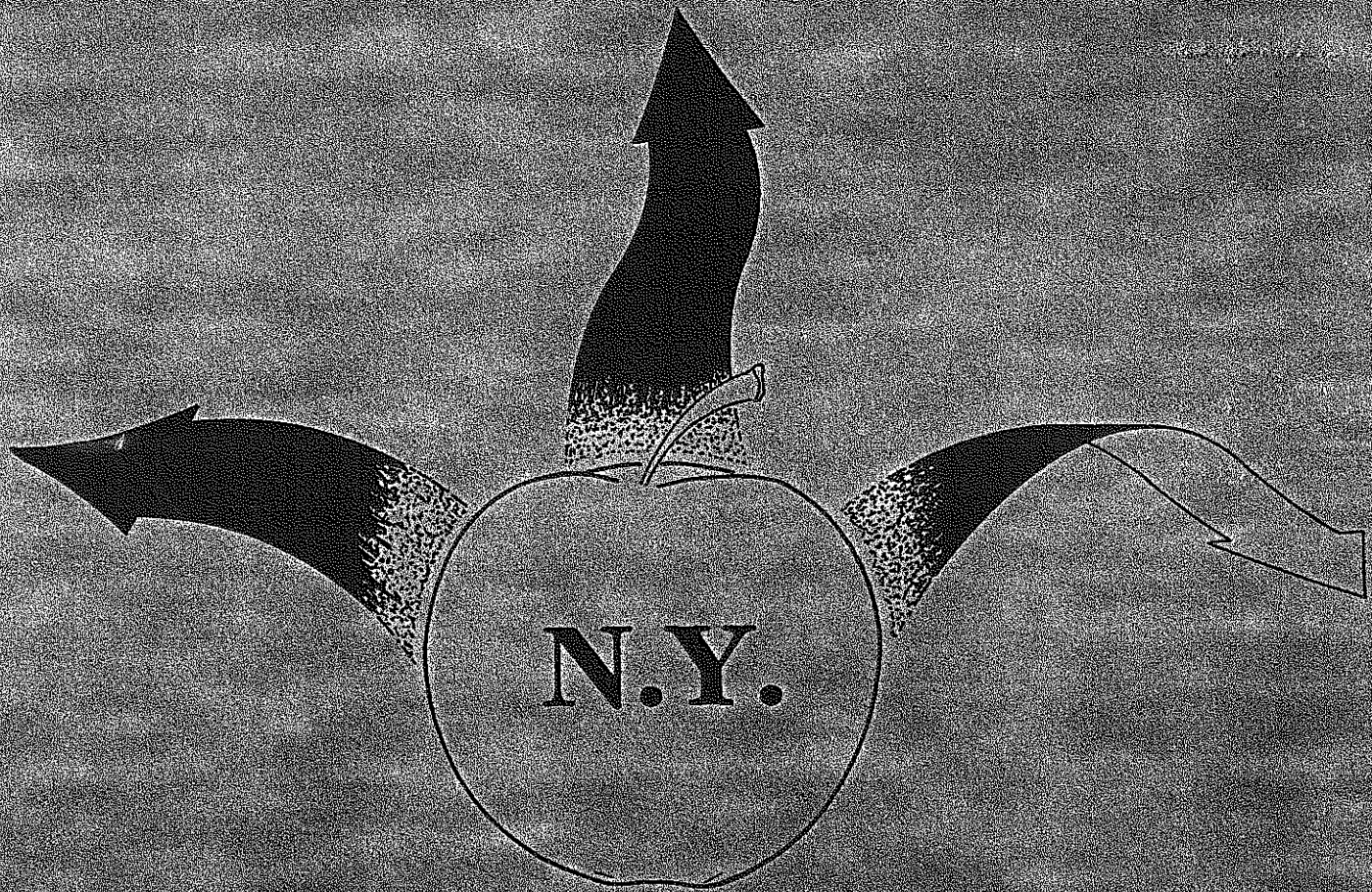


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Strategic Alternatives for The New York Apple Industry



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SECTION I

INTRODUCTION

The New York apple industry, as many sectors of agriculture, is facing many challenging issues and decisions. One of the most important questions is how New York growers, packers, cold storage operators, and marketing organizations should position themselves for the future.

The purpose of this study is to analyze the current market situation facing the New York apple industry, to identify various strategic marketing alternatives, and to indicate what a regional advertising and promotion organization can do to improve the market for apples.

Issues Facing The New York Apple Industry

Several factors influence the market environment facing the New York apple industry.

On the marketing front, apples face many of the same issues faced by all fruit and vegetable industries. There has been increased attention to fresh products and less excitement about processed products. At the same time, the array of fresh product choices has broadened and numerous varieties exist within each commodity. Use of foreign sourced products have increased the season of many commodities, but it has also increased the competition for consumers' dollars. Consumers have become more sensitive to the quality and chemical treatment of food products. In general, produce merchandising has become more aggressive.

In addition to competition from other fruits and countries, Washington State has attained a dominant position in the U.S. apple industry in terms of volume and establishing awareness among consumers. The words "Washington State" carries a special connotation for apple buyers and presumably consumers. More important, in some cases large, high quality, Red Delicious apples have become the standard by which consumers compare other apples. At the same time, it is difficult for many New York market participants to understand why apples from 3000 miles away can out compete the unique features of New York apples.

The New York State industry often cites closeness to market as a major advantage. However, closeness to market also has its disadvantages. The closer one is to market the lower the economies of scale required to serve that market.

Consequently, there is little incentive to form large organizations to serve the market. In production regions close to market growers and small packers can feasibly pursue several outlets, and can more easily find one to serve. There is some evidence that closeness to market promotes a fragmented industry, where it is difficult to control quality and coordinate marketing efforts.

The problems outlined above are just a few of the issues and challenges facing the New York apple industry. The real question is what can be done to address the current problems and improve economic returns to the state's growers and other market participants.

The intent of this study is to identify marketing alternatives for consideration by the industry. Like any industry, there is unlikely to be unanimous agreement as to what the problems are and what should be done to improve the situation. The key to any marketing endeavor is leadership, and that can only come from within the industry. Such leadership will require the devoted efforts of key groups of growers, processors, packers, cold storage operators, and produce buyers.

Importance Of The Industry

Apples are an important commodity to New York State's agricultural economy. In 1987 New York apples generated \$82.3 million in farm income (NY Agricultural Statistics Service). In that year apples ranked fifth in importance as a source of state farm income, only behind dairy products, greenhouse and nursery products, cattle and calves, and other livestock. Moreover, New York State is the third largest producer of apples in United States, preceded only by Washington State and Michigan.

In addition to its role at the farm level, the apple industry is a significant factor in terms of investment and employment. In 1988, 93 plants were reported to be processing apple products. Of the total of 93, 83 establishments produced juice or cider, while 7 processed canned apple products (i.e. apple slices, applesauce, baby food, etc.) and 4 plants produced frozen apple products (NY Agricultural Statistics Service). In addition to processing plants there are several packing and cold storage facilities located throughout the state which are an important source of investment and employment.

In summary, apples are an important product for the agricultural economy of New York.

Statement Of Objectives

The general purpose of this project is to identify and evaluate long term marketing alternatives for all segments of the New York State apple industry which will assist in improving their market performance. Specific objectives include:

- 1) To inventory the current marketing efforts of New York apple marketing firms,
- 2) To outline the strengths and weaknesses inherent to the New York State apple industry,
- 3) To analyze the marketing strategies of other major domestic apple producing regions,
- 4) To identify and evaluate strategic marketing alternatives for each segment of the New York apple industry, and
- 5) To work closely with all segments of the New York apple industry, government agencies and other relevant parties in carrying out this study.

Organization of The Study

This study is divided into several sections. Section 2 outlines the conceptual framework used, and includes a discussion of the characteristics of fragmented industries, the components of a marketing strategy, and the role of a regional advertising and promotion organization in the industry. Section 3 examines the characteristics of each segment of the New York apple industry.

Section 4 outlines the methodology used and how data was collected for this study. The following several sections discuss the results of the data collected. Section 5 presents the information obtained from a survey of apple growers. Section 6 discusses the result of interviews with top executives of processing firms that utilize New York apples. Section 7 presents information from a survey of grocery retail buyers of apples. And Section 8 describes the result of interviews and observations from the Washington State apple industry.

In Section 9 projections of apple production in major apple producing states to the year 2000 are presented. Section 10 discusses alternative strategies and outlines recommended strategies for a regional advertising and promotion organization, such as the Western New York Apple growers. Finally, Section 11 provides a summary of the study.

SECTION II

MARKETING STRATEGIES: A CONCEPTUAL FRAMEWORK

The purpose of this section is to briefly discuss the concept of marketing, to present the characteristics and pitfalls of marketing strategies in fragmented industries, to identify the major components of a marketing strategy, and to outline the role of a generic advertising and promotion organization in the marketing strategy of an industry.

Marketing

The purpose of marketing is to satisfy the ever changing wants and needs of customers by adding value to products. The basic concept of marketing is to add value, primarily by incorporating services into common commodities. If the added services truly do satisfy wants and needs, then customers should be willing to pay substantially more than the services cost. This increases returns for those successfully engaged in marketing.

While the concept of marketing is simple, implementation is much more difficult. Implementation focuses on developing strategies for various components of a marketing plan. Before reviewing the components of a typical marketing strategy, it is useful to examine the characteristics of fragmented industries and what is required of successful marketing strategies in those industries.

