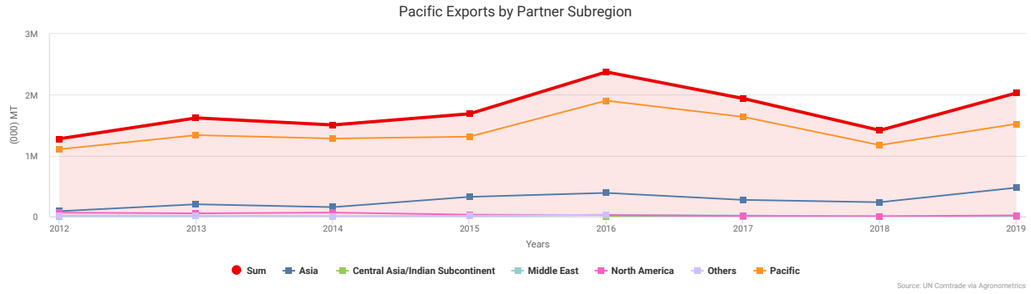




## Pacific Exports by Partner Subregion

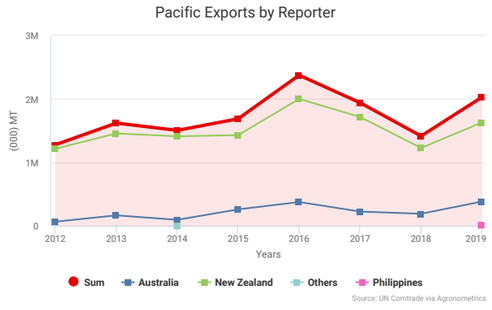
| Subregion | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| Pacific | 1,903,220 | 1,636,708 | 1,172,670 | 1,521,350 |
| Asia | 387,895 | 273,069 | 234,524 | 473,374 |
| North America | 24,103 | 8,295 | 3,420 | 19,342 |
| Middle East | 29,150 | 16,453 | 1,044 | 3,099 |
| Western/Central Europe | 30,208 | - | - | - |
| Central Asia/Indian Subcontinent | 13 | 4,448 | 3,570 | 11,499 |
| Pacific Totals | 2,374,589 | 1,938,973 | 1,415,228 | 2,028,664 |

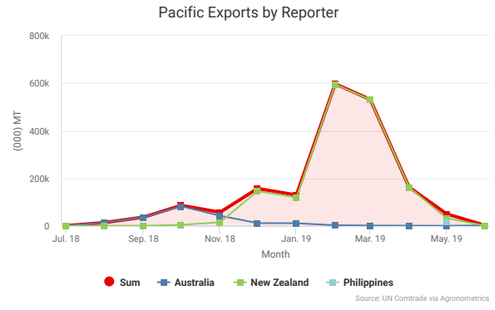





## Pacific Exports by Reporter

| Reporter | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| New Zealand | 2,000,334 | 1,715,411 | 1,226,185 | 1,629,173 |
| Australia | 374,255 | 223,562 | 189,043 | 381,571 |
| Philippines | - | - | - | 17,920 |
| Pacific Totals | 2,374,589 | 1,938,973 | 1,415,228 | 2,028,664 |

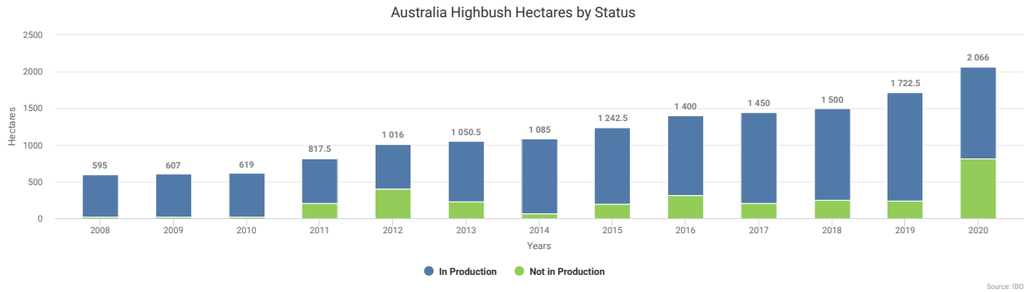


# AUSTRALIA

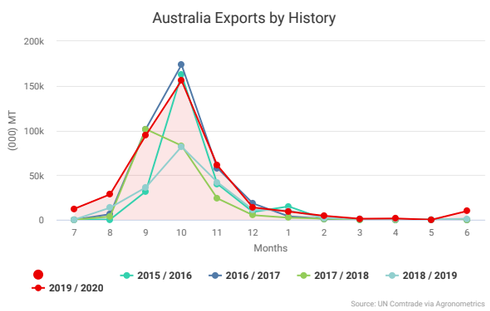


## Commentary on Australia Data & Figures Production and Planting
*(Denominated in Hectares and Thousands of Metric Tons)*




### Australia Exports by Partner

| Reporter | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| China | 183,060 | 114,050 | 119,537 | 221,497 |
| Singapore | 80,550 | 59,099 | 37,302 | 68,038 |
| Thailand | 38,749 | 24,688 | 16,324 | 39,004 |
| Indonesia | 7,543 | 6,186 | 2,014 | 24,825 |
| Malaysia | 2,097 | 255 | 3,159 | 13,276 |
| Others | 62,256 | 19,284 | 10,707 | 14,931 |
| Australia Totals | 374,255 | 223,562 | 189,043 | 381,571 |




### Australia Summary Statistics

| | |
|---|---|
| **Hectares Planted:** | **2,066 (Ha)** |
| **Production:** | **20.11 (000) Metrics Tons** |
| Organic: | 2.15% (from Aggregate) |
| Under Structure: | Not Reported |
| Hydroponics: | Not Reported |
| New Genetics: | Not Reported |
| **Estimated Yield:** | **15,489.57 (Kg/Ha)** |
| **Exports*:** | **0.38 (000) Metrics Tons** |
| **Imports*:** | **0.00 (000) Metrics Tons** |

*** DATA ONLY AVAILABLE THROUGH 2019, ONLY DATA FROM CHARTS ABOVE USED**



# Australia
# Report Team Narrative

Australian Blueberry Growers' Association

What Australia lacks in blueberry volume it makes up for in its contribution to the sector's innovation globally, as home to three of the leading breeding companies that have helped fuel the exponential rise in low chill genetics around the world.

Growers are predominantly focused on the domestic market and face little competition from abroad due to strict phytosanitary barriers, with the exception of nearby New Zealand which sends 95% of exports to its larger neighbor.

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.

Blueberries are grown in the mango- and banana-producing region of the Atherton Tablelands of tropical Far North Queensland, all the way south to the cold and temperate island state of Tasmania, whose latitude is comparable to Puerto Montt in southern Chile. Production also takes place in Western Australia, while new sites are emerging in the states of South Australia and Victoria.

Australian breeding programs utilise the domestic market as a testing ground before launching into new territories, but the industry still struggles with sub-optimal quality from December to May. The next frontier from a domestic market improvement perspective is lifting the quality of high-chill northern highbush varieties from southern Australia, or pushing the boundaries of hybrid mid-chill blueberries into new areas such as milder parts of Tasmania. The rising trend of substrate cultivation under tunnels will likely assist this development.

The main reason Australian blueberries are not a staple in Northern Hemisphere markets is the cost of labor, given the country's minimum wage is the highest of any agricultural nation of note (more than US$1 higher per hour than in California). This makes price competition impossible with South American suppliers, although exports rose off a low base by 250% in the six years to 2020. These small programs achieved arguably the highest export return of any blueberry industry worldwide at US$17.28/kg, supplying markets such as Hong Kong, Singapore, Indonesia and Thailand.

Australia's labor challenges have been exacerbated since the pandemic began with international border closures that have impeded availability in a farmworker market that relies in part on young tourists who travel to Australia on working holiday visas.

As is the case in many developed countries, Australia's labor shortages have accelerated the push to mechanical harvesting for fresh blueberries with some segments of the industry embarking on very early stage trials of what they believe will be fit-for-purpose varieties for this emerging production method. Views vary within the industry as to whether machine-harvested blueberry quality will meet the ever-higher benchmarks consumers have come to require, although if successful such an innovation could potentially make Australian exporters more competitive globally while improving affordability for domestic consumers; a key hinderance to date for market penetration outside of the peak production months of September to November.

Regardless of how machine harvesting projects perform, the ongoing trend of new varietal introductions with traits focused on taste, crunchiness, shelf life and yield is set to continue over the coming years.

