

**Supply Chain Coordination:  
A Case Study of Vegetable Growers in Colorado**

**by**

**Susan Hine and Wendy Umberger<sup>1</sup>**

**Presented at the WCC-72  
Las Vegas  
June 25, 2002**

---

<sup>1</sup> Both authors are Assistant Professors with the Department of Agricultural and Resource Economics at Colorado State University, Fort Collins, CO-80523-1172.

## **Supply Chain Coordination: A Case Study of Vegetable Growers in Colorado**

Small agricultural producers around the country are finding it increasingly difficult to remain competitive in a market place dominated by the consolidation of agricultural production. According to the latest USDA census, only 3.6 percent of farms accounted for over half of all U.S. farm sales (USDA, NASS, 2000). This consolidation has had a serious impact on vegetable growers in northeastern Colorado who have recently banded together to form a cooperative in the hopes that they would be in a better position to market their vegetables. These producers have been marketing their commodities using forward contracts (when possible) with various brokers/dealers throughout the supply chain because they have not been very successful in breaking into the super market stores—a difficult if not impossible task for small scale producers.

This challenge for producers to market directly to supermarkets and to their consumers is becoming greater as we consider the number of recent consolidations that have occurred in retail grocery markets throughout the country. Currently the top 20 grocery retailers consist exclusively of retail *chains*. In 1999, the four largest food retailers' share of grocery store sales was 27%, up from 18% in 1987 (USDA, ERS 2001). Additionally, grocery-oriented wholesalers undertook 32 mergers and acquisitions in 1999 with the food-service wholesalers completing 31 mergers. Shippers have also been consolidating; the top two bagged salad firms, who sell to supermarkets, accounted for 76% of the total fresh-cut salad sales in 1999 (USDA, ERS 2001). This integration is indicative of consolidation throughout agriculture; thus, local cooperatives such as this Colorado producer group are struggling to meet the distribution challenge through consolidations of their own. Some of these consolidations do not involve

complete integration but some form of structural change accomplished through mergers, joint ventures, or acquisitions (Cummins 1993, 1999; Warman).

In addition to restructuring, many producers are also recognizing the importance of finding a niche market for their products such as “locally” or “organically” grown. However, it is still essential that any niche market undertaking be accompanied by sound business analysis. Thus in the spring of 2001, this newly formed vegetable cooperative began to search for ways to become more competitive in both the fresh and processed vegetable area.

The cooperative hoped to find a niche for their Colorado-grown vegetables. Additionally, the producers wanted to pursue the idea of forward integration into the vegetable supply chain by either 1) building a processing plant that would provide them with an answer to their inability to market produce all year round, and/or 2) finding a way to deliver fresh vegetables from the farm gate directly to the supermarkets or end consumers. Recognizing the need for good information and sound analysis, the Colorado vegetable growers finally decided that they needed more help and turned to a team at Colorado State University (CSU) to conduct a market study to determine consumer demand for fresh and processed vegetables in Colorado. This market analysis was then to be followed by a processing plant feasibility study that looked more closely at the vertical coordination issue.

The remainder of this paper discusses the results of the market and feasibility study. Section I provides a review of the literature on vertical coordination. Section II details the analysis of the fresh and processed vegetable market. Section III then provides a discussion of the processing feasibility study and addresses the importance of incorporating knowledge management into production decisions—even for producers

with small operations. The paper then closes with recommendations and directions for future studies.

### **Vertical Coordination**

Vertical coordination or integration by definition “includes all the ways of harmonizing the vertical stages of production and marketing” (Mighell and Jones, 1963, p1). It may encompass many different forms including a merger with another firm, a joint venture on a particular project for a certain duration, an acquisition or purchase of another firm, or full integration from the farm gate to the retail shelf. Producers, however, are independent by nature and are often reluctant to band together in order to better promote their products; thus, making some form of vertical integration a difficult challenge for producers. Yet, “...in the future, agricultural markets and marketing channels are likely to increase in diversity, with a number of different vertical coordination arrangements co-existing to service different market needs” (Hobbs and Young, 2001). In particular, regulations, product characteristics, technology, and the cost of doing business are pushing producers toward more efficient manners of operation in an attempt to maintain margins and to improve profitability. This framework of challenges is encapsulated in Figure 1.

