



ANALYSIS OF THE ORGANIC MARKET IN OREGON

PRESENTED BY OREGON TILTH



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EXECUTIVE SUMMARY

INTRODUCTION

Organic food sales continue to experience strong sales growth. Between 1997 and 2008, sales of organic foods increased at an annual rate ranging from 12 to 21 percent.¹ After slowing slightly during the recession, double-digit sales growth resumed in 2012. In 2014, organic food sales hit \$35.9 billion, up 11.4% over 2013.² At the same time that demand for organic foods is on the rise, headlines reading *“Hunger for Organic Foods Stretches Supply Chain”*³ and *“Organic farmers face growing pains as demand outpaces supply”*⁴ have been calling attention to organic supply shortages. In 2015, Oregon Tilth undertook an analysis of the organic market in Oregon to identify supply shortages for organic specialty crops.⁵

We know that farmers require a clear picture of market needs and opportunities both to inform an overall organic crop production plan and to demonstrate the feasibility of business plans and expansion strategies to banks, credit unions and lenders. We set out to identify concrete information about supply gaps in Oregon in order to connect Oregon farmers with economic opportunities within organic production systems.

We were also interested in identifying the factors that are constraining current supply in order to inform where Oregon Tilth and other organizations can support the development of the organic market in Oregon.

¹ Greene, Catherine, Carolyn Dimitri, Biing-Hwan Lin, William McBride, Lydia Oberholtzer, and Travis Smith. “Emerging Issues in the U.S. Organic Industry.” EIB-55. U.S. Dept. of Agriculture, Economic Research Service. June 2009.

² Organic Trade Association. “2015 Organic Industry Survey” <https://www.ota.com/resources/organic-industry-survey>

³ Brat, Ilan. “Hunger for Organic Foods Stretches Supply Chain” *The Wall Street Journal*. April 3, 2015 <http://www.wsj.com/articles/organic-food-firms-tackle-supply-constraints-1428081170>

⁴ Doering, Christopher. “Organic farmers face growing pains as demand outpaces supply” *USATODAY*. August 5, 2015. <http://www.usatoday.com/story/money/2015/08/05/organic-farmers-face-growing-pains-demand-outpaces-supply/31116235/>

⁵ Section 101 of the Specialty Crops Competitiveness Act of 2004 (7 U.S.C. 1621 note) and amended under section 10010 of the Agricultural Act of 2014, Public Law 113-79 (the Farm Bill) defines specialty crops as “fruits and vegetables, tree nuts, dried fruits, horticulture, and nursery horticulture, and nursery crops (including floriculture).” <http://www.ams.usda.gov/services/grants/scbgp/specialty-crop>



RESEARCH PROCESS

Our approach for identifying market opportunities was two-fold. We solicited perspectives on the market for organic specialty crops from companies in Oregon through informal interviews and email polls. We also attempted to quantify supply gaps by comparing the quantities of organic specialty crops grown by Oregon farmers to the quantities of organic specialty crops purchased by Oregon companies. Our research focused primarily on the market for organic fruits and vegetables, including both fresh markets buyers such as produce distributors and retail grocers, and food processors and manufacturers. Interviews with buyers were also used to identify supply constraints and were supplemented with perspectives from industry experts and secondary research.

KEY FINDINGS AND RECOMMENDATIONS

Our research findings based on anecdotal reports from buyers revealed a wide diversity of crops identified as being in short supply from Oregon farmers. However, few crops received a large consensus, with the majority of crops that were identified each being named by just one or two companies. Strawberries were the most frequently identified crop that Oregon farmers could be growing more of. Raspberries and dry beans were also identified frequently, with garbanzos, pintos, and black beans being the most commonly mentioned dry bean varieties.

Wholesale produce distributors' perspectives on the market were mixed, ranging from identifying a broad opportunity for organic specialty crops, to describing that, for the most part, organic supply in the fresh market is keeping up with demand. Supply shortages were identified for certain crops, including: berries and stone fruit, less common vegetable crops, baby vegetables, heirloom varieties and varieties that have exceptional flavor. A look at trends in the mainstream grocery industry suggests that even if Oregon farmers are meeting the majority of market needs now, continued expansion of grocery chains' organic offerings will necessitate a crop supply increase to keep up with demand.

On the whole, we found that buyers' perspectives on the market are highly variable and that specific crop needs are largely unique to individual buyers.



Many companies are reluctant to broadcast specific crops needs because this information is considered to be proprietary.

Our efforts to quantify supply gaps were impeded by both the proprietary and confidential nature of company purchasing data and the limited amount of publically available information about how organic crops are marketed. Ultimately we found that our quantitative results are too incomplete to be able to draw meaningful conclusions about supply gaps.

Our research experience highlights the value of facilitating networking opportunities that are geared toward connecting farmers and buyers directly as a means for communicating supply needs. Coordinating supply needs through one-on-one relationships not only protects confidential company information but also protects farmers from the downward price pressures that result from supply gluts. We recommend supporting the development of buyer-grower relationships as the most viable solution for conveying the market information that is needed to grow the organic sector in Oregon and beyond.

Finally, we identified several factors that are constraining the supply of organic specialty crops moving through high volume market channels in Oregon. We describe the issues that were identified and offer recommendations to address these supply constraints:

Competitive Pricing and Commercial Viability

- ✧ **Supply Constraint:** Being able to produce a crop and sell it at a price that is both competitive in the market place and viable for the farmer is a key requirement for entering the market. Production scale, labor costs and harvest yields are some of the factors that determine whether or not a crop is commercially viable.
- ✓ **Recommendation:** Support farmers by identifying and analyzing production costs for specific crops. This is an important starting point for determining where unmet demand translates to a commercially viable market opportunity. Investments in organic research are crucial for finding solutions to address the factors that limit commercial viability.

Transition to Organic

- ✧ **Supply Constraint:** For some farmers, accessing market opportunities requires a transition to organic production practices. Organic transition



comes with its own set of challenges including becoming proficient with organic growing practices, navigating the organic certification process, developing new recordkeeping systems and paying certification fees. In addition, many farmers will encounter the economic hurdle of the mandatory three-year transition period when yields might be down, costs might be up and the premium prices that certified organic crops earn aren't accessible. Transitioning farmers also face uncertainty about whether market opportunities will still exist after the three-year transition period and what the return on investing in the three-year transition period will be.