Marketing Strategies In Fragmented Industries¹

The New York apple industry, like most agricultural industries, can be characterized as a fragmented industry. Porter has outlined several economic factors that give rise to fragmented industries. They include:

- Low overall entry barriers,
- Absence of economies of scale or an experience curve,
- High transportation costs,

¹The discussion in this section is based on Porter, M.E., Competitive Strategy: Techniques for Analyzing Industries and Competitors, (New York: The Free Press, 1980, pp. 191-214.)

- High inventory costs or erratic fluctuations in sales,
- Little advantage of size in dealing with buyers or suppliers,
- Diseconomies of scale in some important marketing functions,
- Diverse market needs,
- High product differentiation, particularly if based on a product's image,
- Barriers to exit,
- Local regulations,
- Government prohibition of concentration, and
- Newness.

While all the above may not apply to the apple industry, several of the factors mentioned do seem to be present, such as: low entry barriers, small economies of scale, high transportation costs, diverse market needs, and barriers to exit. At the same time it should be noted that fragmented industries have some advantages. Certainly they most nearly meet the conditions necessary for vigorous economic competition. Theory suggests that under such conditions prices will tend toward average costs and consumers will maximize their economic welfare. However, there is also the potential for excess competition and, as a result, less than competitive returns to labor, capital and management.

Porter goes on to point out that a major strategy of fragmented industries is to try to deal with this fundamental problem:

Overcoming fragmentation can be a very significant strategic opportunity. The payoff to consolidating a fragmented industry can be high because the costs of entry into it are by definition low, and there tend to be small and relatively weak competitors who offer little threat of retaliation (Porter, p. 200).

He then goes on to list five ways of dealing with fragmentation. They include:

- Create economies of scale or an experience curve,
- Standardize diverse market needs,
- Neutralize or split off the market functions most responsible for fragmentation,
- Make acquisitions for a critical mass, or
- Recognize industry trends early.

Porter also points out that some industries become "stuck" in a fragmented state. He lists the following reasons for this situation:

- Existing firms lack essential resources or skills,
- Existing firms are myopic or complacent, and/or
- Lack of attention by outside firms.

What then can be done to deal with the fragmentation of an industry? As Porter points out:

Fragmented industries are characterized not only by many competitors but also by a generally weak bargaining position with suppliers and buyers. Marginal profitability can be the result. In such an environment, strategic positioning is of particularly crucial significance. The strategic challenge is to cope with fragmentation by becoming one of the most successful firms, although able to garner only a modest market share (Porter, p. 206).

Methods presented to cope with fragmentation include the following:

- Tightly managed decentralization,
- "Formula" facilities which are efficient, low-cost facilities at multiple locations,
- Increased value added,
- Specialization by product type or product segment,
- Specialization by customer type,
- Specialization by type of order,
- A focused geographic area,
- A bare bones, no frills competitive posture, and
- Backward integration.

Finally, Porter sets forth some "potential strategic traps" that should be avoided:

- Seeking dominance,
- Lack of strategic discipline,
- Overcentralization,
- Assuming that competitors have the same overhead and objectives, and
- Overreactions to new products.

The characteristics and issues discussed by Porter provide a useful back drop for the New York apple industry. While his analysis is meant to apply to the marketing

strategies of individual firms, many can also be adopted by a larger aggregation of an industry, for example the New York portion of the apple industry.

Many of the points outlined above will be discussed in the analysis that is presented in following sections, as well as in the recommendations.

Components Of A Strategic Marketing Plan

There is a considerable body of literature on strategic marketing plans (Assael, Cravens, Kotler, Jain). However, this literature almost invariably assumes that the organization doing the planning is a firm, or other type of institution, with control over the key variables required to implement such a marketing program. No information was found on marketing plans for an industry, and little public information exists on the marketing programs of industry-wide advertising and promotion programs. Consequently, the following discussion of the components of a marketing strategy is primarily based on the body of knowledge developed for firm's and other organizations.

A marketing strategy should contain the following components:

- Mission statement
- Well-defined goals and objectives
- Specific target markets
- A product strategy
- A distribution strategy
- A pricing strategy
- An advertising and promotion strategy
- Formal method to review the program's performance

It is difficult, if not impossible, for industry-wide advertising and promotion organizations to address and coordinate all of the components of a marketing strategy. Such organizations have little direct control over any of the components of a marketing strategy, except advertising and promotion. Moreover, it is probably not even desirable. As Porter suggested the key element of servicing customer wants and needs in competitive and fragmented markets is decentralized responsibility and control.

The Authority Of Advertising and Promotion Associations

Industry advertising and promotion associations are formed under the provisions of state and federal enabling

legislation that allows for marketing orders.

The advertising and promotion orders of New York allow for three primary activities (NYS Department of Agriculture and Markets):

- 1) To provide generic advertising and promotion activities,
- 2) To provide information concerning marketing conditions, and
- 3) To engage in or support product and marketing research.

It is obvious from the authority provided by the enabling legislation that such associations are not necessarily limited to the advertising and promotion component of marketing strategies. They may also support public good types of marketing activities that occur in the other elements of a marketing program. Moreover, probably the most important role for an industry-wide association is to provide leadership in improving the implementation of the marketing strategies of individuals firms in the industry.

Summary

The New York apple industry is probably best characterized as a fragmented industry. In this section the problems and opportunities of marketing strategies in fragmented industries were outlined. In addition, the components of a marketing strategy were reviewed and the provisions of state enabling legislation for advertising and promotion organizations were outlined. In the following sections, specific characteristics of the industry will be discussed in the context of this framework.

SECTION III

A DESCRIPTION OF THE NEW YORK APPLE INDUSTRY

The purpose of this section is to provide a brief description of the structure of the New York State apple industry. Unless otherwise indicated the data are taken from material compiled and published by the New York Agricultural Statistics Service.

Production

In 1985, apples were produced on 1,043 farms throughout New York State. These farms produced 25.8 million bushels of apples using 5.0 million trees on 68,500 acres. Over the years New York apple production has exhibited the same general trends experienced by many agricultural commodities. That is, there has been rather stable total output, but it has been produced on fewer acres and on fewer farms (Table 3.1). The one unusual trend in the apple industry is the increasing number of production units, i.e. apple trees. This is due to the increasing use of dwarf trees.

Table 3.1 Number of Growers, Trees, Acres and Production, 1962-85.

Years	Number Of Farms	Number Of Trees (1,000)	Number Of Acres	Production (1,000 Bu)
1962	2,072	2,692	76,066	
1966	1,741	2,887	74,376	
1970	1,288	3,256	72,569	23,691
1975	1,218	3,555	66,743	24,286
1980	1,183	4,554	74,346	26,190
1985	1,043	5,052	68,520	25,952

The New York apple industry is divided into two regions: Western New York consisting of those counties including and west of Herkimer County, and Eastern New York comprised of those counties east of Herkimer County. In 1985 Western New York was responsible for about 70 percent of New York apple production, while Eastern New York contributed the remainder. Between 1970 and 1982 the proportion of production between the two regions has remained relatively constant. However, since

1982 Western New York's share of state apple volume has increased primarily due to lower production in Eastern New York (Figure 3.1).

In 1986 New York State was the second leading producer of apples. Only Washington exceeded the state in production. However, New York's production has remained relatively constant over the years although that of the U.S. has exhibited rather significant variation (Figure 3.2). Apple production for the leading states is presented in Table 3.2, while Table 3.3 indicates New York's share of total apple production. The state's market share has varied between 10 and 14 percent during the period 1978-87.

Table 3.2 Volume of Apple Production by State, 1978-87.

State	1978	1980	1982	1984	1986	1987*
			(1,000 - 42 Lb. Units)			
New York	25,714	26,191	26,905	24,286	21,429	25,714
Washington	51,143	71,548	62,262	70,238	73,810	83,333
Michigan	21,905	21,429	23,333	18,333	16,667	27,381
California	11,905	12,381	11,429	12,381	12,738	15,476
Pennsylvania	9,524	13,571	12,500	13,691	14,762	12,976
Virginia	12,262	10,000	11,905	11,072	10,952	11,667
North Carolina	7,714	9,762	4,048	8,571	2,857	9,524
New England	8,215	8,107	8,334	7,381	7,964	7,654
West Virginia	7,024	5,833	5,714	5,357	5,476	5,476
All Others	25,473	31,378	26,951	27,095	21,226	31,525
U.S. Total	180,879	210,200	193,381	198,405	187,881	230,726

* Estimated

Table 3.4 indicates the proportion of various varieties produced in 1985 in Western New York, Eastern New York and the entire state. McIntosh is the dominant variety in both regions, although it is much more important in Eastern New York. Red Delicious is the second most popular variety in Eastern New York, and a significant enough factor in Western New York to make it the second most important variety in the state. Due to its historic role as a producer of processing apples, other dominant varieties in Western New York include Rhode Island Greenings, Romes and Idareds.

Figure 3.1
NEW YORK APPLE PRODUCTION, 1970-85.

