Agribusiness Marketing Report

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Colorado Vegetables: Processing Plant Feasibility Study

by

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- ✓ **A feasibility study provides producers with information on the viability of a processing plant.**
- ✓ **High labor and land costs prevent positive cash flows.**
- ✓ **Formation of a marketing cooperative may be one possible option.**

In the first issue of this four part-series of reports that deals with small agricultural producers attempting to find niche markets for locally grown products, we provided the results from a consumer vegetable survey conducted during the summer of 2001 at different grocery stores in several towns in Colorado. In the second issue, we reported on the results from several focus groups and phone surveys conducted with wholesalers/distributors, brokers, restaurant managers, and other food service industry components such as casinos, government institutions, grocery stores, and larger corporations throughout the state. In this issue, we will present the information obtained from analyzing the feasibility of building a processing plant for flash-freezing Colorado-grown vegetables.

With the increased levels of consolidation among shippers, brokers, and grocery retailers, the Colorado vegetable growers wanted to pursue an idea of forward integration into the supply vegetable chain. By building a flash-freeze processing plant, they hoped that they would develop a way to market their produce to dealers all year long. This was in response to one of the most frequently stated reasons that distributors did not rely more heavily on Colorado vegetables—the limited growing season. Although distributors preferred Colorado-grown products, they simply could not afford to lose their very large customers in California by switching to Colorado vegetables during our fresh market-growing season.

Thus, after completing all of the surveys and focus group work (see previous issues), our next step was to perform a feasibility study so that we could learn whether or not the cooperative could realistically process vegetables in order to guarantee their buyers a year-round supply of vegetables. This processed line of product would be in addition to offering the fresh products desired by the consumer. In order to help the growers understand the complexity of this situation, we designed a fairly elaborate spreadsheet that incorporated several templates all of which were connected.[1]

These templates included one for initial investment costs, production information, enterprise budgets, income statements, cash flows, amortization schedules, and price/yield data. The value of this information was such that growers could easily change production numbers,

[1] This excel spreadsheet is available upon request.

crops, and prices (for example) in order to arrive at a final income figure. The feasibility study helped the producers to understand the importance of having reliable information available for decision making and to learn how proper use of technology in the form of a spreadsheet (which almost all participants had access to) could provide them with a base from which to make more informed decisions.

For simplicity, three crops were included in the study: spinach, summer squash and winter squash. Although these were not the favorite choices of consumers (See Issue 1: *Demand for Colorado-Grown Vegetables: What Do Colorado Consumers Want?*), the growers did have a comparative advantage producing these products. Thus, the research team felt that if a processing plant could not cash flow under this best-case scenario, it would be very difficult, if not impossible, to get a positive cash flow with the other more popular consumer choices. These three crops provide a potentially early start to the processing season and would extend it until late fall; for this reason, a processing line for both spinach and squash (both summer and winter) were included.

The Detail:

- Relative costs dictated that a freezing plant would be the preferred processing plant alternative. Although the investment for a modest sized freezing plant would still be substantial, it would be considerably less than a canning plant of similar capacity. The size of the plant would be modest—5,000 pounds of spinach or 2,000 pounds of squash per hour. When deciding on site size and building design, the growers needed to consider potential expansion if the operation proved to be successful and if additional capacity would be desired. Flexibility in the spreadsheet is provided because multiple shifts during a day are possible and shifts may be of varying length.

- LAND: The developed site should have water, sewer, natural gas, electricity and phone utilities available. There would be, however, utility hookup fees and the cost of bringing the utilities to the building.

- BUILDINGS: Two buildings were included in the study. The main processing building would house the processing plant, employee rest rooms, a lunch room, and office space on the second floor. This building would have 45,000 square feet including the second floor office space. The second building would be a dry goods warehouse for the storage of winter squash for processing during the late fall months. The warehouse would be 120 by 50 (6,000) square feet.

- PROCESSING LINES: A processing line for spinach and a processing line for squash (both summer and winter) were included.

- UTILITIES: The study included costs for water/sewer, natural gas, electricity, and telephone service, as well as information about property taxes, first-year permanent employee expenses. All equipment, machinery and vehicles expenses were also included.

- PRODUCTION, CASH FLOW, ENTERPRISE BUDGET TEMPLATES: The three product choices allowed for different production levels in the field and provided three years worth of information. The distribution of the production acreage was broken down between typical production months by percentage and acreage with proportions between fresh and processed vegetables provided. The spreadsheet template also reported summary statistics regarding production and days of processing for a processing day of a specified length. The yields and prices of the vegetables used in the template were input into yet another template, which fed directly into the enterprise budget template, which in turn fed directly into the production templates.

Results:

Unfortunately, the cost of labor coupled with the high-priced land along the front range of Northern Colorado, simply would not allow for positive cash flows with the various scenarios. Losses ranged anywhere from $1.1 million to over $4 million (See Tables 1 and 2). Building a holding plant for just fresh vegetables provided an

option whereby the group could form a marketing cooperative to market fresh grown Colorado vegetables. Although this did not solve the year-round vegetable delivery issues, it did provide the group with a new idea of getting their products to market.

Table 1: Summary Financial Information

	One Freezing Tunnel	Two Freezing Tunnels	Expanded Plant
Investment	$7,256,490	$7,874,216	$20,868,587
Total Acreage*	5,200	10,400	12,000
Net Cash Flow	($858,371)	($803,082)	($1,892,165)
Income before Taxes	($1,405,713)	($1,431,084)	($4,216,919)

Table 2: Production Detail

	One Freezing Tunnel	Two Freezing Tunnels	Expanded Plant
Spinach	5000 lbs/hour: two 10 hour shifts: **2,800 Acres**	5000 lbs/hour: two 10 hour shifts: **5,600 Acres**	25,000 lbs/hour: one 10 hour shift: **6,000 Acres**
Summer Squash	2000 lbs/hour: two 10 hour shifts: **1,200 Acres**	2000 lbs/hour: two 10 hour shifts: **2,400 Acres**	10,000 lbs/hour: one 10 hour shift: **3,000 Acres**
Winter Squash	2000 lbs/hour: two 10 hour shifts: **1,200 Acres**	2000 lbs/hour: two 10 hour shifts: **2,400 Acres**	10,000 lbs/hour: one 10 hour shift: **3,000 Acres**
Total Acreage	**5,200**	**10,400**	**12,000**

Next month, we will distribute the last installment of this Colorado vegetable marketing series. It will contain our overall conclusions and recommendations to these local Colorado vegetable growers.