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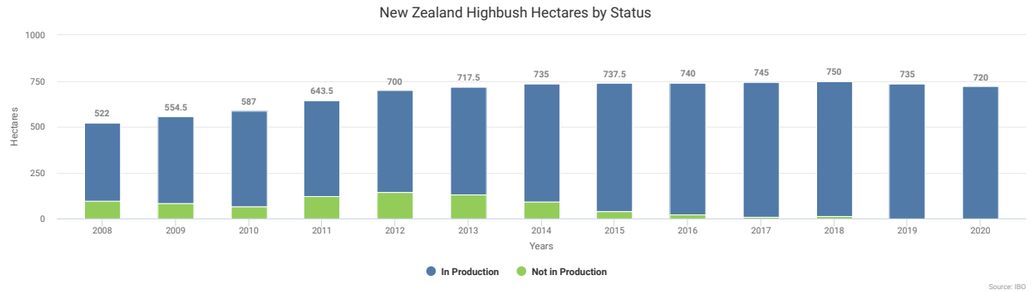
# NEW ZEALAND



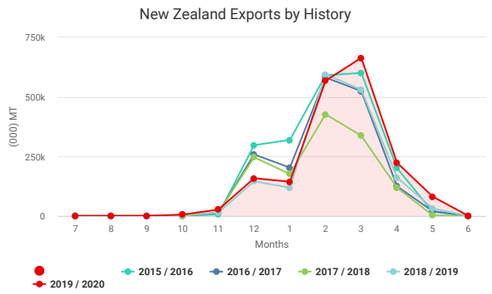
## Commentary on New Zeland Data & Figures Production and Planting

*(Denominated in Hectares and Thousands of Metric Tons)*




### New Zealand Exports by Partner

| Reporter | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| Australia | 1,889,907 | 1,619,419 | 1,159,365 | 1,476,469 |
| Viet Nam | 15,306 | 16,898 | 20,631 | 61,712 |
| Thailand | 43,038 | 35,207 | 21,143 | 48,859 |
| Indonesia | 796 | 6,970 | 1,926 | 11,060 |
| China | 6,866 | 15,614 | 2,364 | 8,281 |
| Others | 44,421 | 21,303 | 20,756 | 22,792 |
| New Zealand Totals | 2,000,334 | 1,715,411 | 1,226,185 | 1,629,173 |




### New Zealand Summary Statistics

| | |
|---|---|
| **Hectares Planted:** | **720 (Ha)** |
| **Production:** | **5.14 (000) Metrics Tons** |
| Organic: | 7% |
| Under Structure: | 27% |
| Hydroponics: | 23% |
| New Genetics: | 35% |
| **Estimated Yield:** | **7,155.56 (Kg/Ha)** |
| **Exports*:** | **1.63 (000) Metrics Tons** |
| **Imports*:** | **0.00 (000) Metrics Tons** |

*** DATA ONLY AVAILABLE THROUGH 2019, ONLY DATA FROM CHARTS ABOVE USED**

# New Zealand Report Team Narrative

Very high labor costs and pandemic-induced restrictions on bringing in foreign workers have given New Zealand similar challenges to Australia over the past 18 months, but the re-planting of new varieties undertaken before COVID-19 has led to increased production.

New Zealand is now very close to having a 52-week supply scenario for its blueberry industry thanks in part to a concentration of growth in the northern parts of the country's North Island where fruit can be produced earlier. This development has also been assisted by the use of tunnels, glasshouses, and southern highbush varieties.

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. Growers are actively seeking to increase their ability to supply in the colder months.

While Rabbiteye volumes are dismissed as outdated by much of the global industry, those New Zealand producers who grow it insist the fruit has appealing flavor characteristics that are well received by the market.

Volume is fairly evenly split between export and domestic markets, with an approximate tripling in supermarket sales over the past six years (with domestic consumption now at around 1kg per person). Meanwhile, in the two years to 2020 exports rose by 50% in volume and 28% in value. Most of the exported fruit is shipped to Australia where New Zealand is able to take advantage of certain shoulder periods, particularly in the first half of the year, but a promising trend has been the emergence of exports to Vietnam where New Zealand was not only the leading supplier in 2020 but also achieved a very high average return of US$18.50/kg.

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.

The pandemic has made freight more expensive and led to disruptions for the island nation, and like Australia, New Zealand's horticultural sector - including blueberry farms - have had difficulty securing labor due to closed borders.

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# CENTRAL ASIA/INDIAN SUBCONTINENT

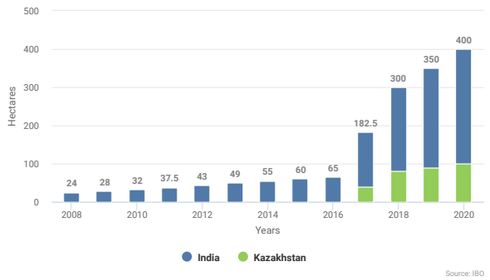
## Commentary on Central Asia/Indian Subcontinent Data & Figures Production and Planting *(Denominated in Hectares and Thousands of Metric Tons)*

### Central Asia/Indian Subcontinent Highbush Hectares by Country

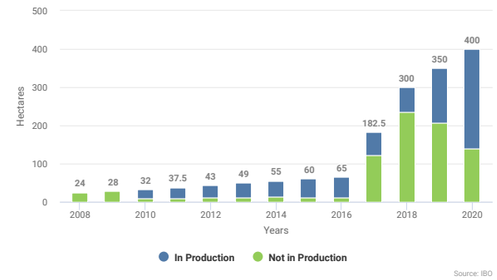
| Central Asia/Indian Subcontinent | Planting | | | | | 2020 Production | | |
|---|---|---|---|---|---|---|---|---|
| Growth Totals | 2016 | 2017 | 2018 | 2019 | 2020 | Fresh | Process | Total |
| India | 65 | 142 | 220 | 260 | 300 | 2.16 | 0.24 | 2.40 |
| Kazakhstan | 0 | 40 | 80 | 90 | 100 | 0.20 | 0.00 | 0.20 |
| Central Asia/Indian Subcontinent Totals | 65 | 182 | 300 | 350 | 400 | 2.36 | 0.24 | 2.6 |



Central Asia/Indian Subcontinent Highbush Hectares by Country



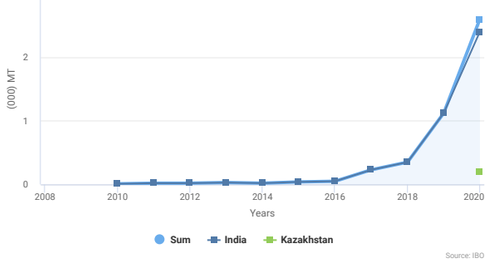

Central Asia/Indian Subcontinent Highbush Hectares by Status



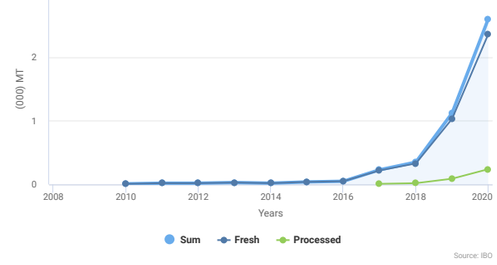

### Central Asia/Indian Subcontinent Highbush Production by Country

| Central Asia/Indian Subcontinent | 2018 | | | 2019 | | | 2020 | | |
|---|---|---|---|---|---|---|---|---|---|
| Productions Totals | Fresh | Process | Total | Fresh | Process | Total | Fresh | Process | Total |
| India | 0.33 | 0.02 | 0.35 | 1.03 | 0.09 | 1.12 | 2.16 | 0.24 | 2.40 |
| Kazakhstan | 0.00 | 0.00 | 0.00 | 0.00 | - | 0.00 | 0.20 | 0.00 | 0.20 |
| Central Asia/Indian Subcontinent Totals | 0.33 | 0.02 | 0.35 | 1.03 | 0.09 | 1.12 | 2.36 | 0.24 | 2.6 |

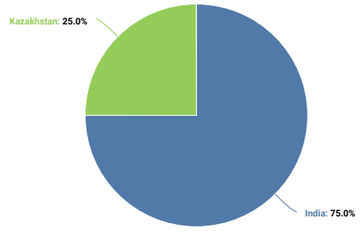
Central Asia/Indian Subcontinent Highbush Production by Country



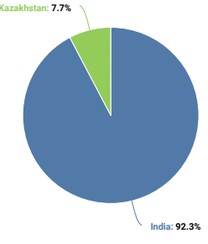

Central Asia/Indian Subcontinent Highbush Production by Use

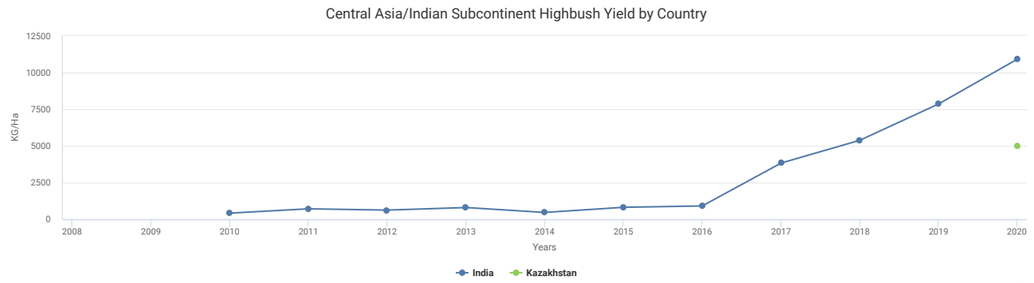



2020 Central Asia/Indian Subcontinent Highbush Hectares by Country



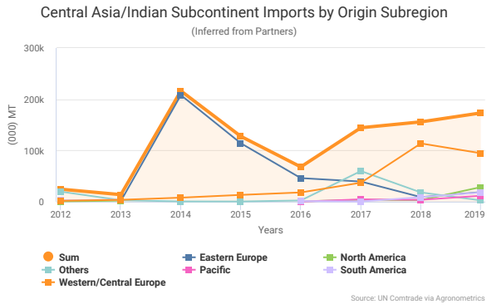

2020 Central Asia/Indian Subcontinent Highbush Production by Country

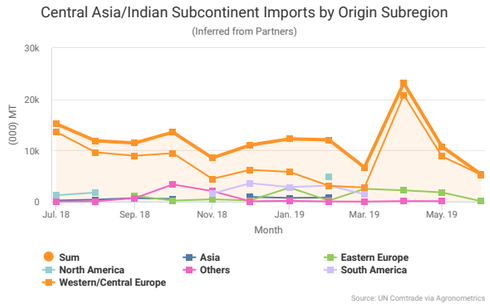





## Central Asia/Indian Subcontinent Imports by Origin Subregion (Inferred from Partners)

| Origin | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| Western/Central Europe | 17,943 | 36,966 | 113,675 | 94,520 |
| Eastern Europe | 45,953 | 39,233 | 8,841 | 18,516 |
| Middle East | - | 45,719 | 5,488 | 10 |
| North America | 571 | 3,570 | 3,014 | 28,360 |
| South America | 1,081 | 360 | 8,684 | 17,799 |
| Pacific | 13 | 4,448 | 3,570 | 11,499 |
| Asia | - | 8,368 | 4,488 | 1,531 |
| Central Asia/Indian Subcontinent | 323 | 699 | 7,754 | 213 |
| Southern Europe/North Africa | 1,970 | 3,000 | 238 | 720 |
| Africa | 12 | 1,948 | - | - |
| Central Asia/Indian Subcontinent Totals | 67,866 | 144,311 | 155,752 | 173,168 |