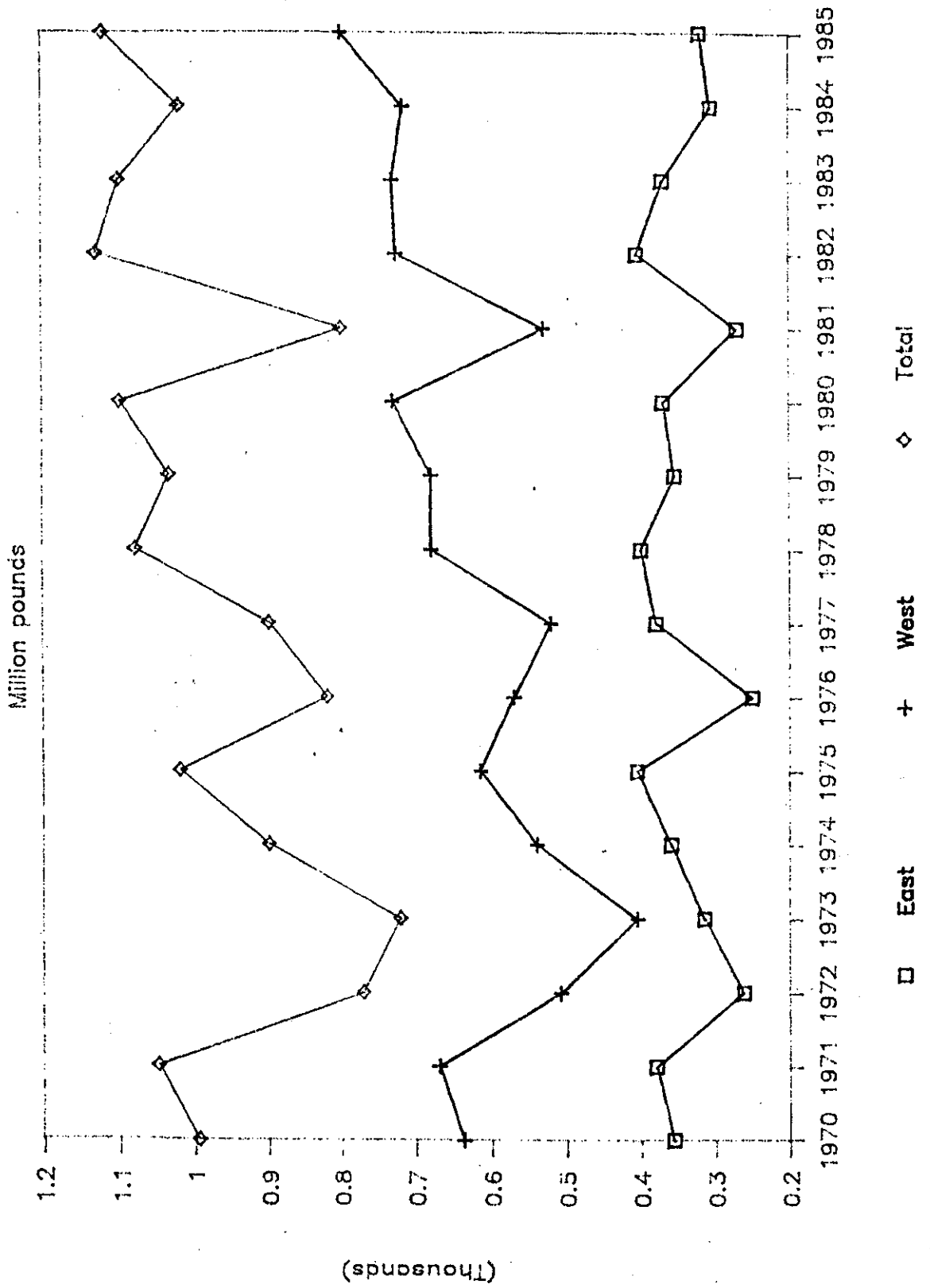


Figure 3.2
NEW YORK AND U.S. APPLE PRODUCTION,
1970-85.

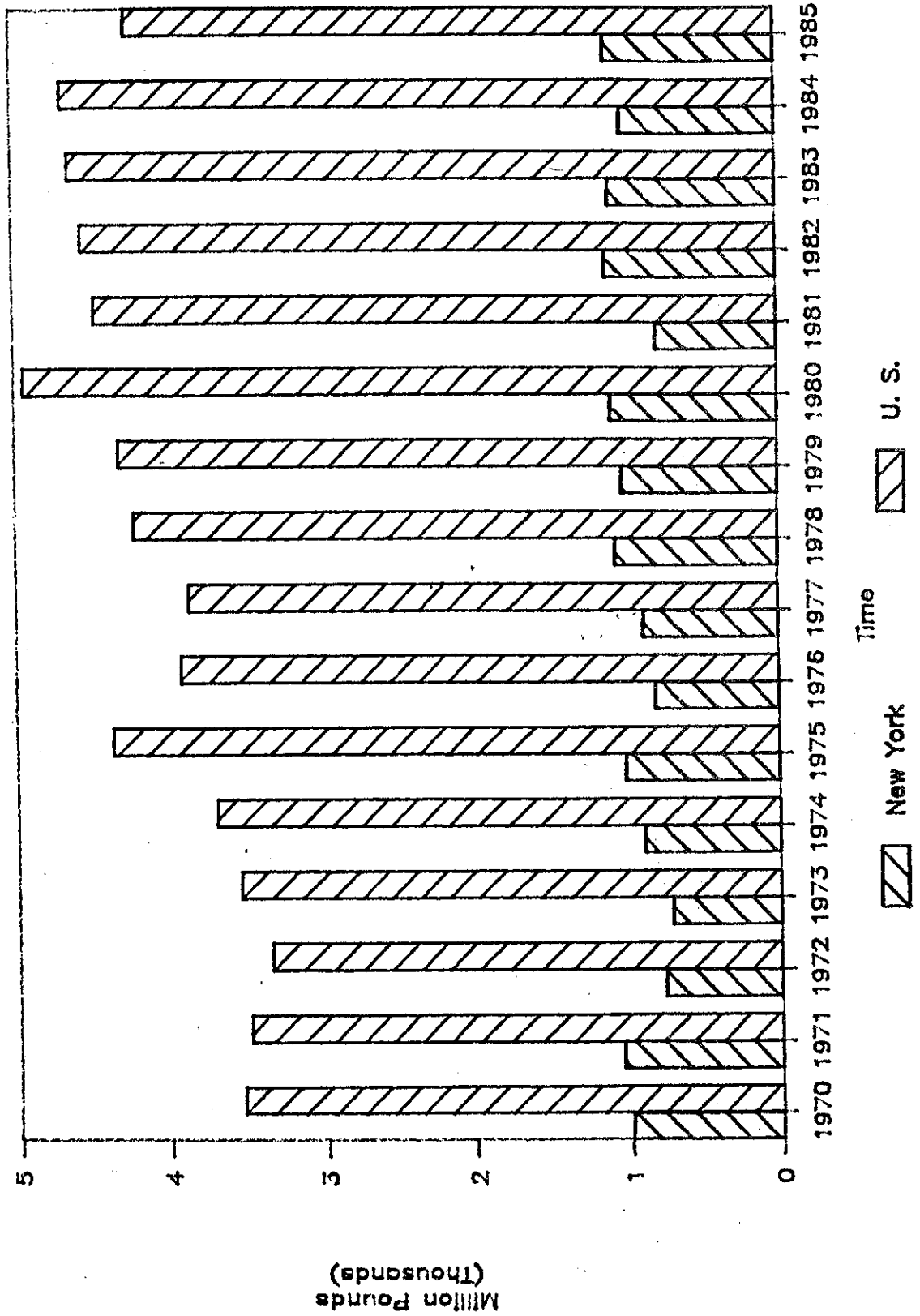


Table 3.3 Share of Total U.S. Apple Production by State, 1978-87.

State	1978	1980	1982	1984	1986	1987*
New York	14%	12%	14%	12%	11%	11%
Washington	28	34	32	35	39	36
Michigan	12	10	12	9	9	12
California	7	6	6	6	7	7
Pennsylvania	5	6	6	7	8	6
Virginia	7	5	6	6	6	5
North Carolina	4	5	2	4	2	4
New England	5	4	4	4	4	3
West Virginia	4	3	3	3	3	2
All Others	14	15	14	14	11	14
U.S. Total	100%	100%	100%	100%	100%	100%

* Estimated

Table 3.4 Proportion of Various Varieties Produced In Western NY, Eastern NY, and New York, 1985.

Varieties	Proportion of Total Apple Production		
	Western NY	Eastern NY	New York
Cortland	7.1%	7.1%	7.1%
Crispin	1.9	0.0	1.4
Empire	2.7	4.8	3.3
Golden Delicious	6.3	5.0	5.9
Idared	10.7	2.0	8.0
McIntosh	15.3	37.1	21.9
Red Delicious	11.5	22.7	14.9
Rhode Island Greening	14.7	0.1	10.4
Rome	13.0	9.9	12.0
All Others	16.8	9.3	15.1
Total	100.0%	100.0%	100.0%
Total (1,000 Bu.)	17,958	7,860	25,818
Percent of total	69.9%	30.1%	100.0%

Trends in prices from 1970-85 for various uses of New York apples are presented in Figure 3.3. The data illustrates that prices for apples have been gradually declining in real terms since 1981, especially for processing apples. Except for 1985, there has been a general increase in prices for fresh apples.

The Processing Sector

Processing is an important component of the New York apple industry. Most of the New York processing industry is located in Western New York. These firms process apple sauce, apples for freezing, pie filling, apple cider and juice, and other miscellaneous apple products.

