

Trends In Apple Marketing and Impacts on NY Growers' Profitability

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New York apple growers are reeling from the financial impacts of several years of low returns. At the time of this writing, a group of industry leaders are developing a strategic plan for the state's apple industry. New York Congressmen Hinchey and Walsh have sponsored an amendment to the Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations Bill that would provide relief for "loss of markets." If passed by Congress and signed by the President, this legislation would provide \$100 million to the U.S. apple industry to make payments to apple producers based on the grower's

1999 production of apples. On May 18, the International Trade Commission ruled unanimously that China's apple-juice concentrate imports were causing harm to the U.S. apple industry. This came on the heels of a ruling by the U.S. Department of Commerce on April 7 designed to put a stop to the devastating effects of China selling apple juice concentrate in the U.S. at prices significantly below their cost of production. The Commerce Department levied antidumping duties of 51.7 percent on most Chinese concentrate imports, but, from the growers' point of view, considerable damage had already been done to juice prices in the preceding crop year.

New York apple growers are reeling from the financial impacts of several years of low returns. These events point out that there is an international problem in which supplies of apples have grown faster than demand. Many in the New York industry are wondering if things will work themselves out and more favorable prices and markets will return. However, there appear to be even more fundamental problems than a temporary oversupply situation that call for a coordinated response by the New York industry.

These events point out that there is an international problem in which supplies of apples have grown at a faster rate than the demand. The world per capita consumption of apples has been static for some time. Apple growers from New Zealand, the European Union, and Washington State are also feeling the effects of low returns.

When the inevitable shakeout of farms and other apple marketing and processing firms occurs, many in the industry are wondering if the situation will result in more favorable prices and markets for New York apples. A positive response to this question is little consolation because oversupply situations can take several years to work themselves out with a perennial crop such as apples, given the lag of at least two or three years between investment in new plantings and the impact of the fruit from these plantings on markets. However, even more fundamental problems than a temporary oversupply situation call for a coordinated response by the New York apple industry. This article examines three aspects of the



Changes in produce buying patterns threaten NY apple shelf space in major retail chain stores.

current environment for apple markets: (1) changes in the retail sector and their potential impacts on produce suppliers; (2) trends in apple production and prices in Washington and New York states, and, finally, (3) the confluent effects of these changes as demonstrated by trends in farm financial performance on a selected group of New York fruit farms. Specifically, the trends detailed in the Western New York Fruit Farm Business Summary for the 20-year period ending with the 1998 crop year are reviewed.

The New Dynamics of Produce Buying and Selling

Research by McLaughlin et al. (1999), in the Food Industry Management Program at Cornell has demonstrated the fast-paced changes in the produce industry. This research, funded by the Produce Marketing Association, developed performance benchmarks for the fresh produce industry. Questionnaires were completed and returned from produce executives and managers from 56 firms that ranged in size from single-store retailers to the very largest chain stores with multi-billion dollars in sales. The results document changes in key areas from the past (1994) to the then current (1999) and projected future (2004).

Sources over time. The most important source of produce purchase is direct from the grower/shipper, which is projected to account for just over half of purchases in 2004. The importance of this source increased from 36 percent of purchases in 1994 to 43 percent of purchases in 1999. Produce wholesalers, which accounted for about a third of retailers' produce purchases in 1999, are decreasing in importance, as are brokers. Brokers which accounted for 18 percent of retailers' purchases in 1999, are projected to decrease to a 13.5 percent share in 2004. New York shippers now heavily rely on brokers and wholesalers to get their fruit into retail stores.

Spot buying. Most produce buyers occasionally rely on the so-called "spot" market for produce procurement to balance supply or take advantage of attractive prices in an over-supply situation. Respondents reported that they projected "spot buying" to be about 10 percent of their purchases in 2004, down from 13 percent in 1999 and 17 percent in 1994. New York shippers currently depend heavily on the less formalized spot purchasing from chain buyers.

Contracts. Produce purchased through contracts is projected to account

for an increasing share of retailers' purchases. In 2004, 56 percent of the respondents expect to purchase more than one-fourth of their produce through contracts. In 1994, only two percent of firms contracted for such a large percentage of their purchases. Contracts are not yet an important aspect of New York apple sales, but there is no reason to believe that they won't be much more important in marketing apples in the future.