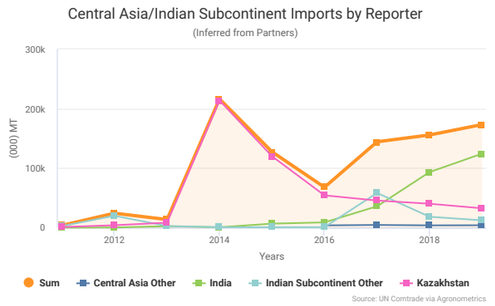


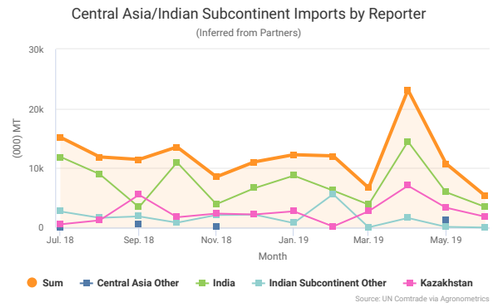






## Central Asia/Indian Subcontinent Imports by Reporter (Inferred from Partners)

| Reporter | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| Kazakhstan | 54,285 | 45,561 | 40,183 | 32,534 |
| India | 8,883 | 35,928 | 93,361 | 124,287 |
| Indian Subcontinent Other | 858 | 58,282 | 18,357 | 12,317 |
| Central Asia Other | 3,840 | 4,540 | 3,851 | 4,030 |
| Central Asia/Indian Subcontinent Totals | 67,866 | 144,311 | 155,752 | 173,168 |




# Central Asia/Indian Subcontinent Report Team Narrative

With its population of almost 1.4 billion people, India has strong potential as both a blueberry producer and market but on both fronts it is nascent. There are at least four major Indian fruit companies that have started growing blueberries in recent years, three of which are involved in efforts or joint ventures with well-known global companies (two Australian, one US). Some development activities were put on hold in 2021 due to India's devastating second wave of COVID-19.

The country's fresh blueberry imports were just 43 metric tons (MT) in 2020, but this is up from just over 1MT in 2016. The majority of the imports came from Chile, followed by the Netherlands and less than a ton from Canada.

Blueberry production in Kazakhstan has been steadily rising in recent years as well, and like India its crop has mostly been oriented toward the domestic market. For imports the most recent data available is for 2019, when Kazakhstan brought in 41MT of fresh blueberries from abroad. Almost half of this came from Russia, but the country paid handsome prices for very small shipments of blueberries from the Netherlands, Peru, Morocco and Mexico.

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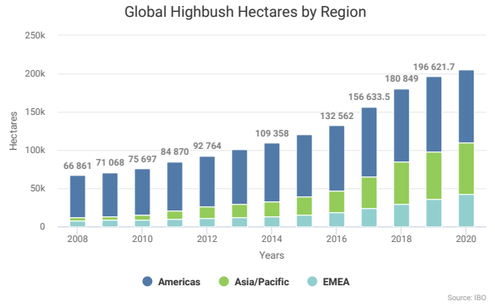
GLOBAL

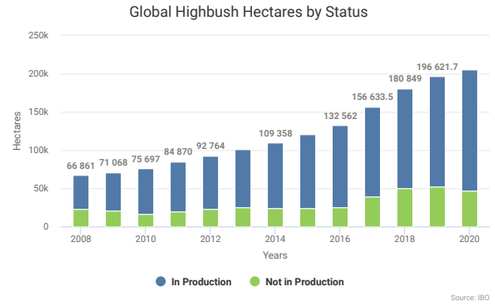
# GLOBAL HIGHBUSH

## Global Highbush Data & Figures Production and Planting
*(Denominated in Hectares and Thousands of Metric Tons)*

### Global Highbush Hectares by Region

| Global Highbush | Planting | | | | | 2020 Production | | |
|---|---|---|---|---|---|---|---|---|
| **Growth Totals** | **2016** | **2017** | **2018** | **2019** | **2020** | **Fresh** | **Process** | **Total** |
| **Americas** | **86,219** | **91,038** | **95,836** | **99,130** | **95,404** | **567.27** | **247.46** | **814.73** |
| North America | 59,093 | 61,181 | 63,265 | 62,104 | 52,570 | 320.52 | 66.43 | 386.95 |
| South America | 23,146 | 25,101 | 27,041 | 30,291 | 35,394 | 184.11 | 180.36 | 364.47 |
| Mexico/Central America | 3,980 | 4,756 | 5,530 | 6,735 | 7,440 | 62.64 | 0.67 | 63.31 |
| **Asia/Pacific** | **27,838** | **42,024** | **56,204** | **61,912** | **67,740** | **173.62** | **156.48** | **330.10** |
| Asia | 25,632 | 39,646 | 53,653 | 59,103 | 64,553 | 146.71 | 155.54 | 302.25 |
| Pacific | 2,141 | 2,196 | 2,251 | 2,458 | 2,787 | 24.55 | 0.70 | 25.25 |
| Central Asia/ Indian Subcontinent | 65 | 182 | 300 | 350 | 400 | 2.36 | 0.24 | 2.60 |
| **EMEA** | **18,505** | **23,572** | **28,809** | **35,580** | **42,526** | **221.16** | **21.71** | **242.87** |
| Eastern Europe | 6,795 | 9,596 | 12,562 | 17,488 | 22,728 | 117.13 | 12.17 | 129.30 |
| Southern Europe/North Africa | 5,741 | 7,001 | 8,273 | 8,847 | 9,419 | 55.23 | 4.50 | 59.73 |
| Western/Central Europe | 4,639 | 4,974 | 5,305 | 5,753 | 5,881 | 27.11 | 4.37 | 31.48 |
| Africa | 1,040 | 1,646 | 2,253 | 3,131 | 4,008 | 19.58 | 0.47 | 20.05 |
| Middle East | 290 | 354 | 416 | 361 | 490 | 2.11 | 0.20 | 2.31 |
| Global Highbush Totals | 132,562 | 156,634 | 180,849 | 196,622 | 205,670 | 962.05 | 425.65 | 1387.7 |

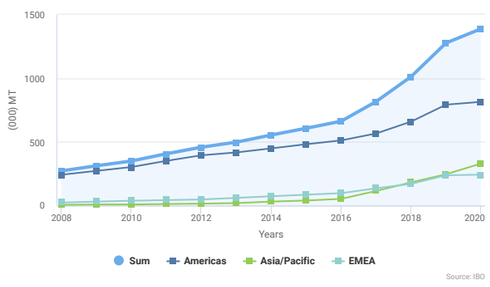


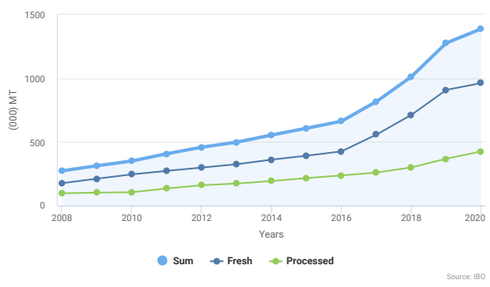
## Global Highbush Production by Region

| Global Highbush | 2018 | | | 2019 | | | 2020 | | |
|---|---|---|---|---|---|---|---|---|---|
| **Productions Totals** | **Fresh** | **Process** | **Total** | **Fresh** | **Process** | **Total** | **Fresh** | **Process** | **Total** |
| **Americas** | **455.01** | **204.36** | **659.37** | **548.74** | **243.76** | **792.50** | **567.27** | **247.46** | **814.73** |
| South America | 235.60 | 53.60 | 289.20 | 282.00 | 55.63 | 337.63 | 320.52 | 66.43 | 386.95 |
| North America | 171.35 | 150.06 | 321.41 | 207.59 | 187.60 | 395.19 | 184.11 | 180.36 | 364.47 |
| Mexico/Central America | 48.06 | 0.70 | 48.76 | 59.15 | 0.53 | 59.68 | 62.64 | 0.67 | 63.31 |
| **Asia/Pacific** | **97.61** | **84.77** | **182.38** | **137.24** | **108.94** | **246.18** | **173.62** | **156.48** | **330.10** |
| Asia | 80.01 | 83.75 | 163.76 | 115.77 | 108.35 | 224.12 | 146.71 | 155.54 | 302.25 |
| Pacific | 17.27 | 1.00 | 18.27 | 20.44 | 0.50 | 20.94 | 24.55 | 0.70 | 25.25 |
| Central Asia/ Indian Subcontinent | 0.33 | 0.02 | 0.35 | 1.03 | 0.09 | 1.12 | 2.36 | 0.24 | 2.60 |
| **EMEA** | **159.91** | **10.77** | **170.68** | **222.54** | **15.60** | **238.14** | **221.16** | **21.71** | **242.87** |
| Southern Europe/North Africa | 81.71 | 3.59 | 85.30 | 123.52 | 7.92 | 131.44 | 117.13 | 12.17 | 129.30 |
| Eastern Europe | 40.71 | 1.53 | 42.24 | 49.64 | 2.93 | 52.57 | 55.23 | 4.50 | 59.73 |
| Western/Central Europe | 25.65 | 3.75 | 29.40 | 32.76 | 3.56 | 36.32 | 27.11 | 4.37 | 31.48 |
| Africa | 10.48 | 1.70 | 12.18 | 14.89 | 0.99 | 15.88 | 19.58 | 0.47 | 20.05 |
| Middle East | 1.36 | 0.20 | 1.56 | 1.73 | 0.20 | 1.93 | 2.11 | 0.20 | 2.31 |
| Global Highbush Totals | 712.53 | 299.9 | 1012.43 | 908.52 | 368.3 | 1276.82 | 962.05 | 425.65 | 1387.7 |