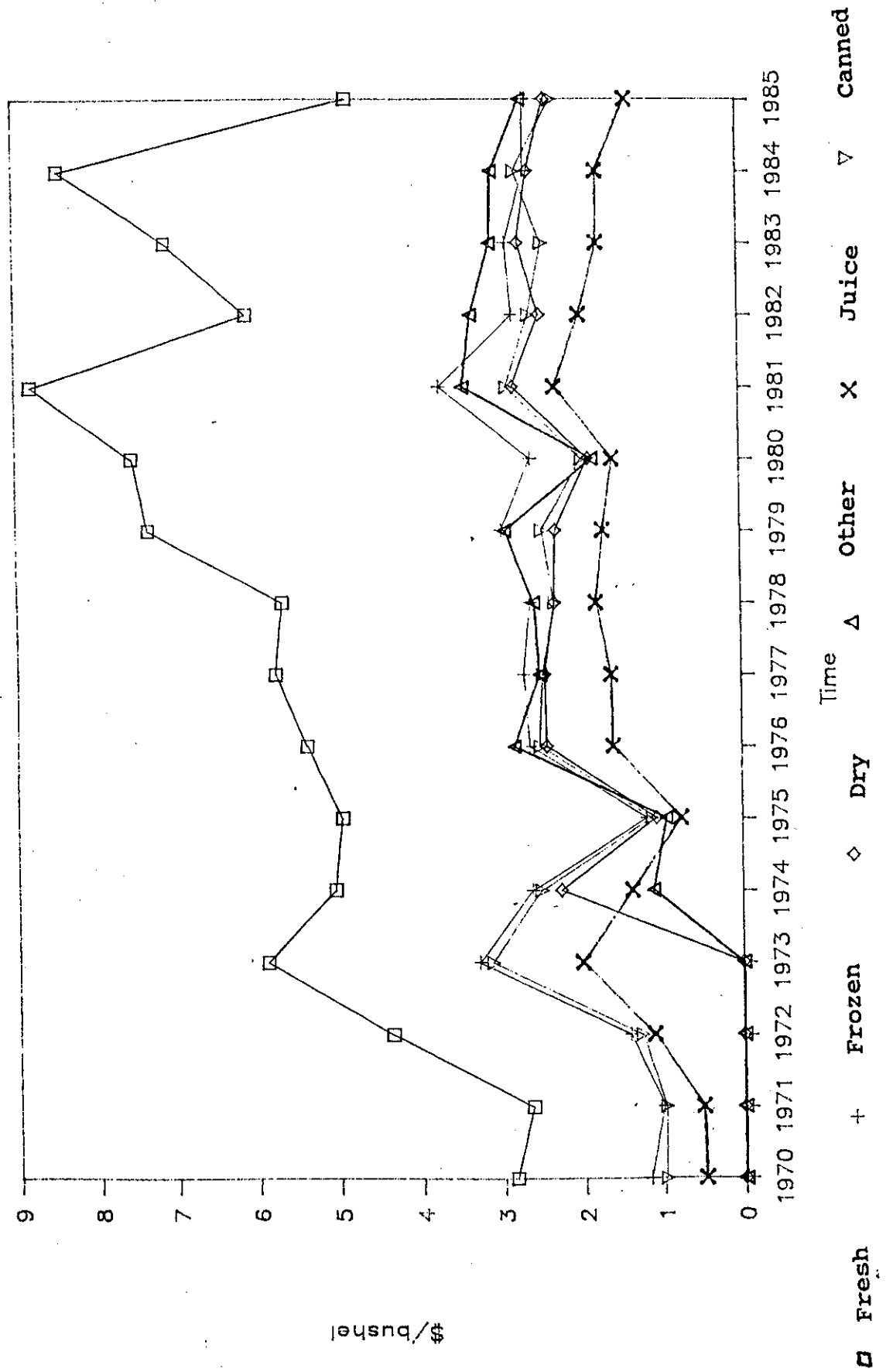
There has been a significant decrease in the number of firms processing canned and frozen apple products (Table 3.5). This trend is likely due to economies of scale and industry consolidation in these market segments. On the other hand, the number of plants engaged in the production of apple cider and juice has shown significant variation over the period 1970-87. It can be assumed that many of the cider and juice operations are small plants.

Table 3.5. Number of Canned Apple Product, Frozen Apple Product, Cider and Juice, and Total Apple Processing Plants Operating in New York State, 1970-87.

Years	Number Of Plants Processing:			
	Canned Product	Frozen Product	Cider and Juice	Total
1970	14	9	123	143
1975	12	6	102	118
1980	8	5	136	144
1985	5	5	121	127
1987	7	4	88	106

Table 3.6 indicates the amount of apples used by each segment of the processing industry. The quantity of apples used for canned products, primarily apple sauce, has remained relatively constant over the last quarter century. At the same time the quantity of fruit handled by plants processing frozen apples has varied significantly from year to year. The most important trend is that the volume of apples going to

Figure 3.3
NEW YORK APPLE PRICES
FRESH AND PROCESSED, 1970-85.



cider and juice production increased dramatically up to 1985, although it decreased in the last few years.

Table 3.6. Quantity of Apples Used for Canned Product, Frozen Product, Cider and Juice, and All Processed Products in New York State, 1970-87.

Volume (Million Pounds) Used In Production Of:				
Years	Canned Product	Frozen Product	Cider and Juice	Total
-----	-----	-----	-----	-----
1970	293.1	62.3	186.9	559.3
1975	208.6	42.0	148.9	419.5
1980	229.7	39.9	349.5	667.3
1985	268.3	25.9	351.0	678.9
1987	262.6	42.0	183.2	513.9

Apple Storage

Apples are held in cold storage and controlled atmosphere facilities to provide a reliable supply over a significant portion of the year. Little information is available on the number and capacity of individual storage operations.

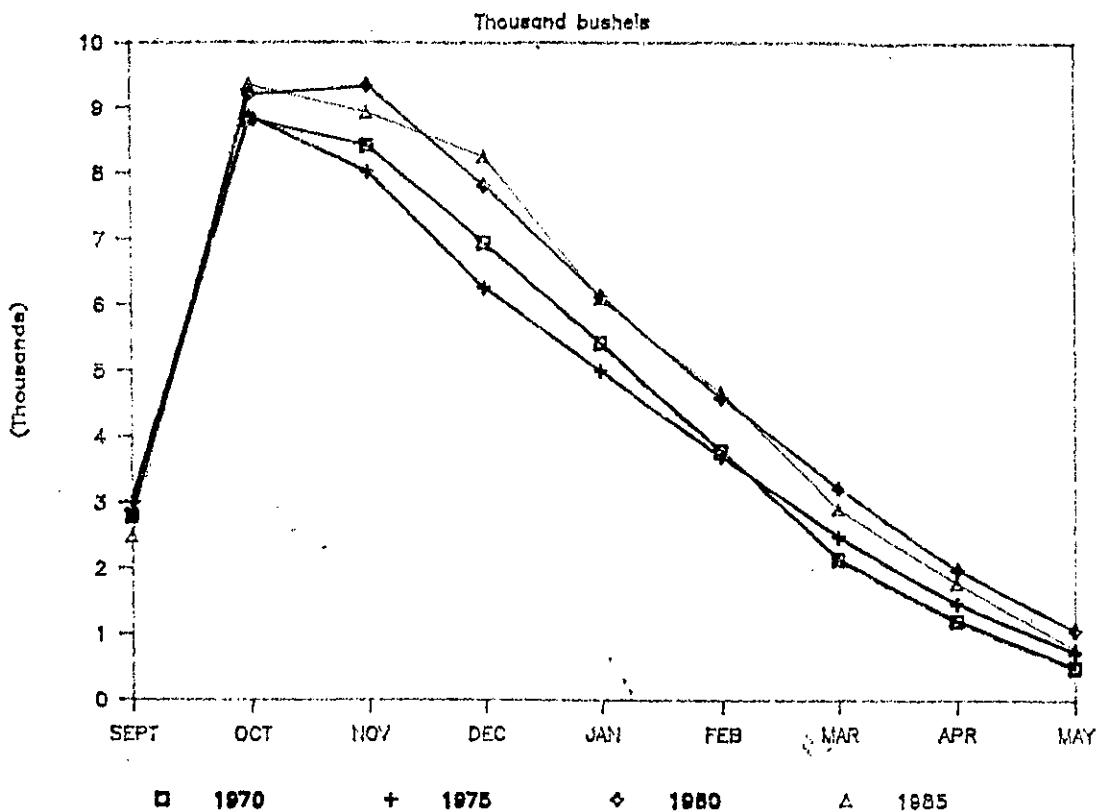
Figure 3.4 indicates the trends in apples holdings from September to May for 1970, 1975, 1980 and 1985. The figure includes both total apples in storage and apples in controlled atmosphere facilities. It is thought that the volume of past holdings is a rather accurate indication of apple storage capacity.

Trends in capacity for cold storage holdings and controlled atmosphere storage for the period 1970-1985 are shown in Figure 3.5. To construct the table, holding for the highest month in each year was selected. In all cases the month was either October or November, but varied by year.

In general, total storage capacity in New York has been increasing. Most storage facilities are currently located in Eastern New York. But Western New York is showing a constant increase in capacity for both controlled atmosphere and cold storage facilities.

Figure 3.4

TOTAL APPLE HOLDINGS September through April, 1970-85.