Concentration. It is well known that the retailing food sector is becoming much more concentrated. This is even more important when, as this research shows, the largest retailers (in terms of total sales) are relying more on their top 10 suppliers. Smaller retailers' purchasing patterns are not changing significantly. For those retailers with less than \$300 million in sales, about three-fourths of their produce purchases were expected to remain with their top 10 suppliers. However, the largest chains (over \$1.5 billion in sales) exhibited a pattern of increasing reliance on their top 10 suppliers, from about half of purchases in 1994 to nearly three-fourths of purchases projected in 2004.

Due to its fragmented structure, the New York apple industry is particularly poorly equipped to deal with these changes in produce buying. On the other hand, our major competitor, Washington State, has been in a process of completing mergers, consolidations, and joint ventures. This consolidation has resulted in a growing concentration of suppliers to respond to the trend of increasing concentration in the retail sector. The pace of change accelerated in 1994 such that as of the 1997-1998 crop year, about 57 percent of sales of Washington apples were handled by the top 20 shippers and 38 percent by the top 10 shippers (average size=3 million bushels). Several significant mergers have occurred since the time these data were collected.

Bottom line. The concentration in retailing and the more organized procurement methods being used, featuring less spot buying, more contracting, and a growing role for the largest produce suppliers, are trends that pose a significant threat to the New York industry. McLaughlin and associates suggest several potential strategic responses which grower/shippers might consider: (1) expand control by horizontal or vertical integration, (2) develop new products or distribution methods, (3) undertake demand expansion programs, or (4) adopt cost reducing technologies. The great need for strategic action by the New York industry, in light of these



Labor is the single largest expense in growing apples.

changes, emphasizes that the nature of the industry's strategic planning process that began in April is both crucial and time-sensitive.

Trends in Apple Production and Prices: Washington and New York

Production. The production trend in Washington is shown in Figure 1. Production in Washington State in the early 1980s ranged between 60 million and about 80 million bushels. However, in 1987, Washington's production skyrocketed to 119 million bushels, and reached nearly 140 million by 1994. Since that time, crops of 120 to 140 million bushels are the norm for Washington. Over the period 1980 to 1999, the growth in Washington's production trend has averaged about 4.2 percent.

Production growth in New York, on the other hand, has been much more stable, fluctuating around 25 million bushels (Figure 2). There has been a slight upward trend averaging less than one percent a year. The upward trend no doubt was heavily influenced by the huge 1999 crop of 30 million bushels, the largest crop in New York since 1926.

Prices. Washington fresh apple prices (packing house door equivalent) are shown in Figure 3 (National Agricultural Statistics Service, USDA). Prices since 1981 ranged from a low of 10.4 cents per pound with the then record crop of 1987 to as high as 26.3 cents in 1991. The an-

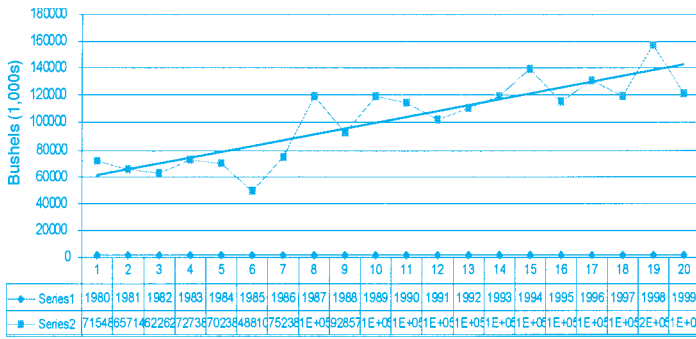


Figure 1. WA Apple Production 1980-99 (1,000 Bu.)

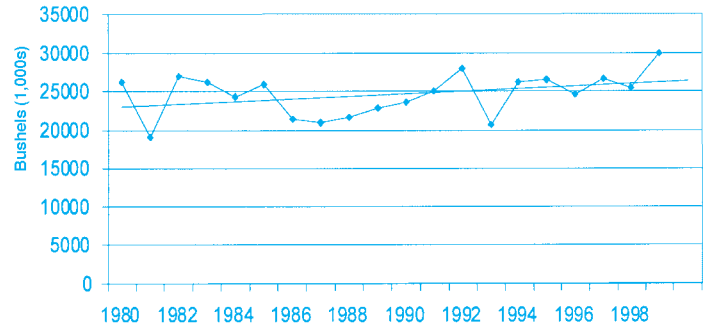


Figure 2. NY Apple Production 1980-99 (1,000 Bu.)