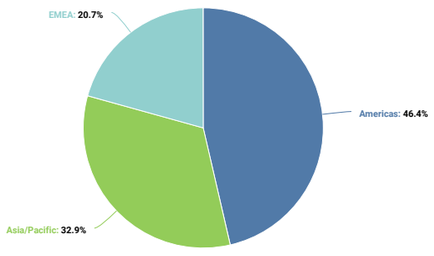
Global Highbush Production by Region



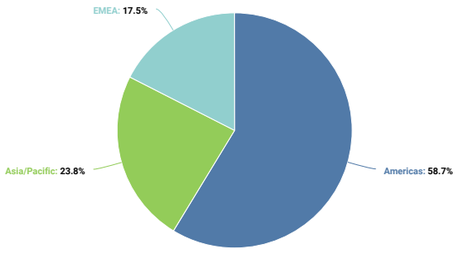

Global Highbush Production by Use




2020 Global Highbush Hectares by Region

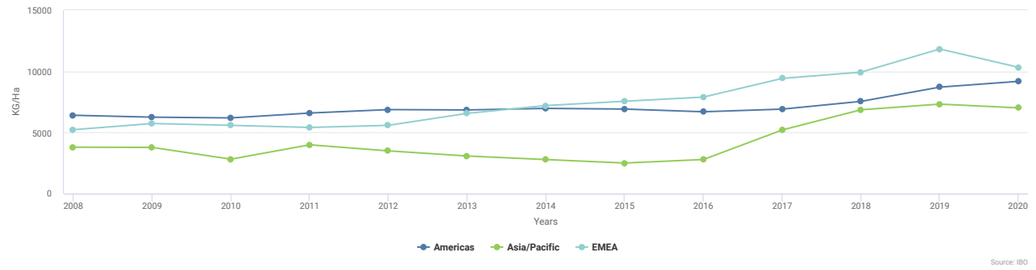



2020 Global Highbush Production by Region






Global Highbush Yield by Region



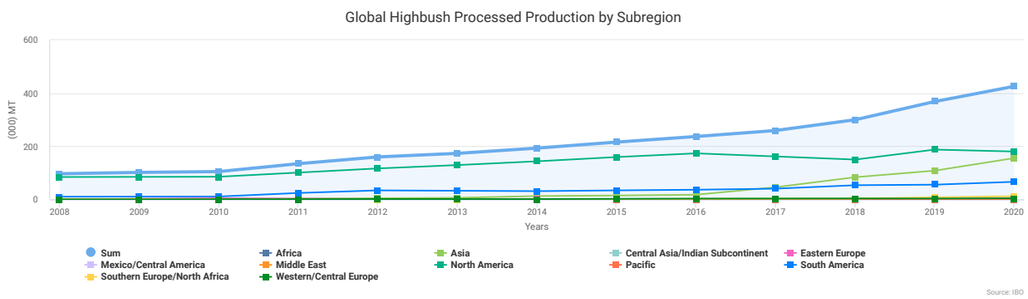

# GLOBAL HIGHBUSH PROCESSED

## Commentary on Global Highbush Processed Data & Figures Production and Planting

*(Denominated in Hectares and Thousands of Metric Tons)*

## Global Highbush Processed Production by Region

| Global Processed | 2018 | | | 2019 | | | 2020 | | |
|---|---|---|---|---|---|---|---|---|---|
| **Productions Totals** | **Fresh** | **Process** | **Total** | **Fresh** | **Process** | **Total** | **Fresh** | **Process** | **Total** |
| **Americas** | **-** | **204.36** | **204.36** | **-** | **243.76** | **243.76** | **-** | **247.46** | **247.46** |
| North America | - | 150.06 | 150.06 | - | 187.60 | 187.60 | - | 180.36 | 180.36 |
| South America | - | 53.60 | 53.60 | - | 55.63 | 55.63 | - | 66.43 | 66.43 |
| Mexico/Central America | - | 0.70 | 0.70 | - | 0.53 | 0.53 | - | 0.67 | 0.67 |
| **Asia/Pacific** | **-** | **84.77** | **84.77** | **-** | **108.94** | **108.94** | **-** | **156.48** | **156.48** |
| Asia | - | 83.75 | 83.75 | - | 108.35 | 108.35 | - | 155.54 | 155.54 |
| Pacific | - | 1.00 | 1.00 | - | 0.50 | 0.50 | - | 0.70 | 0.70 |
| Central Asia/ Indian Subcontinent | - | 0.02 | 0.02 | - | 0.09 | 0.09 | - | 0.24 | 0.24 |
| **EMEA** | **-** | **10.77** | **10.77** | **-** | **15.60** | **15.60** | **-** | **21.71** | **21.71** |
| Southern Europe/North Africa | - | 3.59 | 3.59 | - | 7.92 | 7.92 | - | 12.17 | 12.17 |
| Eastern Europe | - | 1.53 | 1.53 | - | 2.93 | 2.93 | - | 4.50 | 4.50 |
| Western/Central Europe | - | 3.75 | 3.75 | - | 3.56 | 3.56 | - | 4.37 | 4.37 |
| Africa | - | 1.70 | 1.70 | - | 0.99 | 0.99 | - | 0.47 | 0.47 |
| Middle East | - | 0.20 | 0.20 | - | 0.20 | 0.20 | - | 0.20 | 0.20 |
| Global Highbush Processed Totals | - | 299.9 | 299.9 | - | 368.3 | 368.3 | - | 425.65 | 425.65 |










## Global Highbush Processed Report Team Narrative

While most new highbush blueberry plantings nowadays target the fresh market, investments made in the 90s and in the first two decades of this Millennium have established a major international industry for processed and frozen blueberries, both in terms of the sophisticated infrastructure that exists and also the perennial plants that are already in the ground.

Returns have historically been compelling such that fields were set up specifically with the processing industry in mind – particularly in North America's Pacific Northwest of Oregon, Washington State and British Columbia – but today a large component of the processed industry is a 'byproduct of fresh' industry that plays a useful role in absorbing volumes that would otherwise cause a problematic glut, not to mention absorbing fruit that doesn't meet the increasingly higher quality standards for fresh blueberries at retail. Companies focused on processings, particularly in the Pacific Northwest do indeed continue to plant and vertically integrate. Often profitability is found through vertical and virtual integration between growing, processing, and packing.

As the global fresh blueberry industry has grown, the processed sector has risen in tandem, to the great 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.

The health perceptions and more importantly the storability of frozen blueberries – with a shelf life generally of up to 24-36 months - meant that inventories were cleared out significantly in the early stages of the pandemic, alleviating an oversupply situation that had led to depressed processed blueberry prices for many years. This sudden boom in demand was seen not only in North America but globally, especially in key import markets such as Japan and South Korea.

This resurgence follows years of growers exiting the industry in the Pacific Northwest as prices were so low that tight margins made it less compelling to stay in business, particularly for high-cost properties. This ought to mean that frozen shortages will persist if stability is maintained in the fresh market, although the great unknown is what impact the trend toward machine harvesting for fresh blueberries will have on processed supply. Growers who have made this transition note an increased wastage of marketable fresh fruit, and a portion of those blueberries will very likely be added to frozen blueberry inventories.

While the consumer experience of frozen and fresh blueberries is very different, there is a high degree of connectedness between the two. When there is an abundance of fresh blueberries there tends to be downward pressure on processed demand also. And as much as highbush blueberry growers view their product differently to wild blueberries, when both products are frozen there is little discernible difference in consumers' eyes. If anything, positive connotations with the name 'wild' have given the wild blueberry sector an edge historically versus their frozen highbush blueberry competitors when it comes to pricing.

North America remains the leading processed blueberry growing region and market, having practically doubled since 2010, but China's processed industry is rapidly catching up after jumping three-fold between 2017 and 2020. It is important to note that a disproportionate amount of China's processed fruit is of low grade rabbiteyes destined for the juice and pure 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.

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.

One sub-division of the processing industry that has struggled the most is juice-grade concentrate, for which inventories are extremely high relative to demand. Unlike their peers involved in 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.

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 2 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' 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.

