

Grape Expectations

Perspectives on Agribusiness and Sustainable Development
from Within Chile and Peru's Table Grape Industry



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August 13, 2019

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Executive Summary

This paper provides an overview of the market dynamics and the social and environmental impact of the table grape industry in Chile and Peru.

As major table grape exporters, Chile and Peru are affected by global changes underway across the industry. With rising costs and quality standards, sophisticated table grape agronomy is now a prerequisite for industry participation. Production regions are expanding, reducing supply gaps and associated premium price windows. New varieties offer potential for improved production and new marketing channels, but genetic privatization comes with significant participation barriers and fees. Large domestic-market oriented producers, like China and India are expanding exports, increasing competition for more established exporters.

While targeting similar export markets, Chile and Peru's table grape industries have important points of contrast. Peru's relatively recent ascent in production volume has led it to become the world's fourth largest exporter. Peruvian growers are mostly large vertically integrated operations that have been relatively quick to adopt new varieties. The Chilean industry—for decades the world's top table grape exporter—consists of both smaller and larger growers, and has been slower to adopt new varieties.

The table grape industry has significant impacts on land, labor, and water. Small growers face both new and persistent challenges. Water availability, for continued grape production and for community uses, is both a key impact and a risk. Finally, while wages have dramatically increased, working conditions and benefits continue to cause concern.

These dynamics present opportunities and challenges. Successful table grape businesses will seek a strong positioning in genetics and varieties, excel in production efficiency and quality, develop innovative marketing that enables premium pricing, and contribute positively to community development and ecological sustainability.

Introduction

The primary goal of this paper is to inform table grape market participants – from growers to importers to policymakers – about trends in the industry, strategies for business success, and environmental and social challenges to be addressed.

However, this paper also serves a broader purpose. The evolution of the Chilean and Peruvian table grape industry is an illustrative example of the rapid globalization of the produce export industry and its economic, environmental, and social impacts. As such, this project offers a window into a critical international agricultural development question: To what degree should export-oriented, labor-intensive, high-value agriculture be promoted as a strategy to enhance rural community development? What social, environmental, and market dynamics enable and detract from this industry's positive development contribution?

My desire to investigate these questions arose from two simple observations. First, because of high wages, U.S. agriculture struggles to compete in the most labor-intensive crops when lower-cost competitors have overlapping production windows. But the U.S. excels at producing crops that can be highly mechanized. At the same time, a disproportionate amount of historical international agricultural development literature and organizational effort focuses on supporting smallholders to compete in lower-value crops that have been mechanized; relatively little emphasis is placed on labor-intensive fresh export crops.

These dynamics suggest that high-value, labor-intensive export crops have inherent potential to improve incomes in developing countries because these countries have comparative advantage. However, a labor-intensive, export-orientated agriculture system can entail profound community development tradeoffs, from national food security priorities, to equitable access to capital and technology, to tensions around resource distribution. Given the globalization of the produce industry that is already well underway, it is important to understand these impacts and the factors that shape them, and ultimately, to promote a sustainable produce sector.

This paper's particular focus on the Latin American table grape industry reflects research undertaken to inform Agriculture Capital, a sustainability-focused permanent crop fund. Agriculture Capital manages a large table grape operation in California and was interested in a global perspective on table grape industry dynamics. Prior to starting this research, I had accepted a full-time position working on their table grape strategy and I wanted to be as informed as possible about both the market and the broader societal implications of the work.

My relative focus on agribusiness strategy and production at scale took me to the heart of current issues and tensions in agricultural development more broadly. In my research, I witnessed both the potential for workers to earn growing wages in high-value, export-oriented crop production and the ways in which the power of large grower/shippers and crop breeders can challenge more traditional agricultural livelihoods nearby and many miles away. I saw how the way in which the industry is structured – from the exclusivity of varieties, to the upfront and annual operating costs, to the highly technical requirements to meet quality specs— helps shape how the industry's benefits are distributed. As such, I hope to demonstrate how the market and

sustainable development dynamics of table grape production go hand in hand. I sought out and heard diverse local perspectives on these dynamics and will present those voices in this paper.

This paper is organized according to these two emphases, business and sustainability. The first three sections provide context on the table grape business, beginning with the global picture then focusing separately on Peru and Chile. The next section presents the perspectives of growers and experts on issues of land, water, and labor. The final industry outlook section synthesizes conclusions on both business strategy and social and environmental responsibility.

Methods

To carry out this research, I conducted field visits and phone interviews and consulted written reports. I traveled to Chile and Peru in January and February of 2019 and arranged meetings and field visits with leaders in the table grape industry and experts on relevant sustainability issues. I also carried out informal interviews with workers during field visits. All interviews were carried out in Spanish.

I prepared questions in advance and took extensive notes from these meetings and photos from the fields. Throughout the paper, I chose to reference quotes in general terms, rather than identifying companies or individuals, so as to ensure interviewees were comfortable being candid in sharing their perspectives.

Geographically, I visited the table grape growing regions of Ica and Nasca, Peru, and the Aconcagua valley north of Santiago as well as growers in region V south of Santiago.

Upon returning to the U.S., I continued the project by compiling relevant industry research and carrying out additional phone interviews with experts in Chile and Peru.

This approach to research has offered me an overarching perspective on the industry and significant breadth in topics and issues covered and individuals spoken to. This enabled the project to identify big-picture trends, draw broad conclusions and to raise additional questions that could be answered by further research. While the research methodology enabled me to identify trends, it did not enable me to gain deep expertise in some of the specific issues covered.

Table 1: List of Organizations Interviewed/Visited

Organization Name	Organization Description	Individual Title	Country
SAFCO Peru	Large Grower/Exporter	Commercial Director	Peru
San Clemente/Fruit Grower's Alliance	Large Grower/Exporter	Board Member	Chile
Universidad Catholica de Valparaiso	Agronomy Department	Professor	Chile
Uvanova	Crop Consultancy/Network	Crop consultant	Chile
Inia, Uvanova	Crop Consultancy, Grape Breeder	Crop consultant	Chile
Gesex	Large grower/exporter	CEO	Chile
Agricola Brown	Mid-size grower/exporter	CEO	Chile
IQonsulting	Industry Consultancy	Market Researcher	Chile
Chilean Fruit Exporters Association	Industry Association	President, Secretary General	Chile

Campos del Sur	mid-size grower	General Manager	Peru
Viticola, S.A.	mid-size grower	Owner, workers	Peru
Mifruta	Small Growers Association	Agronomy consultant, secretary	Chile
Subsole	Large grower/exporter	Agronomy director, manager	Chile
Agricola Lopez	Small grower	Farm manager, workers	Chile
Equidad	Public policy & human rights advocacy group	President, Independent Lawyer	Peru
International Water Resources Association	Research Agency	Director	Chile
Independent Consultancy	Water Engineering	Consultant	Peru
Universidad Catolica del Peru	Water Resources	Professor	Peru
Instuto de Promocion para la Gestion del Agua (IPROGA)	Water Management Association	President	Peru
Universidad Catolica Sedes Sapientiae	Labor Law	Professor & Consultant	Peru
Universidad Catolica del Peru	Water Resources	Professor & Consultant	Peru

Global Industry Overview

It is important to understand Chile and Peru's table grape industry in a global context because global trends and business imperatives directly affect and apply to actors in Chile and Peru.

Production

Originating in the Mediterranean and southwest Asian regions, table grapes (*vitis vinifera*) are now grown on six continents. Table grapes naturally thrive in climates with warm, dry summers and cool winters. New production techniques and plant growth regulators have enabled expansion into semi-tropical regions such as northern Peru, Brazil, and southern Mexico. Relative to many other commercial permanent crops, table grapes have a relatively rapid maturity ramp-up, with most vines reaching nearly full production by year four or five.¹



















































Table grapes also require a relatively high-cost per acre crop to install and produce. Labor demand is highly seasonal with approximately one half of the labor requirement in pre-harvest tasks, and the other half in harvest and packing.²

Volume and Geography

With appropriate technology, conventional table grapes have up to an 8-10-week shelf-life which has enabled their global trade.³ Since table grapes do not ripen off the vine, refrigeration and other post-harvest techniques are necessary to ensure adequate shelf-life for transportation.

Global production and consumption are geographically spread out primarily because of the seasonal nature of production and demand for year-round fruit. The top six global importers are in the northern hemisphere.⁴ These large importers, such as the U.S., E.U. and China, consume predominantly their own fruit during their summer growing season, but supplement supply with fruit produced in the southern hemisphere during their off-season. Thus, southern hemisphere producers such as Chile, Peru, Australia, and South Africa have grown to become important export regions. Table 2 shows production window of top global exporters.

Table 2: Table Grape Export Timing by Country

Export Windows												
Country	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
India												
Australia												
Chile												
Mexico												
China												
U.S.												
Peru												
South Africa												

¹ UC Davis Table Grape [Cost Studies](#), 2018

² *ibid.*

³ Cristoso et al., UC Davis, [Table Grape Post Harvest Quality Maintenance Guidelines](#)

⁴ USDA Foreign Agricultural Service (FAS). December 2018 [Fresh Deciduous Fruit](#) (Apples, Grapes, & Pears): World Markets and Trade Report.

As illustrated in Figure 1, global grape production vastly exceeds exports as much of the crop is consumed locally; exports made up only 13% of global production in 2017/18. The top two global producers, China and India, export only 3% and 6% respectively of total production.⁵

“China has volume, but their issue is quality”

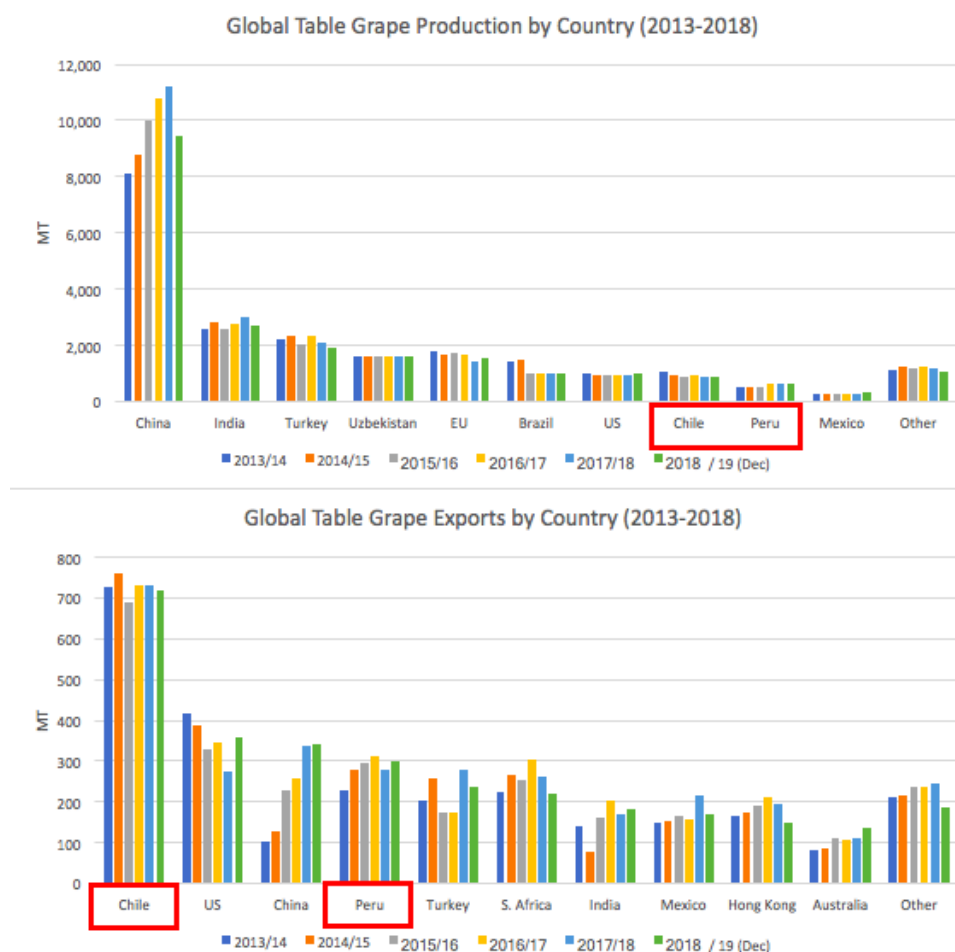
-Large Grower/Shipper, Chile

“India is worrisome given their overlap with our exports to Europe”

-Market Consultancy, Chile

China’s rapid rise in exports is notable. The country represented 46% of global production and 11% of exports in 2017/18. Exports have grown at a 26.4% CAGR from 2013/14-2017/18, moving China from the world’s 10th to the world’s 2nd largest exporter in just five years. While this is mostly a concern for northern hemisphere exporters to China, Peru’s early season also overlaps with China’s late season, and China’s increased investments in cold storage will further extend their calendar footprint.