Some of the *factors driving* the changes in the way that producers do business include regulatory issues, such as the requirements set forth by standard and grading procedures. In particular, the concern over genetically modified foods and traceability of product origin has driven much of the new legislation about labeling. Technology will also continue to be a major driver of change as producer groups band together to take advantage of the opportunities and efficiencies afforded by new agricultural advances. Technology has always provided for economies of scale and “tighter control over product

quality...encouraging closer vertical coordination and industry consolidation” (Hobbs and Young, 2001). Buyers would simply rather deal with one seller as opposed to many. The end consumers form a last, but very important driver of change; for consumers are *sovereign*—they are the ones who ultimately determine what the product will be through their market purchases. Both the changing demographics (which refer to statistical data such as age or gender of a population) and psychographics (which define consumer behaviors, such as shopping patterns) help to shape the face of new products that are continually being developed for the market.

*Product characteristics* (Figure 1) also have a strong impact on the decision to integrate because of such things as product differentiation and perishability. With respect to the vegetable products analyzed in this study, the perishability issue becomes important in deciding who will take ownership at what stage of the processing cycle as this can have a big impact on costs. Products can deteriorate and lose freshness—is it the responsibility of the processor, the producer at the time of collection, or does ownership occur during storage (Lang, 1980)? This issue provides incentives for the producer to have more control over the operation from start to finish.

Production differentiation has also been increasing with the changing demographics and buying patterns of consumers many of whom want organic, environmentally friendly, or convenience products. Examples of some successfully differentiated products include goat farmers producing specialty goat cheeses, corn producers getting into the niche of “environmentally friendly” ethanol and fructose plants, soybean farmers turning into the “soy-zone,” and wheat producers developing specialty pasta plants (Loureiro and Hine, 2002).

*Transaction characteristics* such as uncertainty of price or product quality; frequency with which buyer and seller conduct business, the need for asset investments; and complexity of the transaction all add to the desire to vertically integrate to avoid the problems associated with the costs of doing business at different points along the supply chain (Hobbs, 1996).

With the industrialization of agriculture, the industry as a whole will continue to see interdependence as opposed to independence such as has occurred in the poultry and hog industries (Boelhje, 1998; Drabentstott, 1998). Both of these sectors saw tremendous efficiency gains as a result of cost reductions through vertical integration (Martinez, 1999). In fact for agriculture as a whole, Hamilton (1997) predicts that producers will increase their role in the production process through marketing cooperative networks such as the one presented in this study.

### **Market Analysis of the Colorado Cooperative**

The Colorado vegetable cooperative in this study has traditionally marketed a variety of vegetables including spinach, summer and winter squash, broccoli, corn, onions, and carrots. Unfortunately, Colorado growers have had to compete in the fresh vegetable market with growers from other states who can produce for their buyers all year round (California produces 61 percent of all fresh vegetables, Florida—24 percent, and Arizona—5 percent). In particular, California accounts for the majority of fall-season vegetables and melon acreage (USDA, 2001). Colorado's seasonal production puts the Colorado producers at a comparative disadvantage, as brokers/dealers prefer to work with growers who can provide them with a consistent and year-round supply of produce. Thus, these vegetable growers in northeastern Colorado hoped to find a *niche* market for locally grown, fresh vegetables. However, to accomplish this, they needed to

better understand where they could fit into the supply chain—who was their actual customer, one of the important *drivers* in the vertical integration decision process. Thus the first part of our study focused on the market research, which included surveys of consumers, growers, wholesalers/distributors, brokers, restaurant managers, and other food service industry components such as casinos, government institutions, grocery stores, and larger corporations—all of whom were potential customers of the vegetable cooperative. Although results are available from all of these various groups, only relevant survey results will be presented in this paper.