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# HIGHBUSH TOP 10'S

## Highbush Top 10's Data & Figures Production and Planting
*(Denominated in Hectares and Thousands of Metric Tons)*

### 2020 Top 10 Highbush Hectares by Country

| # | Country | 2017 Hectares | 2018 Hectares | 2019 Hectares | 2020 Hectares |
|---|---|---|---|---|---|
| 1 | China | 36,051 | 50,097 | 55,122 | 60,147 |
| 2 | United States | 48,813 | 50,465 | 49,151 | 41,223 |
| 3 | Chile | 15,754 | 15,708 | 15,784 | 18,185 |
| 4 | Peru | 5,992 | 7,884 | 10,964 | 13,613 |
| 5 | Poland | 6,075 | 7,400 | 10,200 | 13,000 |
| 6 | Canada | 12,368 | 12,800 | 12,953 | 11,347 |
| 7 | Mexico | 4,733 | 5,500 | 6,700 | 7,400 |
| 8 | Ukraine | 1,530 | 2,183 | 3,183 | 4,383 |
| 9 | Spain | 3,265 | 3,410 | 3,553 | 3,695 |
| 10 | South Africa | 1,508 | 2,000 | 2,661 | 3,322 |

### 2020 Top 10 Highbush Production by Country

| # | Country | 2017 Production | 2018 Production | 2019 Production | 2020 Production |
|---|---|---|---|---|---|
| 1 | China | 88.53 | 150.76 | 209.02 | 285.05 |
| 2 | United States | 252.77 | 248.91 | 303.69 | 282.69 |
| 3 | Chile | 140.30 | 180.49 | 179.06 | 183.46 |
| 4 | Peru | 48.35 | 80.90 | 134.83 | 179.58 |
| 5 | Canada | 73.53 | 72.50 | 91.50 | 81.78 |
| 6 | Spain | 36.60 | 43.20 | 76.37 | 64.41 |
| 7 | Mexico | 32.85 | 48.60 | 59.46 | 63.05 |
| 8 | Poland | 23.00 | 30.00 | 35.55 | 41.10 |
| 9 | Morocco | 19.73 | 24.40 | 31.75 | 36.00 |
| 10 | Portugal | 7.83 | 11.50 | 16.26 | 21.00 |

### 2020 Top 10 Highbush Fresh Production by Country

| # | Country | 2017 Fresh Production | 2018 Fresh Production | 2019 Fresh Production | 2020 Fresh Production |
|---|---|---|---|---|---|
| 1 | Peru | 47.15 | 78.90 | 125.40 | 162.73 |
| 2 | United States | 135.25 | 137.40 | 168.30 | 153.08 |
| 3 | Chile | 100.87 | 135.49 | 136.96 | 138.78 |
| 4 | China | 43.62 | 68.31 | 102.34 | 131.55 |
| 5 | Mexico | 32.20 | 47.90 | 58.93 | 62.38 |
| 6 | Spain | 34.35 | 40.70 | 71.90 | 57.97 |
| 7 | Poland | 21.75 | 28.50 | 33.80 | 39.10 |
| 8 | Morocco | 19.34 | 23.96 | 30.60 | 34.20 |
| 9 | Canada | 29.26 | 33.95 | 39.29 | 31.03 |
| 10 | Australia | 11.60 | 15.00 | 17.15 | 20.11 |

### 2020 Top 10 Highbush Processed Production by Country

| # | Country | 2017 Processed Production | 2018 Processed Production | 2019 Processed Production | 2020 Processed Production |
|---|---|---|---|---|---|
| 1 | China | 44.91 | 82.45 | 106.68 | 153.50 |
| 2 | United States | 117.52 | 111.51 | 135.39 | 129.61 |
| 3 | Canada | 44.27 | 38.55 | 52.21 | 50.75 |
| 4 | Chile | 39.43 | 45.00 | 42.10 | 44.68 |
| 5 | Peru | 1.20 | 2.00 | 9.43 | 16.85 |
| 6 | Spain | 2.25 | 2.50 | 4.47 | 6.44 |
| 7 | Argentina | 0.00 | 6.50 | 4.00 | 4.80 |
| 8 | Portugal | 0.33 | 0.50 | 1.83 | 3.15 |
| 9 | Netherlands | 1.25 | 1.50 | 1.35 | 2.20 |
| 10 | Poland | 1.25 | 1.50 | 1.75 | 2.00 |

### 2020 Top 10 Highbush Yield by Country

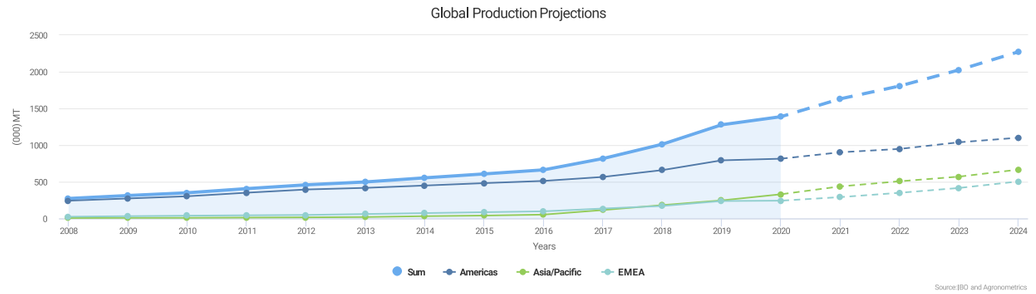
| # | Country | 2017 Yield | 2018 Yield | 2019 Yield | 2020 Yield |
|---|---|---|---|---|---|
| 1 | Portugal | 16,449.58 | 18,760.20 | 21,680.00 | 21,000.00 |
| 2 | Spain | 14,740.23 | 13,846.15 | 23,390.51 | 18,888.56 |
| 3 | Peru | 11,792.68 | 13,501.34 | 17,101.73 | 16,379.06 |
| 4 | Australia | 8,329.98 | 17,333.33 | 11,207.79 | 15,250.12 |
| 5 | Belgium | - | - | - | 14,000.00 |
| 6 | Romania | 11,971.83 | 13,775.51 | 14,000.00 | 13,775.00 |
| 7 | Morocco | 17,616.07 | 13,480.66 | 12,700.00 | 13,457.94 |
| 8 | Namibia | - | 0.00 | 5,000.00 | 13,076.92 |
| 9 | Bulgaria | - | - | - | 12,500.00 |
| 10 | Austria | 8,045.98 | 11,235.96 | 12,777.78 | 12,000.00 |

# GLOBAL HIGHBUSH PRODUCTION PROJECTIONS

## Global Production

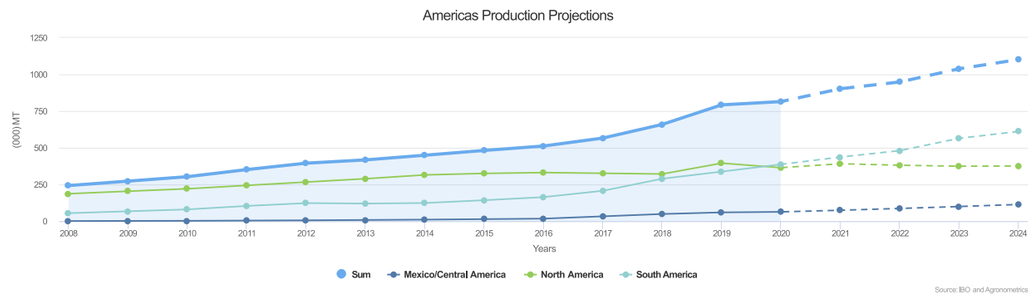
The production forecast built from the current and historic data trends projects the global industry volume crossing the 2.2 billion kilos milestone for fresh and processed by 2024, 2024/25 for counter seasonal producers. This milestone will be driven by continued growth from the Americas, followed by the Asia/Pacific* and then the EMEA region, the latter running about two years behind the Asia-Pacific and at the same rate of growth.

Any forecast ever created is flawed from the moment work begins, but for those of us who depend on them it is a question of how flawed. This year's projections have been vastly improved upon compared to previous versions of the State of the Industry Report. See Projecting Hectares in Production at the end of this section and Production Projections Methodology for more information.



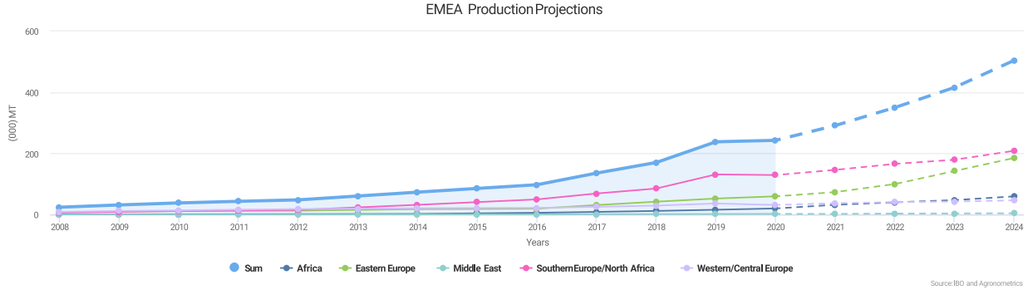

## Americas

The Americas is the world's powerhouse of production. By 2024 - 2024/25, the region is expected to reach 1.1 billion kilos. 2020/21 saw South America overtake North America as the largest producing subregion. This trend is expected to continue as South America is projected to lead production growth with its supply side advantages and its counter seasonal export focus on all global markets. North American production is expected to stabilize, while Mexico/Central America is also growing, albeit at a slower rate than South America.



## EMEA

EMEA is expected to see a healthy growth rate bringing their production to 504 million kilos. 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 nearly catch up to their south western neighbors by 2024. Another origin to watch will be Africa which is also seeing an impressive growth rate with production expected to surpass Western/Central Europe in 2022/23.

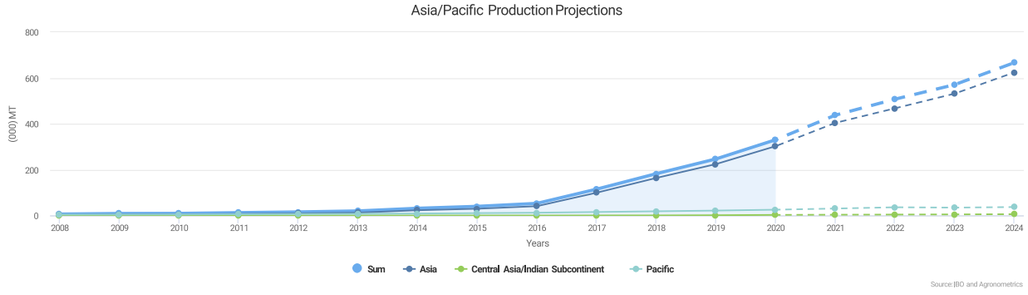



## Asia/Pacific

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

***Inconsistencies in Asia Forecast**

It is important to note that current global volume figures as well as future forecasts assume that the Chinese data is accurate, although it would not be unreasonable for a reader to assume that current figures and future figures may be higher than actuals. Unfortunately the true values for Chinese production are simply not knowable today. The weighting of the Chinese data, which is the single origin adding the most volatility into the historic values, determines whether this is an overstated, or accurate forecast as well.