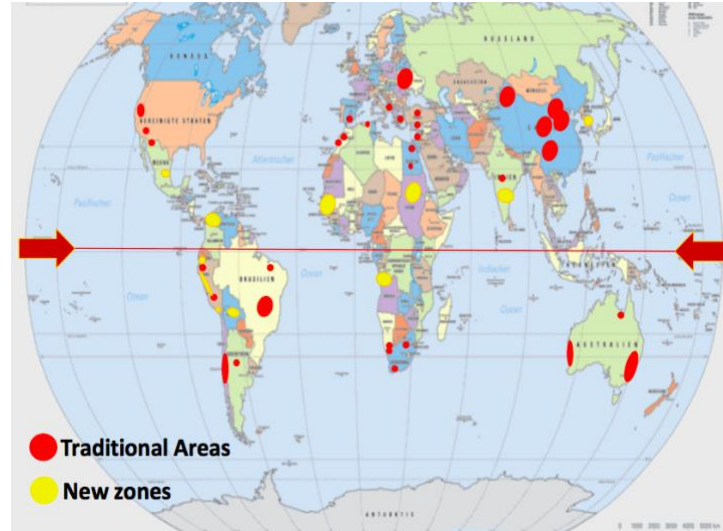
Figure 1: Global Production and Exports of Table Grapes by Country, 2013/14-2018/19⁶



⁵ USDA Foreign Agricultural Service (FAS). December 2018 [Fresh Deciduous Fruit](#) (Apples, Grapes, & Pears): World Markets and Trade Report.

⁶ USDA Foreign Agricultural Service (FAS). December 2018 [Fresh Deciduous Fruit](#) (Apples, Grapes, & Pears): World Markets and Trade Report.

Figure 2: Table Grape Producing Regions, Traditional and New⁷



Agronomy

To maximize revenue, growers are seeking to produce a high yield of grapes with the following attributes:

- Size (large berries are preferred)
- Color (red, green, or black, consistent within bunch)
- Cosmetics (free from blemishes)
- Texture (generally firmness is preferred)
- Flavor (appropriate sugar and acid levels for the variety)
- Post-harvest life (resistant to dehydration and infection)

Growing high-quality, high-yield grapes is difficult. The capital and labor intensity of production and the sheer number of variables that growers can change make table grapes a uniquely complicated crop to grow well. Growers can change variables including:

- The planting density,
- the trellis (type and angle),
- the pre-harvest labor practices (type, timing, and intensity of pruning, intensity of thinning and leafing, girdling),
- the growth regulators (timing and rate),
- the pest management approach,
- the harvest instructions (timing, number of passes, ripeness standards).

All of these decisions can depend on soil conditions, the variety being grown, the weather, and the market and post-harvest objectives.

⁷ Adapted from: Oscar Salgado, San Lucar [2018 Presentation](#), South African Table Grape Overview

Mastering this complexity through rigorous agronomic practices is fundamental to the profitability of a grape grower. The revenue side is straightforward: higher quality grapes in more volume sell for a higher value. The cost side is less obvious, but equally important. Unlike many goods, it is cheaper to produce a higher quality grape than a lower quality grape. That is because a significant portion of labor is often directed to reducing defects or otherwise avoiding lower-quality fruit; the more consistent the quality, the less labor required. Efforts to address poor quality can add up at the thinning stage (where in-field cultural practices often result in too many bunches or bunches that are too dense), the harvest practices (where uneven ripening can result in many passes and significant time spent trimming out low-quality grapes), and in post-harvest cleaning and sorting. According to experts, a grower's technical production ability was overwhelmingly the most-referenced factor attributed to a company's success or failure.

“In California, there are different people in charge of water, agronomy, and labor. In Chile, it's all one team.”

-Large Grower/Shipper, Chile

“Growers often fail because they don't get production right and don't have the right expertise.”

-Large Grower/Shipper, Peru

“Higher density planting is helping with yield, but involves higher cost. We've got 1,300 boxes in the first year of production on our Sweet Globe variety”

-Mid-Size Grower, Peru

Given how essential agronomy is to success, growers have adopted strategies to address the inherent complexity of table grape production and ensure they are optimally managing their fields. First of all, in order to reduce complexity many growers choose to grow only the number of varieties they feel they have the capacity to understand well. For example, many smaller growers (<50 ha) seemed to dedicate themselves to no more than four varieties. Large growers often build in-house agronomy programs with centralized decision making, such that spraying, irrigation, and labor crews work in a coordinated fashion towards the same objective. Some growers hire committed consultants with years of table-grape specific expertise to address particular challenges. This is especially critical because in an underperforming block, small management changes, like a new pruning style, can have a significant impact. Large growers often also run tests on production

practices, some with the rigor of test blocks and controls, trying techniques including a new trellis angle, hormone dosage, or pruning strategy. They often collect production data from field to consumer to gain actionable insights on effective agronomic strategies. Most large growers will dedicate space to test-blocks for new varieties to learn management and evaluate performance before deciding to plant at commercial scale.

Table grape growers often are resistant to sharing their proprietary production approaches with competitors; agronomy is one of the key distinguishing factors between grape growers. The degree of complexity means that there is no one textbook for growing table grapes and individual growers often figure out unique approaches that work for them.

Varieties & Genetics

Numerous table grape varieties are available to growers. Varietal diversity is behind the industry standard 3-colors (red, green, and black) and spreads harvest windows throughout the season.

Historically, the industry has been dominated by a handful of top varieties (i.e. flame, sugraone, thompson, crimson, and red globe) some of which are grown in most production regions. However, new varieties with improved attributes have proliferated in recent years. Growers are undergoing a rapid varietal transition which will have profound implications across the industry.

New varieties are often bred with the goal of helping growers compete in a world with higher labor, land, and input costs. They can reduce management by naturally thinning and ripening more consistently with fewer inputs. According to experts in Chile and Peru, average yield for new varieties often exceeds 1,400 boxes per acre, whereas traditional varieties often achieve around 1,100.

While many new varieties are bred for improved quality (e.g. size, coloration, texture), most fall within the traditional grape quality standards and neutral flavor profile that has dominated the industry for the last century. However, breeders have begun integrating more powerful flavors from the traditional European Muscat varieties of grapes to the Concord (*Vitis Labrusca*) flavors native to North America into mainstream production. These varieties are a small but growing share of global production. They have the potential to rejuvenate the grape category, which in North American and European markets is seeing increased competition from berries and tropical fruits.

“Often, breeders over-promise cost savings of new varieties. Some are easier to manage, but once you factor in royalties, you make about as much as you used to”

-Agronomy Advisor, Chile

“Apples provides an interesting comparison to grapes, only ten years ahead. They also had variety proliferation and consolidation.”

-Market Consultancy, Chile

“Some of these new varieties aren’t different for the consumer, it’s just easier to achieve the same quality standard”

-Large Grower/Shipper, Chile

“We’re betting on the strong flavored varieties”

-Large Grower/Shipper, Peru

Most of the table grape varieties grown in the 20th century were publicly bred and publicly available. However, with funding cuts to public breeding programs and industry consolidation, private breeding programs became a significant force in the 21st century and now represent most new varieties planted for export.

The top five private breeders today (SNFL, IFG, Sun World, Arra, and ITUM) have significant market power. With 20-year plant patents in place, these programs charge substantial royalties to grow their varieties. With some regional variation, the typical cost structure is that growers pay an upfront planting fee of \$1000-2000 and then 5% of all FOB revenue once in production.⁸ To varying degrees, these programs limit the availability of their varieties in order to protect quality standards and to keep prices high by ensuring demand exceeds supply. Some programs set acreage caps on their varieties. Other programs more explicitly restrict the growers allowed to grow their varieties or the importers allowed to market them. Excluding some growers is justified as a means to ensure that varieties are produced to top-quality standards, thus protecting

⁸ Expert interviews. Note: Free On Board refers to the price paid for the goods at the point of shipping origin.

the variety and breeder's reputation. This system of varietal access is likely to further favor well-connected and capitalized large growers at the expense of smaller growers.

Post-Harvest

Table grape packing remains a highly manual process across all sizes of packing facilities. Across Chile and Peru, table grapes are brought into the packing house in crates and are packed inside. Trimming ensures that only high-quality berries get packed; this is particularly important for export as berries with cosmetic issues in-country can further deteriorate during transport. Some growers opt to have workers trim out poor-quality berries in the field, while others do that initial step indoors. Within the packing shed, grapes are sorted by grade, which is predominantly size-based, but other factors are considered as well. I observed one packer, however, sorting by shade of green in order to export uniformly-colored boxes of grapes to markets that had unique color preferences.

The stages of the process are as follows:

1. Trimming
2. Sorting/Grading
3. Packing
4. Quality Control Inspection
5. Pre-Cool
6. Cold Storage/Fumigation

While there are limited economies of scale in packing, higher-capital intensive facilities have some advantages. In these facilities, conveyer belts can move the boxes to the workers, increasing the time workers spend trimming, sorting, and packing. Larger facilities also tended to have enclosed walls and were operated at lower temperatures, which helps preserve post-harvest quality of the grapes. These facilities are also often associated with local cold-storages which reduces the time from harvest to cold storage. Many export-oriented growers in Chile and Peru aimed to limit the time between harvest to cold storage to within 6-12 hours.

Marketing

For growers in an export-oriented market, marketing generally involves working with an exporter, an importer, or directly with a retailer.

As both grocery and production consolidation accelerates, an increasing number of retailers are seeking direct contract relationships with reputable growers. Growers often compete aggressively for these relationships because they offer reliable sales, no sales commission, and the opportunity to secure higher pricing. Most growers who are able to make these connections do not seek to commit more than 70% of projected volume to programmed business. Doing so would risk coming short of committed volume and quality given that growers must make commitments before the grower has an accurate quality and volume estimate.

A few exporters mentioned a substantial (\$2-4/box) “trust premium” that importers and retailers are willing to pay to growers that consistently deliver high-quality grapes and that transparently describe the quality of their grapes to customers. As a highly perishable commodity, quality specs for grapes remain somewhat subjective. As such, trust between a buyer and seller is essential. Sales relationships are rarely short-term transactions with salespeople attempting to inflate the quality of their product, but rather transparent partnerships where buyers expect no surprises and are often invited to provide input on factors such as harvest timing.

“Importers are going to get hurt the most as the dynamic is shifting towards direct relationships; Wal-Mart has almost thirty buyers here”

-Large Grower/Shipper, Chile

“Quality is fundamental. You need to convince the retailers that your waste will be less, that your grapes will stay good for longer”

Large Grower/Shipper, Chile

“Two reasons retailers go direct: to secure high-quality fruit (they pay better but they get guaranteed supply). Or, they want to pay less.”

-Large Grower/Shipper, Chile

While the trend of retailers purchasing directly from growers is accelerating, importers continue to play an important and wide-ranging role. Growers rely on importers because of their ability to identify the highest paying customers for each box of grapes. Importers are able to build close relationships with retailers by providing valuable category management services and sharing market insight.

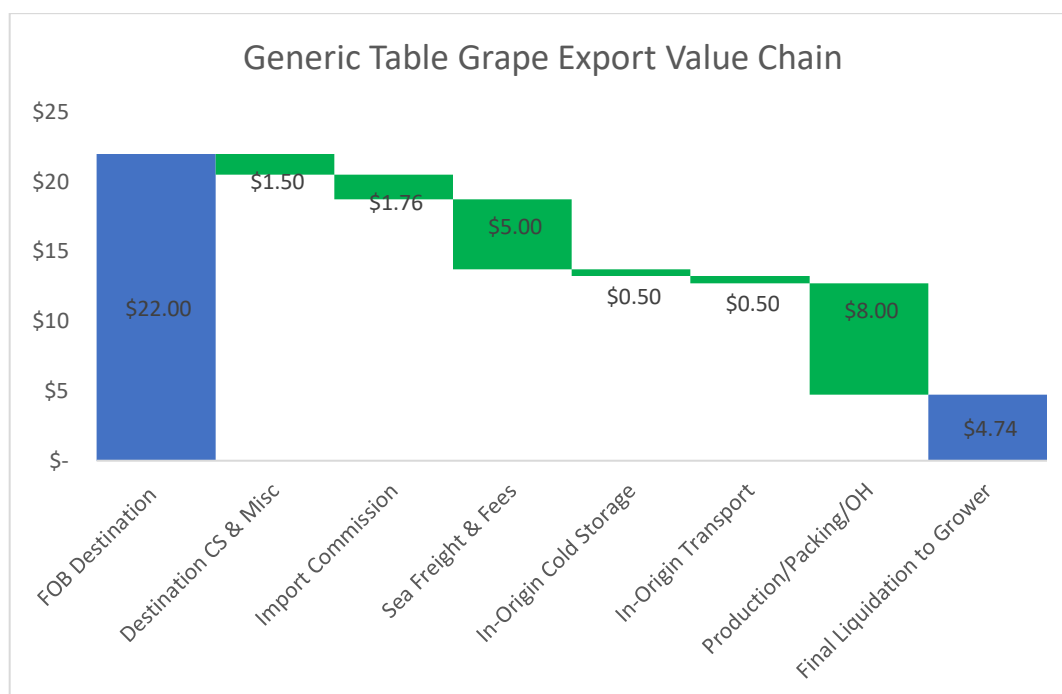
With slight variation between Chile and Peru, importers often offer the following terms and services to growers:

- 7-10% commission charged on all fruit sold.
- Production advances paid to grower of \$6-10/box with up to 50% given out up to 6 months prior to shipment and at least 50% given once fruit is on the water.
- Advance coverage of all logistics expenses for sea freight, destination cold-storage and any repackaging expenses. These are later passed on to the grower.
- Liquidation of all value above the advances and commission back to the grower.