- ✓ **Recommendation:** Address the uncertainty and risk of transition by providing farmers with technical assistance and training on the “how to’s” of organic production. Training can include breaking down barriers to the certification process and calculating the return on investment in making the transition to organic. The development of markets that pay a premium for transitional crops would provide economic support for farmers in transition. Although risk can't be entirely eliminated, forward-contracts with buyers could be used to help distribute some of the risk across the supply chain. Lastly, continue the USDA Agricultural Marketing Service's Organic Certification Cost Share Program, a helpful financial aid support for farmers, particularly beginning farmers and those newly transitioned to organic.⁶

Access to Processing Infrastructure

- ✧ **Supply Constraint:** In some cases, food manufacturers are sourcing from out-of-state because they cannot obtain crops in the right form from Oregon farmers. For example, companies might require crops that are cut to certain specifications, peeled, roasted, or packed in aseptic containers. Farmers' lack of access to processing infrastructure is constraining the supply of certain Oregon grown crops.
- ✓ **Recommendation:** Conduct research to determine whether or not existing processing infrastructure is operating at capacity and whether this infrastructure could be utilized to process additional Oregon crops. If investment in new processing infrastructure is needed, identify the scale of agriculture required to make an investment in this infrastructure worthwhile.



⁶ United States Department of Agriculture (USDA) Agricultural Marketing Service (AMS). Organic Certification Cost Share Programs <http://www.ams.usda.gov/services/grants/occsp>

Markets for Crop Rotations

- ✧ **Supply Constraint:** Growing for a higher volume market requires more acres of a single crop under cultivation, yet the same crop can't be grown on the same ground year after year. Crop rotation is a required core component of organic farming practices. A mix of crops must be grown in order to implement a successful crop rotation practice, and in turn, farmers need a market for each of the crops in their rotation.
- ✓ **Recommendation:** Facilitate coordination between farmers and buyers as well as between buyers from different companies to identify markets for full crop rotations.

Meeting Marketing Requirements

- ✧ **Supply Constraint:** Wholesale produce distributors reported that farmers' access to market opportunities can be limited by their ability to meet market requirements. In particular, complying with food safety requirements stands out as a challenge, as does navigating the organic certification process. Meeting the grading specifications that are required to satisfy the quality expectations of today's organic consumer can also be a challenge. For some farmers this might be a matter of simply not knowing what grading standards are. In other cases, insufficient access to post-harvest handling infrastructure can impact crop quality and keep crops from meeting grading standards.
- ✓ **Recommendation:** Provide farmers with training and resources to meet food safety certification requirements, navigate the organic certification process and understand grading standards. Support farmers with developing post harvest handling systems and infrastructure.



INTRODUCTION

This report is a summation of our findings on market opportunities for organic specialty crops in Oregon based on anecdotal accounts from buyers. We also present our approach for quantifying supply gaps, with results from our preliminary analysis of the data we were able to collect. Our efforts to quantify supply gaps were hampered by the proprietary and confidential nature of company purchasing data and the limited amount of publically available information about how organic crops are marketed. Ultimately we found that our results are too incomplete to be able to draw meaningful conclusions about supply gaps. We describe the approach we took to inform future efforts to quantify supply gaps and to point out the information required for a more complete market analysis. Finally, we share what we learned about factors that are constraining the supply of organic specialty crops in Oregon. We conclude by offering recommendations for strategies to identify and communicate market opportunities, and offer recommendations for steps that could be taken to address supply constraints in order to help grow the supply of organic specialty crops in Oregon.



PERSPECTIVES FROM BUYERS

Our market research was focused on companies in Oregon that buy organic specialty crops. We solicited perspectives from processors and manufacturers, natural food grocery store buyers, and fresh market wholesale produce distributors. We rely on publically available information from the media and from company reports to complete our picture of the market for organic specialty crops in Oregon.

PROCESSORS, MANUFACTURERS, AND GROCERY RETAILERS

We contacted the 63 Oregon food processors and manufacturers that source organic specialty crops as identified from the USDA Agricultural Marketing Service listing of all certified organic businesses in Oregon.⁷ Food processors purchase crops from farms and transform them directly into a retail food product or into a minimally processed product, to be used by a food manufacturer as an ingredient. Food manufacturers either purchase minimally processed food products from processors or purchase raw ingredients directly from farmers. These companies were asked to identify crops that can be grown in Oregon, but that they have been unable to source from Oregon organic farmers - either because of a complete lack of supply or because of other supply constraints. We heard back from 31 of these companies in total, representing a response rate of 49%. A portion of these companies reported that they are either able to source the organic crops they need from Oregon farmers or that they have minimal needs for organic specialty crops. The remaining companies identified crops that they have had a hard time sourcing from Oregon farmers. These crops are shown on the chart that follows on p.9.

We also asked three leading natural foods grocery store buyers in Oregon to identify organic crops that Oregon farmers could be producing more of. Two of these buyers described that Oregon farmers are doing a good job at meeting market demand for most organic specialty crops during the Oregon growing season. In other words, most of the organic crops that can be grown commercially in Oregon are already being supplied by Oregon farmers. These buyers identified a market opportunity for several crops that have not yet proven to be commercially viable to produce organically in Oregon. One buyer