## Projecting Hectares in Production

From the documentation on the Production Projections Methodology we outline how we use hectares in production and their expected delays to come into production to help estimate the producing hectares for each origin. Where origins take one, two, three, or four years to come into production, we are able to accurately project the hectares that will come into production based on these delays. Combining these origins with their expected yields gives a good base line idea of what will be produced.

The table below shows what percentage of hectares currently in the ground expected to come into production over the next four years. Where we weren't able to forecast hectares based on plantings, the remaining percentage was projected based on regression.

| Year | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|
| Percentage of the volume growth projection tied to current hectares in the ground | 100% | 83% | 61% | 20% |

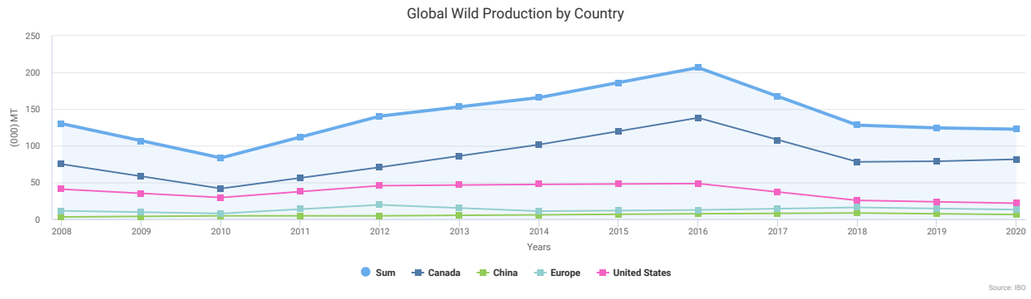
*(the remainder of the projected growth depends on regression formula)*

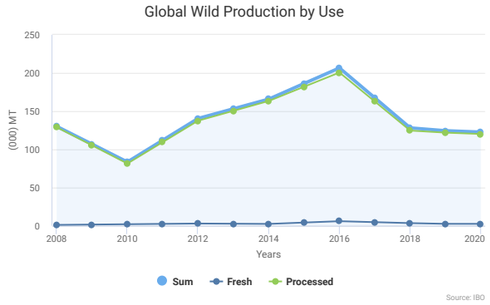
# GLOBAL WILD

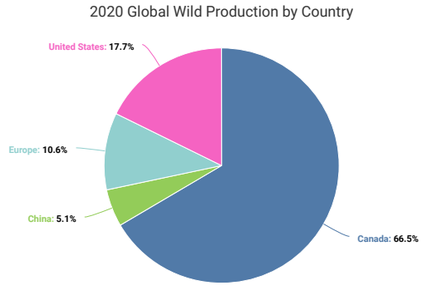
## Commentary on Global Wild Data & Figures Production and Planting
*(Denominated in Hectares and Thousands of Metric Tons)*

### Global Wild Production by Country

| Global Wild Blueberry | 2018 | | | 2019 | | | 20210 | | |
|---|---|---|---|---|---|---|---|---|---|
| Productions Totals | Fresh | Process | Total | Fresh | Process | Total | Fresh | Process | Total |
| Canada | 0.90 | 77.20 | 78.10 | - | 78.90 | 78.90 | - | 81.60 | 81.60 |
| United States | 0.18 | 20225.40 | 20225.58 | 0.20 | 20223.45 | 23.65 | 0.22 | 21.50 | 21.72 |
| Europe | 2.00 | 14.00 | 16.00 | 2.00 | 12.50 | 14.50 | 2.00 | 11.00 | 13.00 |
| China | 0.40 | 8.00 | 8.40 | 0.35 | 7.00 | 7.35 | 0.30 | 6.00 | 6.30 |
| Global Wild Totals | 3.48 | 124.6 | 128.08 | 2.55 | 121.85 | 124.4 | 2.52 | 120.1 | 122.62 |






# Global Wild Report Team Narrative

Following a record total wild blueberry crop in 2016 for the world's leading growing regions in eastern Canada and Maine, a mix of inclement weather, grower attrition, new pest and disease pressure, and highbush blueberry competition triggered a sharp decline in output over the four years to 2020.

North America accounts for the bulk of the world's wild blueberry crop with the native Vaccinium angustifolium as the main species representing 95% of the continent's crop while the remaining 5% is Vaccinium myrtilloides, also known as the common bilberry or 'European blueberry' or 'Bilberry'. 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 75-80% of the North American wild blueberry crop. Quebec is the leading province in terms of volume, followed by New Brunswick, Nova Scotia and Prince Edward Island.

Meanwhile in Maine, factors including aging family farms with little interest from younger generations, high coastal land values prompting sales to private owners, philanthropic sales to nature conservancies, and the possibility of converting fields into wind or solar farms, have all contributed to the state's declining surface area for the crop. Despite this decrease, Maine is still the second-leading growing area on the continent after Quebec with hundreds of growers across the state, including a major operation owned and run by the Passamaquoddy native tribe.

Wild blueberry production in general is variable, not only because of weather difficulties but also the common practice of pruning fields to the ground every other year as a technique to reduce pest pressures. This growing method, together with the colder northern climate, reduces the need for pesticides compared to conventional highbush blueberries, but it also means production in any given year is taking place on fewer hectares than it could be.

Crop variability was traditionally higher in Quebec with its continental climate versus the maritime climates of Maine, New Brunswick, Nova Scotia and Prince Edward Island, but this trend has since reversed over the past few years.

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.

Tougher competition with frozen highbush blueberries in the United States triggered a pivot from the Canadian wild blueberry industry in its export orientation, with the majority of shipments now going to Europe and Japan, while efforts to increase sales in China are also underway. Maine also exports to Japan and the EU and is developing South Korea as there are no tariffs. The Maine industry was targeting China before but the trade war and subsequent counter-tariffs mean this is no longer a viable option.

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, bilberries are 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. The majority of these fruit pickers come from Thailand, with others coming from countries such as Bulgaria and the Ukraine.

## 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.

To be contacted by the report team and add your voice to the 2022 edition of this report **sign up here →**

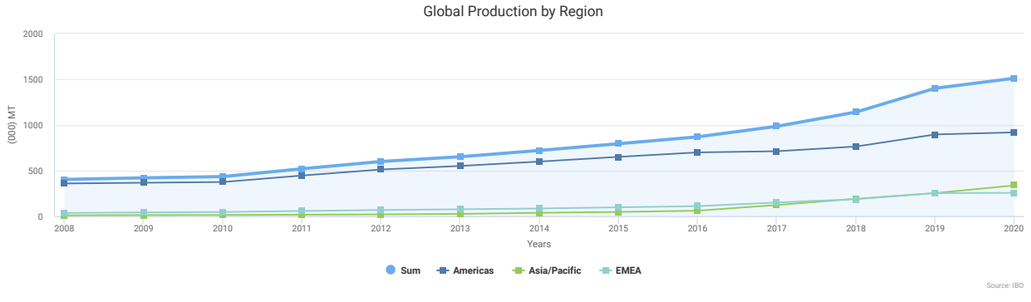
# GLOBAL HIGHBUSH AND WILD COMBINED

## Commentary on Global Highbush and Wild Combined Data & Figures Production

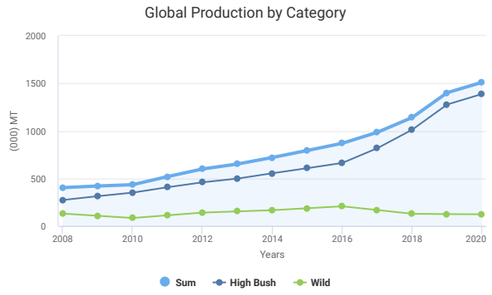
*(Denominated in Hectares and Thousands of Metric Tons)*

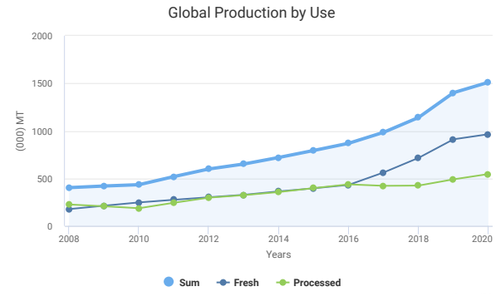
### Highbush and Wild Blueberry Combined Production by Region