In grower-importer transactions, much of the price risk, and opportunity, is borne by the grower. If the final sale value falls below the value of production logistics and commission, the importer will take the commission and, rather than return money to the grower, will be owed money by the grower. While this appears on the surface like a highly advantageous position for the importer, the reality is more complex. First, importers who fail to achieve above-market pricing are likely to lose suppliers; thus, in reality, importers may choose to reduce their commission in the aforementioned situation in order to preserve the relationship. Second, by issuing advances of 3-7 times their final

commission value, importers bear significant financial risk in the transaction. If a grower were to fail to deliver promised quality or volume, importers may fail to sell sufficient product to make up for their advances and thus be contractually able to collect money from the grower. While laws do protect the importer's interest, there are instances of growers going bankrupt or changing their company name and ownership in order to avoid payment. Given the interdependent nature of these import transactions, a significant level of trust is required from both parties.

Figure 3: Generic Latin American Import Value Chain⁹



Global Opportunities and Challenges

Global export regions are undergoing major shifts. There is no question that one route to success in the table grape industry has involved being in the right place at the right time. Specifically, growing grapes in new geographies that fill in high-priced seasonal gaps can be highly lucrative – for a time. However, with the entrance of Peru and other new players, the global table industry has nearly achieved stable year-round supply; there are fewer and fewer seasonal gaps to fill. Growers who focused on seasonal windows in traditional, higher-cost producing regions, like California's Coachella Valley or Chile's northern desert, have found themselves outcompeted by these new production regions. As global supply spreads geographically, efforts to extend one's growing season within the same geography are becoming less viable.

Increasing quality and facilitating exports in low-cost production regions of close proximity to key customers reflects a new key geographic frontier. India and China, in particular, present an opportunity to capture the Asian and European markets, and slowly displace existing exporters.

⁹ Values approximated based on expert interviews

Despite these two countries having large volumes in production, the shift from fresh domestic consumption to export-oriented production requires significant capital and expertise. However, both countries recent acceleration in exports suggests that they may be on the path to making this transition.

As global production continues to settle on the most competitive regions for their respective export markets, success depends increasingly on business fundamentals. In other words, to succeed in table grapes, being in the right place at the right time is necessary but not sufficient. The degree of variation in business performance among table grape producers within the same region is striking. In Ica, Peru, for example, one grower discussed consistently making a significant profit for the last few years, while their neighbor went bankrupt.

Production efficiency, top quality grapes, and effective marketing are three core elements to succeed in this dynamic environment. Efficiency and quality depend on sophisticated agronomy, a well-trained and committed workforce, and grower-friendly varieties. In this highly competitive environment, effective marketing can help growers capitalize on the increasing availability of high-flavored varieties.

Peru Industry Overview

Industry History

Despite Peru's ideal climate for table grape production, the country has only recently become a major force in production. While neighboring Chile was experiencing a boom in fruit exports in the 1980's, the development of export-oriented agriculture in Peru was constrained by political violence and macroeconomic instability.¹⁰

However, in the last thirty years, Peru's table grape production has accelerated rapidly. Commercial table grape production began in earnest in the late 1990's following a series of political and regulatory reforms that stabilized the economy, increased labor market flexibility and encouraged foreign direct investment. Peru's government recognized the importance of sanitation for export facilitation and created SENASA, the National Plant and Animal Health Service, in 1992. This was followed by the establishment of PROVID (Asociacion de Productores de Uva de Mesia de Peru) in 2001, which has helped the industry grow by providing technical support and export market facilitation.¹¹ Adoption of rootstock from California further enabled the industry to overcome severe pest pressure from phylloxera, and major water projects vastly increased irrigated acreage.¹² Chile's established table grape industry provided significant financial and technical support to Peru's burgeoning production, and Chilean industry leaders remain active in Peru's table grape sector.

“Before the land reform in the 1970's there was huge land concentration and inequality. The reform capped land holdings at 30 hectares and gave smallholders 3-5 ha and formed cooperatives. It turned out to be a total failure”

Mid-size Grower, Peru

“There was no agricultural investment during all this reform.”

-Mid-size Grower, Peru

Production and Exports

In 2018/19, Peru was the world's ninth largest producer and third largest exporter, with total exports of 47 million 8.2kg boxes.¹³ As of 2018, Peru has approximately 47,000 acres under production making table grapes Peru's 4th largest commercial fruit crop in acreage.¹⁴

Average FOB price from 2013/14-2017/18 was \$2.34/kg (\$20.23 per 19-lb box equivalent).¹⁵ This is high relative to both U.S. and Chilean average FOB prices. Experts attribute limited competing supply during Peru's production window, appealing varietal mix, and fruit quality (particularly size) to Peru's current premium.

¹⁰ Velazco, Jacqueline, “[Agricultural Production in Peru](#) (1950-1995): Sources of Growth” Chapter in “Agricultural Investment and Productivity in Developing Countries”, UNFAO.

¹¹ [Provid Website](#), accessed August 2019

¹² CTGC Peru Production Report, 2018

¹³ Agraria, “[Peru exporto mas de 47 millones de cajas](#)”, April 2019; Note that Peru exports in 8.2kg boxes whereas the U.S. uses 19-lb boxes.

¹⁴ Ibid. Ministry of Agriculture, Peru for other crops.

¹⁵ [AgroData](#) Peru; Data converted to 19-lb equivalent for ease of comparison

Figure 4: Peruvian Table Grape Exports 2001-2018 Marketing Seasons¹⁶

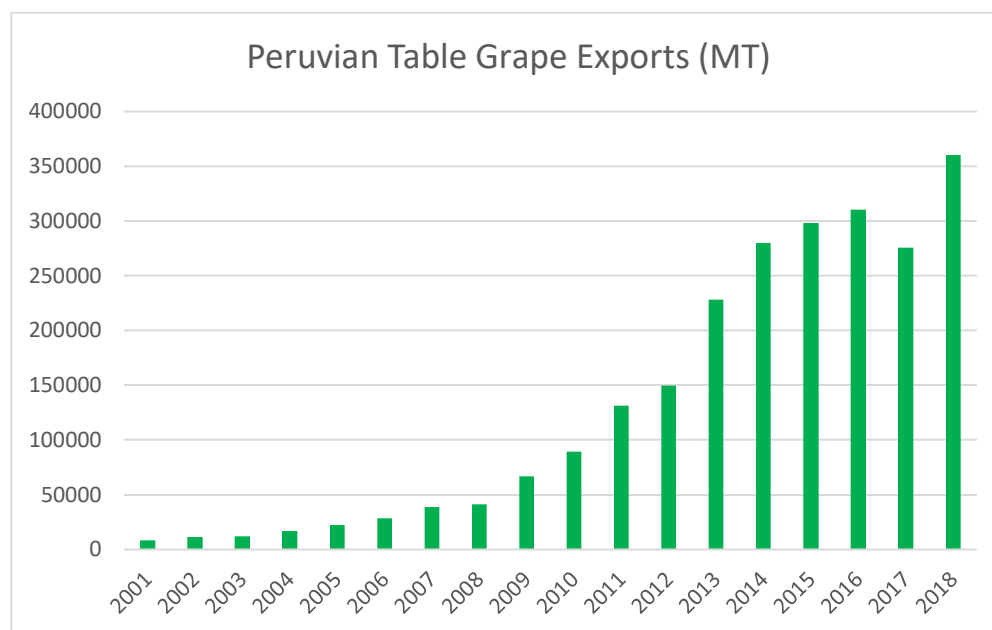


Table grapes are Peru’s highest value agricultural export, reaching \$721 million in 2017/18.¹⁷ Grapes reached 45% of total fruit export value in 2014.¹⁸ With the rise of other export crops, largely blueberries and avocados, table grapes share of fresh fruits exports has dropped to 29% in 2018.¹⁹

“We may have a few years of turbulence with the new production coming online. Prices might not stay as high as they’ve been.”

Mid-size Grower, Peru

“Agronomic expertise is expensive and hard to find in Peru. We don’t have the training we need”

-Large Grower/Shipper, Peru

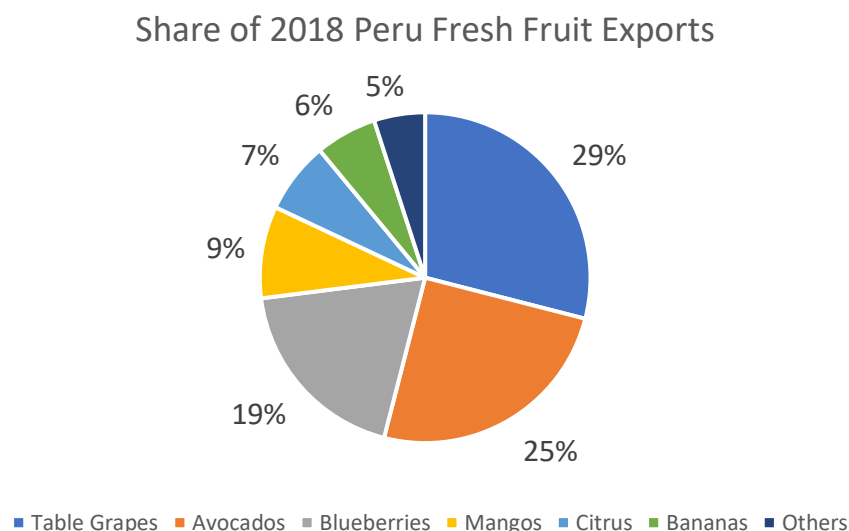
¹⁶ Index Mundi, [2018](#); Note: marketing year runs from October-September and is indicated by the second year of the split year. Data in Grapes Foreign Exchange Section

¹⁷ CTGC Peru Production Study, 2018

¹⁸ Fuentes, Alejandro Leon, from Presentation “[Peruvian Table Grape Industry Overview](#)”, 2019; original data from Asociacion de Gremios Productores Agrarios del Peru (AGAP)

¹⁹ Ibid.

Figure 5: 2018 Share of Peruvian Fruit Exports (FOB Value)²⁰



Peru's export destinations are relatively diversified. Today, the U.S. market is Peru's primary customer. As illustrated in Table 3, the U.S. increased in importance as an export destination, jumping from 25% of export value to 38% between 2012 and 2016. As will be discussed below, this shift in export destinations corresponds with a shift in varieties grown in Peru, with increased plantings of seedless grapes which are preferred in Western countries. The vast majority of grapes exported to Asia are destined for China. While Peru's counter-seasonal supply to Europe remains minor relative to that of India, Chile, and South Africa, experts believe there is opportunity for growth in the market; Of all major suppliers that export during competing windows, Peru's volume has accelerated the fastest.²¹ However, there may be reduced import demand in the European market in November and December if European producers are able to copy California's model of growing late varieties and using cold storage as season extension; reports indicate this shift is taking place.²²

Table 3: Peru's Export Destinations by Value²³

	2012 FOB (\$US)	% 2012 Total	2016 FOB (\$US)	% 2016 Total	FOB CAGR 2012-2015
North America	\$77,125,655	25%	\$252,605,873	38%	35%
Asia	\$97,442,140	31%	\$195,915,862	29%	19%
Europe	\$112,400,262	36%	\$160,902,841	24%	9%
Latin America	\$20,282,536	7%	\$51,827,876	8%	26%
Other	\$2,254,803	1%	\$10,587,281	2%	47%
Total	\$309,505,396		\$671,839,733		21%

²⁰ Ibid.

