



# Seal the Seasons

## The Business Case for Expansion into Food Service Markets

MBA 549 Supply Chain Management Practicum Project

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## Executive Summary

The team conducted research into the foodservice market and interviewed farmers, distributors, customers, and other subject matter experts. The goal of this research was to determine the viability of selling frozen locally grown produce in the foodservice market. The team utilized this research including financial data to estimate the financial implications of entering this market. The team also used the estimates to create a list of recommendations for the client. The team determined that Seal the Seasons (STS) can successfully enter the foodservice market, however their margins will be minimal unless they can justify a higher premium or lower cost of goods sold.

The food service market is currently segmented into cafeterias, restaurants, and food manufacturers. Seal the Seasons can reach these different segments through distributors or by going directly to the end users. Sysco and Foodbuy are two distributors that are currently very interested in working with Seal the Seasons to assist them in entering the food service market. Possible customers include NCSU and UNC-CH, neither of which currently purchases locally grown frozen produce.

Farmers are an important component in meeting the demand of the food service industry. Important farmer characteristics include the ability to meet volume and price competitiveness. The farmers would require additional time to plan for growing and harvesting based on the individual products. Farmers have short cycles in which to grow and often have to rush to meet demands on a short-term basis. Greater advance notice on growing requirements would improve their ability to meet demand. They prefer to have at least four month advance notice of crops needed to grow.

The team recommends that STS starts by working with Sysco to reach university cafeterias such as UNC-CH, due to the high volume and willingness to partner with STS. Sysco also has connections to other cafeterias and food services providers across the state. A relationship with Sysco will allow STS to increase their revenue rapidly as they supply more institutions. The barriers to entry (insurance and certifications) are similar to those that must be met to enter retail grocery stores, so STS shouldn't have any major issues entering into a contract with Sysco. From the team's interactions with Sysco, it is clear that Sysco would like to enter into an agreement with STS to distribute their products.

The current product mix sold by STS is demanded by the food service institutions. In addition corn and green beans are also highly demanded. The team focused on corn, due to the fact that the local farmers interviewed by the team did not believe STS could source enough green beans locally. However, in order to produce kernel corn with less labor cost, the team recommends that STS consider purchasing a corn orienter and cutter. This machine, which costs \$19,995, would allow STS to remove the kernel corn much more efficiently and save them around \$0.17 per pound in labor costs.

The team recommends that STS sell its produce at a 50% premium compared to standard produce, which would still be less than the 100% premium that organic produce is currently sold for. With this premium STS can earn a positive margin on blueberries, blackberries, strawberries, and corn. However, with this pricing strategy STS will not be able to earn positive margins on broccoli or spinach. The current specifications and "cuts" will be sufficient for the foodservice market. In addition STS can offer broccoli spears, cob corn, and kernel corn. The food service customers are not concerned with packaging as long as the bag size is larger than 2lbs (anything smaller is inconvenient for them). Therefore the team recommends that STS sell their produce in single liner cartons to save on bag costs.

The sales cycle will take around one year due to farmer planning requirements (2-4 months), growing season, product mix decisions, machine installations, and negotiations with the distributor (30-45 days). STS will incur carrying cost associated with the additional inventory being held at MDI (\$425 in 2017). The packaging cost associated with the Cost of Goods Sold (COGS) for the foodservice market will be lower due to the use of liners instead of multiple bags per carton. The distribution cost will be similar to current operations, as the pallets will be moved first to MDI and then to Sysco's distribution center when needed. The marketing costs associated with this venture will be minimal according to the team's interviews with Sysco. Tangible benefits to the brand include the ability to offset risk by diversifying customers and markets. This can also lead to a stronger balance sheet, greater long term value creation/sustainability and strong customer loyalty.