| Global Highbush and Wild Blueberry Combined | 2018 | | | 2019 | | | 2020 | | |
|---|---|---|---|---|---|---|---|---|---|
| **Productions Totals** | **Fresh** | **Process** | **Total** | **Fresh** | **Process** | **Total** | **Fresh** | **Process** | **Total** |
| **Americas** | **456.09** | **306.96** | **763.05** | **548.94** | **346.11** | **895.05** | **567.49** | **350.56** | **918.05** |
| North America | 172.43 | 252.66 | 425.09 | 207.79 | 289.95 | 497.74 | 184.33 | 283.46 | 467.79 |
| South America | 235.60 | 53.60 | 289.20 | 282.00 | 55.63 | 337.63 | 320.52 | 66.43 | 386.95 |
| Mexico/Central America | 48.06 | 0.70 | 48.76 | 59.15 | 0.53 | 59.68 | 62.64 | 0.67 | 63.31 |
| **Asia/Pacific** | **98.01** | **92.77** | **190.78** | **137.59** | **115.94** | **253.53** | **173.92** | **162.48** | **336.40** |
| Asia | 80.41 | 91.75 | 172.16 | 116.12 | 115.35 | 231.47 | 147.01 | 161.54 | 308.55 |
| Pacific | 17.27 | 1.00 | 18.27 | 20.44 | 0.50 | 20.94 | 24.55 | 0.70 | 25.25 |
| Central Asia/ Indian Subcontinent | 0.33 | 0.02 | 0.35 | 1.03 | 0.09 | 1.12 | 2.36 | 0.24 | 2.60 |
| **EMEA** | **161.91** | **24.77** | **186.68** | **224.54** | **28.10** | **252.64** | **223.16** | **32.71** | **255.87** |
| Southern Europe/ North Africa | 81.71 | 3.59 | 85.30 | 123.52 | 7.92 | 131.44 | 117.13 | 12.17 | 129.30 |
| Eastern Europe | 40.71 | 1.53 | 42.24 | 49.64 | 2.93 | 52.57 | 55.23 | 4.50 | 59.73 |
| Western/Central Europe | 25.65 | 3.75 | 29.40 | 32.76 | 3.56 | 36.32 | 27.11 | 4.37 | 31.48 |
| Africa | 10.48 | 1.70 | 12.18 | 14.89 | 0.99 | 15.88 | 19.58 | 0.47 | 20.05 |
| Europe | 2.00 | 14.00 | 16.00 | 2.00 | 12.50 | 14.50 | 2.00 | 11.00 | 13.00 |
| Middle East | 1.36 | 0.20 | 1.56 | 1.73 | 0.20 | 1.93 | 2.11 | 0.20 | 2.31 |
| Highbush and Wild Blueberry Combined Totals | 716.01 | 424.5 | 1140.51 | 911.07 | 490.15 | 1401.22 | 964.57 | 545.75 | 1510.32 |






# EDITOR THANKS TO THE TEAM

The 2021 Blueberry SOTIR project is intended to serve the industry with consistent information and intelligence to empower informed decision making; and a healthier more connected industry. This year saw a new approach to this product. The report is and will be in future, produced and led by an expanded professional team.

***Special thanks to Colin, Matt, Claudio, Violeta, and Diego*** 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.

# EDITOR'S CONCLUSION

A traditional concluding summary feels less needed this year in light of the attentive work by the team, the comprehensive analysis of the data, the extent of the narratives, and effective capture of the apparent trends.

To close this year's project, the Editor would like to finish with a few short comments and recommendations to members of the industry who have taken the time to review this work.

**Will the 'Pandemic Effect' Sustain?:** Blueberries have done uniquely well as a category during the pandemic - both for fresh and processed (Noting that the operating reality has been challenging and markets are far from free of volatility). Many existing consumers have increased their purchasing frequency and volume. There are strong indications that new consumers have started up a new blueberry habit. As we look to the future, the question arises, will we be able to keep these new consumers? Can we grow from this new base and expand the total 'share of stomach'? What will it take to do so? While there is no single answer, interviews and trends identified in this year's report indicate that providing consistency of product, packaging, retail pricing, keeping the health message at the forefront, and steadily improving quality to consumers will be central to achieving this outcome. The next 3 points tie in:

**Scaling quality and consistency secures the future:** Time and time again, the message is clear - when we as an industry deliver quality consistently, consumers respond. Conversely, appropriate allocation of fruit which doesn't bring consumers back will need to find appropriate channels or phase out as well. This should be a focus for all committed to a sustainable industry future.

**Help the health message go global:** In every country and region, we have an opportunity to distribute the ongoing research on the benefits of eating blueberries. Additionally, to look for opportunities to increase the research opportunities into the benefits of the crop in your region, especially as associations and commissions.

**"A Daily Dose of Blue" - Generic Promotion Opportunity?:** At the risk of repeating a message from the last State of the Blueberry Industry Report, the editor would like to assert again what may be an underleveraged opportunity for the generic promotion of blueberries. While this is an opinion, it is held by many close to the market and supported by the ongoing research. There is increasing evidence (including clinical research) that daily consumption of blueberries at a set level (roughly 1 cup - 128 grams) has manifold benefits. Is it time we seek to appropriately, with respect for and adherence to the regulations around health claims, make the "daily dose of blue" opportunity more explicit? No doubt there could be a more creative and properly vetted marketing message, but the opportunity stands out as significant yet less frequently discussed. It is one thing for many people around the world to know eating blueberries is a healthy choice. It is quite another for consumers around the world to have awareness that there are uniquely compelling reasons to eat an appropriate amount of blueberries daily. This is the editor's personal "plug" for this idea to be considered by the industry.

**Growth, attrition, consolidation, and keeping the spirit alive:** An uncomfortable reality beginning to permeate the industry today is the bifurcation in competitive positions. As the market matures and with varying levels of margin pressure underway on the supply side, there are many organizations still realizing great success and other operators who increasingly struggle to compete. This trend is present throughout the industry, as has occurred in so many others as they mature, professionalize, receive outside capital, scale, etc. While this is in many regards normal, what is not normal in blueberries is the degree to which the industry achieved great success through a unique level of collaboration and openness when working on issues that are to the benefit of all. This started with a passion for the crop and a collegial approach with others in the industry. This part of the blueberry's history has done much to create the opportunities enjoyed by so many to date. It would be to the industry's benefit for both incumbents and newcomers to seize every opportunity to connect and identify how to serve both the interests of the business as well as the industry. It always pays off on the other end. The USHBC and NABC community and body of work provide the framework for that value that can be created. On a simple level, this means attending the meetings, joining and supporting your local association, and looking for opportunities to connect with others doing the same at home around the world. Hopefully the IBO can help provide a platform for this as well.

**Where will future fruit to serve consumption growth come from?:** While the rate and distribution of future blueberry consumption growth remains a question to be answered, there is clearly consensus that there is a long runway ahead, with extensive room for both existing consumers to eat more of the berry as well as to bring in new consumers. With that assumption in mind, we must ask the question, where will the future supply come from? In recent years a disproportionate amount of the volume growth, especially in the 'spring and fall shoulders' have come from a select group of countries and regions (Peru, Mexico, Morocco, the Pacific Northwest, select parts of eastern Europe, some Regions of China, to name a few). Many of these growing areas are facing challenges to scaling. Will they continue to own a disproportionate share of the 'growth pie' or will others participate in the opportunity as well? The editor believes that the regions growing fastest in the last few years have done so because of a number of comparative advantages. Barring major geopolitical disruptions (possible in some of these countries) I do not see the position of these regions declining soon. With that said, some of them will see reduced growth and others will continue apace. Meanwhile, the editor does see opportunities for others to gain share, again to name a few - Southern Africa, specific regions in the Pacific Northwest, Chile (yes, Chile is far from done), parts of the Black Sea, and regions in Southwestern China. Time will tell and many reading this report will be part of the answer.

**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.

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.

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Elzette Schutte
Estefania Rodriguez
Evgeniy Kuzin
Federico Bayá
Francisco Javier Ortiz
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Gabriel Fonzo Cruzat
Gabriel Wasserman
Garland Reiter
Greg Furniss
Hazret Nebezhev
Henk Vaandrager
Hugh Eisele
Ian Waller
Irina Koziy
Jayson Scarborough
Jesus Valdes
John Shelford
Jon Salters
Jose Antonio Gomez
Juan Jose Flores
Juan Pablo Hube
Justin Mudge
Kasey Cronquist
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Ricardo Monge
Roberto Castañeda
Stanisław Pluta
Steve Taylor
Todd Sanders
Vicente Jimenez
Walter Jager
Winn Morgan

# ABOUT THIS DATA

## Introduction

The State of the 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. 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 countries and sub regions within larger producing nations.

## Sources of Information and Methodology

### IBO Hectare and Production Statistics/Narrative

**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.

### Surveys

A new source of information that is being trialed for this version of the State of the Industry Report is producer surveys to measure the optimism of producers in any given region. Using a figure of speech relevant to the test subject, Peru was the figurative guinea pig, whose producers were able to collectively describe the mood and optimism of producers in the country looking forward for the next four years. Based on feedback from the community we look forward to rolling this product out as a yearly feature for each producing region across the globe.

### Trade statistics

**UN COMTRADE via Agronometrics:** The primary source of import and export data of blueberries from around the world is sourced from the UN COMTRADE data set. 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:

**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.

**USDA via Agronometrics:** The USDA Market News Service is an invaluable source for pricing and movement information for the US Markets. As with the UN COMTRADE data the groupings and associations within the dataset have been modified extensively through the Agronometrics platform to best fit this publication. This information was used extensively in the US and Canadian sections.

### Comparing Counter Seasonal/Split Year Origins

**Source: IBO** - The information for all origins that cross the new year are being reported from July of the reporting year through June of the following year. This change applies to all Southern Hemisphere producers including South Africa, Argentina, Chile and Peru. Mexico is also treated in a similar fashion. Where production numbers from northern and southern producing regions are compared in the charts, both complete seasons are reported as the year the season began.

**Source: UN Comtrade via Agronometrics -** Because many important exporters only report data export data through 2019, namely Peru and Chile, (the world's largest exporters by volume), all trade statistics have been reported through 2019. Because these origins are also counter seasonal or split year producers, using the methodology above would require export statistics to be cut back further to the 2018/2019 season to offer a full season. Consequently, the editorial decision was taken to report only yearly statistics calculated as calendar years to offer as complete a picture as possible. The report team is aware that this is not the optimal solution and will be incorporating complementary data sets to improve on the timeliness of the trade statistics the report offers in future versions.