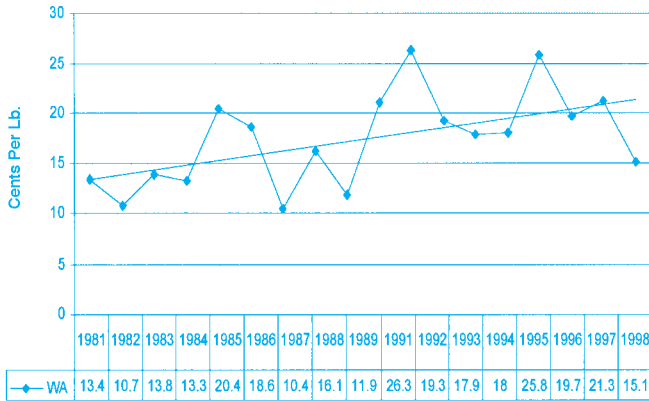


Figure 3. WA Fresh Apple Prices (USDA)

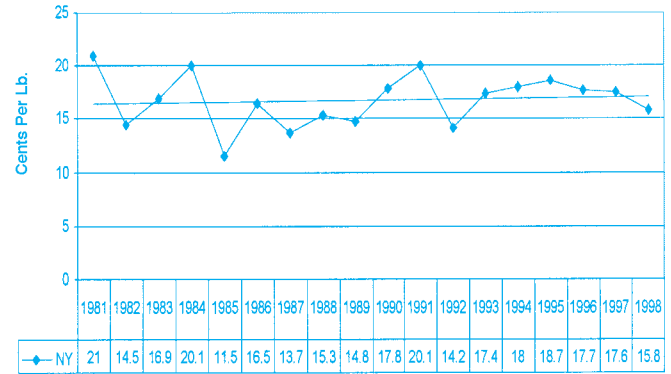


Figure 4. NY Fresh Apple Prices (USDA)

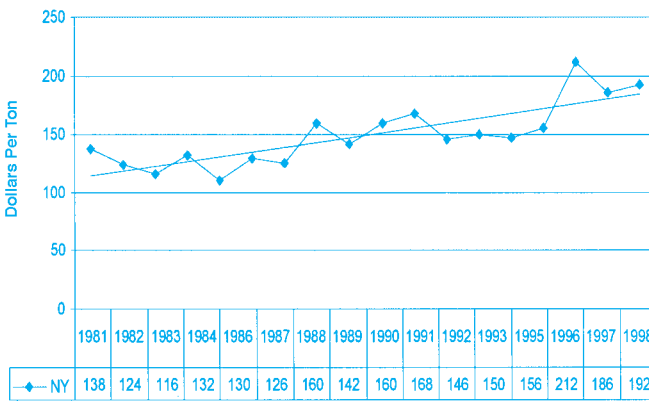


Figure 5. Canning Apple Prices in NY, 1981-98

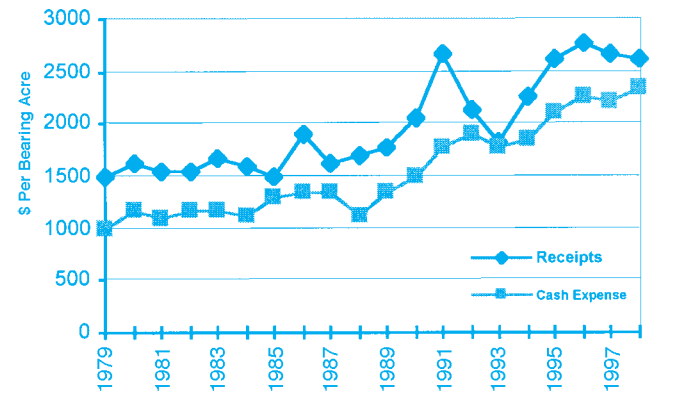


Figure 6. Receipts and Cash Expenses per Bearing Acre

nual trend of the price increase was 2.7 percent.

New York fresh apple prices are shown in Figure 4 (National Agricultural Statistics Service, USDA). Prices ranged from 11.5 cents in 1985 to 20.1 cents in 1984 and again in the sterling 1991 year when New York growers were blessed with a very profitable year. (Note: Due to a change in the way NASS calculated fresh apple prices, prices received in years after 1985 are not directly comparable to prices of previous years). Since 1986, the trend

of prices has been upward at 1.1 percent annually.

Processing is still important to New York growers, particularly in Western New York. Although more attention is now placed on fresh production, the trend in prices for canned apples (Figure 5) (National Agricultural Statistics Service, USDA) is growing at an annual rate of 2.7 percent. Processing accounts for about 55 percent of the New York crop utilization. Canned apples represent the most important processing use, accounting for about

7 million bushels annually in recent years. Fresh utilization accounts for about 11.5 million bushels annually.