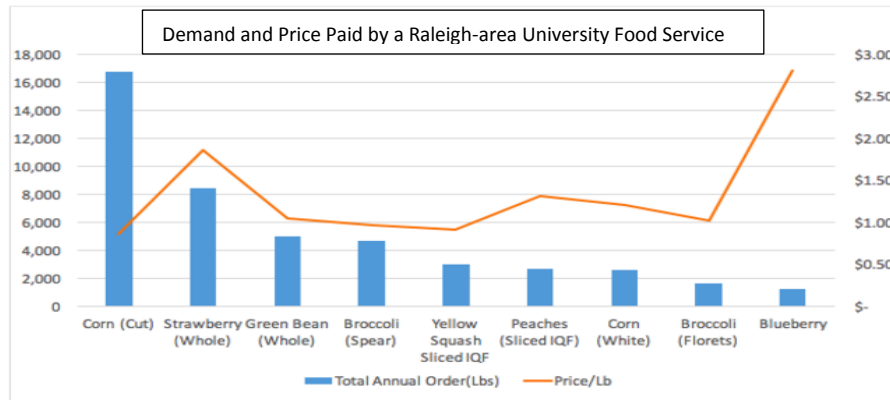
The team recommends that STS strongly consider moving into the foodservice market as it presents a great opportunity to grow their brand. However, the financial model created by the team shows the STS cannot make a positive margin with the current set of circumstances. The team's assumptions in the financial model include STS selling their product for a 50% premium and the COGS remaining similar to their current levels. STS will need to do one or more of the following to become profitable in this market: remove some vegetables from the product mix (spinach and broccoli have negative margins for the food service market), increase price premium (above 50%), lower COGS through reduced waste or increased labor efficiencies, or cut out distributor margins by going directly to end users. The demand in the foodservice market for locally grown frozen produce is currently not being met. For this reason the team recommends that STS enter that market if they can use one of the above recommendations to earn a higher margin.

**Note: In addition to this report, the Seal the Seasons team created financial spreadsheet models. These were supplied to the company, but are redacted to eliminate the inclusion of proprietary information in this public release.**

# Product Demand

Several food service distributors and university food service management companies were interviewed for this report.

The products that are highly demanded by two Triangle area universities are blueberries, strawberries and corn. The graph below shows the price vs. product demand for a number of frozen items. Seal The Seasons currently sells strawberries and blueberries; therefore, corn appears to be the next logical product to sell.



Source: University food service management

The wholesale price for most frozen conventional produce items ranges from \$0.75-\$1.00 per pound; organic prices are double this. Most fruit ranges from \$1.50 to \$2.00 per pound for conventional, with double that for organics. Based on the financial model, the products likely to sell with a greater than 40% margin are: blueberries, blackberries, cob corn. The team also found that Seal the Seasons can sell strawberries and kernel corn at a 20% or higher margin. Sale volume differs by season. For example, In December there will be more frozen sales in berries than in April, when fresh berries are available

Foodservice Price Strategy		Blueberries	Blackberries	Strawberries	Kernel Corn	Cut Sweet Corn	Broccoli	Spinach
STS COGS		18.06	29.07	29.37	23.28	10.16	27.34	32.56
STS Wholesale Price with margin		3.87	2.84	2.58	1.67	1.33	1.40	1.27
STS Wholesale Price		4.21	3.09	2.80	1.81	1.45	1.52	1.38
STS Wholesale Case Price		61.97	45.48	41.22	26.64	21.34	22.37	20.31
STS Margin		71%	36%	29%	13%	52%	-22%	-60%

## Product Supply

The local producers interviewed for this study grow specific crops at a certain time of year and sell to only a few retailers or to farmer’s markets. The farmers interviewed were all family run and local to the area. They produce enough products to keep their current customers satisfied. They have been doing business in this way for decades and did not have interest in expanding their size or scope.

Farmers would like to have at least four months planning time in advance to produce and have acreage setup for growing specific crops. The farmers have staffing and equipment costs as well as being bound by weather issues that may be out of their control.

For expansion possibilities corn and green beans were investigated. Corn has been produced by several of the farms but they have no plans to produce green beans.

## Product Specifications

Customers in the foodservice industry indicated that they are primarily concerned with the cut of the fruit or vegetable. For many fruits and vegetables, cafeterias and other food service suppliers currently purchase several different cuts. The table below shows some of the most in demand products and the different cuts that are currently purchased

Some cuts are demanded more by institutions than others. For instance kernel corn has much higher demand than cut or cob corn, and whole strawberries have a much higher demand than sliced. There is also demand for both spears and florets of broccoli. Due to this information we recommend that STS choose the higher demand cuts first, and then move to the lower demand cuts when ready. We also recommend that they capitalize on the demand for broccoli spears—these are currently not utilized by STS.

### Frozen Produce Items in Highest Demand, Based on Food Service Interviews

Produce	Specifications
Corn	Cut, On Cob 3", Kennel,
Broccoli	Cut, Floret, Spears
Strawberries	IQF Pieces, Whole
Carrot	Whole baby, Dollar, CC
Blueberries	Whole
Spinach	Cut
Peaches	Sliced, Sliced IQF
Okra	Breaded, Cut
Green Beans	Whole, Cut
Lima Beans	Baby
Blackberry	Whole
Raspberry	IQF

## Packaging

Customers in the foodservice industry are not necessarily concerned with the exact dimension of the box or bags, however they do prefer loose pack or bags that weigh at least 2 lbs. The research indicated that almost all bags that cafeterias currently buy are at least 2 lbs. or greater. The bags range from 2 lbs. to 20 lbs. and 30 lbs. loose pack crates of produce. We recommend that STS take advantage of end user flexibility and loose-pack their produce to reduce bagging time/labor as well as the bag cost. It is recommended that Seal the Seasons use 16 lb. packages and loose pack liners. The cost to STS will be roughly 36 cents for each box and 25 cents per liner.