CONTROLLED ATOMOSPHERE APPLE HOLDINGS

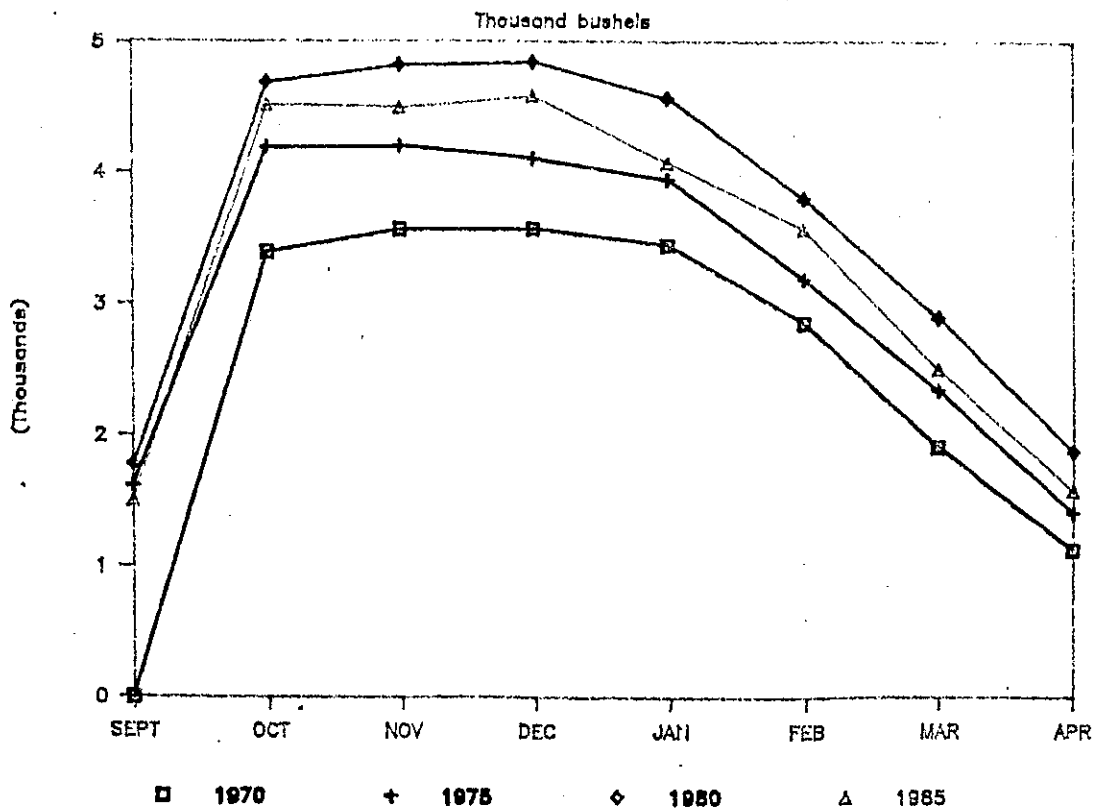
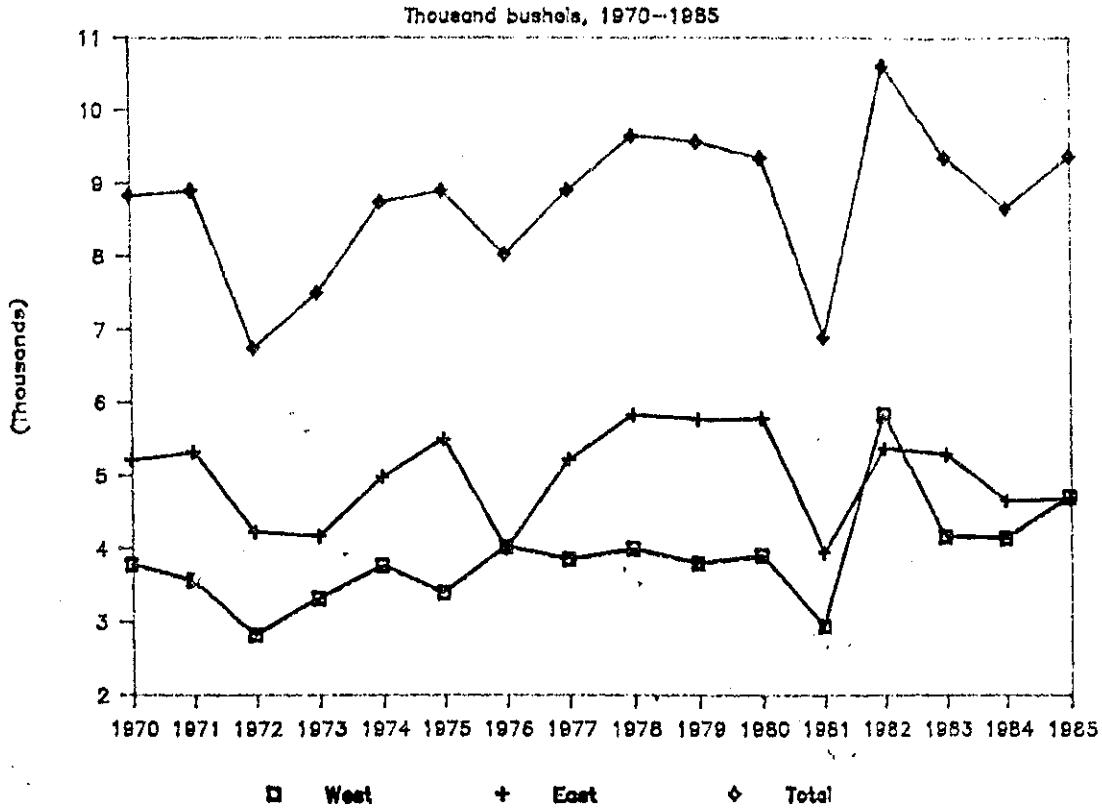
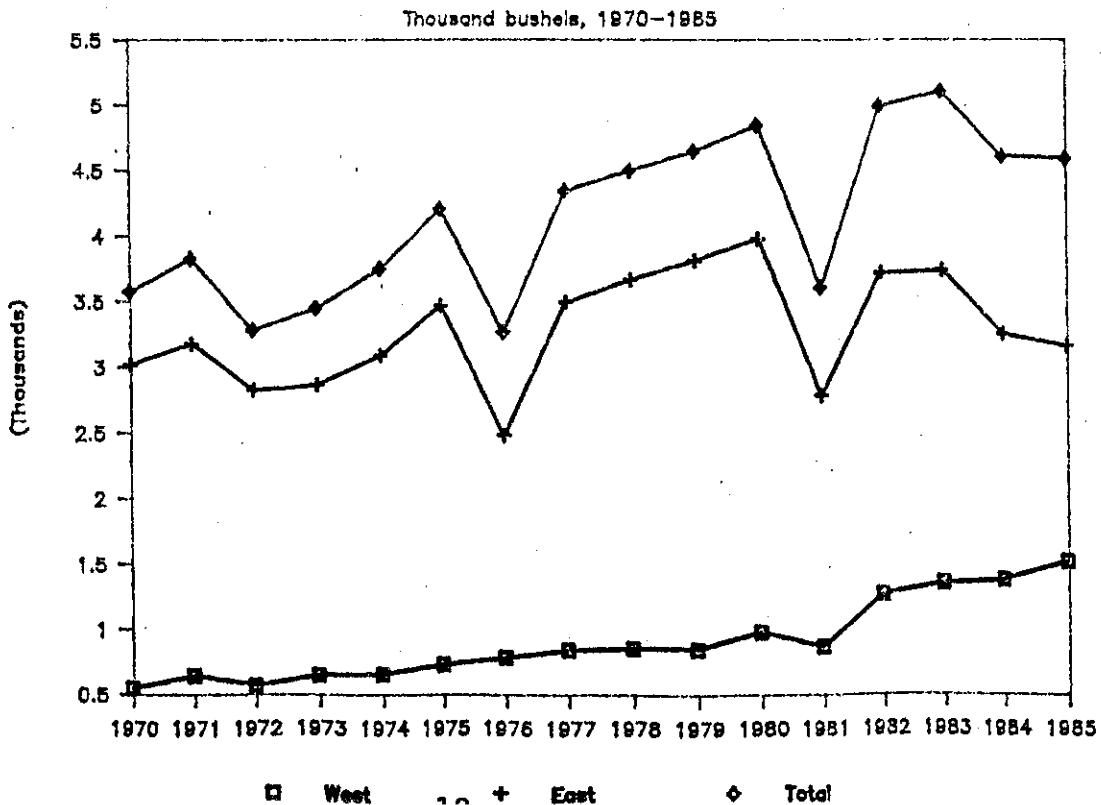


Figure 3.5
TOTAL APPLE HOLDINGS
for Western NY, Eastern NY, and
Entire State, 1970-85.



CONTROLLED ATMOSPHERE APPLE HOLDINGS



Packers and Shippers

Very little information is publicly available concerning the number and location of packers and shippers. No annual data is collected on this segment of the market. However, it has been estimated that in 1984, there were approximately 80 fresh apple shippers operating at 45 shipping points in New York (The Packer).

Consumers

The per capita consumption of selected fresh fruits is presented in Table 3.7.

Table 3.7. Per Capita Consumption in Pounds of Selected Fresh Fruits, United States, 1970-84.

Years	Apples	Oranges	Grapefruit	Peaches	Grapes	Pears
1970	17.0	16.5	8.2	5.7	2.8	2.0
1971	16.5	15.7	8.6	5.7	2.4	2.4
1972	15.8	14.5	8.6	3.9	2.2	2.4
1973	16.1	14.4	8.6	4.3	2.6	2.5
1974	16.5	14.4	8.2	4.4	2.8	2.3
1975	19.1	15.9	8.4	5.0	3.2	2.8
1976	17.1	14.7	9.2	5.2	3.2	2.6
1977	16.9	13.4	7.7	5.1	3.1	2.6
1978	17.5	13.4	8.3	5.0	3.0	2.2
1979	17.6	12.4	7.6	5.5	3.6	2.5
1980	19.1	15.8	8.0	5.8	3.7	2.4
1981	16.8	13.5	6.9	5.6	4.1	2.8
1982	17.9	12.7	7.5	4.0	5.3	3.0
1983	18.4	15.5	8.1	4.1	5.4	2.8
1984	18.1	12.8	6.1	5.4	5.4	2.6

Source: Fruit Outlook and Situation Yearbook, (Washington, D.C.: U.S. Department of Agriculture, Economic Research Service, TFS-236, October 1985, p. 35).