Bottom line. These trends graphically illustrate that Washington is gaining a percentage share of the national market, while New York is losing with production increasing more slowly than the national crop. The loss of national share is no doubt linked to the returns side of the equation in which Washington prices for fresh apples increased at a higher rate than the New York price.

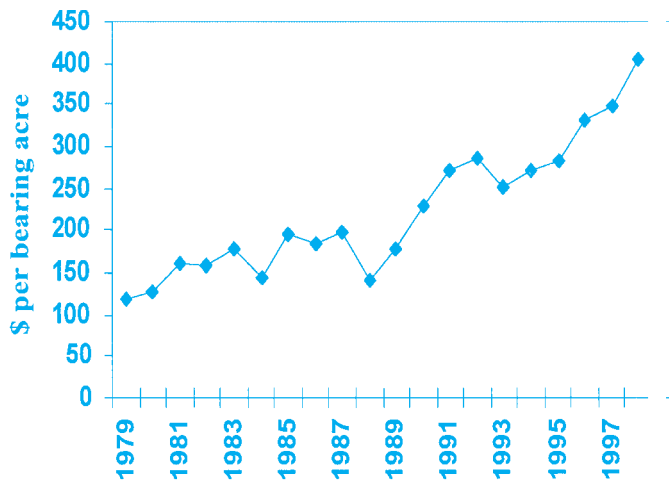


Figure 7. Spray Exposure per Bearing Acre.

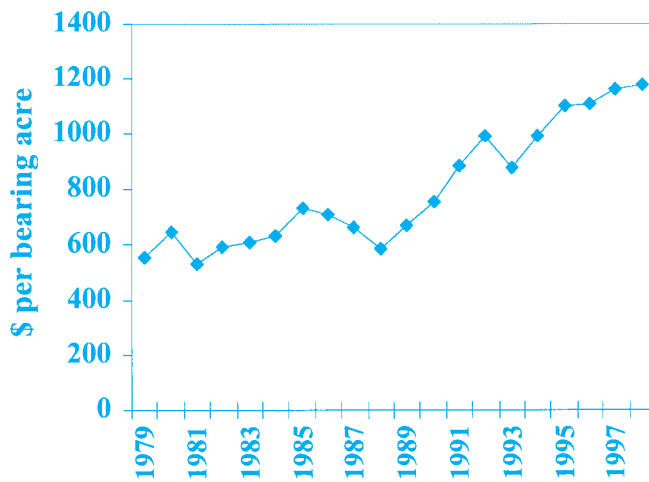


Figure 8. Labor Expenses per Bearing Acre.

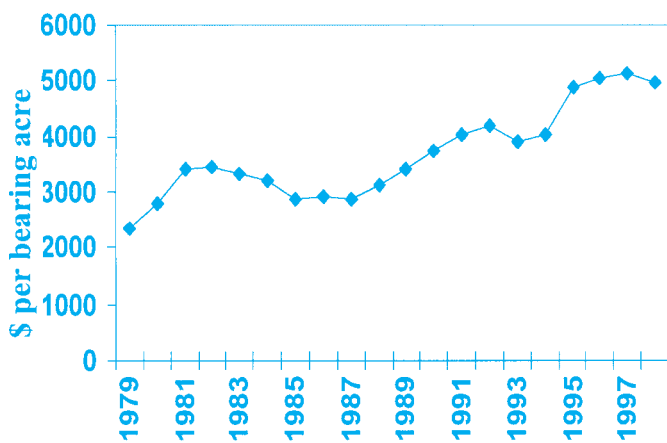


Figure 9. Capital Investment per Bearing Acre.

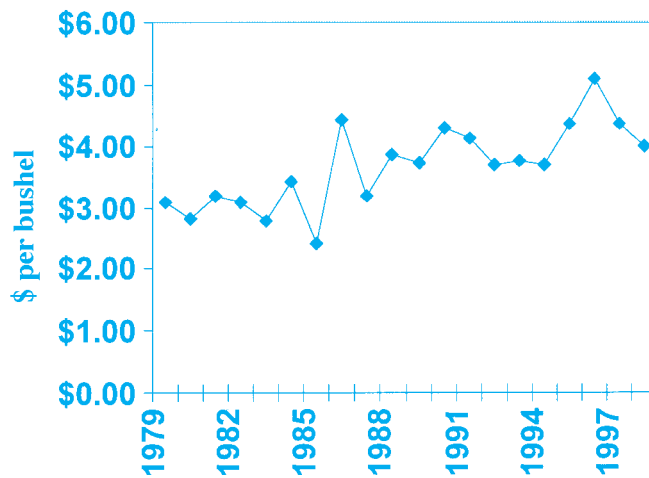


Figure 10. Apple Price per Bushel.

