Marketing Colorado Potatoes as a Value-Added Product: A Case Study

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Potato producers in Colorado (and nationwide) have been facing a continued downward trend in potato commodity prices. In an attempt to increase demand for potatoes, these growers had Colorado State University (CSU) researchers perform a market study regarding the viability of marketing a value-added potato. A survey was performed which asked consumers to identify important potato characteristics, their willingness to pay for these characteristics, and what might prompt them to purchase more fresh or processed potatoes in the future. This paper discusses the results and recommendations that CSU made to the Colorado potato producers.

As a result of the recent nationwide farming crisis many producers are trying to find ways to use value-added processes to improve the marketability of their commodities (Coffin, Moorehead, Dawson 1997). This paper focuses on the Colorado potato industry's attempt to develop such a market niche. Currently the industry is facing several challenges, including a downward trend in *real* potato prices since 1950, relatively flat consumption of fresh potatoes (ERS 2000), a fall from first to sixth place in the amount of produce revenue generated per square foot in grocery stores (Perishables Group 2000), increased consumer demand for greater varieties and more convenience in all products, little consumer recognition of potato varieties and uses, and more health-conscious consumers concerned about the carbohydrates in potatoes.

Objectives

The objectives of the current market study are twofold: to help to determine consumer demand for potatoes, and to provide suggestions for new ways to market fresh and processed potatoes. To accomplish these objectives, a consumer survey was conducted which identified potato attributes that consumers found important as well as their willingness to pay for these attributes.

Previous Studies

Studies related to the demand analysis and industry outlook of potatoes constitute the starting point of this analysis. Cook et al. (2000) discuss the main challenges faced by Delaware potato producers given the changing attitudes and preferences of Delaware consumers. Their findings suggest that a majority of consumers prefer a "Delaware Agricultural Product" when making their purchases. Richards, Kagan and Gao (1997) studied the factors affecting the falling demand for fresh potatoes, even as carbohydrate consumption has been increasing over the past twenty-five years. They concluded that changes in demand can be explained by socio-demographic characteristics, but still a large part of the change is due to a change in consumer taste. Grant (1997) looked at the need for differentiation in Canada's potato industry to increase demand for its products. In particular, Grant explained the need to develop niche markets that take advantage of the country's natural advantages similar to the situation existing for potato producers in Colorado. Cheng, Peavey, and Kezis (2001) conducted a study using in-person surveys in order to understand consumers' potato-purchasing decisions that were based on visual presentation of the potato. They found that potato origin plays a key role in consumer purchase decisions and in particular that "Idaho" labeling increased the propensity for consumers to make a potato purchase. This was corroborated in the Colorado study pointing to the need to differentiate the Colorado potato from that of the Idaho-grown one.

The Consumer Survey

A consumer survey was administered during late summer, 2000 to learn about consumption habits and product characteristics of the market for fresh potatoes or processed products. Section I of the

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survey focused on general consumption patterns and potato attributes that consumers found important, including the premium that these consumers were willing to pay for these attributes. Section II dealt with nutrition issues and what would prompt consumers to purchase more potatoes. Section III 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.

Students from the National Agribusiness Marketing Association (NAMA) at CSU conducted the surveys in supermarkets such as King Soopers, Albertsons, Super Wal-mart, and Safeway in the state of Colorado. Consumers were randomly solicited in the produce section of the stores and asked for their voluntary participation in the survey. To motivate participation, students wore CSU t-shirts. In order to collect a representative sample the survey was administered at various times during weekdays, evenings, and on weekends, achieving a 35-percent response rate of those individuals approached. This survey was conducted in stores in Fort Collins, Greeley, Parker, and Denver. These locations were chosen because they represent a large percentage of the population living in the state. In total, 437 useable surveys were collected.

Socio-demographics

In this sample (Table 1) approximately 60 percent of the respondents are female, and the median age is 44 years. The percentage of high school graduates is much higher in the sample relative to the rest of the state due to the number of universities located in the surveyed cities. About 32 percent of the respondents have at least one child in their household, while over half of the respondents have none. The median income earned in the year 2000 was about $50,000. These figures are also comparable in terms of family composition, income, and education to the 2000 U.S. Census (U.S. Census Bureau). However, as in all surveys, a representative sample is always of concern to the researcher. Therefore, we recognize that our sample is a convenience sample and our results may not be representative for all consumers.