*The End Consumer Survey Results:*

The Colorado growers knew that they had a comparative advantage in the production of spinach, sweet corn, winter and summer squash, and broccoli; however, this advantage was of little value if the end consumers did not demand these vegetables. Thus, the growers first needed information about what types of vegetables consumers preferred: frozen, fresh, canned, or some combination of these three types, for even though the end consumers may not be the producers' primary customers, their preferences would help to determine what the various brokers, distributors, etc. would purchase directly from the growers. Thus a consumer survey was developed and administered during the spring, 2001, to learn about consumption habits and product characteristics of the market for fresh or processed vegetables. Section I of the consumer survey focused on general consumption patterns and vegetables attributes that consumers found important, including the premium that these consumers were willing to pay for these attributes. Section II asked questions about biotechnology and consumers' general attitudes associated with genetically modified (GM) foods. The last section provided demographic information with which to develop a target audience.

University students conducted the surveys in supermarkets such as King Soopers, Albertsons, Safeway, and Steeles throughout the state of Colorado. Consumers were randomly solicited in the produce section of the stores and were asked for their voluntary participation in the survey. In order to collect a representative sample, the survey was administered at various times during the weekdays, evenings, and again on the weekends. This survey was conducted in stores in Fort Collins, Greeley, Fort Morgan, Denver, Alamosa, and Montrose where a total of 505 consumers were surveyed. These locations were chosen because they represent both a large percentage of the population and a diverse group living in various sections of the state. In our sample, as summarized in Table 1, 71.27% of the respondents are female, with a mean age of about 50 years. The mean education level indicates that respondents have “some” years of college, with almost half of the respondents earning a bachelors degree or higher. Fifteen percent of the respondents have at least one child in their household, and finally, among the respondents of the income question, the mean income earned in the year 2000 is between \$50,000-75,000.

This survey showed that consumers had a strong preference for fresh vegetables all year round, in terms of general preferences and frequency purchases. In general, 94% of the surveyed consumers preferred fresh to processed (frozen or canned) items. The survey produced some additional interesting results. Summer and winter squash (a preferred production crop by growers) were not at all popular choices among consumers, garnering less than 1% of the total market share for fresh vegetables. Additionally, the demand for sweet corn (another favorite among the growers) proved to be extremely seasonal and not highly demanded as a processed product. Finally, although spinach

was more popular than either winter or summer squash, it did not rank high among fresh vegetable choices (Loureiro and Hine, 2002).

In order to study consumer preferences, we looked at vegetable attributes that were highly valued by the consumer. We asked consumers their willingness to pay for a pound of Colorado-grown, organic, and GMO-free vegetables. Surprisingly, Colorado consumers were willing to pay a higher premium for a Colorado-grown vegetable than for an organic or GMO-free vegetable. Local origin was the attribute with the highest acceptance rating and carried the highest associated premium. Seventy-three percent of the surveyed consumers said that origin of production was important to them. Another interesting finding was that 80 percent of the consumers said that they would be more prone to buy vegetables that were labeled as “Colorado-grown,” and 75 percent of the consumers were willing to pay a premium to obtain “Colorado-grown” products (Loureiro and Hine, 2002). See Figures 2 and 3. Local origin, or origin combined with certain production techniques seem to be the niche of many successful products. As examples, Bastian *et al.* (1999) studied consumer interest in the diversity of products available from local draft brewers in the Rocky Mountain region; and Aquino and Falk (2001) analyze the niche market for “Wolf-Friendly” Beef in New Mexico.

