

## Dynamics of Price Point Setting for Farms and Repacking Facilities

By Alex Lopez, P.E.

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### Introduction and Problem Statement

Setting B2B seasonal price points for farm and repacked produce is a complicated process that requires appropriate engineering methodology and IT tools. Whether a repack facility produces a handful or hundreds of SKUs of finished products, one of the key elements to ensuring financial health is setting price points correctly. In this paper, we will review a case study of a 15 lb. ½ Butternut SKU in the New England market produced from January 2017 through August 2018 to highlight the importance of taking into account seasonal cost of bulk product in local markets, as well as yield in the production line.

### Background

Successful strategic management of a repack facility's Profit & Loss (P&L) requires a good grasp on the cost to produce finished billable units out of a repacking production line. Understanding such cost to produce is dependent on two things: The cost of bulk product (COGS) and the operational cost to package the product at the facility.

This study focuses on the impact of COGS fluctuations. The operational cost is also affected in relation to efficiency of economies of scale and how overhead cost is diluted as the capacity used of the facility fluctuates, but we will not cover the detail of that portion in this paper. For the purposes of this discussion, the challenge in understanding the costing related to producing a finished unit is that it is constantly fluctuating depending on the seasonality of a specific commodity at the farm. For instance, if weather factors set the stage for a plentiful season, the market price of the commodity typically decreases and the yield rate of the crop increases. By contrast, if weather factors or pests affected the overall supply and quality of the crop, the cost of the commodity will typically increase and its

yield will suffer. It is possible that these two may be negatively correlated, however.

The sensitivity in the relationship between cost of bulk product and in-season yield rates vs. out-of-season yield rates is exemplified in Table 1. In our case-study, butternut is typically considered to be off-season between the months of May and August, and in-season the rest of the year. During the time period of analysis, the cost per pound ranged from \$0.25 to \$0.40 approximately.

**Table 1: Total Cost of Bulk Product**

Cost (\$/lb.) of Bulk Product	Off Season Yield Rate	In Season Yield Rate
	35%	55%
\$0.25	\$0.71	\$0.45
\$0.30	\$0.86	\$0.55
\$0.35	\$1.00	\$0.64
\$0.40	\$1.14	\$0.73

### Methods

In assessing total cost to produce a case, we defined:

$$TC = COGS + \text{Fixed Cost} + \text{Variable Cost}$$

For the sake of simplicity, we will only consider the labor portion of variable cost in our analysis, but typically the cost of supplies and consumables should be considered.

Additionally, we only consider the scenarios where cost of bulk product rises during off-season periods, as it is considered by definition that cost of bulk increases as the overall market supply begins to decrease towards the end of the season.

Labor cost per case is typically lower during in-season periods due to volume facilitating efficiencies of scale.

Table 2 shows the monthly and season breakdown of costs referenced above.