²¹ Universidad Catolica del Peru, "[Planamiento Estrategico para la Uva Fresca](#)", 2017

²² Fresh Plaza, "[Lengthening of Seasons in Europe](#)", 2019

²³ SUNAT, "[Estadística de Comercio Exterior](#)", from "[Planamiento Estrategico para la Uva Fresca](#)", 2017

Peru has favorable trade relationships with key table grape importers, including China, Hong Kong, South Korea, Thailand, Vietnam, and the E.U., and the U.S., through multilateral and bilateral agreements. Relative to the U.S., Peru's early season production has a particular advantage in exports to China, having received duty-free access in 2015. U.S. producers currently face a 53% tariff.²⁴ Peru has access to the same wide range of export markets as California producers, with the exception of Japan, though Japan is in the process of permitting Peruvian grape imports of specific varieties.²⁵

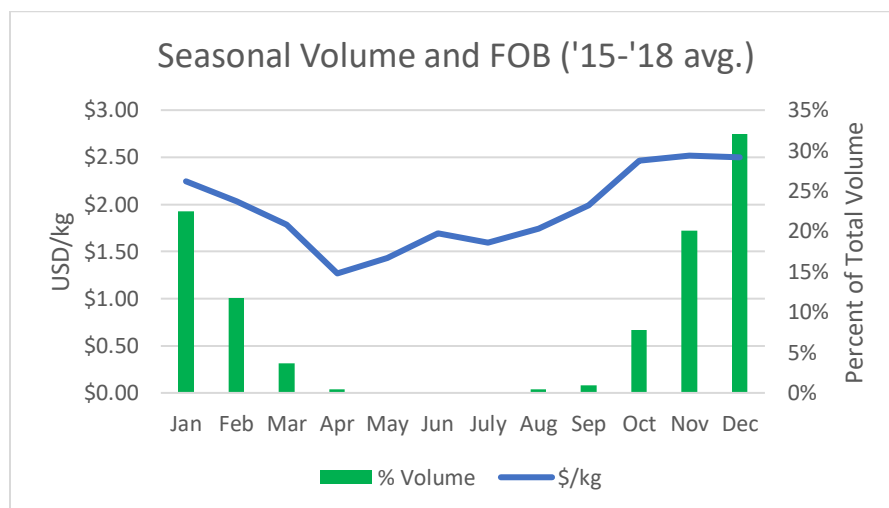
Production systems in Peru tend to be technologically advanced. Drip or micro-jet irrigation is nearly universally practiced, and in desert regions, producers use high-frequency applications of nutrients and water to create ideal growth conditions. Relative to Chile, Peru achieves a faster ramp to full production, with vines first harvest at 12-14 months after planting. Additionally, experts cite average yields on traditional varieties of 1,200 19-lb boxes per acre in southern Peru and up to 1,400 boxes per acre in the sub-tropical north. Peru

Organic production is highly limited in Peru. While limited pest pressure enables organic production, the primary challenge is post-harvest. The conventional sulfur dioxide treatment is not permitted, and alternative methods generally do not provide enough shelf life for grapes to arrive in the U.S. in top quality.

Seasonality

Peru's table grape availability runs from October through March, with peak availability in November, December, and January. Peru's early season exports receive the highest prices because few other exporters compete in this window. Prices tend to decline in February and March as Peru's exports overlap with those of Chile.

Figure 6: Seasonal Volume and Export FOB Price ('15-'18 Avg.)²⁶



²⁴ Growing Produce, "[Table Grape Exports Take Hit](#)", 2018

²⁵ CTGC Peru Production Study, 2018; Fresh Plaza, [Peru expects its grapes will reach Japan this year](#).

²⁶ Agrodata Peru, [Blog](#), 2013-2019

Varieties, Nursery, and Genetics

Peru is undergoing a rapid varietal transition. Red globe, a seeded grape historically favored in Asian markets, had historically been the dominant variety grown in Peru. However, its relative share began falling rapidly in 2013/14 as new seedless varieties came into favor, dropping from 77% to 40% of total export volume between 2013/14 and 2018/19.²⁷ Meanwhile, the share of licensed varieties grew from below 2% of total in 2013/14 to 24% of total in 2018/19.²⁸ According to growers, the main large grape breeders are present in Peru, with IFG having the largest share, followed by SNFL then Sun World. New varieties can rapidly gain share in Peru because of the Peru's relatively expedient quarantine process requirements (18 months) for new varieties and the climatic conditions that enable a rapid production ramp.

Grape breeders have historically been less restrictive about access to proprietary genetics in Peru relative to Chile. However, with the rapid increase in volume of proprietary varieties, many expect the process in Peru to become more exclusive. Already, only 8 Peruvian companies account for 60% of licensed variety exports, and these companies may work to limit the access of their competitors.²⁹

Table 4: Peruvian Grape Exported Volume by Variety Type 2018/19³⁰

	All Grapes	Just Licensed Varieties
Red Globe	40%	
Red Seedless	16%	45%
Green Seedless	14%	43%
Black Seedless	0%	11%
New Varieties	24%	
Non-Declared	6%	

Climate and Production Regions

With access to irrigation, Peru's coast has ideal microclimates for table grape production. Unlike more Mediterranean climates, Peru experiences limited temperature fluctuations, conditions which some experts refer to as a "natural greenhouse". This enables growers to accurately predict and plan the timing of their harvest, which can even enable them to schedule a boat for shipment months in advance. While production expanded initially in the desert areas south of Lima, current production is spread throughout the Peruvian coast. Production is growing most rapidly in the north, with 61% volume growth from 2013-2018, compared with 42.8% in the south.³¹

²⁷ Fuentes, Alejandro Leon, from Presentation "[Peruvian Table Grape Industry Overview](#)", 2019; original data from Asociacion de Gremios Productores Agrarios del Peru (AGAP)

²⁸ Ibid.

²⁹ Ibid.

³⁰ Ibid.

³¹ CTGC Peru Production Report, 2018;

Significant differences in production exist between the regions north of Lima and those south of Lima. While the south of Peru has a warmer climate than Chile, production systems remain relatively similar: yields are relatively similar, dormancy occurs in winter (though it is often induced artificially with growth regulators), and pest pressure is relatively low. By contrast, the north has a semi-tropical climate that is more humid which results in higher pest and disease pressure and higher labor requirements. In the North, vines grow more rapidly and require more pruning. Furthermore, growers in the North have had more struggles with quality issues according to industry experts. Harvest in the northern regions is heavily concentrated in the early part of Peru's export season, November and December, whereas southern regions begin increasing harvest volumes in November and continue through April. With additional water projects coming online, volumes have been growing more rapidly in north of Lima, and these regions now made up 41.2% of total 2017 export volume.

“In the North, production costs are much higher. You have to do double pruning and a lot of crop protection. And it’s hard to produce after November because of the rains. The advantage is land is cheaper and there’s water”

Large Grower/Shipper, Peru

“In regions where they don’t have chill hours, the use of artificial dormancy means the plants have much shorter productive lives, sometimes only 10 years”

-Agronomy Professor, Chile

Table 5: Percent of Exports by Region 2017³²

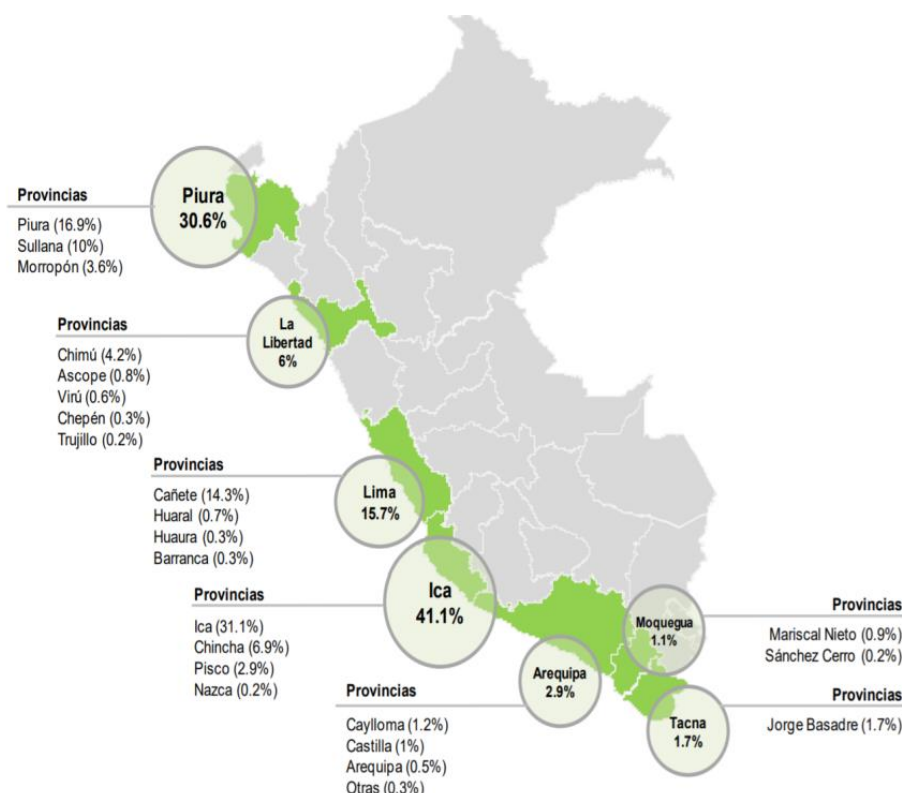
	% 2017 Export Volume	% Change 2013-2017 Export Volume
North of Lima	41.2%	50.7%
Central (Lima)	13.5%	6.1%
South of Lima	45.3%	37.1%

The coast of Peru is affected by El Nino, a weather anomaly that occurs approximately every four years. El Nino increases rainfall and humidity during the growing season, which can cause landslides and contribute to grape quality issues. Its effects tend to be felt more intensely in the north. In 2017, an intense El Nino contributed to Peru's first annual decline in table grape production relative to the previous year in over 20 years.³³

³² Ibid.

³³ Ibid.

Figure 7: Production regions of Peru by 2013/14 Volume³⁴



Industry Structure

The Peruvian table grape industry is dominated by large, vertically integrated firms. These firms generally manage production, packing, and export and primarily export volume from their own acreage. Smaller and mid-size growers often manage their own marketing directly, contracting with larger businesses for packing and cold storage services.

Out of approximately 118 grape exporters in Peru, the top 20 account for over 75% of export value.³⁵ The market is highly competitive and the largest company only accounted for 12% of export value in 2018/19.³⁶

Challenges and opportunities

Peru's climate and market conditions position the country as a top exporter. Geographically, Peru is the closest counter-seasonal supplier to the U.S., which will continue to offer a dependable market. Peru's warm climate enables both high-yields and large, premium fruit. Short quarantine

³⁴ World Bank “[Análisis Integral de la Logística: Uva](#)”, 2016

³⁵ World Bank, “[Análisis Integral de la Logística en el Perú: Producto Uva](#)”, 2018

³⁶ Fuentes, Alejandro Leon, from Presentation “[Peruvian Table Grape Industry Overview](#)”, 2019; original data from Asociacion de Gremios Productores Agrarios del Peru (AGAP)

periods, rapid ramp-ups and the high capital intensity of growers has enabled rapid redevelopment into new varieties. Production costs remain relatively low in Peru.

However, Peru's industry will face considerable challenges as it matures. Peru's early season faces significant the potential for price risk as large northern hemisphere growers extend their seasons with new varieties and cold storage.³⁷ Additionally, Peru's transportation and logistics system is highly inefficient and is not currently equipped for the projected increase in fruit exports. A world bank study found logistics costs represent approximately 34% of in-country costs for table grapes in the Ica region, much of which result from the frequent delays that can interrupt the cold chain.³⁸

³⁷ Fresh Plaza, [Lengthening of Seasons in Europe](#), 2019; [Decofrut Season Overview 2017/18: Chilean Table Grapes](#), January 2019; Expert interviews on U.S. trends.

³⁸ World Bank, "[Análisis Integral de la Logística en el Perú: Producto Uva](#)", 2018

Chile Industry Overview

Industry History

Grapes have been produced in Chile since the 1600's. By the 1940's Chilean table grape growers were exporting table grapes to the U.S. and Europe.³⁹ However, volumes were small and most Chilean farmers were focused on staple crop production.

Growth in export-oriented agriculture was constrained in the 1950's and 1960's by interventionist agricultural policies. The government fixed input and output prices, set up a powerful marketing board, put up barriers to trade.⁴⁰ The market liberalization that began in 1973 opened up foreign markets and protected private property, including giving title to beneficiaries of prior land reforms. These conditions enabled investment in export-oriented fruit production and positioned small and mid-size growers as the backbone of Chilean agriculture.

Table grapes have been and remain the leading crop in Chile's fruit boom. But the industry has undergone significant changes since its initial expansion. In the 1980's, large shippers and exporters acted as powerful gatekeepers to smaller growers, both facilitating financing and technical assistance, and keeping a significant portion of the returns throughout the value chain.⁴¹ The sector has slowly tended towards increased vertical integration and consolidation, but small and mid-size growers remain at its core. In recent years, Chile's dominance in the table grape industry has been increasingly threatened by the rise of alternative counter-seasonal producers.