### Packing Specifications, by Product

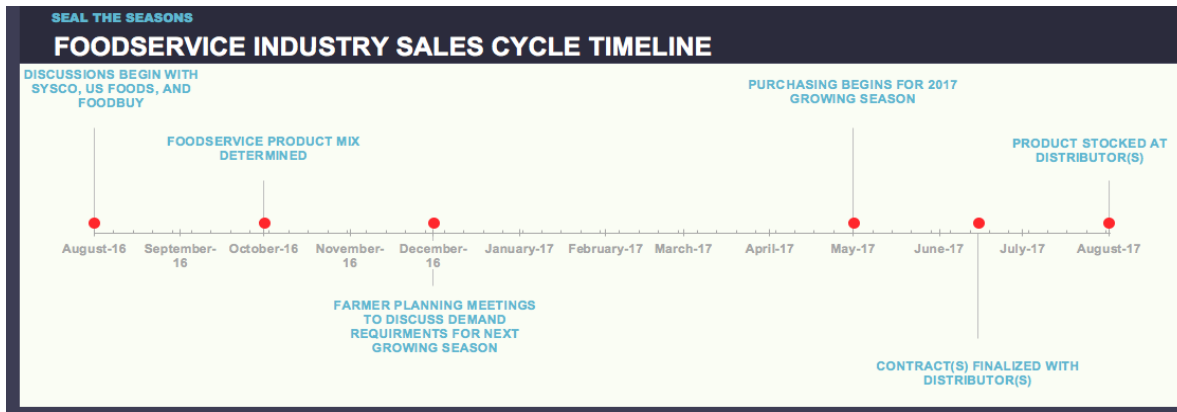
Produce	Specifications
Corn	CS\20LB(Cut) , 96 CT(3" Cob)
Broccoli	CS\12\2lb (Floret), CS\12\2LB (Spears)
Strawberries	CS/20 LB (IQF Pieces), CS\10LB (Whole)
Carrot	CS\12\2lb(Whole baby), (CS\20LB)Dollar, CS\20LB (CC)
Blueberries	CS\2\5LB(Whole)
Spinach	CS/12/ 3# (Chopped)
Peaches	CS/20 LB(Sliced IQF)
Okra	CS\20LB(Breaded), CS\20LB(Cut)
Green Beans	CS\20LB(Cut), CS\12\2lb (Whole)
Lima Beans	CS\20LB (Baby)
Raspberry	CS\10LB (IQF)

## The Sales Cycle

Through interviews with distributors we found that the amount of time between negotiating and signing contract terms with a new vendor and stocking the product generally take 30-45 days. We made the assumption that this is an industry average, and this timeframe will be typical regardless of which distributor(s) Seal the Seasons decides to work with.

Discussion should begin with various distributors now to determine which products they should bring to the market immediately, and the products that will come in following the first group. Distributors indicated that generally vendors bring 3-5 products to market initially, then as the brand gains recognition a full product line can be requested. The distributors can assist in forecasting demand as well as marketing to cafeterias, restaurants, and manufacturers.

The sales cycle will last about a year because Seal the Seasons will need to ensure the raw material demand can be met before the growing season begins for those products, which is why we set a target date of August 2017.



## New Product: Cut Corn

The team determined that the most demanded “cuts” of corn were kernel corn and cob corn. Both of these cuts were highly demanded by local university food service and area distributors.

### Packaging

The exact size of packaging for corn is not a major concern of the foodservice providers interviewed. The team recommends that STS use 16 lb. cartons and a single liner in the carton. This will allow STS to use boxes they currently have along with being able to reduce packaging cost of individual bags and using liners instead. It will also allow STS to reduce the expenditure for initial cost of packaging.

### Cost of Goods

To find the estimated cost of goods, the team researched the raw material cost, the labor cost, freezing cost, and packaging cost. The team contacted several farmers to try to find the wholesale price of sweet corn, but were not able to obtain this information. The raw material cost was instead determined using the average low price at the North Carolina Farmer’s market and assuming that STS would receive between a 20%-25% discount based on their volume.