Consumption Patterns

We asked consumers which of seven potato products they purchased regularly: frozen fries, frozen hash browns, potato chips, fresh potatoes, instant dish, potato flour, fresh pre-cut, and pre-peeled. Eighty-four percent listed fresh potatoes as their most frequent purchase, followed by 53 percent who regularly purchased potato chips (Figure 1).

When asked about the amount of fresh potatoes purchased in one visit, 41 percent of consumers indicated a preference for buying loose potatoes, followed by 33 percent who purchase larger bulk five-pound bags to be used at other times. This size of purchase is similar to the results reported by Cook et al., but in their survey five-pound bags were bought more often than loose potatoes. It is noteworthy that "the less than five-pound bag purchase" was less popular than the five-pound bag purchase. When purchasing potatoes the consumer tends to buy in bulk and does not seem to connect the potato with a small convenient dinner-size purchase such as that associated with perishable vegetables and the popular pre-packaged salads (Figure 2).

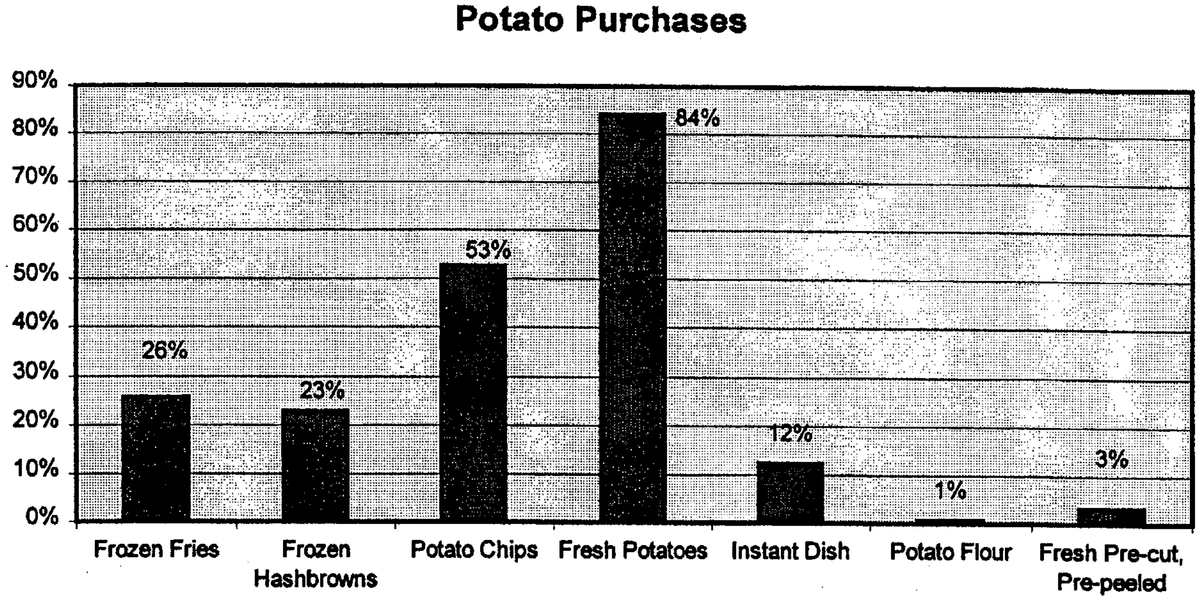
Figure 3 shows that 55 percent of the consumers surveyed had no potato variety preference or recognition. Yukon Gold was the most frequently stated variety and was mentioned by 20 percent of consumers. The Colorado potato-seed growers

Table 1: Socio-Demographic Characteristics of the Sample.

	Sample	Colorado Population
Percentage of Females	60.3%	49.6%
Household with Children under 18 years of age	31.6%	35.3%
High School Graduates	79.58%	41.36%
Median Income	($50,000-$75,000)	$40,853
Median Age	44	34.2

Source: Consumer Survey and US Census Bureau (2000).

Figure 1: Potato purchases of sampled Colorado consumers, 2000.