Production and Exports

Table grapes are the largest fruit crop by area planted. In 2017, the table grape industry had 118,000 productive acres, accounting for 15% of total fruit acreage in Chile.⁴²

Chile is the world's largest exporter of table grapes, with over 84.6 million 19-lb boxes equivalent exported in 2017/18, representing 24% of global table grape exports.⁴³ However, in the last five years, the industry has experienced a contraction in acreage and volume. Five-year average volumes dropped 12.4% between 2008-2012 and 2013-2017, from 96.2 to 84.6 million 19-lb box equivalents.⁴⁴ Key factors affecting the industry include competition with Peru and other exporters, growing labor costs (which disproportionately affects table grapes relative to other crops given high labor requirements), and Chile's delay in planting new varieties. These challenges have disproportionately affected northern producers, whose export season has greater overlap with Peru, and small to medium-scale growers who lack access to capital for varietal replacement.

³⁹ CTGC Chile Production Paper, 2010

⁴⁰ Foster, William et al. "[Chilean Agriculture and Major Reforms](#): Trade, Poverty and the Environment", 2006.

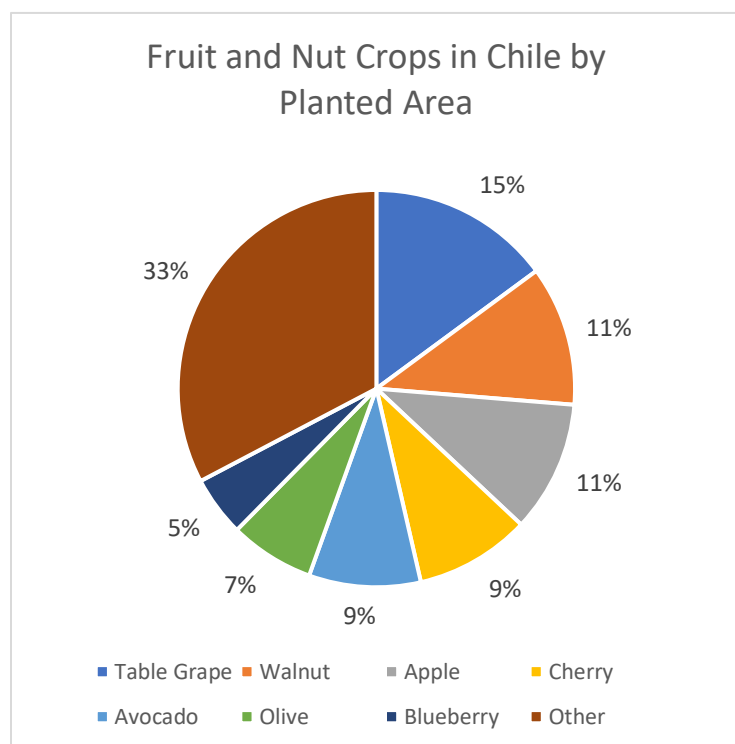
⁴¹ One industry expert claimed that many exporters pocketed drawbacks from shipping companies that they portrayed as expenses to growers.

⁴² [ODEPA](#), Chile, 2018, Ficha Nacional

⁴³ USDA Foreign Agricultural Service (FAS). December 2018 [Fresh Deciduous Fruit](#) (Apples, Grapes, & Pears): World Markets and Trade Report.

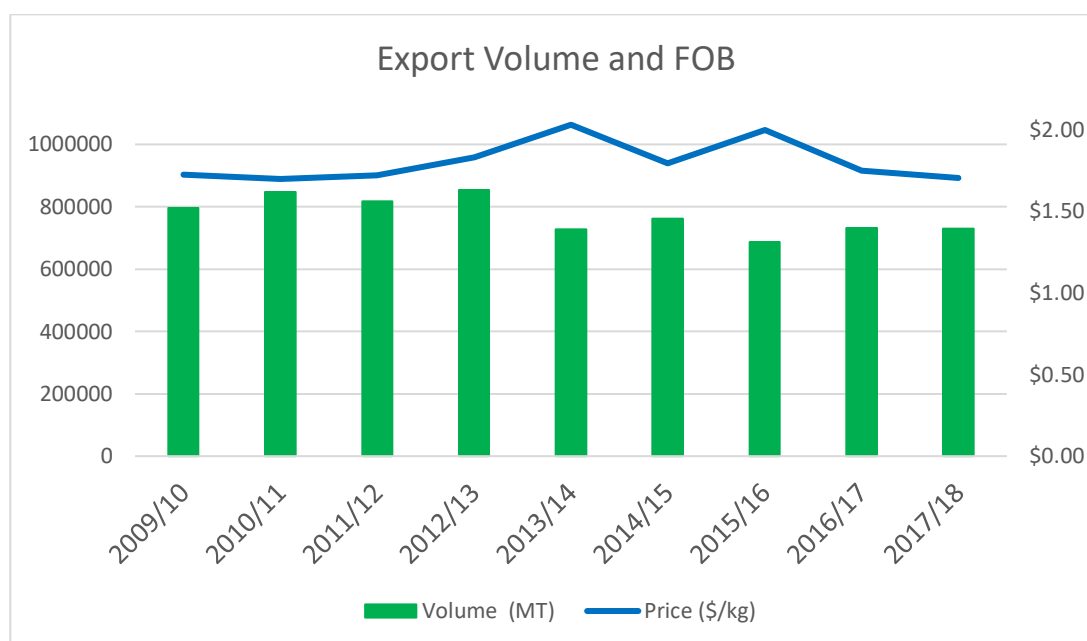
⁴⁴ Ibid.

Figure 8: Fruit and Nut Crops in Chile by 2018 Planted Area⁴⁵



FOB prices out of Chile averaged \$16.01 per 19-pound box between the 2013/14 and 2017/18 seasons. Despite rising costs and decreased supply, the price exhibits a relatively flat trend and remains significantly lower than that of Peru.⁴⁶ Among the factors contributing to this low-price situation are low volumes of proprietary varieties, the influx of Peru's early season volume, and the significant concentration of industry volumes within a short window. Additionally, as recently as November 2018, the U.S. had required Chile to do a phytosanitary Methyl Bromide fumigation for exports to the U.S. that was not required in Peru. This added cost and decreased the attractiveness of Chilean fruit.⁴⁷

Figure 9: Chilean Grape Export Volume and FOB Price 2012/13-2017/18⁴⁸



⁴⁵ ODEPA, Chile, 2018, Ficha Nacional

⁴⁶ ODEPA, Chile, 2018, Ficha Nacional

⁴⁷ CTGC Peru Production Study, 2018

⁴⁸ ODEPA, Chile, 2018, Ficha Nacional

“The price situation has made some people pessimistic. I don’t think volume will change much, but hectares planted will go down”

-Market Consultancy, Chile

“Chile will keep Crimson. There will continue to be space for growers without new varieties”

-Market Consultancy, Chile

“Chile’s volume peaks Mid-March and there’s too much supply. But there’s nowhere to go because you run into Peru or Mexico. I think some small growers are going to get out”

-Agronomy Professor, Chile

Approximately 75% to 80% of total table grape production is exported, with the remainder—generally lower quality fruit—going toward raisins, juice, or domestic consumption.⁴⁹ As illustrated in Table 6, North America is Chile’s primary export market, representing 48% of 2017/18 exports.⁵⁰ As Peru’s share of the U.S. market has grown in Chile’s early season, industry experts hope to expand market share in Europe and Asia.

Table 6: Chilean Table Grape Exports by Destination⁵¹

	2017/18 Volume (MT)	% Total 2017/18 Volume	% Change 2012/13-2017/18
USA/Canada	364,700	48%	-11%
Far East	188,090	26%	3%
Europe	128,860	18%	-30%
Latin America	56,738	8%	-23%
Middle East	10,710	1%	27%

Production systems are diverse, with significant variation between large, well-capitalized producers and smaller growers. Production systems in Chile are predominately trellised in the Spanish overhead “parron” style, though some larger growers are switching to the open-gable trellis more commonly found in the U.S., or the South African systems, which blend characteristics from both systems. The open-gable system, while it may not maximize sunlight capture, can be more worker-friendly because fruit is closer to the ground. Yields in Chile are comparable to those in the U.S., with an average of around 1,100 19-lb equivalent boxes/acre.⁵² Smaller farmers in Chile’s central region often use furrow irrigation, while most larger growers have switched to drip. There is no commercial scale organic table grape production due to the post-harvest challenges.

⁴⁹ Expert interviews

⁵⁰ ASOEX, through [Decofrut Season Overview](#) 2017/18: *Chilean Table Grapes*, January 2019

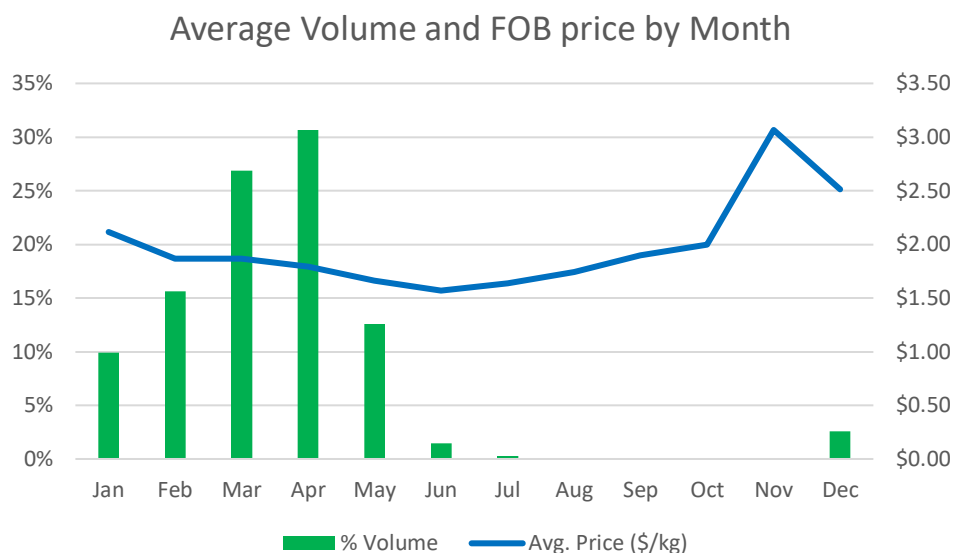
⁵¹ ASOEX, through [Decofrut Season Overview](#) 2017/18: *Chilean Table Grapes*, January 2019

⁵² Expert Interviews.

Seasonality

Chile's table grape exports are heavily concentrated in March and April, overlapping with the exports of Australia, South Africa, and India. This reflects a high degree of volume concentration in a short period relative to many other global producers.

Figure 10: 2014-2018 Average volume and FOB price by Month⁵³



Varieties, Nursery, and Genetics

Currently the most common table grape varieties produced in Chile are Red Globe, Crimson, Thompson and Flame. These four varieties represented 77% of the varieties grown in Chile for commercial production in 2017/18.⁵⁴ Flame has seen the most significant acreage reductions. This is primarily because, as an early season variety grown predominately in the north, it's season overlaps most significantly with Peruvian exports; the variety has also had issues with quality and size. Relative to Peru, Chile produces a higher volume of red varieties, which are losing share to green varieties in U.S. consumption and production.

As illustrated in Figure 11, licensed varieties are growing rapidly, approximately doubling in volume every year since 2013/14. In 2017/18, licensed varieties represented 11% of total exports.⁵⁵ Of the new varieties, Timco (SNFL), Sweet Celebration (IFG), and Sweeties (Arra 15) have the largest volume.

Chile has been slower to adopt new varieties than many other export-oriented producing regions. Experts attribute this to Chile's long quarantine process, high percentage of supply from smallholders without capital for redevelopment, and limitations on genetic material from breeders.