The team also had to determine the waste percentage for both cut corn and kernel corn. In order to do this, the team went to the farmers market and purchased corn from three different farmers. We then weighed the samples pre-husk removal, post husk removal, and with kernels alone. Example data used in these calculations is given, below. These weights were used to determine the waste percentages for the different types of cuts. Using the cost per pound estimated above and the waste percentage the team was able to calculate the raw material cost of corn. Determining the waste percentage was a critical piece in estimating returns.

## Estimates of Pre and Post Processing Lost for Kernel Corn

Farm	Pre-shucking			Post-shucking			Loose
	Length (in)	Circumference (in)	Weight (oz)	Length (in)	Circumference (in)	Weight (oz)	
Tarf's	11.000	6.750	7.000	7.500	5.750	6.000	3.000
Yellow Corn	11.000	6.500	7.000	6.500	5.500	5.000	1.000
	11.000	6.750	8.000	6.750	6.250	7.000	3.000
	11.000	6.500	8.000	7.000	5.750	6.000	2.000
	11.000	6.500	8.000	7.000	5.750	6.000	2.000
	11.000	7.000	9.000	7.000	5.875	7.000	3.000
	11.500	6.750	9.000	7.250	5.500	6.000	2.000
	12.000	6.625	9.000	7.500	5.500	6.000	2.000
	11.500	7.000	9.000	8.000	6.125	7.000	3.000
	12.000	6.625	9.000	7.500	5.625	7.000	3.000
	12.500	6.250	9.000	7.750	5.125	5.000	2.000
	12.500	6.625	10.000	7.750	5.875	7.000	3.000
	14.000	7.000	11.000	7.750	5.750	7.000	3.000
Average	11.692	6.683	8.692	7.327	5.721	6.308	2.462

### Capital Investment: Sweet Corn Orienteer and Cutter

The team recommends that STS purchase a corn kernel remover. This machine will greatly reduce the time and labor required to remove the kernels from the cob. One machine that could fit STS needs is Hughes Equipment Company's "Sweet Corn Orienteer and Cutter" There will be an initial investment for the machine plus the installation cost. Purchase cost is \$3,500.

### Selling Price

The selling price was determined by taking the cost that area universities, interviewed for this report, currently pay for their sweet corn and multiplying it by a factor of 1.5 to account for the 50% premium that food service providers are willing to pay for local produce. This price would put STS produce roughly halfway between conventional produce and organic produce.

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## Works Cited

1. <http://www.buylocalfood.org/upload/resource/FreezingRegionalProduceforWesternNewEngland2.pdf>
2. [http://www.michiganfood.org/uploads/files/inst\\_food\\_purchasing\\_report.pdf](http://www.michiganfood.org/uploads/files/inst_food_purchasing_report.pdf)
3. IBISWorld Industry Report 42442 Frozen Food Wholesaling in the US April 2016 David Witter
4. <http://www.ers.usda.gov/data-products/fruit-and-vegetable-prices.aspx>
5. <http://www.hort.cornell.edu/grower/nybga/research%20reports/2012berry%20pricingsurvey.pdf>
6. <http://westernfarmpress.com/orchard-crops/frozen-fruits-and-vegetables-market-hit-226-million-tons-2015>
7. <http://www.usda.gov/wps/portal/usda/usdahome?contentidonly=true&contentid=organic-agriculture.html>
8. Interviews with farmers via telephone and in person at North Carolina Farmer's Market
9. "What's in Season" excerpt from North Carolina Farmer's Market
10. [http://www.manta.com/mb\\_45\\_B33C3830\\_34/food\\_service\\_management/north\\_carolina](http://www.manta.com/mb_45_B33C3830_34/food_service_management/north_carolina)
11. <http://www.ers.usda.gov/topics/natural-resources-environment/organic-agriculture/organic-market-overview.aspx>
12. <http://www.level5strategy.com/what%E2%80%99s-the-benefit-of-your-brand-by-the-numbers/>
13. "4 Tangible Benefits of a Strong Brand." Level5. N.p., 13 Dec. 2010. Web. 24 July 2016.
14. <http://www.ers.usda.gov/media/1763057/ap068.pdf>
15. <http://www.syscoraleigh.com/13049/Page.aspx>
16. <http://www.sodexo.com/home/services/on-site-services/universities.html>
17. <https://foodbuy.wufoo.com/forms/new-vendor-documentation-food-procurement/>
18. <http://www.hughesequipment.com/wp-content/brochure/brochure-corn%20cutter.pdf>
19. [https://www.youtube.com/watch?v=8o\\_EXsUO2I8](https://www.youtube.com/watch?v=8o_EXsUO2I8)
20. <http://nelsonjameson.com/Food-Grade-Poly-Box-Liner-p17114.html>