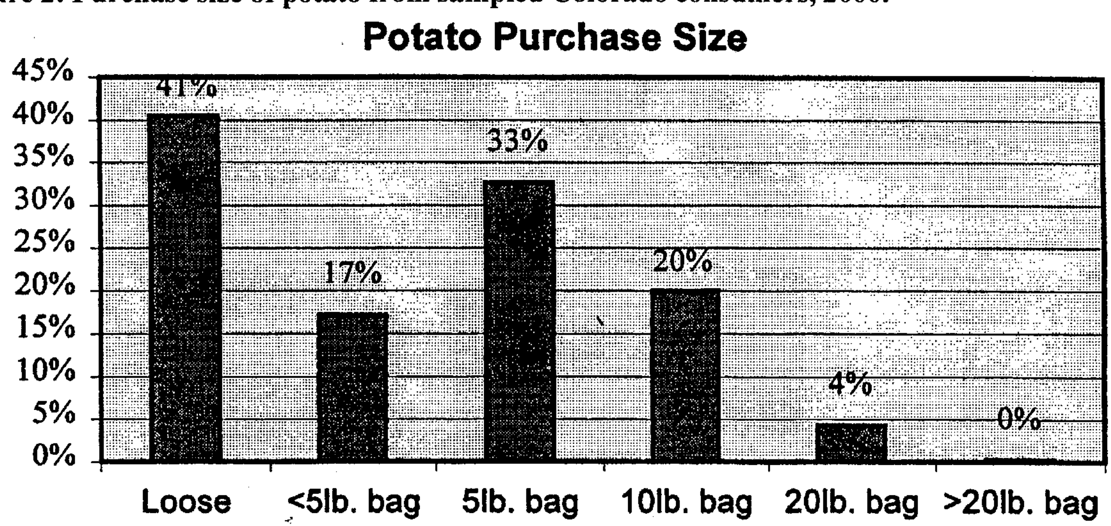
Note: Respondents could choose more than one answer

breed over 75 potato varieties, and certain varieties are simply better suited for different potato dishes. For instance, the "blue" russet is recommended for stews. This points to an excellent opportunity for market-niche development. Branding of potatoes could be a way in which a Colorado-variety potato could become better known and respected, providing the consumers with a differentiated product that will meet their needs.

Important Attributes

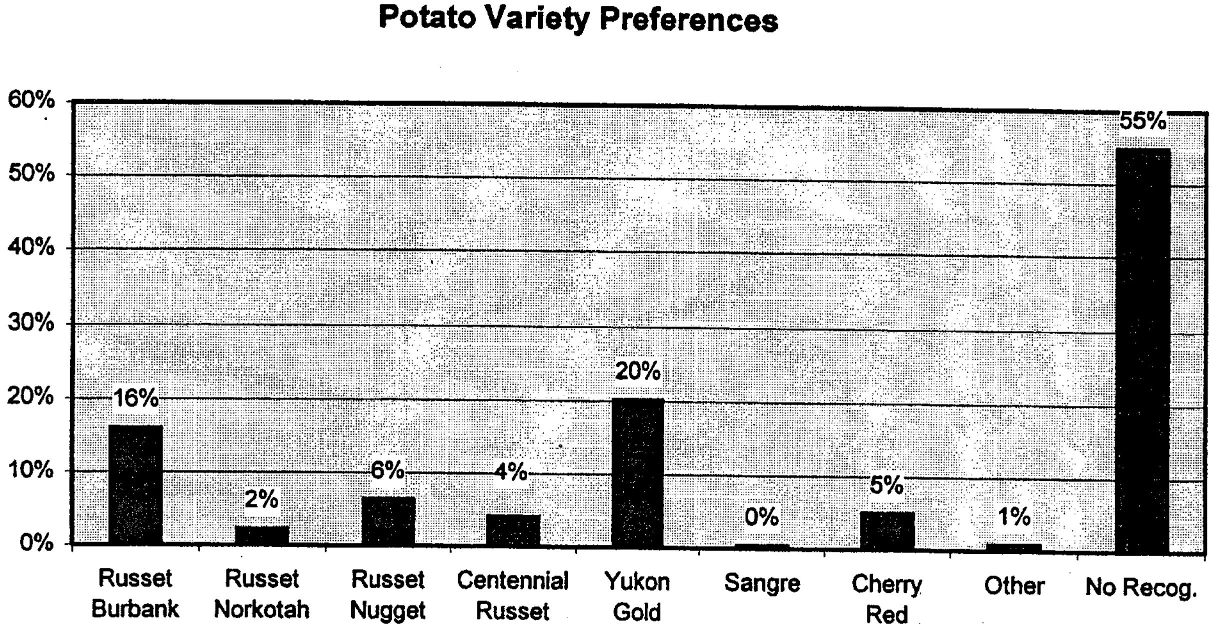
Table 2 shows how respondents ranked the importance of various potato characteristics. Percentages refer to rankings by the entire sample. Two points become very noticeable here. First, consumers did not rank price as the most important potato characteristic. Rather, appearance, flavor, size, and nutritional value are ranked as the most important