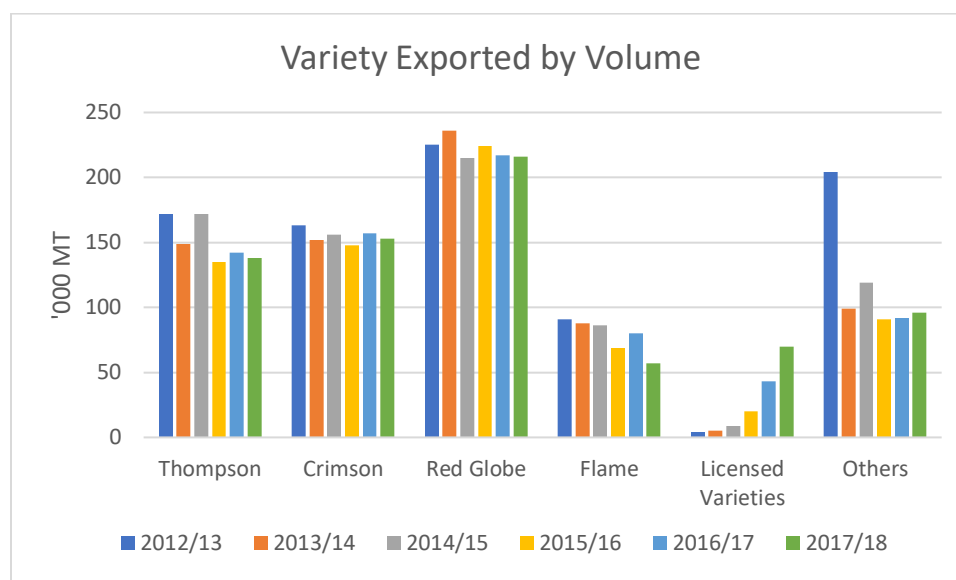
⁵³ ODEPA, Chile, 2018, Ficha Nacional

⁵⁴ [Decofrut Season Overview](#) 2017/18: Chilean Table Grapes, January 2019

⁵⁵ Ibid.

In Chile, access to new varieties is not universal; for most breeding programs, a limited number of large vertically-integrated firms have been given exclusive access to plant and license their suppliers to plant new varieties.⁵⁶

Figure 11: Variety Exported by Volume 2012/13-2017/18⁵⁷



The nursery industry is highly consolidated in Chile with the four top nurseries supplying most growers.⁵⁸ Many of Chile's larger growers propagate their own traditional vines for planting. New varieties must be propagated by select nurseries which have formal partnerships with specific breeding programs.

Climate and Production Regions

Climatic variation across Chile's table grape growing zone is significant, with desert like conditions in the northern areas (Regions III and IV); and greater rainfall and a climate comparable to California's Central Valley in Chile's Central Region (Regions V, Metropolitan, VI).

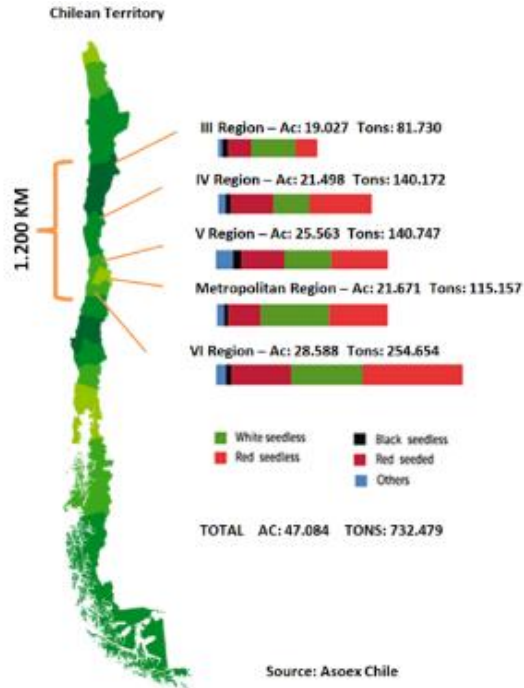
Chile's northern regions are facing challenges related to water availability and overlapping production windows with southern Peru.

⁵⁶ Expert interviews.

⁵⁷ [Decofruit Season Overview](#) 2017/18: Chilean Table Grapes, January 2019

⁵⁸ Expert Interviews.

Figure 12: Production Regions in Chile



Industry Structure

Chile's table grape industry is two-tier, with significant volumes from both large, vertically-integrated grower/exporters, and hundreds of medium and small producers with fewer than 250 acres. Medium and small growers rely on intermediaries for cold storage, export logistics and marketing. Many vertically-integrated companies export both their own production and third-party supplies from smaller growers. Many of these largest grape exporters are also involved in other fruit and nut crops.

Challenges and opportunities

Chile has remained the world's largest grape exporter for decades because of its numerous advantages in export-oriented fruit production. Chile's central region and northern coast have an ideal climate for

table grape production, and Chile's infrastructure and fruit industry expertise are unparalleled in Latin America. As a counter-seasonal fruit supplier to the world's largest markets—U.S., Europe, and Asia—Chilean grapes are likely to continue to be in high demand. U.S. demand remains strong and rising incomes in Asia are expected to contribute to demand for Southern Hemisphere grapes, including Chilean grapes. Two recent regulatory changes further facilitate Chilean exports: the lifting of the methyl bromide fumigation requirement for U.S. exports and the shortening of the quarantine period for new variety introduction.

While Chile remains the world's largest table grape exporter, several factors contributed to last decade's export reductions that will continue to pose challenges to the industry. The rapid growth of Peru's production has increased competition in Chile's early production windows. Drought conditions, largely in the northern regions, have limited water availability and resulted in acreage reductions. In Chile's later production season, competitors such as India and Southern Mexico may compete as suppliers to Europe/Asia and the U.S., respectively. Finally, smaller growers without capital for redevelopment continue to grow older varieties with limited returns, maintaining oversupplied conditions and low prices.

Social and Environmental Issues

The table grape industry has unquestionably shaped the natural environment and the well-being of the communities that surround it. Overwhelmingly, when asked about how the industry has shaped community development, I found that people wanted to talk about three things: water, labor, and land. These are the three pillars that have enabled the development of the table grape industry, and also the three largest sources of tension with regards to community development.

The following section is a portrait of the community and environmental dynamics surrounding table grape production. My goal is to highlight the perspectives, aspirations and concerns of diverse stakeholders as they were expressed to me.

“First, in the 1980’s the shipping and export companies controlled everything and they’d leave little to the growers. Then mid-size and large growers got smart and vertically integrated. Now genetics companies are in that same position of power – and it’s going to be hard for some growers to compete”.

-Large Grower/Shipper, Chile

The challenge of being a small table grape grower in Chile and Peru

While small growers often face structural disadvantages across crops, table grapes present additional, unique challenges: high agronomic knowledge requirements to meet international quality standards, robust post-harvest infrastructure requirements, high replanting costs, high working capital requirements in-season, and limited access to improved genetics.

There exists a strong perception that table grapes are simply too complicated for smaller growers to grow well. Pointing to the complexity of table grape production, one agronomist said: “if you can grow table grapes, you can grow anything.” It follows that growers with less agronomic support and technical education will struggle in a highly competitive environment that rewards quality: “some importers get stuck with the poor-quality fruit, mostly from smaller growers,” said one grower/shipper agronomist in Chile. According to one mid-size Peruvian grower, “small farmers have no technical experience with table grapes or export quality standards or certification or the other requirements to succeed”.

This perception of poor smallholder fruit quality can become a self-fulfilling prophecy. Large grower-shippers act as gatekeepers to the on-farm technical assistance and improved genetics that would benefit small growers. These gatekeepers are highly selective in the farms they partner with and display a bias against smaller growers. One small grower in Chile who was offered to grow proprietary varieties after an in-depth field visit said, “we got lucky because my brother is friends with the genetics representative – that’s the main reason they even considered letting us into the club.”

In Chile, some smaller growers work through cooperatives or associations that assist in agronomy and marketing. Being part of an association helps growers access redevelopment and working capital which is available from the Chilean government. However, according to one grower association manager “in Chile, most small growers are on their own and they don’t even know about the support offered to them.”

As smaller growers in Chile failed to adopt newer varieties and increase their quality standards, larger players were consolidating and vertically integrating. These dynamics have put small Chilean growers in a precarious situation with few good options. Some are choosing to switch to other permanent crops, but this requires high upfront cost and foregoing income during the production ramp period. Others are planning to stay in despite low prices because they see few good alternatives; unfortunately, this dynamic can perpetuate the oversupply behind the low-price situation in the first place.

In Peru, “small growers just don’t grow table grapes” according to a researcher. The grape export boom was led principally by large private sector actors, and smallholders have played only a minor role. This was the outcome prescribed by the policies behind the export boom: while the government adopted foreign-investment and large agriculture friendly policies in the 1990’s, “for many of the small farmers, the government ignored the core pillars of agricultural production” according to one Peruvian water researcher. For small farmers, access to credit and technical assistance in grapes is virtually non-existent. Technical expertise for table grape production in Peru was mostly imported from the Chilean industry, and only large growers could afford to bring these experts in. Season-long water access can be another important limitation for Peruvian smallholders who are more dependent on surface water, (groundwater will be discussed in more depth in sections below).

Private sector attempts to bring smallholders into the Peruvian export boom have been mixed. One Peruvian asparagus exporter attempted to develop an outgrower scheme that would train and support neighboring small farmers to produce for their packing facility. However, the project failed as “smallholders were dependent on their annual crops for food and unable to commit to planting the acreage needed to make it worthwhile to the exporter,” according to a water researcher. However, one large avocado grower in the North prioritized incorporating and packing for local smallholders, and says that as a result, “farmers with just 4 or 5 hectares have gone from nothing to owning trucks”.

It is clear that small growers in Chile and Peru face unique challenges. But are the bulk of these challenges the result of a de-facto form of exclusion that could be addressed through policy (like access to genetics or capital), or are these challenges fundamental to the size of their farms? In other words, where do economies of scale actually exist in table grape production, and what scale is sufficient to for a farmer to be competitive?

In theory, table grapes should be an ideal crop for small farmers in lower-income countries. Relative to many other crops, table grapes are highly labor-intensive and involve limited mechanization throughout the value chain. Many hand-labor tasks, such as thinning, pruning, harvesting, or packing may be equally cost efficient per unit of output for a small versus a large plot of land.

However, a number of inherent farm-size factors present a more challenging reality for small growers. While hand-labor tasks themselves may be equally efficient, smaller growers may face greater cost and difficulty in sourcing seasonal labor for these tasks. One small Chilean grower finds value in “rotating our workers around to the different crops we grow so that there is always something to do”; this may require doing lower-value tasks to retain the workforce, a practice not commonly employed by large agro-exporters that focus on limited crop types. Furthermore, use of a spray rig for application of chemicals has clear economies of scale; ownership of this equipment, which may be financially out of reach for most farmers under a 25-50 hectares, can save on cost. Additionally, significant economies of scale exist in table grape agronomy and crop management, where specialists can cover large territories. However, well-designed extension or cooperative programs, as I saw in Chile, can make this knowledge available. At the packing and marketing level, significant economies of scale clearly exist. “You need at least 50 hectares to build your own cold storage”, said one mid-size grower. Furthermore, with increasingly direct relationships between retailers and exporters, larger exporters will be able to achieve better pricing by selling to preferred customers, packaging to customer specifications, and sorting grapes to optimize market channels.

In summary, in addition to the ability to plant new varieties and access capital, only growers with the scale to optimally manage labor, apply chemicals mechanically, access top-quality agronomic expertise, and to cost-effectively outsource marketing are likely to thrive in the evolving table grape market. Provided financial and technical assistance, these pre-requisites for success do not appear unattainable for growers with less than 50 hectares. But given current trends, it will take proactive industry effort for smaller growers to survive.

“Grapes and asparagus feed everyone here”

-Mid-Size Grower, Peru

Labor and economic development in Ica

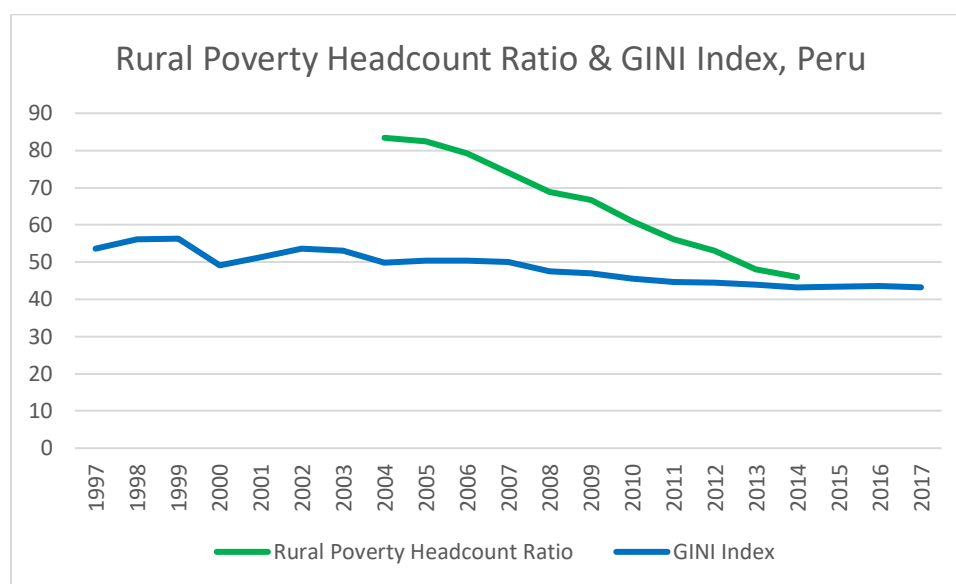
Table grapes are one of the most hand-labor intensive crops, and with the rise of table grape production in Ica came a massive influx of workers. This has generated both income gains and labor rights concerns.