Trends in the Western New York Fruit Farm Business Summary Farms

For the past 20 consecutive years (representing crop years 1979–1998), the Department of Agricultural Economics at Cornell (more recently, the Department of Agricultural, Resource, and Managerial Economics) has participated in a joint project with county or area extension agents to collect data from fruit farms in Western New York, primarily from Niagara, Orleans, and Wayne counties. Agents who were involved in the data collection process were Dick Pease from Niagara County (1979-1981) and Alison DeMarree of the Lake Ontario Fruit Team (1982-1998). The number of farms involved varied from 10 in the early years to as many as 24 in the 1991 crop year. In the most recent years, participating farms have numbered about 18 or 19 and accounted for over eight percent of the apples produced in the state. Typically these farms grow other fruit crops, especially cherries and peaches, but over 80 percent of total cash receipts are from apples. Packing and selling expenses are not included in costs; therefore the receipts and expenses are indicative of actual orchard operations. For the most recent study, refer to the Fruit Farm Business Summary, Lake Ontario Region, 1998” (White, et al. 1999).

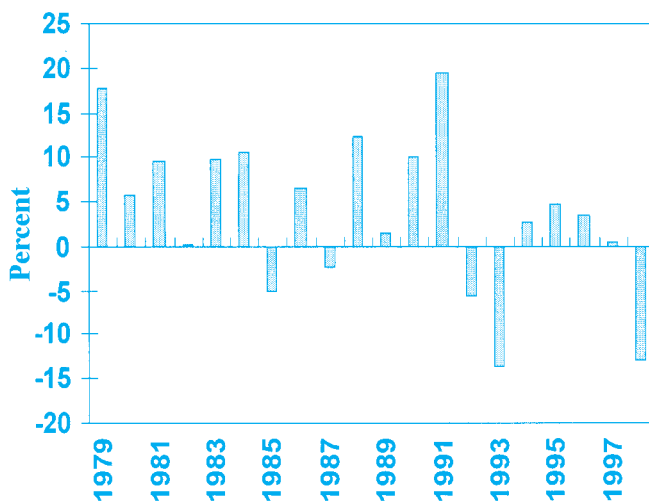


Figure 11. Percent Return on equity

These data were analyzed for various measures of financial performance and production efficiency. A publication is provided each year for the use of the participating growers and others in the industry to help managers improve the financial performance of their businesses from the use of historical farm data and the application of modern farm business management techniques. Given the current interest and concern about fruit farm profitability and viability, these analyses provide a wealth of information for assessing the current problems in the industry. They are also useful for analyzing trends that are occurring on the state's fruit farms as the new dynamics of produce buying and selling and the impact of Washington's increasing dominance of the U.S. industry are felt in apple markets.

Receipts per bearing acre. Receipts per bearing acre (Figure 6) on these Western New York farms varied from \$1,508 in the early '80s to as high as \$2,772 in 1996. This is an important measure of financial performance since it is an indication of the productivity of the key asset in fruit farming (the bearing acre) that captures both yield and price in the same indicator. Over the 20-year period, this variable showed an annual increasing trend of 3.4 percent per year.

Cash expenses per bearing acre. Cash expenses per bearing acre (Figure 6) averaged just below \$1,000 in 1979 and reached \$2,343 in 1998. The annual rate of the increasing trend was 4.6 percent. The rapid increase of expenses relative to receipts indicates the classic "cost-price squeeze" that is common in agriculture, and not exclusively in fruit farming. It means that farms are often pressed into operating more acreage in order to maintain the same level of income. In fact, farms included in this analysis had an increase of bearing acreage per farm from about 100 acres in the early years of the summary to about 240 in the latter. This cannot be assumed to be representative of the industry since some farms dropped out of the study while other (mostly larger) farms were added over the 20-year period.