*The Middlemen: Distributor, Wholesaler, Brokers, and Food Service Groups Survey Results:*

It was next determined that since the middlemen would be the most likely primary customer of the growers, focus groups should be conducted to verify what was generally considered to be fact; that is, middlemen prefer buying from fewer sellers rather than more. Not surprisingly, the results from these focus groups supported the need for more vertical integration among the Colorado vegetable growers. The middlemen included in

the focus groups were those who consistently resell the producers' vegetables to major restaurant chains and grocery stores throughout the region and nationally. A summary of their concerns and attitudes toward Colorado vegetables are included in Table 2, and can be summarized as follows: The distributors and brokers wanted to be assured of a consistent product with quality serving as one of the most important factors driving their decision process. Quality was followed closely by concerns about the product's price, product availability, consistency of delivery, and variety of offerings. There was a stated concern that should these brokers purchase Colorado-grown products in the summer, their sellers from California and other states would switch to a new buyer—one who would purchase their products all year round. The size of these seller groups is large enough so that in many situations they can dictate to the middlemen the terms of product delivery. In order to compete, the growers felt the need to consolidate, and hopefully to deliver a consistently quality product all year round, be it fresh or processed.

### **Feasibility Study:**

Our next step was to perform a feasibility study in order to learn whether or not the cooperative could realistically process fresh vegetables through a cold storage facility to offer the fresh products desired by the consumer, and/or provide some form of frozen vegetables that would guarantee their buyers a year-round supply of vegetables. An elaborate spreadsheet was designed to help the growers understand the complexity of this situation. This spreadsheet incorporated several interconnected templates. These templates included one for 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, crops,

and prices (for example) in order to arrive at a final income figure. The feasibility study helped them to understand the importance of having reliable information available for decision making, and to recognize how the 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.

### *Incorporating Knowledge Management with Production Decisions*

Before starting this analysis, we needed to help the growers to understand that even though the spreadsheet analysis might show that an opportunity for processing existed, none of this could occur without a change in attitude and management on the part of individual producers. The literature on knowledge management is directed towards the flow of information in large organizations; the Colorado cooperative would be a small entity at the onset, so how would proper application of knowledge management techniques work for this group? Growers are used to the idea of working with capital, labor, and land, as the traditional factors of production, however, knowledge and proper application add an entirely new dimension to the production process and can have a positive effect on even small operations.

Producers tend to be very proprietary about their business' information, yet the basic concepts of knowledge management include the notions of "sharing" and not "hoarding" information (Kluge et al, 2001). Communication needs to be open, and information needs to flow throughout the organization, cultivating ideas and enabling the business to stay abreast of new techniques and customer demands. The cooperative was excited to have the use of technology and a spreadsheet to show them how to develop this processing plant, but it was also important for them to understand that good management, while driven by technology, is not a technology in and of itself (Koulopoulos and

Frappaolo, 1999). Our goal was to provide the cooperative members with some new sources of information, but ultimately, the producer-members needed to come together as a group and form a management team that was based on trust, openness, and communication—perhaps the hardest challenge of all for these growers.

Given this caveat, the following is a description of the process used in developing a feasibility study for the growers. For simplicity three crops were included in the study: spinach, summer squash, and winter squash. Although these were not the favorite choices of consumers, the growers did have a comparative advantage with these products; thus, the idea was that if a processing plant could not cash flow under the best-case scenario, it would be difficult to get it to work if the cooperative were to produce the more popular consumer choices. These three crops provided a potentially early start to the processing season and would extend production until late fall. Two processing lines were included in the analysis: a processing line for spinach and a processing line for squash (both summer and winter).

Three different scenarios were created to allow for different production levels in the field, and to provide three years worth of information. The distribution of the total annual production acreage was broken down between typical production months by percentage and by acreage, with proportions between fresh and processed vegetables provided. The spreadsheet template also reported summary statistics regarding production and days of processing. 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.

The investment template included all of the cost information necessary for building the processing plant; the costs included ranged from land costs to building and

equipment expenses. The cost and production information were combined to flow into a cash flow statement template. This cash flow template provided the growers with the final information—would the project cash flow given the information input?

Unfortunately, the cost of labor coupled with very expensive 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.

Building a holding plant for just fresh vegetables provided an option whereby the group could form a marketing cooperative to market freshly 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.