All fresh fruits exhibit some variation in per capita consumption from year to year, presumably depending on availability and prices. But comparing the first five year period with the last five year period, fresh apple consumption has increased from 16.4 pounds in 1970-74 to 18.1 pounds per capita in 1980-84. Consumption has also increased for grapes and pears. On the other hand, the per capita consumption of

citrus products has decreased somewhat over the 15 year period.

Summary

Apples are an important commodity for New York agriculture. While apple production has remained relatively constant, the number of growers and acres of apples have been decreasing. The same trend is found in processing, where the number of plants producing processed apple products has declined dramatically. Increased interest in the fresh market is indicated by an increase in the state's cold and controlled atmosphere storage capacity. Finally, it was found that there has been a general increase in the per capita consumption of fresh apples.

SECTION IV

METHODOLOGY

This section describes the general procedures used carrying out this study, and the specific methodology used to collect the data assembled for the project.

The general purpose of the study was to determine the strategic marketing alternatives available to the New York apple industry in general, and the Western New York Apple Growers Association in specific. Given this objective, data to determine the current situation and trends in the industry were collected. The data are intended to assist positioning the state's apple industry with respect to other participants in the market. Collected data was also used as background in developing the proposed alternative strategies. The data attempted:

- 1) To determine the strengths and weaknesses of New York State, and specifically Western New York apples,
- 2) To identify general trends in the industry with respect to the wants and needs of consumers and other market participants in the apple industry, and
- 3) To explore the effectiveness of current activities, and identify additional activities a regional advertising and promotion association should be engaged in.

Three surveys were conducted; a grower survey, interviews with processors, and interviews with managers of retail produce operations. Each survey was conducted differently and is discussed separately. In addition, officials of firms and organizations in the Washington State apple industry were visited and interviewed. The procedures used in those interviews are also outlined below.

The Grower Survey

The purpose of the grower survey was to obtain information about production patterns, grower marketing practices and, grower attitudes about current marketing alternatives and programs.

This information was collected via a mail survey that was sent to 203 growers in Western New York. A copy of the mail survey is found in Appendix A. The survey with a cover letter and self-addressed stamped envelop was sent out the first week in November 1986. A postcard reminding the growers to answer and return the form was sent out to all growers two weeks later.

The mailing list was provided by the Western New York Apple Growers Association. Of the 203 growers receiving the survey 95 responded, for a response rate of 47.1 percent. Of those responding four indicated they were no longer growing apples. In addition, the data on ten surveys was not able to be used. Consequently there were 81 usable surveys. This represented 40.1 percent of the original sample.

While random techniques were not used to obtain the sample, there was no known biases in the sample used, except it consisted only of growers from Western New York. Their views may not actually reflect the growers in the Hudson Valley and Champlain Valley regions of the state. There were three reasons for using only Western New York apple growers:

- 1) A mailing list of Western New York growers that was thought to contain no known biases was readily available,
- 2) The depressed conditions in the apple processing industry, which is primarily located in Western New York, could have caused unique marketing problems and opportunities in that region, and
- 3) The Western New York Apple Growers Association contributed support, interest and assistance in several phases of this study.

A review of information on apple production in the usable surveys coincides nicely with data collected by the NYS Agricultural Statistics Service for Western New York. Consequently, there was no reason to expect the results of this survey would differ from a random sample.

The Processor Survey

Apple processors are an important components of the New York apple industry. Consequently, major processors using New York apples were contacted. Their firms primarily produce apple sauce, pie filling, apple juice, and apple slices.

Given the rapid decline in the number of apple processors operating in the state and obtaining apples from New York, the population of apple processor was rather small. Seven were included in the study. This was not a random sample. Every attempt was made to contact all major processors operating in the state, and out-of-state processors using New York apples. Five of the seven processors were located in the state and two had their operations out-of-state.

About half the interviews were conducted in person. The other half were conducted over the telephone. Each interview took approximately one half hour. A list of the questions asked apple processors are included in Appendix B.

The Retailer Survey

The most important outlet for fresh apples is retail grocery stores. Consequently, managers of retail produce operations were contacted by telephone and in person to obtain their views on a variety of issues.

Most of the interviews were done by phone and took approximately one half hour. Again, the sample used was not random, but there was no reason to expect the individuals and organizations contacted were not representative of the industry. The one exception was that the sample was primarily made up of retailers located in New York and adjacent states. Individuals at sixteen organizations were contacted. Six organizations had their headquarters in New York, five had their headquarters in adjacent states, and five were from other parts of the country. Only three retail organizations were located at such a distance from New York State that they did not normally handle New York apples.

A list of the questions asked the retail produce managers are also found in Appendix C.

Observations From Washington State

In order to obtain an idea of the organization and operation of the Washington State apple industry an on-site visit was made. The visit lasted one week. During that time several organizations and firms were visited and official interviewed. These organizations included: growers, packing houses, processors, the Washington State Apple Commission, cooperative extension personnel, etc.

Since there was great diversity in the nature of their operations and the types of organizations visited, specific

interview questions were not developed. Rather a list of issues to be explored was compiled. The following is a list of the issues discussed:

- Current and potential changes in production practices,
- Trends in the varieties being planted,
- The role of packing houses, with special attention on pre-sort operations,
- The general thrust in marketing activities, with special interest in branding of fresh fruit, packaging techniques, and quality control,
- Organization and operation of the Washington State Apple Commission,
- Information services provided to various segments of the Washington State apple industry, and
- Trends in international markets for apples.

Summary

In this section the procedures used to collect information from apple growers, processors, and grocery retail buyers were outlined. In addition, the general purpose of an on-site visit to Washington State was presented. The results of each component of the study are reported and discussed in Sections 5 through 8.

SECTION V

ANALYSIS OF RESULTS FROM THE GROWER SURVEY

The purpose of this section is to discuss and analyze the results of the grower survey. It represents information and attitudes from of 81 Western New York growers completing the mail survey. Not all respondents answered all questions or provided data that was usable for all questions. Consequently, each table indicates the number of growers responding to each question.

Apple Usage

Growers were asked to indicate the number of bushels of apples harvested in 1986 by variety and end use. The results are presented in Table 5.1.

Table 5.1 Varieties Used For Various End Uses, Responses From 74 Western New York Growers, 1986.

Varieties	Percent Used For:			
	Processing	Fresh	Juice/Cider	Total
Cortland	4.2%	6.0%	6.7%	4.8%
Crispin	0.0	4.6	1.5	1.9
Empire	0.0	8.2	1.8	3.2
Golden Delicious	10.1	6.2	7.5	8.3
Idared	14.1	19.0	13.6	15.9
McIntosh	4.3	16.4	22.5	10.7
Red Delicious	0.4	15.5	12.7	7.3
Rhode Island Greening	17.5	0.1	5.6	9.8
Rome Beauty	25.0	10.2	6.7	17.6
Other	24.4	13.8	21.4	20.5
Total	100.0%	100.0%	100.0%	100.0%
Total (1,000 Bu.)	1,772	1,268	354	3,394
Percent of total	52.2%	37.4%	10.4%	100.0%

The information suggests 52.2 percent of the apples harvested in 1986 were sold for processing, while 37.4 percent

went to fresh market and 10.4 percent was used to make juice or cider.

The most common processing apple variety was Rome Beauty, which represented 25.0 percent of the total. Other varieties used for processing included Rhode Island Greenings (17.5%), Idareds (14.1%), and Golden Delicious (10.1%).

There was greater diversity among apple varieties sold to the fresh market. The most common fresh varieties were: Idareds (19.0%), McIntosh (16.4%), Red Delicious (13.5%) and Rome Beauty (10.2%).

McIntosh was the most common cider and juice apple with 22.5 percent of the total. Idareds (13.6%) and Red Delicious (12.7%) were also important varieties. Other varieties represented about 20 percent of the remaining fruit, with most being used for processing. There was some indication that Twenty Ounce represented a large share of the "other varieties".

In order to obtain an idea of future planting intentions, growers were asked to estimate what percent of their total apple harvest they expected would go to the fresh market five and ten years from now. Although only 37 percent of the 1986 crop went to the fresh market, growers were anticipating that in five years 62 percent would be sold fresh and in ten years the proportion would increase to 68 percent. This represents a major increase in fresh sales and may be overly optimistic. In any case, the response does indicate an increased interest in fresh apple marketing on the part of growers.

Forty growers indicated they planted new trees in 1986. These respondents were asked to indicate the varieties and number of trees planted. The results are presented in Table 5.2.

The evidence suggests that fresh apple varieties were the most common trees planted in 1986. Empire and Crispin, two newer varieties led the list. Growers were also asked to rank in order of importance the three varieties they would most likely plant over the next five years. Their responses are found in Table 5.3.

The top varieties from this question was nearly identical to what growers had planted in 1986. The one exception was Crispin, which was not among the top seven varieties to be planted over the next five years.

The market for New York processing apples has been depressed in recent years. Consequently, growers were asked Table 5.2.

Number of Trees Planted by Variety, Responses From 40 Western New York Growers, 1986.