Spray expense per bearing acre. Spray expense per bearing acre was the fastest growing component of total costs on these fruit farms (Figure 7). It is the second largest expense category (behind labor), and its rate of increase was about 5.6 percent per year. Spray expense per bearing acre is the product of pounds of spray material used times the price of material. While we cannot say conclusively, it appears that the price of material

is the driving factor in the cost increase. With the rapid infusion of IPM techniques in the late '70s and early '80s, growers generally were able to reduce the number of applications and sometimes material per application. On the other hand, more expensive, and usually more "environmentally friendly" compounds, were used

Labor expense per bearing acre. Labor comprises the largest component of total cost in fruit farming. In the business summary analysis, we factored in a charge for the owner's labor and other unpaid family labor as well as a charge for cash wages paid so that the total labor input is measured, not only cash wages. In the most recent year, the owners labor was added at a cost of \$1,600 per month. The total labor input for owners', other unpaid family labor and wages for paid workers amounted to \$1,175 in 1998 (Figure 8). This factor increased at the rate of about 4.3 percent per year.

Capital investment per bearing acre. This factor measures capital used in the business. Capital includes the value of land and orchards, buildings, machinery and equipment, and inventory in crops and supplies. In 1979, capital investment per bearing acre was \$2,340 (Figure 9). In the last years of the study, it exceeded \$5,000 per bearing acre—a two-fold increase. The average rate of increase for the 20-year period was about 3.4 percent.

Apple price per bushel. Price in this case is a "blend" price, or a combination of prices of fresh and processed fruit. It is the total receipts from the sale of apples divided by the number of bushels of apple sold. The lowest price was \$2.42 per bushel in 1985 (Figure 10). The highest price realized was \$5.08 in 1996. Prices received increased at a 2.3 percent rate over the period of the study, well below the 4.6 average annual increase in expenses.

Return on equity. Return on equity is the measure of profitability used in this article. It indicates the return that the grower received on his or her own capital used in the business. This return might be compared against other opportunity returns (certificates of deposit, bonds, or the stock market) to see how growers are faring by committing their capital to the fruit business. We include the value for appreciation of assets in computing this measure of profitability. The mean return on assets has been a modest 3.8 percent over the 20 years, well below that of most other investments.

Returns on equity have varied from a low of -13.8 percent in 1993 (when New York growers were hit by a combination

of a short crop and low prices) to a high of 19.4 percent in the sterling year of 1991 when New York had high production, a quality crop, and high prices (Figure 11). Over the 20 years, there have been five years of negative returns and five years of high returns when the return on equity was 10 percent or higher.

The disturbing aspect of this measure is that three of the negative return years occurred in the last seven years. (Our best estimates are that 1999 will be another year of negative return on equity.) The trend line for return on equity, although with a lot of variability around it, is declining at about 18 percent a year. This measure is indicative of the poor financial condition of many of the state's fruit farms at the present time.

Conclusions

This article has discussed and documented the changes in produce marketing, the increasing competition from our major competitor (Washington State), and the worsening of financial conditions on fruit farms in New York State. We have seen that New York growers receive less for their fruit than their major competitor, and that the gap is widening. Growers who have been in the business for a number of years realize that this is a cyclical industry; there are periods of both high and low returns. A fair question is this: Is the current period of unusually low returns something that will correct itself as the shakeout from the industry occurs? We know that growers in New Zealand, the Netherlands, as well as in Washington State and New York, are experiencing difficult times. Another question is, when excess capacity has been removed from the system, will profits improve?

In the author's opinion, after a shakeout occurs, New York growers will still be in a weak competitive position, mainly due to fundamental problems in the fragmented nature of the state's industry. We are competing against increasingly concentrated sellers in marketing our fruit to bigger buyers who have more formalized buying practices, and are more demanding of quality and service than they were in the past. Our state's industry seems poorly equipped to deal with these market realities. The answer may not necessarily be greater concentration, although that seems to be the most logical solution. But certainly some major changes in the way fruit is marketed appear to be necessary if the state is to maintain a major presence in the retail trade of apples over the

longer term. It appears to be a critical time for the apple industry to collectively develop a strategic plan to address the fragmented nature of our industry.

References

McLaughlin, E.W., K. Park, D. J. Perosio, and G. M. Green. 1999. The new dynamics of produce buying and selling. FreshTrack 1999, Food Industry Management, Cornell University, Ithaca, NY 14853. 68 pp.

National Agricultural Statistics Service, United States Department of Agriculture, Noncitrus Fruits and Nuts Final Report, various issues, 1982–1999.

White, G.B., A.M. DeMarree, and L.D. Putnam. 1999. Fruit farm business summary, Lake Ontario Region, 1998. E.B. 99-12, Department of Agricultural, Resource, and Managerial Economics, Cornell University, Ithaca, NY 14853. 27 pp.

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