## **Recommendations**

### *Market Study:*

Given the results from both the marketing and feasibility study, it was recommended that the cooperative start small—markets for locally grown products appeared to exist; and while these growers may not yet be ready to break into the “big” chains, they could focus on what they can do well. We recommended that the group hire two types of experts to be successful in their marketing cooperative endeavor: a marketing person and a sales person(s). The marketing person would be hired as an employee or as a contractor, but would possess the skills and knowledge necessary to develop and to direct a strategic marketing and promotional campaign for the produce industry. Based on the vegetables to be grown and marketed, this person would need to put the action plan together to identify the distinctive competency (competitive edge) of each vegetable, to target specific markets, and to develop the promotional and sales

strategy for infiltrating those markets. Further, this marketing person would be charged with developing a reseller's support program to provide the reseller with tools for selling produce. This person would also be charged with monitoring and evaluating the progress of the strategic program.

The sales person's charge would be to execute the strategic marketing plan in the market place. Once the targets are identified, be they government installations, universities, health-care systems, or hotel/resorts/casinos, the sales person would contact each and every entity in that market using proven sales techniques to increase the probability of "Colorado-grown" vegetables being purchased. The sales force would be responsible for the continued service and follow-up in the market in order to expand the variety and the quantities of vegetables sold.

In order to increase the image of the Colorado cooperative, it would be necessary to instill consumer and reseller confidence, and to improve awareness, recall, and referral of "Colorado-grown" vegetables, so we recommended that a co-branding program be developed. This program would include the design of a logo, tag line, imagery, and messages for inclusion on all vegetables, where appropriate, and also on related packaging and containers, correspondence, promotional material, et cetera. This branding strategy is the cornerstone for increasing sales of "Colorado-grown" vegetables. This task would be delegated to the marketing person.

We also recommended that the cooperative consider developing a "seal of approval" or a "quality seal" for vegetable labels and for packaging to increase consumer confidence in the produce using both a "push" and "pull" marketing strategy. "Push strategies" use promotional campaigns and personal selling to "push" the produce from the producer/co-op down the supply channel to the reseller. Another way of looking at

this strategy would be for the cooperative to decide what they will produce and then go about developing the market for its sale. A “pull strategy” is a marketing strategy that goes directly to the consumer/customer and generates a demand that then causes the channel member to seek out the product, thus “pulling” demand down from the producer. Producers using this strategy first develop the demand for their product in the market place and then they make their production decisions based on what the consumer/customer wants. Used separately, either strategy is a sound marketing practice, however, the two strategies coupled together greatly increase the probability of success.

Finally, given the difficulty of breaking into the reseller’s market, it would be necessary to develop a reseller’s support program to include sales tools for selling the produce (usage charts, recipe ideas, variety-by-use charts), providing consumer feedback, suggestions, and display ideas to help the reseller to sell the produce. Consideration should also be given to display options and innovative teaming with complementary foods can help the entire channel to perform better (Hine, Loureiro, Meyer, 2001).

*Feasibility Study:*

Given the strong demand for Colorado-grown fresh vegetables, it made sense for the growers to engage in some form of vertical integration and to build (or to purchase) a refrigerated holding facility for fresh vegetables. By banding together, the growers could build a branded product that would appeal to Colorado buyers. Additionally, with the proper marketing, the branded product could even be sold to other regions of the country—much as the Idaho potato is seen as a branded item and is easily recognized by many consumers. However, the creation of a refrigerated holding facility still did not solve the problem of getting brokers/distributors to buy their products only on a seasonal

basis. This made things difficult because we did not feel that the building of a processing plant from the ground up (as the cooperative members desired) would be feasible.

Current market prices simply did not support the investment and operation—cash flows were negative for any scenario run with the spreadsheet simulation. Thus no break-even point was attainable.

Furthermore, the feasibility study used the best-case scenario estimates for operation and these three vegetables (spinach and summer and winter squash) simply were not the vegetable of choice for consumers. In fact, producing enough vegetables to make any plant worthwhile would only increase supply, further driving down already low prices. If a processing plant were still desired, then we recommended that the group try to find a processing plant already built and purchase or redesign it as necessary and buy used equipment from another facility and rerun the spreadsheet simulations to see if the project would cash flow.