“Ica is expanding rapidly” and “has doubled in size in the last ten years alone”, says a professor. At the beginning of the boom, much of the labor force migrated to the coastal valleys after “being pushed out by the violence of terrorism,” the professor continued. Today, poverty conditions remain in the Andes, and people are still migrating to the coast for wage labor. According to a labor professor, “the agricultural activity is for self-consumption in the mountains. It doesn’t generate income. Access to wage income is a very positive development. These new cities offer improved quality of life.”

There is no question that Ica’s export boom has dramatically expanded wages and employment. With a mix of pride and concern, one mid-size grower said, “wages are going up so rapidly – it went from \$20/day to \$22/day just last year”. A worker shared that “I come from within the state of Ica, but far from here. Here I can earn money for my family”.

This economic impact is captured in national statistics. The World Bank reports that the rural poverty headcount ratio has been declining steadily, from 83.4% in 2004 to 46% in 2014. In this time period, rural income in Peru increased at a faster rate than urban income.⁵⁹ Furthermore, the GINI index of income inequality in Peru shows a slight decreasing trend over this time period.⁶⁰

Figure 13: World Bank Poverty Headcount Ratio & GINI Index:⁶¹



The growers I spoke with forcefully make the case that the opportunities they provide have improved conditions for workers and offer fulfilling work. “Right now, we’re at 100% employment in Ica. 15 years ago, workers walked to work – today we have busses, and better restrooms.” Another grower highlighted the fact that “workers have lunch and salaries”.

One labor lawyer who focuses on the agricultural sector agreed that on balance, the agro-export industry has improved conditions, but cautioned that “when you come from extreme poverty, even a bad job offers something better. No job should lack dignity”. Specifically, he was referring to both policies and enforcement gaps that enable special treatment for the agriculture sector. He continued, “In other countries in the region, if there is a special regime for agriculture, it is to mandate that employees in remote areas have access to schools and hospitals...to put more obligations, not less, on the employers”.

⁵⁹ World Bank, “[Gaining Momentum in Peruvian Agriculture: Opportunities to Increase Productivity and Enhance Competitiveness](#),” 2017 p. 19

⁶⁰ World Bank, [Data](#), Accessed August 2019

⁶¹ World Bank, [Data](#), Accessed August 2019

Peru, by contrast, is under a ‘special regime’ for the agriculture industry that offers lower taxes for agriculture, and enables agricultural companies to offer fewer vacation days, and treat labor as at-will, temporary employees. While the labor lawyer views this as a “subsidy that comes out of our pockets”, one grower said it is “necessary for the agro-export industry to keep growing”.

In practice, workers issues are wide-ranging. “The big theme for workers is stability; during the months in which they are hired, they might only get asked to work only 12 days a month or whatever the company desires,” says a labor researcher. “The companies put up major barriers to unionization”, a labor lawyer said, continuing that “sometimes workers have to even ask for tools – they’re not given them by employers!”. As for enforcement of the existing worker protection laws, “there’s only one labor inspector for all of Ica – it’s an invitation to break the law”.

Beyond company policies, social services in the city of Ica “haven’t kept up with the massive migration” according to a labor researcher. He continued that “lack of medical care in rural areas is one of the biggest problems, and if workers are hurt on the job they usually just lose the job”. As increased pressure has been mounting on to these issues, companies are beginning to partner with local governments to fill social service gaps; but these efforts are in their infancy.

Despite the economic progress, one indicator of unrest in Ica is the levels of security that surrounds grape farms, with one mid-size grower saying that “security is a concern because people are stealing grapes to sell”.

Ultimately, table grape production and dignified work are compatible. The labor lawyer concluded by recognizing this win-win potential, but also warning about the current trajectory: “Is the profitability not sufficient to fulfill my obligations to workers? They definitely have the profitability to do the basics. But they are not content with anything less than everything. They may end up with nothing when at some point people get tired of it.”

“The level of groundwater use in Ica is irrational. People think it’s unlimited but it’s not”

-President, Water Research Association, Peru

Groundwater in Ica

While groundwater has been used in Ica for centuries, it is only with the recent export boom that it has been relied upon and drawn upon as the primary irrigation source. In Pre-Columbian Ica, the water table was only 10 feet and was commonly used for small farm irrigation and household use to supplement surface water from the Ica river. In the 1930’s, surface water was able to primarily supply the growing cotton industry, because, as an annual crop, acreage could contract

or expand with the availability of water. Throughout the 1900's, small wells existed as a supplement, but most growers relied on surface water.

Today, large growers rely primarily on groundwater because their vastly expanded acreage of perennial crops – mostly grapes, asparagus, and avocados –require a reliable water supply from year to year and because their acreage now covers more ground than surface water can reliably supply. “Surface water is too variable for that purpose,” according to a water professor.

With expensive, and ever deeper wells, this reliance on groundwater has begun to deplete the aquifer. Across the Ica valley, the water table is dropping at an average rate of .6-1.5 meters per year.⁶² “Salinity is rising, particularly further from the river where the large growers are; and a few wells are no longer useful” according to one mid-size Peruvian grower; “you have to know where water is and where good water is”.

Over the last decade, the regional government has declared a series of “water emergencies”. Using tools enabled by the Water Resources Law of 2008, the regional government has imposed a ban on new wells and issued licenses limiting the amount of water permitted to withdraw. Messages are mixed on the degree to which this has impacted groundwater withdrawals. One grower stated that “water is not private property; the government gives you a license, and wells have measuring tools on them with monthly reporting requirements”. “There have been a lot of illegal wells, but there are less and less as the companies with real rights have started complaining”, he said. One professor who focuses on water rights in the Ica area had a more cynical perspective on the efficacy of groundwater policy implementation: “bans on new wells didn’t work; in practice, the companies avoid them by buying the regulators; they can take out bureaucrats at the water authorities if they don’t like them.”

While aquifer overexploitation is documented, the large exporters find themselves in a complicated dynamic when discussing water risks: “on the one hand they don’t want a water emergency declared because it makes it hard for them to go to the bank, but on the other hand new water projects won’t get built unless people feel like they’re really needed”, according to a Peruvian water researcher. Many growers I spoke with believe the system is will be sustained. One water expert claims that growers like to point to the fact that “in the 1970’s they said that there was going to be no water in 15 years, and look at us today”. In the last five years, growers have begun to carry out aquifer recharge by flooding fields in wet years, and it remains to be seen whether that will suffice to ensure the sustainability of groundwater supplies.

The dynamics of water and land ownership have benefited large growers. Large exporters, funded by wealthy Peruvians and international funds, began acquiring land in the 1990’s by buying out smaller farmers and by expanding into previously uncultivated areas on the edges of the valley or in desert areas further from the Ica river. A devastating 1997 El Nino induced flood, forced “small growers to sell their land or water”, and “many people came down from the sierras to work”, according to a water expert. Another water expert argued that tactics of the large

⁶² Ore, Maria Teresa et al. “[Emergencia Hidrica y Conflictos Por El Agua](#) En Una Cuenca Peruana: La Cuenca del Rio Ica”, P. 270.; El Mercurio, “[Problema agua en ica estará solucionado](#)”, 2018

exporters themselves were behind the consolidation of “once prosperous” smaller farms: “big growers have gone around buying land and wells, leaving the smaller growers without groundwater. The small growers are surrounded, and they have no option but to sell”. With greater funds and higher pumping volumes, the lower water table has caused some smaller wells to run dry. An Ica grower revealed that “we’re not buying land, we’re buying water”.

The relative decline of small farming operations in Ica also diminished small farmers capacity to advocate for their interests: “people are totally weak to the abuses. Most work for the big exporters. There is not the sense of organization that existed years ago.” Currently the groundwater allocation and regulatory board is made up primarily of large exporters.

In addition to inter-grower water conflicts, the growing demands of the city of Ica – which is reliant on groundwater – may pose a threat to expanded agricultural use of groundwater. According to one water expert, “what many exporters don’t see are the conflicts that are coming, not only with other fields but with the city.”

“The future of water in Ica is uncertain,” concludes one water professor.

“In 2018, the two regions reached an agreement where agro-exporters and the city of Ica would pay [the upstream state of] Huancavelica for environmental services. It’s beautiful on paper. I hope it gets implemented. But this is where the problems start again.”

-Professor, Water Resources, Peru

Tension over surface water projects between the uplands and lowlands in Ica and across Peru

Peru’s indigenous people have long recognized the enormous advantages of growing crops in the coastal deserts – ideal, stable temperatures and low pest pressure – and made efforts to reliably supply these coastal valleys with water from the mountains above. Today, Peru has radically scaled up the ambition of the small Pre-Columbian dams and storage ponds by investing in massive water storage and transfer projects, with significant impacts both upstream and downstream.

While Ica does not have the most ambitious water projects in Peru, Ica’s surface water dynamics exemplifies these tensions. Ica’s primary canal that has supplied growers for decades, Achirana, was a significant expansion of an indigenous water system.⁶³ Large growers believe this project insufficient and are seeking more ambitious efforts: “we lack canals and storage, we lack the big projects that have happened in other regions” said a mid-size grower. “These private companies are ready to pay for water, water that otherwise would just go to the sea.” One large grower talked with near certainty about the proposed Ingahuasi project that would “enable 35,000 new acres to come into production, bringing new development to Ica”.

⁶³ Hocquenghem, Anne Marie, “[Levendo a Maria Teresa Ore](#)”, 2005

The proposed Ingahuasi project has seen its ups and downs. The first version proposed would have drawn a significant amount of water from the Andes state of Huancavelica, where rural residents rely on water to ensure adequate fodder for their alpacas among other uses. “There was racism towards the uplands residents by large Ica growers – they said they didn’t need or use the water they had”, according to a water researcher. “Alpaca wool is an export crop too”. One large grower said, “it’s total lies that we are taking water that otherwise would be used”. The initial Ingahuasi proposal included no forms of compensation for the uplands communities, and sparked protest. Ultimately, the project was taken to the Latin American Water Tribunal court, where it was rejected.⁶⁴

Now, the project has been reborn with the governors of the two regions signing a mutual benefit accord in 2018.⁶⁵ This version involves compensation for upstream regions, funded usage fees paid for by the city of Ica and agro-exporters downstream. But these benefits do not always arrive to communities affected. As one water expert cautions, “the challenge with these payment for environmental systems is that they become little businesses. Everyone wants to get the benefit of the payments and they forget why the payments are made in the first place.” While the agreement is signed, it remains to be seen how this project will move forward, and whether it will deliver on its promises to all stakeholders.

While project specifics and water sources vary from region to region, other water projects in Peru face similar tensions and dynamics. These large projects have dramatically expanded irrigation on Peru’s coast. The northern region of Piura’s grape production has been booming and is expected to surpass Ica in part due to increased water availability. But, according to some experts, these projects often generate conflict with uplands communities, and under-deliver relative to their promises.

According to a water expert, “in general, these big projects are a failure. They end up irrigating half of what they promise. Most of the dams get filled with mud that cannot be removed and thus their storage capacity gets limited. Deforestation, climate change and poor land management is also leading to high levels of erosion that fill up the dams.”