**Table 2: Sensitivity Analysis of COGS**

Month	In/Off Season	OH Per Case	COGS Sensitivity Per Case \$0.25/lb - \$0.4/lb (15 lb*Cost per lb*Yield Rate)				Labor Per Case	Total Cost Per Case			
			\$ 0.25	\$ 0.30	\$ 0.35	\$ 0.40		\$ 0.25	\$ 0.30	\$ 0.35	\$ 0.40
Jan-17	In	\$ 0.44	\$ 6.82	\$ 8.18	\$ 9.55	\$ 10.91	\$ 2.62	\$ 9.88			
Feb-17	In	\$ 0.49	\$ 6.82	\$ 8.18	\$ 9.55	\$ 10.91	\$ 2.62	\$ 9.92			
Mar-17	In	\$ 0.67	\$ 6.82	\$ 8.18	\$ 9.55	\$ 10.91	\$ 2.62	\$ 10.11			
Apr-17	In	\$ 0.65	\$ 6.82	\$ 8.18	\$ 9.55	\$ 10.91	\$ 2.62	\$ 10.08			
May-17	Off	\$ 0.94	\$ 10.71	\$ 12.86	\$ 15.00	\$ 17.14	\$ 3.08	\$ 14.73	\$ 16.88	\$ 19.02	\$ 21.16
Jun-17	Off	\$ 0.88	\$ 10.71	\$ 12.86	\$ 15.00	\$ 17.14	\$ 3.08	\$ 14.67	\$ 16.81	\$ 18.96	\$ 21.10
Jul-17	Off	\$ 1.38	\$ 10.71	\$ 12.86	\$ 15.00	\$ 17.14	\$ 3.08	\$ 15.17	\$ 17.32	\$ 19.46	\$ 21.60
Aug-17	Off	\$ 1.07	\$ 10.71	\$ 12.86	\$ 15.00	\$ 17.14	\$ 3.08	\$ 14.86	\$ 17.00	\$ 19.15	\$ 21.29
Sep-17	In	\$ 0.36	\$ 6.82	\$ 8.18	\$ 9.55	\$ 10.91	\$ 2.62	\$ 9.79			
Oct-17	In	\$ 0.30	\$ 6.82	\$ 8.18	\$ 9.55	\$ 10.91	\$ 2.62	\$ 9.73			
Nov-17	In	\$ 0.32	\$ 6.82	\$ 8.18	\$ 9.55	\$ 10.91	\$ 2.62	\$ 9.75			
Dec-17	In	\$ 0.36	\$ 6.82	\$ 8.18	\$ 9.55	\$ 10.91	\$ 2.62	\$ 9.80			
Jan-18	In	\$ 0.46	\$ 6.82	\$ 8.18	\$ 9.55	\$ 10.91	\$ 2.62	\$ 9.90			
Feb-18	In	\$ 0.59	\$ 6.82	\$ 8.18	\$ 9.55	\$ 10.91	\$ 2.62	\$ 10.02			
Mar-18	In	\$ 0.49	\$ 6.82	\$ 8.18	\$ 9.55	\$ 10.91	\$ 2.62	\$ 9.93			
Apr-18	In	\$ 0.36	\$ 6.82	\$ 8.18	\$ 9.55	\$ 10.91	\$ 2.62	\$ 9.80			
May-18	In	\$ 0.36	\$ 6.82	\$ 8.18	\$ 9.55	\$ 10.91	\$ 2.62	\$ 9.79			
Jun-18	Off	\$ 1.59	\$ 10.71	\$ 12.86	\$ 15.00	\$ 17.14	\$ 3.08	\$ 15.39	\$ 17.53	\$ 19.67	\$ 21.81
Jul-18	Off	\$ 1.03	\$ 10.71	\$ 12.86	\$ 15.00	\$ 17.14	\$ 3.08	\$ 14.82	\$ 16.96	\$ 19.11	\$ 21.25
Aug-18	Off	\$ 1.13	\$ 10.71	\$ 12.86	\$ 15.00	\$ 17.14	\$ 3.08	\$ 14.92	\$ 17.07	\$ 19.21	\$ 21.35
Yearly Avg								\$ 11.65			
In-Season Avg								\$ 9.88			
Off-Season Avg								\$ 14.94	\$ 17.08	\$ 19.22	\$ 21.37