In order to compete effectively, it seemed advisable for the group to develop a strong marketing plan for their fresh Colorado-grown products, and to find a way to consolidate with the larger vegetable producers. Unfortunately, this was not the answer that the cooperative's producers wanted to hear. However, if these Colorado producers can develop and offer a branded, locally-grown, premium product, and plan their knowledge management scheme well, they may have a better opportunity to distribute their product, and to support any fresh markets that they develop during the growing season months. The successful development of a premium, branded, locally grown vegetable product could lead to some form of integration with larger and even more efficient vegetable growers nationwide.

## References

- Aquino, H. L. and C. L. Falk, 2001. "A Case Study in the Marketing of "Wolf-Friendly" Beef." *Review of Agricultural Economics*, 23(2):524-537.
- Bastian, C.T., D. M. Oakley-Simpson, D. M. McLeod, D. J. Menkhaus, D. Alsup, J. Ogden, and G. D. Whipple, 1999. "Niche Market Potential: The Case of the U.S. Craft Brewing Industry," *Review of Agricultural Economics* 21(2):552-562.
- Boehlje, M. 1998. *Contracts and Alliances in the Food Supply Chain: The Challenges and Consequences*. Conference presentation transcript, Center for Agricultural and Rural Development, Iowa State University, September 4.  
<http://www.card.iastate.edu/about/fallpolicy>.
- Cummins, David E. 1993. "Corn Belt Grain Cooperatives Adjust to Challenges of 1980s, Poised for 1990s." *United States Department of Agriculture, Agricultural Cooperative Service, ACS Research Report Number 117*.
- Drabenstott, M. 1998. This Little Piggy Went to Market: Will the New Pork Industry Call the Heartland Home? *Federal Reserve Bank of Kansas City Economic Review* 83(3):79-97.
- Hamilton, N. D. 1997. Reaping What We have Sown: Public Policy Consequences of Agricultural Industrialization and the Legal Implications of a Changing Production System. *Drake Law Review* 45 (289).
- Hine, Susan, Maria Loureiro, and Susan Meyer, 2001. Marketing Colorado Potatoes as a Value-Added Product: A Case Study. "Marketing Colorado Potatoes as a Value-Added Product: A Case Study," *Journal of Food Distribution Research*, 32(3).
- Hobbs, J. E. and L. M. Young, 2000. *Vertical Linkages in Agri-Food Supply Chains in Canada and the United States*, 2001. <http://www.agr.ca/policy/epad>.
- Hobbs, J. E. 1996. A Transaction Cost Approach to Supply Chain Management. *Supply Chain Management* 1(2):15-27.
- Kluge, Jurgen, Wolfram Stein, and Thomas Licht, 2001. *Knowledge Unplugged*. Bath Press, Bath, Great Britain.
- Koulopoulos, Thomas M. and Carl Frappaolo, 1999. Smart Things to Know about Knowledge Management. Capstone Publishing Limited, Oxford, Great Britain.
- Lang, M. G. 1980. Marketing Alternatives and Resource Allocation: Case Studies of Collective Bargaining. *American Journal of Agricultural Economics* 62(4):760-765.

Loureiro, Maria and Susan Hine, 2002. *Penetrating into Niche Markets: What Strategy Should Producers Follow?* Working paper, Department of Agricultural and Resource Economics, Colorado State University.

Martinez, S. W. 1999. *Vertical Coordination in the Pork and Broiler Industries: Implications for Pork and Chicken Products.* U.S. Department of Agriculture, Economic Research Service, Agricultural Economic Report No. 777, April.

Mighell, R. L. and L. A. Jones, 1963. *Vertical Coordination in Agriculture.* U.S. Department of Agriculture, Economic Research Service, Agricultural Economic Report No. 19, February.