Figure 2: Purchase size of potato from sampled Colorado consumers, 2000.



Note: Respondents could choose more than one answer

Figure 3: Potato variety preferences from sampled Colorado consumers, 2000.



Note: Respondents could rank varieties on a scale of 1 to 5, with 5 being most important. Those who ranked the category a 4 or 5 are

Table 2: Ranking of Potato Attribute Importance: Preferences from Sampled Colorado Consumers, 2000

Characteristic	% of Entire Sample
Appearance	79%
Flavor	72%
Size	59%
Nutrition	57%
Texture	55%
Price	48%
Storability	47%
Preparation and Convenience Both	45%
Pesticide Free	38%
Type	33%
Colorado Grown	32%
Variety	22%
Organic Certification	19%

Source: Consumer Survey

Note: Respondents could rank choices on a scale of 1 to 5, with 5 being most important. Those who ranked the attribute a 4 or 5 are included in these percentages. They could also choose more than one answer.

attributes when purchasing potatoes. Because potato purchases are relatively inelastic compared to other fresh fruits and vegetables, it would not make sense for producers to compete on a discount-selling basis (You, Epperson, and Huang 1998). Instead, they should be focusing on other attributes such as appearance and flavor, which were ranked highest among most respondents. The second point is that variety only received an importance ranking by 22 percent of respondents, which again seems to signal the need for potato branding and consumer education to improve recognition.

Willingness to Pay

Tables 3a and 3b summarize the premium that respondents would be willing to pay for potato attributes. Sixty-one percent and 57 percent of the respondents were willing to pay some premium for appearance and flavor respectively, two attributes previously ranked as very important by consumers (Table 2). This is comparable with the findings of Cook et al. In their study, consumers ranked the presence of no bruises and firmness as the best indicators of quality. Consumers were also asked if

Table 3a: Respondents' Willingness to Pay a Premium for Potato Characteristics: from Sampled Colorado Consumers, 2000.

Premium	Specialty	Pesticide Free	Enhanced Flavor	Superior Appearance	Colorado Grown Grown
None	30%	25%	25%	23%	24%
<5 cents	10%	11%	8%	12%	16%
5–10 cents	20%	22%	25%	24%	25%
11–15 cents	7%	9%	11%	12%	9%
16–20 cents	4%	7%	6%	8%	5%
> 20 cents	7%	9%	7%	5%	5%
No Answer	22%	17%	17%	15%	15%

Source: Consumer Survey

Table 3b: Respondents' Willingness to Pay a Premium for Potato Characteristics: from Sampled Colorado Consumers, 2000.

Premium	Superior Storability	Precut/ Pre-Peeled	Pre-Cooked	Genetically Modified Free	Organically Grown
None	19%	43%	47%	42%	34%
<5 cents	15%	12%	13%	12%	12%
5 – 10 cents	24%	16%	12%	14%	17%
11 – 15 cents	10%	5%	5%	6%	9%
16 – 20 cents	8%	2%	2%	2%	4%
> 20 cents	5%	4%	3%	3%	5%
No Answer	18%	18%	18%	20%	18%

Source: Consumer Survey

they would be willing to pay a premium for a Colorado grown potato; 61 percent indicated that they would. In addition, 58 percent were willing to pay a premium for pesticide-free potatoes. This is a comparative advantage for the Colorado potatoes, since they are grown at a high altitude, a condition that contributes to the disabling of many pests and thus results in a reduction or elimination of pesticide usage compared to other areas of the country where pesticides are necessary and used more frequently than in Colorado.