**Figure 1**

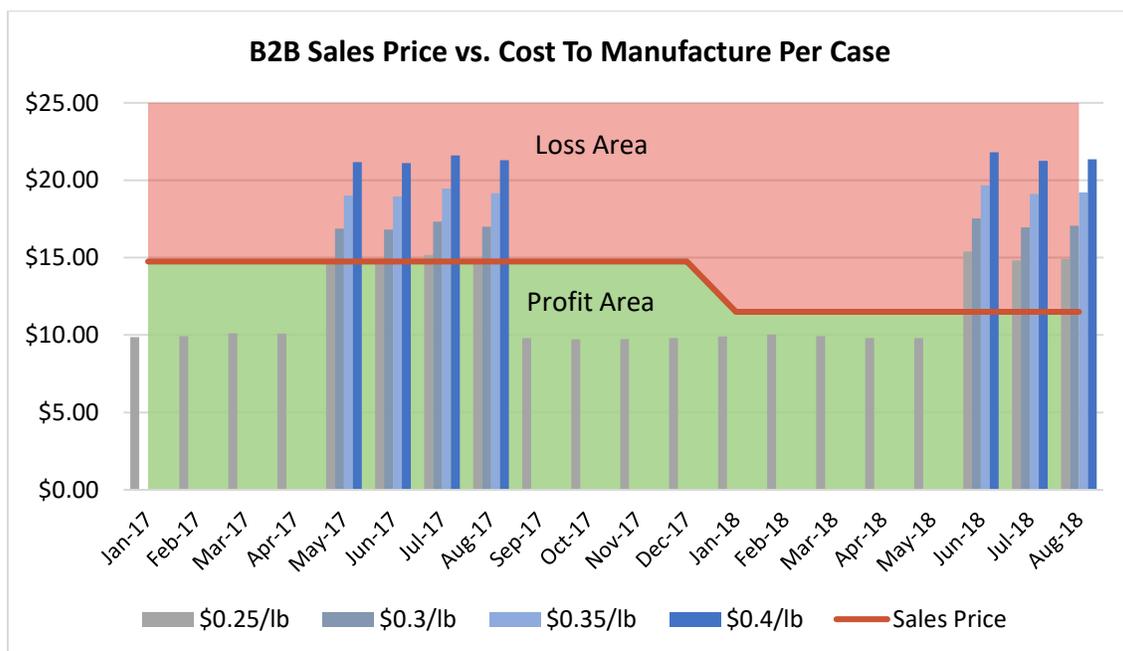
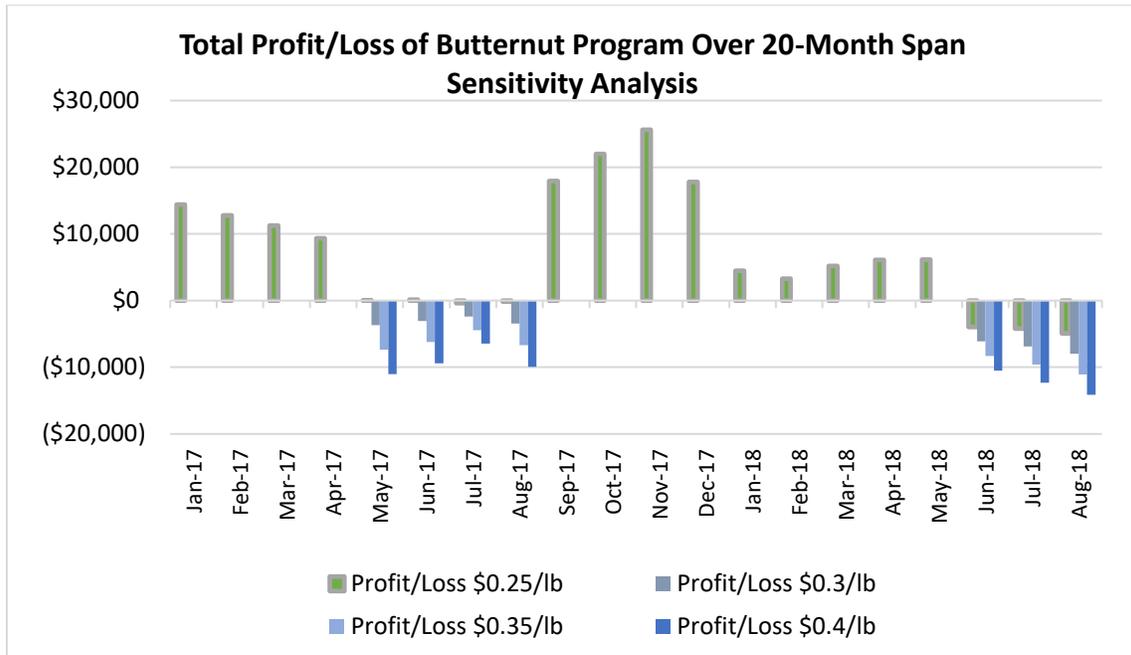


Figure 2



**Conclusions**

Seasonality factors can more than double the cost to produce one case of finished product (\$9.73/lb in Oct '17 vs. \$21.81 in June '18).

As the season for a commodity comes to its end, one can expect to see a higher market cost of bulk product - as overall supply of the commodity decreases - and yield rates to decrease as the commodity will no longer meet the spec required by retailers.

Costing methods for repack facilities must be comprehensive when committing a repack program to a seasonal, or yearly program. Every commodity tends to have unique trends in local and global markets when it comes to cost of bulk product and yield. A repack facility must be equipped with analytics and Business Intelligence tools to make decisions in-season, and off-season to evaluate the overall health of the program.