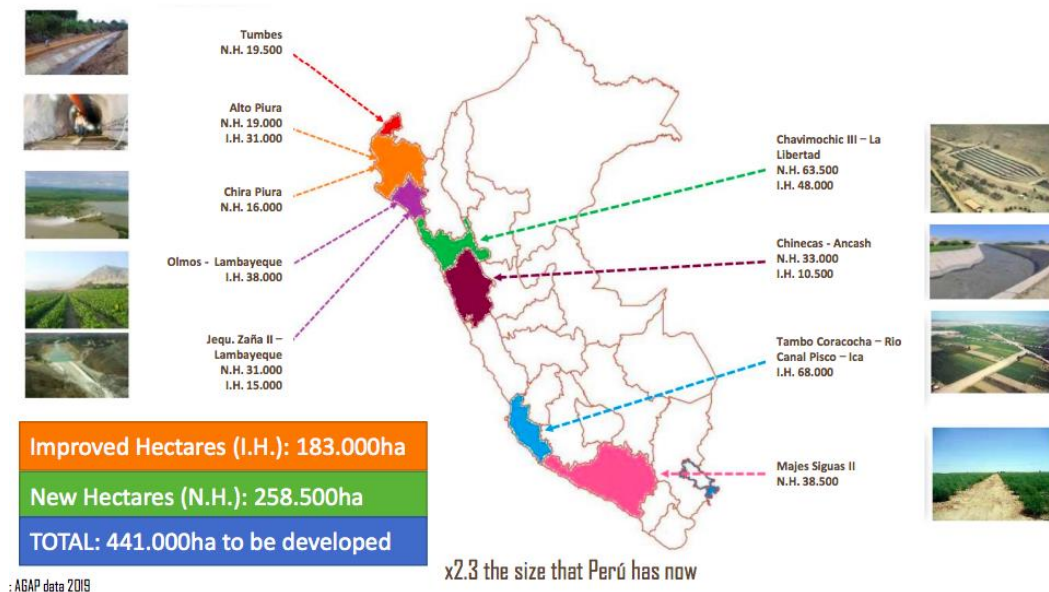
Olmos, a large project in northern Peru, promises to build a tunnel that will redirect a river on the eastern side of the Andes to the western side, providing water to the desert. The project was designed by an early 1900’s engineer, and “for years they talked about the benefits of Olmos for small farmers. But the land is being sold to large businesses with a minimum size of 5K hectares – those are the terms of the project,” claimed a water expert. She continued: “across Peru, there are various water project tensions that could convert in conflict. In Olmos, now the people above (where the water originates) are complaining. In the Sierra above Piura there’s lots of ag production and they want the water too”. It appears that the upstream and downstream tensions that delayed the Ingahuasi project in Ica may be characteristic of many major projects.

⁶⁴ Achahuanca, Yenny, “[Conflicto por la Gestion del Agua entre Ica y Huancavelica](#)”, 2017

⁶⁵ Salazar, Beatriz, “[Ica y Huancavelica enfrentados por el agua](#): Como evitar el conflicto social”, 2015

In addition to these tensions between interests, many of these projects face significant corruption risks. Olmos, for example is linked to the recently exposed corruption scandals surrounding Odebrecht, a Brazilian construction firm that has since sold its stake in Peruvian water projects.

Figure 14: Planned water project expansions in Peru⁶⁶



Despite these challenges, even water advocates and researchers come out with a nuanced perspective: “Are the projects good or bad? Depends how they’re done. What’s important is dialogue and knowing what benefits they will create for whom.”

The large growers, on the other hand, appear unequivocally supportive. With one mid-size grower enthusiastically proclaiming “we are turning deserts to green”, and another grower arguing that “one day we will be getting carbon credits” for the plant biomass growth that is only made possible by bringing water to the desert.

“There are 156 aquifers in Chile that are in a state of emergency. There should be a committee to regulate all of them. But we only have 14.”

-Water Association Director, Chile

Water access for grape growers in Chile

“Surface water is the principal irrigation source in Chile’s Central Region, but some have wells as an insurance policy to use during periods of drought”, claims a Chilean water expert. The

⁶⁶ Adapted from Fuentes, Alejandro Leon, from Presentation “[Peruvian Table Grape Industry Overview](#)”, 2019; original data from Asociacion de Gremios Productores Agrarios del Peru (AGAP)

Central Region of Chile has a long history of irrigated agriculture, with associated customs and infrastructure. “We have a culture of community surface water management that comes from our history, where everyone had to construct their own canals”, according to a Chilean water expert.

Some growers that have long-standing rights and historical access feel relatively secure in their access to water. According to one small grower, “we have little pressure to switch from [more inefficient] furrow irrigation to another method because we have enough water”. But despite secure water access on paper, vigilance is required to ensure water access in practice. The grower continued, “what we do have to monitor is that people upstream in the canal aren’t putting up blocks and stealing extra water.”

Despite longstanding surface water access for many Chilean growers, there is palpable concern among some industry stakeholders around future availability. As the result of a 1981 law, surface water rights are privatized and can be bought and sold separately from land.⁶⁷ But growers recently mobilized to defeat a proposed law that would make water rights temporary, not permanent. Additionally, some Chilean growers who use surface water lament the lack of major infrastructure projects in Chile. According to one crop advisor, “Chile didn’t do big projects the way California did, and so we are hurting for water storage”. Climate change is expected to exacerbate tensions over water, with water availability in the watershed that supplies Santiago and major producing regions predicted to decline 40% by 2070.⁶⁸ As a result of increased demand and reduced supply, tension between urban and rural water usage is increasing. According to a water expert, with climate change, “more water is expected to fall as rain, so we will need ways to store it; and with warmer temperatures, growing regions are going to have to shift south”.

While much of the table grape industry in central Chile has reliable surface water access today, some regions and growers reliant on groundwater face a more challenging situation. “There is no history of community groundwater management”, says a water expert. Northern production regions such as Copiapo are heavily reliant on groundwater, especially during the region’s recent extensive droughts. “There were too many groundwater rights given out – five times the recharge rates; as a result, water levels have gone down significantly and some of the areas are almost totally dry”, said a Chilean water expert. This has resulted in whole vineyards being torn out. Now that the consequences are imminent, some regional groups are formalizing groundwater regulations. Today in Copiapo, groups are analyzing putting caps on groundwater extraction. But most of the country’s groundwater remains unmeasured and unmanaged; “we really don’t know the situation of the aquifers in the central zone of Chile and there are very few recharge initiatives”, says a water expert.

With growing attention to water usage in Chile, growers will need to be diligent about their water rights, community relations, and irrigation technologies to ensure continued access.

⁶⁷ Nayan, Patricio “[Agua, Agricultura y Derechos de Uso en Chile](#)”, 2014

⁶⁸ The Nature Conservancy, “[Santiago Water Fund](#)”, accessed August 2019

Industry Outlook

The following table summarizes opportunities, trends and business imperatives across the Chilean and Peruvian table grape industry.

	Overall	Chile	Peru
Overall	<ul style="list-style-type: none"> • Grapes present both high risk profile and high return potential • Grapes also offer significant social impact opportunities given high labor requirements and high returns, but also present risks related to water, land and labor. • Given wide range of business performance within same crop and geography, it is critical to be best-in-class and ahead of industry trends. • Opportunities for innovation and leadership in genetics, varieties and marketing 	<ul style="list-style-type: none"> • Chilean grapes present high risk and moderate return profile. • Low-price environment presents significant ongoing risk and requires differentiated product and marketing strategy and emphasis on efficiency • Existing ground in Central Region expected to be most profitable. <p>Opportunity to save cost redeveloping using existing infrastructure.</p> <p>Northern regions will continue to struggle due to competitive risks and limited water availability.</p>	<ul style="list-style-type: none"> • Peruvian grapes present high risk and high return profile • Medium-term opportunity to capture high-price, but some compression expected as local volume and international storage increases. • High operational risks regarding water access, community conflict, and product quality. • New development opportunities are financially compelling but require significant agronomic expertise from existing operations and due diligence on agronomic conditions and community relations.
Genetics, Varieties, Nursery	<ul style="list-style-type: none"> • Genetics companies will continue to hold significant market power, presenting high participation barriers and costs. This power will be exacerbated by any consolidation but may be relieved by increased competition from private and public breeding programs and from the number of new varieties introduced. • Potential long-term opportunity to develop proprietary breeding program by combining genetic material, variety pipeline, and expertise through partnership across existing small breeding programs globally. • In medium-term, growers must transition low-performing blocks to 	<ul style="list-style-type: none"> • New entrants expected to face challenges given dominance of existing large players. 	<ul style="list-style-type: none"> • Nursery expansion opportunity in northern Peru as volume increases.

	<p>modern varieties. Necessary for growers to have access to broad suite of private varieties. Extensive testing and due diligence essential in variety selection. Agronomic characteristics (yield and cost) must be considered along consumer, with unique flavor grapes expected to command a premium. With new production regions increasing and shoulder-season premiums decreasing, overemphasis on an early or late-season varietal strategy is highly risky.</p> <ul style="list-style-type: none"> • Nurseries must ensure access to proprietary varieties, invest in top-quality virus control. Top nurseries can consider international expansion as new production regions come online and existing regions mature and transition varieties. 		
Production	<ul style="list-style-type: none"> • Agronomic expertise and management is fundamental to enterprise success. Agronomic teams need to work closely with quality control management from production through export. New entrants without local expertise and management structure likely to have significantly lower quality and volume and higher costs. • Agronomic experimentation also presents opportunity to optimize production systems. Potential experimentation areas include: Planting density and impact on production ramp, trellis systems and impact on labor productivity and yield, and management specifications for individual new varieties • Attention to labor training and management critical to ensure production efficiency and quality. 	<ul style="list-style-type: none"> • In medium-term, acreage expected to contract as yield increases with new varieties and volumes remain relatively stable; companies more likely to succeed by focusing on optimizing existing acreage. 	<ul style="list-style-type: none"> • Rapid ramp up and lower land costs in northern Peru present immediate opportunity <ul style="list-style-type: none"> • Extensive water, flooding, and agronomic due diligence required for any new land expansion • Opportunity to further refine micro-dose nutrient management programs in desert regions and pest control methods • Opportunity to improve agronomic training of Peruvian workforce to avoid dependence on outside expertise • Strict quality standards and agronomic research into flavor development will help Peru improve reputation on global market.

Marketing	<ul style="list-style-type: none"> • Demand for unique flavored varieties is expected to grow with increasing consumer exposure, offering the potential to grow demand for grapes overall. Exporters can use these varieties to access top customers, build direct relationships, and push through additional volume of conventional red/green/black grapes. • Introduction of new flavor profile varieties also presents an opportunity for flavor-focused branding across markets. Consistency of quality seasonal supply is critical. Marketing new flavor profiles also presents an opportunity to challenge customer quality specs around coloration and size. Continued consumer confusion expected around branded varieties without differentiated consumer qualities, but some label consolidation likely in the medium-term. • Large exporters without working capital needs from importers could consider building proprietary import company in top destinations to capture fees from high margin import business. • Large exporters to continue seeking opportunities to reach customers directly; competition at import/export level will increase with direct relationships, but top importers will continue to play important role providing working capital and category management for smaller retailers. • Opportunity to develop technology and leadership position in organic post-harvest; significant counter-seasonal unsatisfied demand from North America. • Large exporters may be able to improve revenue and identify additional customers by differentiating on pack style and size; consumer trend towards smaller pack sizes, sustainable packaging 	<ul style="list-style-type: none"> • Limited market development to date in Europe presents opportunity. 	<ul style="list-style-type: none"> • Opportunity for additional market segmentation as markets place different relative values on different attributes (size, flavor, color).
Social & Environmental	<ul style="list-style-type: none"> • Critical to conduct extensive due diligence prior to any land expansion on water quality and surface/groundwater availability, environmental impact, and community relations. Companies should avoid areas with the potential for local water conflicts. • Given skilled nature of field work, consistency and dedication of workforce is important; training, healthcare, worker protections, and other benefits may boost 	<ul style="list-style-type: none"> • Companies will need to ensure appropriate water titles and minimal risk of conflict with urban usage. • Companies can be active in providing housing and other benefits for migratory temporary 	<ul style="list-style-type: none"> • Opportunity to co-invest in community development initiatives (e.g. education, health care) in partnership with government • Companies relying on surface water may have opportunity to contribute to green

	<p>retention. Opportunity to grow counter-seasonal crop (e.g. Citrus) to provide year-round employment.</p> <ul style="list-style-type: none"> • Environmentally, table grapes can be compatible with cover crops, groundwater recharge, and organic practices (provide post-harvest technology). • Potential for exporters to promote fair out grower schemes, offering financing and technical assistance for small grower redevelopment or annual operations in exchange for export exclusivities. 	workers from other countries.	<p>infrastructure in communities upstream, ensuring sustainable water supply and supporting community development. For participation in any new water project, companies should conduct extensive due diligence on project impact and long-term water availability.</p> <ul style="list-style-type: none"> • Opportunity for differentiation in E.U. market on labor relations through certifications, improved conditions • Companies can improve employee commitment by offering full benefits, including accident insurance, transport, and meals
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Conclusion

Overall, there are compelling opportunities for businesses success across the table grape value chain in Chile and Peru. However, the table grape market is highly competitive, and companies must be positioned ahead of the many changes the industry is going through.

Table grapes offer significant potential to promote community development given their high returns and high labor requirement. People are choosing to move from other areas to work in grape fields; wages are rising; and rural towns in Peru are growing with the table grape industry. This progress is meaningful and it depends on an economically thriving table grape industry. Likewise, the industry's continuity depends on a skilled and available workforce and functioning community relations. These are clear, and important, areas of mutual benefit between grape businesses and its core stakeholders. But the reality is that inherent tradeoffs and tensions do exist between company and community interests, on issues including access to water, accessibility of new varieties to growers of all scales, and workers' right to health care. Every participant in the industry plays a role in determining how these tensions play out and what ultimate impact the industry will have on people's livelihoods.



Repainting a monument to grapes
Ica, Peru

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