Variety	Number of Trees
Empire	13,900
Crispin	12,600
Red Delicious	11,700
McIntosh	8,900
Ida red	4,100
Sparmac	3,000
Red Cortland	2,400

Table 5.3. Ranking of Varieties to be Planted Over Next Five Years, Responses From 62 Western New York Growers, 1986.

Variety	Number Ranking:			Aggregate Ranking <u>1/</u>
	First	Second	Third	
Empire	25	15	7	112
McIntosh	16	15	6	84
Red Delicious	7	11	10	53
Jonagold	5	6	5	32
Cortland	3	3	3	18
Jonamac	1	3	2	11
Law Rome	1	2	3	10

1/ Aggregate rankings were computed by giving each variety ranked first a weight of three, those ranked second a weight of two, and third a weight of one.

if growing apples for processing was still a financially attractive proposition. Of the 77 responding, 82 percent replied "No". However, 18 percent thought it was.

When asked to explain their responses, most growers named the low prices of processed apples compared to apples for fresh market. Despite the depressed state of the processing market, several growers emphasized the need for a healthy processing industry as an outlet for off-grade fruit. In

fact, some growers have come to view processing as only a "salvage operation".

Other responses focused on the factors influencing market conditions in the processing segment. Growers indicated: the market for processed products is declining, Washington State may produce a better processed product "because of its use of Golden Delicious apples", imported concentrate and fruit will continue to apply downward pressure on prices, and there are too few buyers compared to the number of sellers. Moreover, some growers felt that Western New York apple production is geared too much to the processing sector, and that it would take major changes in varieties and cultural practices to adequately serve the fresh market.

Those that felt processing was still a financially attractive alternative almost invariably cited sound farm management practices as essential. That is, they indicated that to be successful producing apples for processing requires high and consistent yields on good sites, and a low cost structure. Others suggested the need to have low levels of debt financing. Cash payment shortly after harvest was also cited as an advantage. Still others growers pointed out that growing processing fruit require different cultural techniques and is less demanding in terms of labor, purchased inputs and management attention. Consequently, they indicated older orchards are ideally suited for growing processing fruit.

To obtain an indication of the importance of apples to their farm operations, growers were asked whether or not they grew other types of agricultural products. Three-quarters (74.4%) of the 78 responding did, while the other quarter (25.6%) did not. Of those producing other agricultural commodities, apples represented, on average, about half (54.7%) of their total agricultural income.

Factors Affecting Quality

Quality is an extremely important issue when it comes to fresh apples. Consequently, growers were asked to rank, in order of importance, production and marketing functions that have a negative impact of the quality of fresh apples.

Somewhat ironically the two operations they considered most important are under the direct control of growers; picking and growing practices. These were ranked first or second by 67 and 62 growers, respectively. Packing and packaging ranked a distant third and fourth, respectively, while they thought storage practices had very little impact on fruit quality.

Voluntary responses were also elicited. The other operation most often mentioned by respondents was poor handling at the retail level. It was named by six respondents.

It is important that growers realize that much of the responsibility for providing high quality fruit occurs at the orchard level. This realization could make it easier to improve product quality.

Marketing Practices

Growers were also queried about marketing practices for fresh fruit. The results are illustrated in Table 5.4, where the percentages are based on the total volume of fresh fruit sold. The vast majority (69.6%) of growers indicated that their primary outlet for apples was to sell to a packer or shipper. The next most common outlet was selling direct to retailers (11.3%), followed by selling to produce wholesalers (9.1%).

Table 5.4 Marketing Outlets Used For Fresh Apples Based On Volume, Responses From 66 Western New York Growers, 1986.

Responses	Percent
Sold to a packer or shipper	69.6%
Sold direct to retailers	11.3
Sold to product wholesaler	9.1
Sold direct to consumers	6.6
Other	3.4
Total	100.0%

Growers were also asked to indicate how their fresh fruit sales were initiated. Their replies are presented in Table 5.5. The data suggest that most fresh apple sales are the result of an ongoing established relationship. This is especially true for growers selling to packers or shippers (87.1%), but is was true of apples sold to wholesalers and retailers (76.8%). This indicates that growers' knowledge of the buyer, buyers' knowledge of the grower, and past experience are very important factors in the marketing strategy of apples. However, the evidence suggests that there are some growers (12.9%) that make a special effort to develop new sales to wholesalers and retailers.

Table 5.5 Method Of Initiating Fresh Apples Sales to Packers/Shippers or Wholesalers/Retailers Based on Volume, 56 Responses From Western New York Growers, 1986.

Responses	Percent When Sold To:	
	Packers Or Shippers	Wholesaler Or Retailer
An established relationship	87.1%	76.8%
Buyer contacted grower directly	9.0	10.3
Grower initiated a new sale	3.8	12.9
Other	0.2	0.0
Total	100.0%	100.0%

The crop year may be an important factor influencing the ease or difficulty growers have in selling their crops. There was a larger crop in 1985-86 than there was in 1986-87. Growers were asked to rate the ease or difficulty they had in selling their crops for fresh and processed usage in both years using a scale from 1 (Easy) to 5 (Difficult). Their aggregate responses are found in Table 5.6.

Table 5.6 Growers Rating of Ease (1) Or Difficulty (5) of Selling Fresh and Processed Apples In 1985-86 and 1986-87 Crop Years, Responses From 79 Western New York Growers, 1986.

Crop Year	Ratings For:	
	Fresh Apples	Processed Apples
1985-86	2.9	3.6
1986-87	1.5	1.5

Growers generally found it easier to sell their apples in 1986-87 for both processing and fresh use than in 1985-86. The data reinforce the hypothesis that in years with large supplies processing apples become more difficult to market than fresh apples. This is probably due to the contractual arrangements and fixed capacities of apple processors.

Farmers were asked to indicate the major problems hindering their sales efforts. Eight indicated the oversupply in 1985-86. Five mentioned quality problems and another five suggested that there were not enough apples to supply the market year around. Other replies included: too few processing outlets, hail damage, the unwillingness of buyers to pay for excellent quality fruit from young trees, and growers being too quick to sell at any price (thus depressing the market).

The evidence suggests that fresh market apples may be easier to sell than processed apples, especially in years of large production.

No information exists on how apples are packaged as they leave the farm. Consequently, one question addressed this issue. The results are illustrated in Table 5.7.

Table 5.7 Packaging Used When Fresh Apples Leave The Farm, By Volume, Responses From 62 Western New York Growers, 1986.

Responses	Percent
In bulk bins	54.3%
Packed in bags	24.0
Packed in tray or cell cartons	15.9
Other	5.8
Total	100.0%

A majority (54.3%) of fresh apples are sold in bulk bins, many for re-packaging at the packer. However, a surprisingly large proportion of apples (24.0%) were shipped off the farm packed in bags. This probably reflects the fact that some growers pack their own apples. A relatively large proportion of apples (15.9%) also left the farm in trays or cell cartons. Other types of containers were of minor importance.

In order to determine where fresh apples were being marketed growers were asked to indicate the geographical location of the consumers of their apples. It was suggested that it may be difficult for the growers selling to others to know this information with complete certainty, but an estimate would be appreciated. Consequently, the responses to this question should be interpreted appropriately. The replies are shown Table 5.8.

Table 5.8 Geographical Location Of Final Consumers By Volume Of Fresh Apples, Responses From 63 Western New York Growers, 1986.

Responses	Percent
Western New York	30.9%
Outside Western New York, but in New York State	25.8
Outside New York State	35.1
International	8.2
Total	100.0%

It was estimated that about 30 percent of the apples grown in Western New York are also consumed in that region. Another 25 percent were sold in the state, but outside the region. Approximately 35 percent of Western New York apples were consumed outside the state. International sales represent only a small portion of the sales of Western New York apples.

Growers were also asked to estimate the average percent of their apple production that went into storage over the last five years. The reason for asking for an average of the last five years was to minimize the effect of a low production year, such as 1986. For the 79 growers responding to the question the average was 37 percent of their production. This coincides very well with the information published by the New York Agricultural Statistics Service. In 1985 total production amounted to 26.0 million bushels and total holdings of apples peaked in October of that year at 9.4 million bushels. That represented 36 percent of total production. In 1986 total production was 21.4 million bushels and peak storage was 8.2 million bushels, or 38 percent of the total crop.

Grower Attitudes

In order to determine their attitudes concerning what growers can do to improve the market for Western New York apples, respondents were asked to rank the importance of five issues for fresh and processed products. In addition, growers were asked to list any other issue they thought important. The rankings were from one to six. The results are shown in Table 5.9.

Table 5.9 Aggregate Ranking Of Activities Growers Can Take Part In To Improve The Market For Apples, Responses From 76 Western New York Growers, 1986.

Activities	Aggregate Ranking For: ^{1/}	
	Fresh	Processed
Higher quality standards	1.6	2.3
More timely, professional picking	3.1	3.2
Consumer advertising	3.3	2.7
Plant new varieties	3.5	3.6
Use new growing techniques	3.5	3.8

^{1/} Aggregate response for growers asked to rank from 1 to 5 the importance of each alternative.

Their replies suggest that the most important thing growers can do is to improve quality standards. This applied for both fresh and processed apples, but was most important for fresh apples. Of the 76 responding to this question, 46 growers ranked higher quality standards for fresh apples first. For fresh apples, the rankings of the other four alternatives were very close. More timely professional picking and consumer advertising were ranked second and third, respectively.