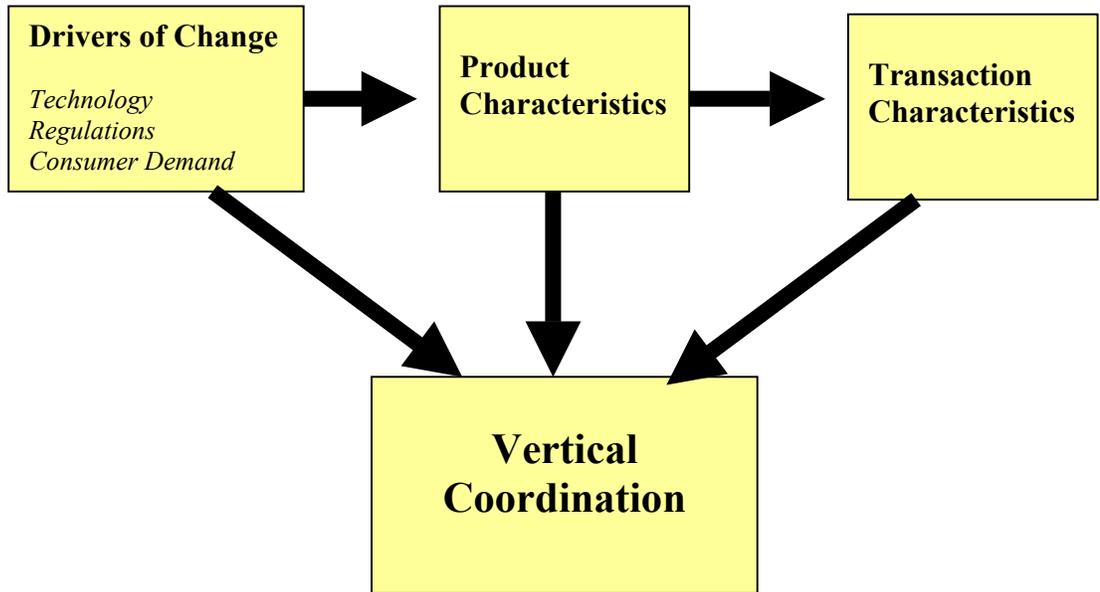
U.S. Census Bureau. "United States Census, 2000." <http://www.census.gov>

U.S. Department of Agriculture, Economic Research Service, January, 2001. *Understanding the Dynamics of Produce Markets.*

USDA, ERS, 2001. Vegetables and Specialties Situation and Outlook Report.

Warman, Marc, April, 1994. "Cooperative Grain Marketing: Changes, Issues, and Alternatives." United States Department of Agriculture, Agricultural Cooperative Service, ACS Research Report 123.

**Figure 1: Factors Behind Vertical Coordination**  
(Based on Hobbs and Young, 2001)



**Table 1: Socio-Demographic Data**  
(Loureiro and Hine, 2002)

Variable	Description	Mean	Standard Deviation
Gender	0=Male, 1=Female.	0.713	0.452
Presence of children in the Household	0=No children under 18 years old living in the household 1= Otherwise.	0.1526	0.360
Income	Household's income level: 1=<\$25,000 2=\$25-50,000 3=\$50-75,000 4=\$75-100,000 5=>\$100,000	3.523	1.488
Age	Age of Consumer.	50.15	16.662
Education Level	Highest Level of Education completed: 1=Non-Graduate 2=High School 3=Some College 4=Associates Degree 5=Bachelors Degree 6=Masters Degree 7=Doctorate.	3.412	1.177
Years spent in Colorado	Total Years.	27.502	81.00

**Table 2: Results of Middlemen Focus Group**

(Hine, Loureiro, Meyer, 2001)