When asked about willingness to pay for precut or pre-cooked potatoes, only 39 percent and 35 percent, respectively, were willing to pay a premium. This may reflect a lack of familiarity with new methods of potato packaging, including chilled potatoes, which are simply potatoes that have been peeled and cut fresh and then sealed in air-tight bags for a ready-to-cook meal. The consumer can simply open the package and bake or cook the potatoes without peeling or slicing. The chilled potato is very popular in Europe and is slowly gaining recognition in the United States.

Increased Consumption and Biotechnology Issues

Consumers were asked about their knowledge of biotechnological issues and their support of biotech for improving important potato characteristics. Table 4 shows that there is strong support for biotech techniques that would improve the nutritional value (an important attribute identified in Table 1), with 63 percent of respondents willing to support its use. Fifty-six percent would support biotechnology for flavor, 53 percent for both storability and sustainability of agriculture, and 41 percent were in favor of biotechnology that could result in less pesticide application.

Finally, consumers were asked what would encourage them to purchase more potato products. In

Table 4: Respondents' Support of Biotechnology by Potato Characteristic: from Sampled Colorado Consumers, 2000.

Support by Characteristic	Support	Do not Support	Do not Know	No Answer
Nutritional Value	63%	21%	11%	5%
Flavor	56%	21%	19%	5%
Storability	53%	21%	20%	6%
Importance to Agriculture	53%	25%	14%	8%
Less Pesticide Use	41%	27%	29%	3%
Size	38%	22%	34%	6%
Appearance	36%	24%	33%	7%
Color	31%	23%	39%	6%