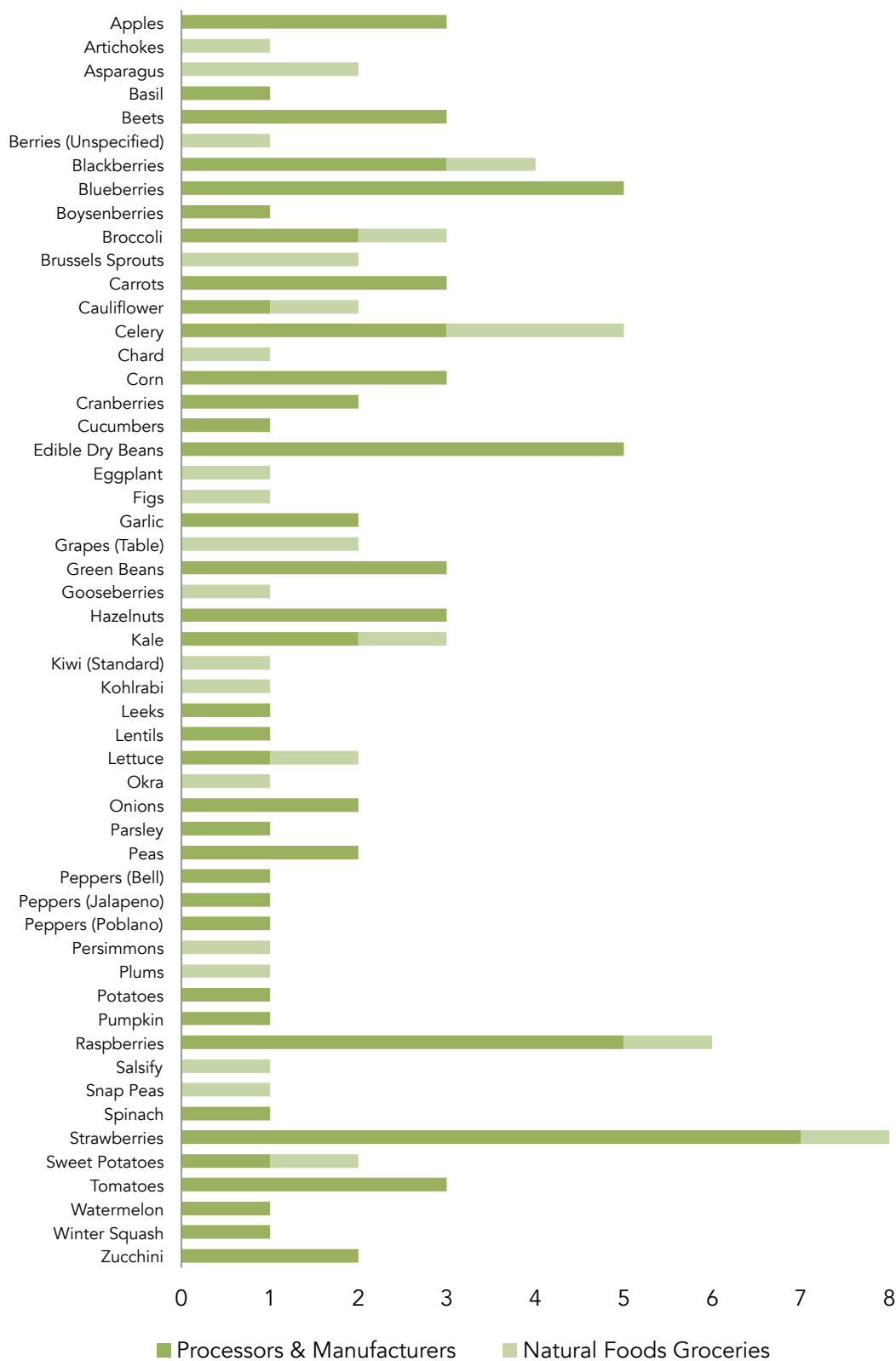
⁷ USDA Agricultural Marketing Service Organic Integrity Database <http://apps.ams.usda.gov/nop/>

specifically identified an opportunity for more unusual varieties of common fruits and vegetables. A third natural food grocery chain buyer identified crops that are a challenge to source from Oregon farmers - with pricing that is aligned with the overall market as an important purchase criteria for this buyer. This purchase criteria points to the fact that while the supply of some crops might be available, they might not be available at the right price for some buyers, suggesting that a firm's market differentiation strategy may influence what constitutes available supply. The crops that were identified by these natural foods grocery store buyers are also shown on the chart that follows.

The chart that follows shows the crops that were identified by these companies as having market opportunity for organic specialty crop farmers in Oregon and the frequency at which each crop was mentioned. Strawberries stand out as the most frequently identified crop. Raspberries and dry beans were also identified frequently, with garbanzos, pintos, and black beans being the most commonly mentioned dry bean varieties. We attempted to identify sourcing relationships that would result in double-counting supply needs, however, it is possible that we are not aware of all possible instances where companies are buying from each other. Additionally, we did not obtain information about crop quantities from a sufficient enough number of companies to allow us to size the market opportunity. What is most notable from our results is the wide diversity of crops that were identified and the low frequency with which most crops were mentioned. This indicates that, while a few crops stand out, for the most part, market opportunities are highly varied and unique to individual buyers.



Organic Crops



WHOLESALE PRODUCE DISTRIBUTORS

Additionally, we contacted the five wholesale produce distributors that handle organic crops as identified from the USDA Agricultural Marketing Service listing of all certified organic businesses in Oregon.⁸ Wholesale produce distributors are intermediaries in the supply chain who buy produce from farms, grower cooperatives, grower shippers, grower agents and brokers and sell produce to grocery stores, restaurants, and institutional foodservice providers. We heard back from four out of five of these companies. These buyers commented generally on the supply of Oregon grown organic specialty crops and provided purchase data that was used in our efforts to quantify supply gaps that are described in the next section of this report.

Wholesale produce distributors' perspectives on the market were mixed, ranging from identifying a broad opportunity for organic specialty crops, to describing that, for the most part, organic supply in the fresh market is keeping up with demand. One distributor specifically identified an opportunity for heirloom varieties, less common vegetables such as rapini and other types of raab, baby vegetable varieties, and particularly varieties that stand out based on great taste. Another distributor noted that there is unmet demand for Oregon strawberries and cane berries, but pointed to several challenges with local organic supply that need to be addressed, including a lack of varieties that are bred for shipping and retail shelf-life, inadequate packing and cooling infrastructure, and harvest labor shortages. This distributor also identified unmet demand for Oregon stone fruits, but called into question whether this crop can be commercially viable for Oregon farmers. Disease pressure on the west side of the Cascades impacts yields, and where the climate on the east side might be more favorable, growers face stiff competition from larger scale producers in Eastern Washington.

The variability in these distributors' responses might be attributed to differences in these firms' sizes, their market differentiation strategies and where organics fits into their company's overall business strategy. For some, a lack of supply shortages was attributed at least in part to having well-established relationships with farmers and working with farmers on crop planning and coordination.



⁸ USDA Agricultural Marketing Service Organic Integrity Database <http://apps.ams.usda.gov/nop/>

For the most part these distributors are not forced to substitute conventional crops or go without entirely because of supply shortages. Organic crops are generally available somewhere, a testimony to the fact that the global supply of organic is well developed. An exception here was one account of occasional weather event related organic supply shortages that elevate prices for what limited available supply exists and push some customers to substitute organic crops with lower priced conventional crops. One distributor also pointed out that several organic crops don't have as long of a season as their conventionally grown counterparts, which generally start earlier and end later.

SUPERMARKET CHAINS

Although we were unable to obtain market information directly from several other key industry players, we can look to public company information from the media and from company reports to develop a picture of trends in the market:

- A 2014 article in *The Packer*⁹ calls out strong demand for organic produce from big retailers like Costco, Wal-Mart and Safeway.
- As of May of 2015, approximately 2,300 Wal-Mart stores in the US had separate organic produce sections.¹⁰
- In April of 2014 Wal-Mart announced its plans to expand its organic offerings through a partnership with Wild Oats.¹¹
- In the company's Q3 2015 Corporation Earnings Conference Call, Costco Wholesale's CFO Richard Galanti makes it clear that organics drive sales and are a focus area for the company. Galanti also shares that although supply challenges still exist, they are becoming less formidable. He attributes this in part to the company's efforts to work with suppliers, both here and around the world.¹²
- In 2015 Target made headlines for shifting towards featuring more fresh foods¹³ and more organics.¹⁴

⁹ Mitchell, David. "Organic demand surges even more" *The Packer*. July 11, 2014. <http://www.thepacker.com/fruit-vegetable-news/know-your-market/Organic-demand-surges-even-more-266758881.html>