## Missing or Anomalous 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.

## IBO Hectares and Production Statistics

**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. For the sake of transparency, we make the publicly available official or academic data found through our research here:

| | Hectares | | Production (000) MT | |
|---|---|---|---|---|
| Origin | 2018 | 2020 | 2018 | 2020 |
| Anhui | 3000 | 6667 | 10 | 40 |
| China Others | 6647 | 8500 | 7.1 | 68 |
| Chonqing | 1000 | 1150 | 1 | 4 |
| Guizhou | 14967 | 150000 | 72 | 85 |
| Hubei | 2100 | 2667 | 3.1 | 11 |
| Jiangsu | 2200 | 2000 | 5.5 | 10 |
| Jilin | 4000 | 4000 | 6 | 15 |
| Liaoning | 6134 | 7800 | 25 | 35 |
| Shaanxi | 263 | 330 | 0.06 | 0.05 |
| Shandong | 5600 | 7333 | 32.2 | 33 |
| Sichuan | 4000 | 6667 | 7 | 50 |
| Yunnan | 3333 | 5000 | 5 | 30 |
| Zhejiang | 2100 | 700 | 12 | 5 |
| Totals | 55344 | 202814 | 185.96 | 386.05 |



**Wild Volume in Europe and China** – In the absence of volunteered data from a reliable source, the report team estimated the production values as best they could based on historic data and circumstantial conversations with industry participants.

## UN COMTRADE

**Accuracy -** This data is made available through the HS code 081040 which includes the imports and exports of Fresh Cranberries, Blueberries and Other Fruits of The Genus Vaccinium. Unfortunately, six digits of resolution is a limitation of the dataset 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.

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 which are included in the HS code used by the report. For all intents and purposes the data reported by the US and Canada, the origins that comprise the subregion, has been excluded from our content to the best of our ability. This includes the removal of inter group trade within the subregion statistics, which infers its import volume form the export statistics of its trade partners.

> **United States -** Within the US the COMTRADE data that would have otherwise been used to assess the volumes imported has been completely replaced by data from the USDA Market News.
>
> **Canada** – Since we don't have a source for internal movements directly from Canada, such as the USDA, the imports are implied from Canada's trade partners. One notable exception that is missing is the United States, Canada's largest trade partner. In order to report on Canada's trade and to give an idea of their production window export statistics are inferred from the reported imports by the USDA market news data.

**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.

**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, ignoring the trade between these three destinations as they mostly consist of re-exports from Hong Kong to mainland China.

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

**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. As previously mentioned, many of the largest exporters in the world like South Africa, Peru and Chile, only make data available until 2019, hence the entire report has been cut this year in order to offer a more complete picture of the trends and movements of global imports and exports.

# YIELD CALCULATION METHODOLOGY

The yield figures of this report are calculated by dividing the production total in kilos by the planted hectares for each producing region as volunteered by members.

To take into account the delay of newly planted fields in entering the commercial market, they are removed from the calculation based on their predominant chill level type and climate of the region. This methodology helps offer more stable yields, factoring out the varying growth levels of each producing region. As a consequence, the report offers more accurate comparisons across regions and improved production forecasts. The assumptions we are making are the following:

**High Chill Growing Regions**
Three to four years to enter commercial production.

**Traditional Low Chill Growing Regions**
Two years to enter commercial production.

**No Chill and Tropical/Subtropical Growing Regions**
One year to enter commercial production.

The calculations are made based on the first commercial crop, not necessarily the production peak. We recognize this isn't perfect, as the timing of entry to commercial production is subject to many factors and can vary within regions as well as between regions, but it offers a simple methodology that helps more accurately model reality. Below is the list of origins that are included in this report with the corresponding delays used to estimate the entrance of the first commercial crop.

| Production Area | Production Delay (Years) |
|---|---|
| **Americas** | |
| **North America** | |
| **Canada** | |
| British Columbia | 4 |
| **United States** | |
| **Northeastern** | |
| New Jersey | 3 |
| New York | 3 |
| **Southern** | |
| Arkansas | 3 |
| Florida | 2 |
| Georgia | 2 |
| Miss/Louisiana | 2 |
| North Carolina | 2 |
| Texas | 2 |
| Southern Others | 2 |
| **MidWest** | |
| Indiana | 4 |
| Michigan | 4 |
| Midwest Others | 3 |
| **Western** | |
| California | 2 |
| Oregon | 3 |
| Washington | 3 |
| **Mexico/Central America** | |
| Mexico | 1 |
| Guatemala | 1 |
| Central America Others | 1 |
| **South America** | |
| Peru | 1 |
| Ecuador | 1 |
| Argentina | 2 |
| Uruguay | 2 |
| Colombia | 1 |
| Chile | 3 |
| Brazil | 1 |
| South America Others | 2 |



| Production Area | Production Delay (Years) |
|---|---|
| **Asia/Pacific** | |
| **Pacific** | |
| Australia | |
| NSW (New South Wales) | 2 |
| Queensland | 1 |
| Victoria | 3 |
| Tasmania | 3 |
| Western Australia | 2 |
| South Australia | 2 |
| New Zealand | 3 |
| Indonesia | 1 |
| Philippines | 1 |
| **Asia** | |
| **China** | |
| Shandong | 3 |
| Liaoning | 3 |
| Guizhou | 3 |
| Jilin | 4 |
| Jiangsu | 3 |
| Hubei | 2 |
| Zhejiang | 2 |
| Shaanxi | 3 |
| Anhui | 3 |
| Sichuan | 2 |
| Chonqing | 2 |
| Yunnan | 1 |
| China Others | 2 |
| Japan | 2 |
| South Korea | 2 |
| Vietnam | 1 |
| Thailand | 1 |
| **Central Asia/Indian Subcontinent** | |
| India | 2 |
| Kazakhstan | 3 |

| Production Area | Production Delay (Years) |
|---|---|
| **EMEA** | |
| **Western/Central Europe** | |
| UK | 3 |
| Ireland | 3 |
| France | 3 |
| Germany | 3 |
| Netherlands | 3 |
| Belgium | 3 |
| Switzerland | 3 |
| Denmark | 3 |
| Austria | 3 |
| Sweden | 3 |
| **Eastern Europe** | |
| Baltics | 3 |
| Poland | 4 |
| Czech Republic | 3 |
| Slovakia | 3 |
| Romania | 3 |
| Ukraine | 4 |
| Belarus | 4 |
| Croatia | 3 |
| Serbia | 3 |
| Montenegro | 2 |
| Macedonia | 3 |
| Bulgaria | 3 |
| Russia | 4 |
| Republic of Georgia | 3 |
| **Southern Europe / North Africa** | |
| Spain | 2 |
| Portugal | 3 |
| Morocco | 1 |
| Italy | 3 |
| Greece | 2 |
| Tunisia | 2 |
| **Middle East** | |
| Turkey | 2 |
| Egypt | 2 |
| Israel | 2 |
| Jordan | 2 |
| UAE | 2 |
| Saudi Arabia | 2 |
| Iran | 3 |
| **Africa** | |
| South Africa | 2 |
| Namibia | 1 |
| Zimbabwe | 1 |
| Mozambique | 1 |
| Zambia | 1 |
| Kenya | 1 |
| Ethiopia | 1 |
| Ghana | 1 |
| Angola | 1 |
| Africa Others | 1 |

# PRODUCTION PROJECTIONS METHODOLOGY

Recognizing the importance of accurate projections in the development of the industry, the methodology used to predict future production has been vastly improved upon compared to previous versions of the State of the Blueberry Industry Report.

Although a production forecast can be made simply from the historic production numbers by projecting them forward using regression, the report team believes that this interpretation offers limited insights without the nuance and depth that can otherwise be obtained.

The methodology we chose was to infer the projection of volumes based on two independent forecasts of hectares in production and yields, since by multiplying the two factors the outcome would be a projection of production given a reasonable yield and stable change in plantings.

This methodology lays out the logic and processes used to come up with the values offered in the Global Highbush Production Projections.

## The Theory Behind the Forecasts

Any forecast looks to take historic trends and assumes that some component of this trend is an indicator of what will happen or will repeat itself in the future. To this end, understanding the data and what makes it change over time is key.

**Why use hectares planted to help forecast production?**

Because of the nature of the hectares planted data and the work done in the yields section estimating the delays in production, this data gives us a unique opportunity to project hectares that will be coming into production – more information on this available below – offering a forward look into how markets will develop based on a relatively reliable indicator. Where hectares are forecast based on regression, it's important to keep in mind that planting blueberries is difficult and expensive, as well as the fact that pulling out an orchard takes away future earnings from selling fruit produced and has a very real emotional cost for producers who have invested time, energy and resource into their fields. These two factors mean that there needs to be very real reasons for change, generally meaning that increases and decreases in hectares planted happen at stable rates.

**Why use yields to help forecast production?**

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, leading to a 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.

## Hectare Projections Based on Plants in the Ground

Building off the work described in Yield Methodology, the projections this year take into account the delay from planting to production for each individual origin, helping not only formulate assumptions about how many hectares are currently in production, but also allowing the methodology to make accurate assumptions about the number of hectares that will come online in the next couple of years - depending on the production delay for each origin - based on plants that are currently in the ground.



## Hectare Projections Volunteered by Member Organizations

The survey sent out to producing regions allowed for the inclusion of estimated future plantings. In the cases these were made available, they are used as the best estimate of future plantings.

## Hectare Projections Based on Regression

Where the delays to production are less than four years and forward-looking planting data has not been volunteered, linear regression is used to top up the remaining periods necessary to cover the four-years being forecast by the report. To make the forecast more relevant to the latest trends, all linear regressions for hectares are calculated from the 2014 – 2014/2015 season forward based on hectares in production, as well as expected hectares in production where available.

## Yield Projections

In the theoretical part of this methodology the reasoning and advantages of using yields are well covered. 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. To offer the most stable projections possible all of the available history has been used to create the linear regressions. Where there are less than three years with which to make a projection, the highest historic value of yields is projected forward for the four year period. Finally as a safeguard so that values don't get too out of hand, any origin calculated to improve, or decrease their yields by more than 500 kilos/ha per year, have the change in yields capped at the same amount.

## 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.

## Accuracy of Projections

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.

GLOBAL STATE OF THE BLUEBERRY
REPORT | **2021**