<ul style="list-style-type: none"> <li>▪ Overall, less than 10% of the distributors’ business is represented in Colorado with the exception of two buyers.</li> </ul>
<ul style="list-style-type: none"> <li>▪ When asked how the company made its purchasing decision, the number one answer was “quality” followed by “price.” Past track record, time of year and long-term relationships were also factors in the purchasing decision.</li> </ul>
<ul style="list-style-type: none"> <li>▪ Regarding long-term contracts: some long-term contracts (negotiated annually) were in place (2 to 3 year contracts) but most did not depend on long-term contracts. Those contracts in place had criteria for volume and/or grade.</li> </ul>
<ul style="list-style-type: none"> <li>▪ The top 5 most important factors in selecting fresh vegetables: <ul style="list-style-type: none"> <li>○ Quality (freshness)</li> <li>○ Price</li> <li>○ Availability</li> <li>○ Consistency</li> <li>○ Variety</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>▪ Colorado did not fair well when the distributors about the overall vegetable purchases from Colorado and their opinion of Colorado vegetables relative to others such as California or Florida. Limited growing season was the most frequent answer for these distributors not relying more heavily on Colorado vegetables. Their opinions regarding the Colorado vegetables ranged from “still a bit behind California” to Colorado is “making great strides” to Colorado does a “really good job on most items.”</li> </ul>
<ul style="list-style-type: none"> <li>▪ Distributors would be motivated to increase their purchases of vegetables from Colorado if: <ul style="list-style-type: none"> <li>○ There were a greater consumer demand for Colorado vegetables</li> <li>○ If the customer dictated more quality and Colorado could deliver it</li> <li>○ If the customer requested Colorado-grown vegetables</li> <li>○ The vegetables fit a niche for consumer demand</li> <li>○ If the price were competitive.</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>▪ Only longer growing seasons, less weather problems, and more variety could make it better.</li> </ul>
<ul style="list-style-type: none"> <li>▪ Most distribution locations have the flexibility to make decisions on products carried, however, nearly half have central offices that</li> </ul>

make the purchase decisions.
<ul style="list-style-type: none"> <li>▪ Colorado based restaurants tended to use long-term contracts the most. There is also evidence of strong loyalties to the current distributor without the need or apparent interest in bringing on additional distributors.</li> </ul>
<ul style="list-style-type: none"> <li>▪ The consequences for or concerns of these distributors to switch from large growers or distributors to local suppliers are listed below. <ul style="list-style-type: none"> <li>○ Not as much product or selection</li> <li>○ Can't meet growing needs (volumes)</li> <li>○ Don't want to jeopardize relationships with larger growers</li> <li>○ Matching quality</li> <li>○ Ability to meet standards (Hine, Lourerio, Meyer, 2001).</li> </ul> </li> </ul>

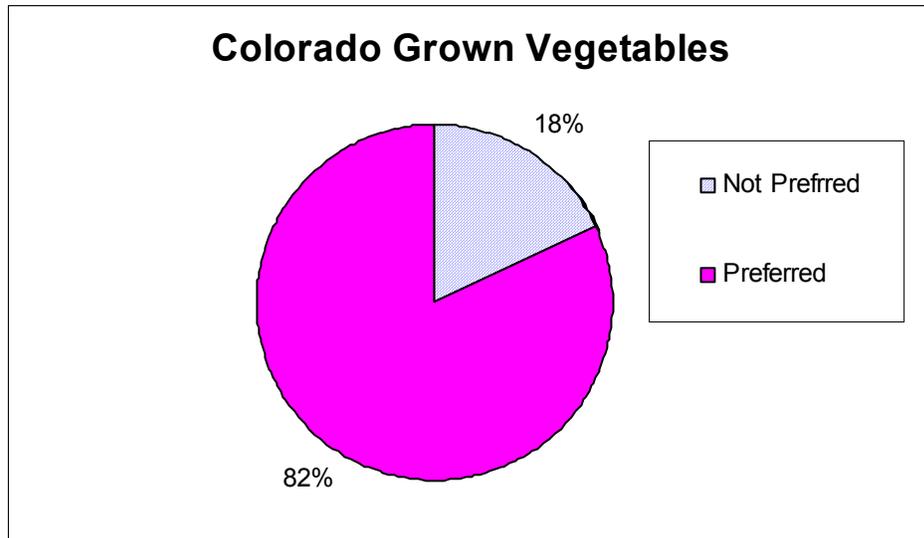
**Table 3: Summary of Feasibility Results**

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

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

**Figure 2: Preferences for Colorado-grown Vegetables**

Source: Consumer Survey



**Figure 3: Willingness to Pay for Colorado-Grown Vegetables**

Source: Consumer Survey