¹⁰ Patton, Leslie and Giammona, Craig. "The New Organic Walmart is Eating Whole Foods' Lunch" *Bloomberg*. May 14, 2015. <http://www.msn.com/en-us/money/companies/the-new-organic-walmart-is-eating-whole-foods-lunch/ar-BBjLYq4>

¹¹ Stock, Kyle. "Wal-Mart Attempts the Holy Grail: Low-Cost Organic Food" *Bloomberg Business*. April 10, 2014. <http://www.bloomberg.com/bw/articles/2014-04-10/wal-mart-attempts-the-holy-grail-low-cost-organic-food>

¹² Costco Wholesale Corporation (COST) Q3 2015 Results - Earnings Call Transcript. May 28, 2015. <http://seekingalpha.com/article/3220226-costco-wholesale-cost-q3-2015-results-earnings-call-transcript?part=single>

¹³ Ziobro, Paul. "Target Puts Some Food Suppliers on the Back Burner" *The Wall Street Journal*. May 17, 2015. <http://www.wsj.com/articles/target-puts-some-food-suppliers-on-the-back-burner-1431897130>



- The Oregon Organic Coalition presented its Award for Excellence to Fred Meyer in 2013 and reported that the company's annual organic produce sales in Oregon had reached nearly 20 million dollars.¹⁵

These accounts demonstrate that demand for organic fruits and vegetables from mainstream supermarket chains is strong and will likely continue to increase. Even if current supply is sufficient to meet current demand for most commercially viable crops, industry growth will impact supply availability. On the one hand this could create tremendous opportunity for organic specialty crops farmers, but as organic becomes more of a commodity, downward price pressure also becomes a greater concern for farmers.

CONCLUSIONS ON BUYERS' PERSPECTIVES

The perspectives presented by Oregon companies that buy organic specialty crops reflect supply needs that are highly varied. We were able to identify a few crops that stand out as having market opportunity for Oregon farmers, however, for the most part we found that supply needs are unique to individual buyers. Wholesale produce distributors' perspectives on the market were also varied ranging from reports that, for the most part, organic supply in the fresh market is keeping up with demand, to identifying an opportunity for a wide variety of organic specialty crops. Even if Oregon farmers are meeting the needs of the market now, as mainstream supermarket chains expand their organic offerings supply will need to increase to keep up with growing demand.

¹⁴ Kieler, Ashlee. "Target Will Double Organic, Sustainable Offerings In 2015" *Consumerist*. February 20, 2015. <http://consumerist.com/2015/02/20/target-will-double-organic-sustainable-offerings-in-2015/>

¹⁵ Oregon Organic Coalition. "Oregon Organic Coalition Bestows Awards for Excellence on Eight Oregon Individuals and Companies." September 18, 2013 http://www.oregonorganiccoalition.org/pressRelease/2013/2013_OGOWawardspressrelease.pdf



QUANTIFYING SUPPLY GAPS

In addition to collecting anecdotal information from buyers, we attempted to quantify supply gaps by comparing the quantities of organic specialty crops grown by Oregon farmers in 2014 to the quantities of organic specialty crops purchased by Oregon companies. Our assumption is that the purchased quantity of a given crop, adjusted to reflect seasonal availability, is representative of the potential market. The difference between the potential market and the quantity produced represents the opportunity for Oregon farmers.

This approach relies exclusively on defining the potential market using an import substitution approach. We recognize that market opportunity extends beyond replacing organic crops that are grown out-of-state with Oregon crops. We used this approach as a starting point for quantifying supply gaps, with recognition that quantifying what companies would buy if organic supply were available would create a more complete picture of the market.

We also recognize that the market is global, and trade – both domestic and international - is an important part of our state's economy. However, we limited the scope of our demand analysis within the boundary of Oregon's state lines to make the analysis more feasible.

Finally, our analysis was focused on business markets for organic specialty crops. Although demand in the business market is ultimately derived from consumer demand, we focused further upstream in the supply chain to identify the market opportunity for farmers. Consumer direct sales, such as sales at farmers markets, farm stands and through Community Supported Agriculture (CSA), are an important part of the market, but the supply here is already coming from Oregon farms meaning there is no real opportunity to substitute out-of-state supply with Oregon crops.



ESTIMATING THE AVAILABLE SUPPLY

The USDA National Agricultural Statistics Service 2014 Organic Survey¹⁶ was used to identify the quantity of organic vegetables and fruits grown by Oregon farmers in 2014. The 2014 Organic Survey¹⁷ provides the total quantity produced by both certified and exempt farms. Because organic certification is required for selling to high volume buyers, only supply from certified farms was included in this analysis. In Oregon, 99.7% of organic acreage is certified organic.¹⁸ The “harvested quantity” per crop was the value selected to represent supply. The 2014 Organic Survey also includes both crops grown “in the open” and “under protection”.¹⁹ Where data was available, both quantities were combined to determine total supply. Although results from the 2014 Organic Survey currently provide the best available estimates for the quantity of organic crops grown and harvested by Oregon farmers, this survey had a response rate of 63% and relies on statistical estimation methods to arrive at the reported figures.

Ideally, we would have been able to include all of the organic crops that are included in the purchasing data we obtained, and that can be commercially produced in Oregon, in our analysis. In several cases data is omitted from the 2014 Organic Survey results in order to keep information about individual farms confidential. In other cases, individual crops are not measured at all in the survey, or crops are categorized too broadly to compare to purchasing data (e.g. “herbs, fresh cut”, “all squash” and “other cabbage”). These factors limit the subset of crops that we were able to include in our analysis. Our analysis covers broccoli, green cabbage, head lettuce, potatoes, tomatoes, garlic, cauliflower, snap beans, raspberries, blackberries, blueberries, and plums. Additional crops that could be evaluated include dry onions, green peas, bell peppers, sweet corn, spinach, pears and cranberries.

¹⁶ United States Department of Agriculture (USDA). 2014 Organic Survey Census
http://www.agcensus.usda.gov/Publications/2012/Online_Resources/Organics/

¹⁷ Ibid

¹⁸ United States Department of Agriculture (USDA). 2014 Organic Survey Census Table 1. Farms, Land, and Value of Sales of Organic Agricultural Products – Certified and Exempt Organic Farms 2014.
http://www.agcensus.usda.gov/Publications/2012/Online_Resources/Organics/organics_1_001_001.pdf

¹⁹ United States Department of Agriculture (USDA). 2014 Organic Survey Census
http://www.agcensus.usda.gov/Publications/2012/Online_Resources/Organics/



ESTIMATING THE POTENTIAL MARKET

To estimate the potential market we first segmented the market by types of buyers. We identified three main types of buyers that the majority of fruits and vegetables move through in the Oregon market: wholesale produce distributors, self-distributing grocery store chains, and processors and manufacturers.