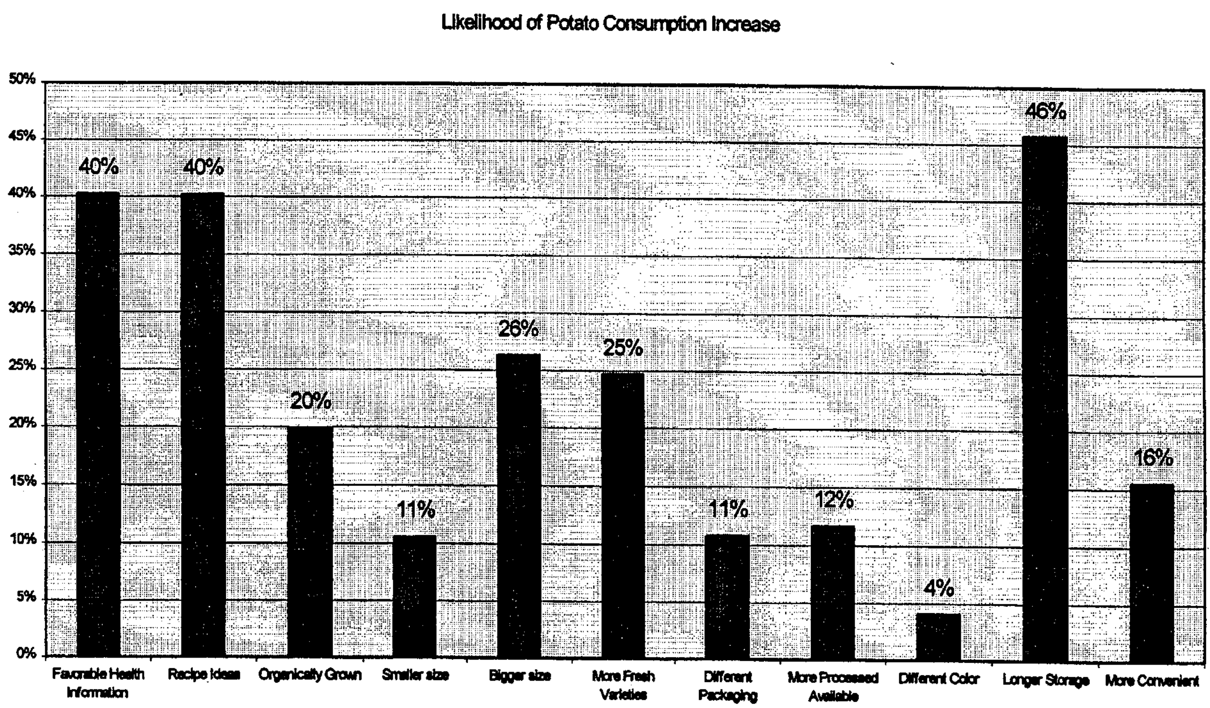
Source: Consumer Survey

other words, what consumer needs and desires need to be addressed by producers? These results are summarized in Figure 4. Forty-six percent of consumers indicated that longer storage would result in more purchases, and 40 percent said that health information and recipe ideas would also result in more potato purchases. More convenient potato products, such as fresh-cut and pre-cooked potatoes, was cited by 16 percent of consumers. This implies a potential niche market for new potato products targeting individuals with little time available to cook. (See Figure 4).

Recommendations for Potato Growers

An important fact that emerged from the survey analysis was that branding and variety recognition are at the center of transforming the potato. One of the reasons Idaho holds the front-runner's spot in the national potato race is because of that

Figure 4. Methods to increase consumer potato purchases from sampled Colorado consumers, 2000.



Note: Respondents could rank choices on a scale of 1 to 5, with 5 being most important. Those who ranked the category a 4 or 5 are included in these percentages. Respondents could also choose more than one answer.

state's ability to "brand" the potato. Although the Idaho Russet Burbank is a variety, the consumer thinks of it as a particular brand of potato due to the effective promotion done by the Idaho Potato Commission. Their packaging, ads, websites, and other promotions link "the potato" to Idaho. There is even a registered certification mark, the Grown in Idaho seal, which is the consumers' assurance that they are getting genuine Idaho potatoes (Idaho Potato Commission 2001). As was the case with the apple many years ago, the potato is not currently gifted with an identity for growth origin, regional tastes, being a more convenient product, or appearance. Other growers have an opportunity to establish their own brand(s) of potato. Advertising campaigns that are not founded on a solid marketing strategy are not the avenue to the successful branding of a commodity. Branding the potato for recognition and association with a particular group or region will take a well thought-out and tested strategic marketing plan that is systematic and action specific. The plan must have specific, measurable goals with built-in evaluative tools to assure the grower the results they desire and deserve.

Benchmarking Strategies

Several commodities have been successful in establishing a branding strategy (The National Potato Promotion Board 2001). Using these products as a benchmark, potato growers could emulate these successful programs and apply the principles to their own commodity. Benchmarking is a successful strategy between non-competing product categories. As a well-know example, Sunkist Oranges could be identified as a benchmarking company for Colorado Potato. Before Sunkist successfully branded their oranges by establishing an image in the consumer's mind for taste, quality, texture, juiciness, etc., it was a mere fruit indistinguishable from other oranges. Now when consumers hear Sunkist, a particular image is recalled and a favorable impression is implanted that increases the probability that they will purchase a Sunkist orange. This is very similar to what could be done with the Colorado potatoes. By emulating a cooperative like Sunkist, the Colorado potato growers could understand what pitfalls to avoid, obstacles to expect, and how to better achieve success—in short, what worked and what did not work for Sunkist. The thought behind benchmarking is that people learn from someone else about their success so that it can be emulated to fit another product, market, etc., which would allow for the development of a more efficient and productive marketing strategy.

Furthermore, by studying the fruits and vegetables (bananas, apples, tomatoes, pre-packaged salads and grapes) that have overtaken the potato's place as the star of 'produce-revenue generated per square foot' in the grocery store, the potato growers can learn what those other industries have done to distinguish themselves from their competition. The Washington State apple may be a good example to follow.

The apple industry was faced with a similar problem of having multiple varieties, each with a different use by the consumer, with some better suited for baking, preparing sauces, freezing, etc. Around the display bins, however, each apple is now labeled with its respective variety, uses, and flavor/texture information. Potato growers could easily emulate these ideas, minimizing confusion on the part of the consumer and increasing awareness about the different varieties of potatoes. Additionally, produce managers of large grocery chains indicated to the CSU team that they would be very happy to receive promotional-type items that would help increase potato sales.