Independent grocers and chefs in both restaurants and institutional kitchens might also purchase fruits and vegetables directly from Oregon farmers, however, we were not concerned with capturing information about these purchases. These market transactions mirror the direct to consumer sales described earlier where supply is already coming from local farms - meaning there is no real opportunity to substitute out-of-state supply with Oregon crops.

Crops may also be sold to a number of other intermediary buyers including: other farmers, grower cooperatives, grower shippers, and brokers. However, most crops that are sold to these buyers, with the exception of exports (which are outside the scope of this analysis), ultimately move through wholesale produce distributors, self-distributing grocers, processors or manufacturers. Therefore, we did not look at supply that was purchased by these intermediary buyers.

Oregon's four leading organic wholesale produce distributors generously provided data on the quantities of organic vegetables and fruits purchased in 2014. For the crops that we selected to analyze, the monthly quantity of each crop purchased by each buyer was totaled. To account for seasonal availability, only the quantities purchased in months that crops could either be harvested in Oregon or supplied from Oregon grown storage crops were included in this total. Harvest months were determined based on input from farmers and buyers. Storage months were identified using storage periods under optimal conditions as described in Knott's handbook.²⁰ Finally, the total quantities of each crop purchased by each individual buyer were aggregated to arrive at the relevant annual total purchases for each crop, representing the 2014 potential market.

We were unable to obtain a comprehensive enough set of purchase data from either self-distributing grocery store chains or processors and manufacturers to

²⁰ Maynard, D.N. and Hochmuth, G.J. Knott's Handbook for Vegetable Growers, Fifth Edition. Hoboken, New Jersey: John Wiley & Sons, Inc., 2007.



develop an estimate of the potential market for these buyers. This was largely due to the proprietary nature of company purchasing data. Because we were unable to account for these purchases on the potential market side of the equation, the supply side needed to be adjusted to reflect the fact that all of the organic crops produced in Oregon in 2014 were clearly not sold to wholesale produce distributors. To make the necessary adjustments, we relied on publically available information to account for the various ways that produce is marketed.

The 2012 Agriculture Census²¹ provides estimates for the percentage of total acres grown for fresh versus processed markets. Although these estimates are not specific to organic crops and refer to acreage rather than harvested quantity, we considered them to be a starting point for approximating the portion of the organic supply that is sold to processors. Where possible industry experts were also consulted to verify whether these percentages apply to the organic crop. These percentages were used to adjust the quantity of organic supply of each crop available to wholesale produce distributors and are described in the crop by crop analysis that follows.

The 2014 Organic Survey²² reports the percentage of all organic food sales that were generated through direct to consumer outlets, direct to retail outlets, and wholesale outlets, however, sales are not broken down to the level of specific marketing outlets. The 2008 Organic Survey²³ does report sales to specific outlets. Information for Oregon is incomplete due to the need to protect survey respondents' confidentiality, however, the survey does report that in Oregon sales to conventional supermarkets chain buyers made up 1% of wholesale market sales. The national average for organic sales through conventional supermarket chain buyers and natural food store chain buyers combined was 10.1% in the 2008 Organic Survey.²⁴ These figures provide some indication as to the percentage of 2014 crops that are sold to grocery store distribution centers, however, considering that this figure reflects sales of all organic products, it is

²¹ United States Department of Agriculture (USDA). 2012 Census Volume 1, Chapter 1: State Level Data: Table 38. Vegetables, Potatoes, and Melons Harvested for Sale: 2012 and 2007
http://www.agcensus.usda.gov/Publications/2012/Full_Report/Volume_1,_Chapter_1_State_Level/Oregon/st41_1_038_038.pdf

²² United States Department of Agriculture (USDA). 2014 Organic Survey Census Table 48. Marketing Practices – Certified Organic Farms: 2014
http://www.agcensus.usda.gov/Publications/2012/Online_Resources/Organics/organics_1_048_048.pdf

²³ United States Department of Agriculture (USDA). 2008 Organic Survey Census Table 33. Marketing Practices on Certified Organic Farms: 2008
http://www.agcensus.usda.gov/Publications/2007/Online_Highlights/Organics/organics_1_33.pdf

²⁴ Ibid



unclear whether it is applicable in the case of specialty crops. We inquired with several buyers and industry experts to identify an estimate for the percentage of organic crops that are sold to self-distributing groceries but were unable to come up with a definitive estimate. Additionally, a supermarket or grocery chain buyer's decision to bypass wholesale produce distributors may vary by crop with buyers more likely to take on sourcing and distribution functions when crops are coming from one main region and are purchased in large quantities all at once. When sourcing is more complex, these buyers are more likely to rely on wholesale produce distributors. Although we are unable to account for the portion of supply sold to grocery store distribution centers, the supply available to wholesale produce distributors is impacted by sales to this channel and supply shortages are understated as a result.

We assumed that the majority of the 2014 supply sold through packers, brokers, and grower cooperatives is likely sold again further downstream in the supply chain to grocery store distribution centers, processors, and wholesale produce distributors, meaning that these sales should be captured in other points in the supply chain. That said some of these buyers might sell produce to domestic and international export markets. Fresh fruit and vegetable exports from the US are only tracked at the international level, making it impossible to determine the portion of Oregon grown organic crops that are exported from Oregon specifically. While out-of-state demand is outside the scope of this market analysis, accounting for exports is necessary to estimate the actual supply available to wholesale produce distributors. Here we relied on industry experts to provide export estimates for the crops that we thought would be the most significantly impacted by sales to export markets and adjusted the quantity of organic supply of each crop available to wholesale produce distributors by these estimates.

Although direct sales of organic specialty crops do not translate to a market opportunity, the degree to which these sales impact the available supply still needs to be considered. The 2014 Organic Survey²⁵ reports that 10% of total organic sales in Oregon were consumer direct sales. Consumer direct sales here include sales via farm stands, U-pick, farmers' markets, CSAs, mail orders, buying clubs, and the Internet. Direct-to-retail and direct to institution sales, including sales to individual grocery stores, restaurants, caterers, and institutions

²⁵ United States Department of Agriculture (USDA). 2014 Organic Survey Census Table 48. Marketing Practices – Certified Organic Farms: 2014
http://www.agcensus.usda.gov/Publications/2012/Online_Resources/Organics/organics_1_048_048.pdf



such as hospitals and schools, colleges, and universities made up 5% of total organic food sales.²⁶ Because these transactions are measured in sales rather than crop quantities, and cover all organic foods sales, including sales of value-added products from both certified and exempt farms, these percentages were not used to adjust available supply quantities. Still, the current supply available is impacted by consumer direct and direct-to retail/institution sales and supply shortages are understated as a result.



²⁶ Ibid

PRELIMINARY RESULTS: SUPPLY SHORTAGES AND SURPLUSES

The crop by crop analysis that follows shows the 2014 supply shortage or surplus for each crop when the 2014 available supply is subtracted from the 2014 potential market for each crop. A potential market in excess of the available supply shows a market opportunity for Oregon specialty crop farmers. Conversely, an available supply in excess of the potential market implies that there was ample quantity produced of a crop in 2014 to supply the potential market.

Crop	Season	Potential Market	Available Supply	Shortage/(Surplus)
Broccoli	June-Oct	1,694,909 lbs	112,652 lbs	1,582,257 lbs

Assumptions:

Supply is adjusted to account for 93% of the 2014 crop being grown for the processed market based on data from the 2012 Census of Agriculture. We were unable to verify that this figure holds true for the organic broccoli crop, however, even if no portion of the 2014 organic broccoli crop was grown for processors, there would still have been a supply shortage of 92,309 lbs. Broccoli raab and rapini purchases were not included in the estimation of the potential market. If broccoli raab and rapini were included in the reported quantity in the 2014 Organic Survey, then the available supply is overstated and the supply shortage is understated.

Crop	Season	Potential Market	Available Supply	Shortage/(Surplus)
Green Cabbage	June-Oct	1,149,241 lbs	1,448,920 lbs	(299,679) lbs

Assumptions:

Supply is adjusted to account for 3% of the 2014 crop being grown for the processed market based on data from the 2012 Census of Agriculture. The 2014 Organic Survey reports "Green Cabbage" and "Other Cabbage" independently, but the 2012 National Agriculture Census does not report separate data for "Other Cabbage". Because of this inconsistency, it is possible that the percentage of green cabbage grown for the processed market could be overestimated here. We were unable to verify that this figure holds true for the organic green cabbage crop, however, more than 23% of the 2014 organic green cabbage crop would have had to been grown for processors for a supply shortage to exist.



Crop	Season	Potential Market	Available Supply	Shortage/(Surplus)
Lettuce	May-Oct	2,175,502 lbs	2,572,000 lbs	(396,498) lbs

Assumptions:

Lettuce is strictly a fresh market crop, therefore no adjustment for lettuce grown for the processed market has been made here. Romaine hearts and salad mix purchases were not included in the estimation of the potential market. If romaine hearts and salad mix were included in the reported quantity in the 2014 Organic Survey, then the available supply and the estimated surplus are overstated. The 2014 Organic Survey reports head lettuces in pounds, whereas wholesale distributors report lettuce purchases by the head count per case. For comparison purposes, lettuce heads were converted to pounds using the following conversion factors:

1 head leaf = .958 lbs., 1 head butter = .625 lbs., 1 head romaine = 1.5 lbs., 1 head iceberg = 2 lbs.

Crop	Season	Potential Market	Available Supply	Shortage/(Surplus)
Tomatoes	July-Sept	1,494,730 lbs	959,600 lbs	535,130 lbs

Assumptions:

These figures reflect the fresh market tomato crop. Processing tomatoes were reported separately in the 2014 Organic Survey, therefore no adjustment for tomatoes grown for the processed market has been made here.

Crop	Season	Potential Market	Available Supply	Shortage/(Surplus)
Potatoes	Jan-Dec	21,375,015 lbs	9,369,248 lbs	12,005,767 lbs

Assumptions:

Industry experts suggested that a large portion of Oregon grown organic potatoes are exported out of state with estimates ranging between 80% and 90%. The available supply here has been reduced by 85% to reflect these exports. The 2012 Census of Agriculture indicates that 66% of the conventional potato crop was grown for the processed market. Consultation with organic industry experts suggest that the portion of the organic crop that is grown for the processed market is likely smaller with estimates ranging from 5% to 50%. Supply here is adjusted to account for 27.5% of the remaining supply being grown for the processed market.



Crop	Season	Potential Market	Available Supply	Shortage/(Surplus)
Garlic	July-Dec	29,422 lbs	101,300 lbs	(71,878) lbs

Assumptions:

Supply here has not been adjusted to account for the portion of the 2014 crop being grown for the processed market. No information was available in the 2012 Census of Agriculture. One industry expert estimated that most garlic is sold direct to consumers and retail/restaurant establishments with a small portion grown for the processed market. An unknown portion of the organic garlic crop is also grown and sold as a seed crop.

Crop	Season	Potential Market	Available Supply	Shortage/(Surplus)
Cauliflower	June-Oct	598,391 lbs	516,900 lbs	81,491 lbs

Assumptions:

Supply here has not been adjusted to account for the portion of the 2014 crop being grown for the processed market. No information was available in the 2012 Census of Agriculture.

Crop	Season	Potential Market	Available Supply	Shortage/(Surplus)
Snap Beans	July-Sept	124,034 lbs	1,364,800 lbs	(1,240,766) lbs

Assumptions:

These figures reflect the fresh market snap bean crop. Processing snap beans were reported separately in the 2014 Organic Survey, therefore no adjustment for snap beans grown for the processed market has been made here.

Crop	Season	Potential Market	Available Supply	Shortage/(Surplus)
Blackberries	July-Sept	5,472 lbs	195,576 lbs	(190,104) lbs

Assumptions:

The 2012 Census of Agriculture indicates that 95% of the conventional blackberry crop was grown for the processed market.²⁷ Consultation with organic industry experts suggest that the portion of the organic crop that is grown for the processed market is likely much smaller with estimates ranging from 3% to 25%. Supply here is adjusted to account for 25% grown for the processed market.

²⁷National Agricultural Statistics Service (NASS). United States Department of Agriculture (USDA). Oregon Berry Production. January 25, 2013.
http://www.oregon-strawberries.org/production_history/berries_stats_2013.pdf



Crop	Season	Potential Market	Available Supply	Shortage/(Surplus)
Blueberries	July-Sept	371,453 lbs	363,762lbs	7,691 lbs

Assumptions:

These figures reflect the fresh market blueberry crop. Processing blueberries were reported separately in the 2014 Organic Survey, therefore no adjustment for blueberries grown for the processed market has been made. Industry experts suggest that a large portion of the Oregon grown organic fresh market blueberry crop is exported out of state with estimates ranging between 50% and 60%. Supply here is adjusted to account for 55% grown for export.

Crop	Season	Potential Market	Available Supply	Shortage/(Surplus)
Raspberries	July-Aug	72,571 lbs	137,418 lbs	(64,847) lbs

Assumptions:

The 2012 Census of Agriculture indicates that 88% of the conventional raspberry crop was grown for the processed market.²⁸ Consultation with organic industry experts suggest that the portion of the organic crop that is grown for the processed market is likely smaller with estimates ranging from 3% to 25%. Supply here is adjusted to account for 25% grown for the processed market.