Growers, by banding together under one common image, can promote their potatoes as distinctive, which is a primary challenge to these growers who currently have a marketing order and check-off program but still need encouragement to share ideas and work together. Growers can create a collective image unique to them by using one prominent image and common text on all bags and labeling. For example, Colorado growers could use the Colorado Russet, Colorado Red, Colorado White, Colorado Yellow Flesh, and Colorado Specialty Potato as the flagships for the branding process. This could include a description showing how different potato varieties are best suited for various potato meals. Relying on the nutritional value of the potato and repositioning it as a convenient, versatile, and storable vegetable could become the foundation for greater awareness and increased sales.

For the sake of survival and market strength, the growers' focus must be on single name, single message from all promotional angles—for example, "Colorado-grown." This single image, single message should ring from the field to the packer to the broker to the retailer/reseller and on to the consumer. Every related paper, bag, carton, label, advertisement, public-relations piece, and letterhead sporting the growers' brand will be a powerful tool for brand image and recognition on the part of the consumer.

Quality Seal or Seal of Approval

The consumer wants assurances that what they purchase meets their expectation for taste, texture, and nutritional value. Growers can capitalize on the consumers' desire for assurances by creating a "Seal of Approval" or "Quality Grade Medallion" or some such "medal" for the produce. Instituting a common branding partnered with a "seal" signifying quality and a product that is tested and approved could be an opportunity to further set a particular brand apart from the competition. Producers should give the consumer something to look for that tells them they have made the right decision. This quality seal would also benefit the producer striving to maintain a quality product, because those potatoes that fail to maintain the grade would not receive the seal.

Opportunities at the Retail Level

Research supports willingness at the retail level to promote the potato. Having the potato dethroned as the number-one produce revenue generator based on square footage and being relegated to number six is not a pleasing situation for potato producers (ERS 2001). Major retailers across the nation have said they want more consumer-oriented information to help them sell potatoes, more promotional tools, and help with the effects of lighting, rotational problems, and air circulation. One Northern Colorado produce manager said that he throws away approximately 50 pounds of bulk potatoes daily because of light damage. The opportunities lie in the fact that retailers will be more receptive to supporting the growers' produce if the growers help them solve such spoilage problems.

In order to increase the spontaneity of potato purchases, point-of-purchase recipe cards, dinner ideas, and/or complementary product cross-selling could be implemented in the produce and other relevant sections of the grocery store. The retailer can aid the increase in potato demand by displaying product promotion ideas that improve upon current sales levels. In-store sampling of potato dishes, with coupons for the complementary products attached to the recipe, can provide a good foundation for additional purchases.

Co-placement of one product with a complementary product—for instance, bagels near the cream cheese—was made popular on the East Coast. The theory is one worth examining for another retailer opportunity. Potatoes could be co-placed next to the meat counter, the fish counter, or in the dairy section near the sour cream or bacon, since these products are often used or served with potatoes. If co-placement is not feasible, a retailer might consider recipe and dinner ideas (featuring the potato) placed near complementary products to stimulate association with the potato.

Processed Potatoes versus Fresh Market

As growth figures show, the demand for processed potatoes continues to increase both domestically and internationally, while the demand for fresh potatoes is stagnant. The consumer is clamoring for more convenience items and simplification of meal preparation. With this consumer pressure, the potato must evolve into a convenience item that is simple and quick to prepare. The added-value product, which includes the chilled pre-packed potato, is an avenue worth serious consideration in order for the potato producer to remain competitive. According to the Perishables Group, Inc. (2000), the demand for instant mashed potatoes is at an all-time high (up 12.5 percent since 1995). Per-capita hash brown consumption, at 6.6 pounds per person, is also at an all time high. While the chilled potato is not enjoying wide market acceptance, it is steadily growing in appeal as the consumer becomes comfortable with its long storage capability and convenience of use.

Conclusion

Although the situation for marketing the potato as a commodity may seem problematic, opportunities exist for potato growers nationwide to begin creating a value-added product. The recommendations provided in this study for Colorado potato growers could be applied to any potato-producer group anywhere in the U.S. It is important for all producers to remember one key point: all strategic marketing plans must be carefully designed, measured, and monitored if they are to succeed in today's very competitive marketplace.

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