Crop	Months	Potential Market	Available Supply	Shortage/(Surplus)
Plums	Aug-Sept	77,438 lbs	170,000 lbs	(92,562) lbs

Assumptions:

Supply here has not been adjusted to account for the portion of the 2014 crop being grown for the processed market. No information was available in the 2012 Census of Agriculture, however, organic industry experts estimate the entirety of the organic plum crop likely goes to the fresh market.

DISCUSSION AND LIMITATIONS

These preliminary results show supply shortages for organic broccoli, cauliflower, tomatoes, potatoes and blueberries and enough available supply to meet the 2014 market demand for all other crops assessed in this report. Again, numerous limitations exist that impact the results of our analysis.

²⁸ Ibid



Because we rely on estimates for the portion of supply that is sold to other outlets, actual supply gaps could be larger than our analysis shows. Other factors, including how crops are categorized in the 2014 Organic Survey and our estimates for when crops are seasonally available from Oregon farms could result in supply shortages being either overstated or understated.

Supply shortages may also be understated due to purchase quantities being underestimated. One distributor was only able to provide annual purchase quantities of each crop. In this case, annual purchase quantities were used to calculate monthly averages, which were then multiplied by the number of months the crop could be harvested or supplied by Oregon farmers to arrive at the relevant purchase quantities per crop for this buyer. Using a monthly average may not be an accurate estimate of the potential market for crops that have limited seasonal availability. Using monthly averages likely understates the potential market for some crops and could result in supply shortages being understated.

These results need to be qualified by one other important point - each of the wholesale produce distributors that provided purchasing data for this analysis source produce from farmers in Washington State. Although we limited the scope of our analysis to looking at supply and demand in Oregon, this boundary does not necessarily apply to sourcing practices. Distributors are not necessarily looking to substitute Washington product with crops from Oregon farmers. In our analysis, the potential market may be overstated if purchases include crops sourced from Washington farms.

Finally, this analysis is based on a snapshot of the market at a particular point in time. The market is dynamic, with one year's shortages having the potential to turn in to the next year's glut. As one buyer pointed out, it's hard to know what's being planted or what perennial crops are going to start bearing fruit in the coming season. Considering all of the stated limitations, we conclude that these results are too incomplete to be able to draw meaningful conclusions about supply gaps.

Although we did not have access to SPINS data, which tracks purchases using SKU scans in retail outlets, this data is available for purchase and might be used to develop a more complete picture of how crops are marketed. The 2008 Organic Survey also provided useful data on how crops are marketed,



differentiating not only between direct sales and sales to wholesalers, but also identifies the percentage of sales that were generated in specific wholesale outlets. The 2014 Organic Survey did not provide this level of detail and we recommend that future surveys should.



SUPPLY CONSTRAINTS

In addition to identifying market opportunities, we also set out to identify factors that are constraining current supply in order to inform where Oregon Tilth and other organizations can support the development of the organic market in Oregon. We asked companies to share their perspectives on factors that are keeping Oregon farmers from accessing market opportunities for organic specialty crops. Buyers' perspectives were supplemented with secondary research and input from industry experts.

COMPETITIVE PRICING AND COMMERCIAL VIABILITY

Several processors and manufacturers reported that crops Oregon farmers could be growing are being substituted by lower priced imports. Companies indicated that they would prefer to be sourcing from Oregon farms but are limited by the prices that they are able to pass on to consumers. Garnering price premiums for food products made from local ingredients doesn't work well with products that are marketed and distributed nationally.

Fresh market buyers' perspectives on how well Oregon farmers are doing at competing on price were mixed. While some consumers might favor Oregon grown crops above all, as one buyer put it, the question becomes whether local will trump both quality and price. One wholesale produce distributor reported Oregon organic prices as being comparable to organic market prices out of California. After further discussion, this buyer acknowledged that there could be some crops, with broccoli as an example, where farmers might not be entering the market because they are unable to produce a crop at a cost that can compete with larger and more efficient farms and still be profitable. Another buyer noted that there could be opportunity for smaller farms to enter the market if they are willing to make investments in equipment that would make their operations more efficient, thereby reducing costs of production and the market price required to make a crop pencil out. Natural foods grocery chain buyers identified market opportunities for crops that have yet to be proven to be commercially viable.



Commercial viability depends on being able to sell a crop at a price that is competitive and still profitable for the grower. California sets the market price for most specialty crops and being competitive requires achieving a high level of productivity, efficiency and quality. Yield is another factor that impacts whether or not a crop is commercially viable. A comparison of the organic broccoli harvest per acre on Oregon and California farms as reported in the 2014 Organic Survey shows that on average California farms harvested 14,471 pounds per acre where as Oregon farms harvested only 8,909 pounds per acre.²⁹ This represents a yield per acre for California farms that is over 1.6 times the yield on Oregon farms. Similar to the broccoli example, a comparison of the organic cauliflower harvested per acre on Oregon and California farms as reported in the 2014 Organic Survey shows that on average California farms harvested 13,573 pounds per acre where as Oregon farms harvested only 7,280 pounds per acre.³⁰ This represents a yield per acre for California farms that is over 1.8 times the yield on Oregon farms. The yields that California farmers can achieve allow them to sell these crops at a price point that might not be profitable for Oregon farmers.

A solid understanding of crop production costs is paramount to evaluating whether a crop is commercially viable at market prices and to making informed pricing decisions in general. Having a handle on costs of production can also help highlight opportunities to invest in equipment or infrastructure that could ultimately reduce costs and allow farmers to sell crops at more competitive prices. In some cases, Oregon crops might not be able to compete with out-of-state supply. In other cases, research on organic production methods that addresses factors that limit yields could help to improve the competitiveness of Oregon organic specialty crops.

TRANSITION TO ORGANIC

For some farmers, accessing market opportunities requires a transition to organic practices. This is especially true for crops grown for processors and manufacturers. Growing for this market requires scale; conventional farmers that

²⁹ United States Department of Agriculture (USDA) 2014 Organic Survey Census Table 5. Organic Vegetables, Potatoes, and Melons Grown in the Open Harvested -- Certified and Exempt Organic Farms: 2014
http://www.agcensus.usda.gov/Publications/2012/Online_Resources/Organics/

³⁰ Ibid



are already growing at a larger scale might be best positioned to meet market demands for organic specialty crops. Organic transition comes with its own set of challenges. As with learning any new skill, it takes time to become proficient with organic growing practices. Organic transition also requires navigating the certification process, developing new record keeping systems and paying certification fees. Farmers have to make it over the economic hurdle of the mandatory three-year transition period when yields might be down, costs may be up, and the premium prices that certified organic crops earn aren't accessible. Transitioning farmers also face uncertainty about whether the market will still exist after the three-year transition period and what the return on investing in the three-year transition period will be. If conventional prices are strong, farmers might be reluctant to take the leap to organic. As one buyer pointed out, whether a farmer takes on the uncertainty associated with transitioning to organic ultimately comes down to an individual's tolerance for risk.

ACCESS TO PROCESSING INFRASTRUCTURE

In several cases the crops that manufacturers identified as being ones that Oregon farmers could be supplying need to be available in a minimally processed form. We heard this point primarily from companies that source vegetable crops that have been frozen (IQF), cut to a specified size, roasted, peeled, pureed, dried, or packaged in aseptic containers. Dry beans crops also have to be cleaned and sized. Farmers need to have access to processing infrastructure to meet product specifications. In some cases companies are sourcing from out-of-state because they can't get crops in the form they need from Oregon farmers. This indicates that a lack access to processing infrastructure is constraining the supply of Oregon grown crops that are purchased by these companies.

MARKETS FOR CROP ROTATIONS

Growing for a higher volume market requires more acres of a single crop under cultivation, yet the same crop can't be grown on the same ground year after year. Crop rotation is a required core component of organic farming practices. A mix of crops needs to be grown in order to implement a crop rotation practice, and in turn, farmers need a market for each of the crops in their rotation.



LABOR AVAILABILITY

Companies reported that farm labor shortages are constraining organic supply. Because organic production methods typically rely on mechanical weed control (both by tractor cultivation and hand hoeing) instead of herbicides, having an adequate supply of labor is crucial. One company representative gave the example of an onion farmer who was forced to turn in their entire planting because they couldn't find enough labor to get their crop weeded.

LAND AVAILABILITY

Access to land was also cited as a challenge, with organic specialty crop farmers facing stiff competition from farmers growing organic feed crops.

MEETING MARKETING REQUIREMENTS

Wholesale produce distributors reported that farmers' access to market opportunities can be limited by their ability to meet market requirements. In particular, complying with food safety requirements stands out as a key barrier. Burdensome recordkeeping and multiple certification requirements were noted as challenges to compliance. Navigating the organic certification process can also be a challenge. Some farmers that are using organic farming methods may be deterred from pursuing organic certification because of the recordkeeping and certification costs. One buyer described a farmer who uses organic practices on his farm but has not pursued organic certification despite the potential to garner a significant price premium.

Meeting the grading specifications that are required to satisfy the quality expectations of today's organic consumer can also be a challenge for some farmers. For some farmers this might be a matter of simply knowing what the standards are. Crop quality is also acutely impacted by post harvest handling methods. One buyer described some crops, such as romaine lettuce, as having a better shelf life when produced by California farmers and shipped to Oregon than when produced locally. This can likely be attributed to the more developed systems and infrastructure that California farmers have in place to cool crops immediately after harvest.



Farmers may not have access to storage facilities that would allow them to sell crops for a longer period of time and thereby capture a greater share of the market. Beyond storage facilities, one industry expert also pointed out that conventional potato farmers use sprout inhibitors and ethylene inhibitors that allow for year round storage and organic potato farmers don't have access to comparable inputs to extend storage.



CONCLUSIONS AND RECOMMENDATIONS

We set out to identify concrete information about the opportunity that exists for Oregon farmers. We found that buyers' perspectives on the market are highly variable and that specific crop needs are largely unique to individual buyers. Companies are also reluctant to broadcast specific crops needs, both because this information is often considered proprietary and because this can lead to supply gluts that drive down prices.

Our research experience highlights the value of facilitating networking opportunities that are geared toward connecting farmers and buyers directly as a means for communicating supply needs. Coordinating supply needs through one-on-one relationships not only protects confidential company information but also protects farmers from the downward price pressures that result from supply gluts. We recommend supporting the development of buyer-grower relationships as the most viable solution for conveying the market information that is needed to grow the organic sector in Oregon and beyond.

We conclude by offering recommendations for steps that can be taken to address supply constraints in order to help grow the supply of organic specialty crops in Oregon.

Competitive Pricing and Commercial Viability: Support farmers with identifying and analyzing production costs to determine where unmet demand translates to a commercially viable market opportunity. Sample enterprises budgets are a good start for informing such assessments, however the variability that exists between different farms makes it vital for farms to identify costs that are specific to their own farming operation. Investments in organic research are also crucial for finding solutions to address the factors that limit commercial viability.

Transition to Organic: Address the uncertainty and risk of transition by providing farmers with technical assistance and training on the "how to's" of organic farming. Training can include breaking down the barriers to the certification process and demonstrating the return on investment in the



transition period. Develop markets that pay premiums for transitional crops to help farmers get over the economic hurdle of the transition period. Although risk can't be entirely eliminated, forward-contracts with buyers can be used to help distribute some of the risk across the supply chain.

Accessing Processing Infrastructure: Conduct research to determine whether or not existing processing infrastructure is operating at capacity and whether this infrastructure could be utilized to process additional Oregon crops. If investment in new processing is necessary, the scale of agriculture required to make an investment in processing infrastructure worthwhile will need to be determined. Processing equipment is expensive and needs to be fully utilized to be economical. If processing equipment is shared between conventional and organic crops, runs of organic crops have to be larger enough to justify the cost of the required clean out procedures. Keeping equipment running at capacity requires both volume and consistent supply, tying the scale of processing directly to the scale of agriculture.

Markets for Crop Rotations: Facilitate coordination between farmers and buyers as well as between buyers from different companies to identify markets for full crop rotations. This level of sourcing coordination will likely require outside facilitation, considering the competitive nature of the marketplace and the transparency required for this level of supply chain coordination.

Meeting Marketing Requirements: Provide training and resources to meet food safety certification requirements that address the paperwork burden and issues of multiple certification requirements. Support farmers with navigating the certification process and continue offsetting the cost of certification through the USDA Agricultural Marketing Service's Organic Certification Cost Share Program.³¹ Provide farmers that are new to selling to wholesale markets training on grading standards, along with support in developing post harvest handling systems and infrastructure. Develop storage capacity by promoting awareness of the FSA's Farm Storage Facility Loan Program³² and investing in research on organic materials that maintain crop quality in storage.

³¹ United States Department of Agriculture (USDA) Agricultural Marketing Service (AMS). Organic Certification Cost Share Programs <http://www.ams.usda.gov/services/grants/ocscsp>

³² United States Department of Agriculture (USDA). Farm Service Agency (FSA). Farm Storage Facility Loan Program <http://www.fsa.usda.gov/programs-and-services/price-support/facility-loans/farm-storage/index>



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ANALYSIS OF THE ORGANIC MARKET IN OREGON

PRESENTED BY OREGON TILTH

This project was funded with support from a USDA Specialty Crop Block Grant through the Oregon Department of Agriculture, Agricultural Development and Marketing Division.

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With special thanks to all the company representatives and industry experts who contributed their perspectives to this report.