Processed apples yielded a somewhat different pattern of rankings. No single alternative was a clear first choice, as in the case of fresh apples. For example, 18 growers ranked consumer advertising first, and 18 ranked higher quality standards first. In any case, the final ranking was: 1) higher quality standards, 2) consumer advertising, 3) more professional picking practices, 4) use of new varieties, and 5) adoption of new growing techniques.

From the alternatives volunteered by growers no reply was named more than twice. The issues included: becoming more familiar with consumers' wants and needs, encouraging more buyers to participate in the market, planting a broader selection of varieties, and engaging in efforts to reduce imports.

Clearly these results suggest growers recognize the need for stricter quality standards for both fresh and processed apples. Given this sentiment, any marketing program should

encourage growers to improve quality control. In order to determine attitudes toward change, growers were asked whether they agreed or disagreed with the statement that Western New York needs higher apple quality standards and stricter methods of monitoring quality (Table 5.10).

Table 5.10. Grower Attitudes Toward Quality Standards And A Method Of Monitoring Quality For Apples, Responses From 72 Western New York Growers, 1986.

Responses	Percent
Strongly agree	45.2%
Agree somewhat	39.7
Disagree somewhat	9.6
Strongly disagree	1.4
No opinion	4.1
Total	100.0%

Nearly 85 percent of the growers were at least somewhat positive to such a proposal. With such overwhelming support, it would appear that increasing quality standards and enforcement is a logical and acceptable component of any industry-wide marketing strategy.

Growers were also asked to suggest what their industry organization, the Western New York Apple Growers Association, should do to improve the market for apples. Again, five alternatives were presented along with the opportunity to volunteer suggestions. Respondents were asked to rank the alternatives from one to six. The results are presented in the following Table 5.11.

The aggregate rankings of the five alternatives presented were almost identical for both fresh and processed apples. For fresh apples consumer advertising was ranked first by 28 growers, while for processing apples it was ranked first by 24. Retail sales call and retail merchandising efforts were ranked first by 17 respondents for fresh and 16 for processed apples.

Again no single activity was repeatedly volunteered by respondents. Several alternatives were mentioned twice, and the suggestions were similar for both fresh and processed apples. They included: encourage more processors to locate

within the area, increase the advertising checkoff, establish
 Table 5.11. Aggregate Rankings Of Activities An Industry
 Organization Can Do To Improve The Market for
 Fresh And Processed Apples, Responses From 71
 Western New York Growers, 1986.

Activities	Aggregate Ranking For: ^{1/}	
	Fresh	Processed
Consumer advertising	2.2	2.2
Retail sales call and merchandising efforts	2.8	2.8
Retail advertising	2.9	3.0
Retail point-of-purchase materials	3.2	3.3
More information	4.0	4.0

^{1/} Aggregate response for growers asked to rank from 1 to 5
 the importance of each alternative.

a statewide advertising program for apples, conduct more
 out-of-state advertising, and encourage more new product
 development.

As indicated in a previous section, any marketing strate-
 gy should be based on the inherent strengths of the organiza-
 tion or the area. To determined what growers perceived as the
 their strengths, they were asked: "What is the most encourag-
 ing factor facing the members of the Western New York Apple
 Growers Association?" The results are presented in Table
 5.12. Since this was an open ended question, similar respons-
 es were grouped into categories. Any issue that was mentioned
 by more than two growers is listed in the table. Multiple
 responses were permitted.

There was wide spread recognition by growers that the
 demand for fresh apples had increased, and that quality was an
 important issue. The type and diversity of varieties, along
 with the potential of new varieties, were the next most
 frequently mentioned factors. The shift occurring among
 growers from producing for the processing industry to the
 fresh market was also pointed out. Favorable growing condi-
 tions and an increase in the number of young growers were also
 seen as positive trends for the industry. In an industry
 confronted with dramatic change, it is probably not surprising
 to find at least some growers that feel there is nothing to be
 encouraged about.

Table 5.12. The Most Encouraging Factors Facing Western New York Growers, Responses From 67 Western New York Growers, 1986.

Responses	Number Indicating
Increased demand for high quality fresh apples	12
Good and diverse varieties	9
New varieties	8
Growers switching to marketing fresh apples	7
"Nothing"	5
Favorable growing conditions	4
Increased emphasis on quality	4
More young growers	4
Increased demand for apples	3

Respondents were also asked to indicate the most discouraging factors facing Western New York growers. Again, this was an open ended question and multiple answers were permitted. A summary of the answers appear in Table 5.13.

The dominant negative factor was an oversupply of apples, presumably apples for processing. Only four other issues received mention by more than two growers, and all four were indicated only three times. They were: too many new trees being planted, processing apple prices being too low, lack of support from new growers, and the Western New York Apple Growers Association not changing with the times. In general, growers indicated a wider range of discouraging factors than encouraging factors. Some of the other factors mentioned include: no quality standards, difficulty in finding good labor, foreign imports, too high prices for poor quality fruit, and difficulty in getting fresh fruit to market in good condition.

A major activity of an industry promotion organization is developing and placing print, radio and television advertisements. In the apple industry, much of the advertising is placed during the fall harvest season. Since this survey was first mailed in November, it was decided to ask if growers had seen or heard advertisements for Western New York apples during the previous three month period. Of the 79 growers responding to this question, 85 percent had noticed advertising and 15 percent had not.

Table 5.13. The Most Discouraging Factors Facing Western New York Growers, Responses From 70 Western New York Growers, 1986.

Responses	Number Indicating
An oversupply of apples	18
Too many new trees being planted	3
Low prices for processing apples	3
Lack of support from new grower	3
WNY Apple Growers Association not changing with the times	3

Growers were also asked to rate on a scale from 1 (very effective) to 5 (not effective) their opinion of the effectiveness of the advertising they had noticed. The weighted average rating was 2.7, which can be interpreted as being "somewhat effective".

Miscellaneous Comments

Finally, several growers provided additional comments. The following indicate some issues not covered elsewhere in the study:

"A grower-packer can afford to grade for quality on the packing line, but a grower who is not a packer must control quality in the orchard."

"With more stores going to count apples, how can a customer know the origin of the apples. Therefore, consumer advertising is not helpful (in promoting apples from a particular region)."

"Is more control over production possible? What if a majority of growers pulled 20 percent of their old trees? Would we have a more favorable marketing position?"

"We should follow through with fieldmen promoting to the chains and markets."

"We should stop saying we have the best apples - we do not and never will."

"The biggest enemy is panic. Some growers do not look for a market until a week before harvest. Then they

accept the first deal, afraid they will be left without a home for their fruit."

"Rome trees should be cut down. This would increase the export of Empires."

Summary

In this section the characteristics and opinions of growers were presented and analyzed. A majority of Western New York apples are currently be used for processing, although there is significant interest in producing for the fresh market. Based on planting indications, the proportion of fresh apples are likely to increase in the future. The vast majority of apples are sold to packers or shippers, often based on an established relationship. There is wide recognition of the need for stricter quality standards for fresh apples. In addition, there seems to be general support among growers for their industry-wide promotion organization to continue the marketing activities they currently have underway with some fine-tuning of efforts.

Results from the processing survey are discussed in the next section.

SECTION VI

RESULTS OF THE PROCESSOR SURVEY

Seven processors were interviewed using open ended questions. It is estimated the processors included in the survey procure a majority of the processing apples grown in New York. Their replies are summarized below. A list of the interview questions are found in Appendix C.

Factors Impacting The Market For Processed Apples

A major factor affecting processors is poor profitability due to the declining consumption and saturated markets for many processed apple products. Special mention was made of standard apple sauce and apple juice. Almost every processor mentioned competitive market pressures, and general low profit margins.

However, almost every processor pointed out one bright spot. That is, the success of single-serve apple sauce. As one respondent expressed the situation:

Processing can be a viable industry if one is willing to invest in the market. We have demonstrated that volume, prices and margins can be improved. So a major factor is being willing to make the effort.

Although admitting that single serve apple sauce has been a success, at least one processor thought the market for this product was small and offers little long run potential for increased growth.

Three processors mentioned quality as a factor effecting the market for processed products. One thought there was a general lack of "quality consciousness" among processors. Another pointed out that when margins get tight, there is a strong incentive for processor to use a larger proportion of lower quality imported product, and this further discourages demand. On a positive note, one processor pointed out that buyers are becoming more quality conscious even with respect to processed product, and "raw product quality is the key" to satisfying their demands.

One processor pointed out the issue of Alar increases the risk in the industry. His point was that Alar has the potential to turn consumers against apples and apple products,

and cast a cloud over the industry. The truth of this statement has since become apparent.

Although there has been product innovations in the processing apple business and there is probably room for additional product development, there was a general feeling that current products have the potential for increased product differentiation and profitability. One processor indicated that products packaged in large sized containers have become a commodity business, but smaller sized packages continue to provide an opportunity for product differentiation.

Processing Varieties

Processor were asked to rank the primary varieties they use in their operations. The results are presented in Table 6.1

Table 6.1 Ranking of Apple Varieties for Processing, Responses From Seven Northeast Apple Processor.

Varieties	Rankings:				Aggregate Ranking ^{1/}
	1st	2nd	3rd	4th	
McIntosh	2	1			11
Rhode Island Greenings	2	1			11
Rome Beauty	1		2	1	9
Golden Delicious	1	1			7
Ida Reds			3	1	7
Red Delicious		2			6
Northern Spy		1			3
Staymen				1	1
Twenty Ounce				1	1
York				1	1

^{1/} In computing the aggregate ranking, first place was give a weight of 4, second 3, third 2 and fourth 1.

Based on their rankings the most popular processing varieties are McIntosh, Greenings, Romes, Golden Delicious and Ida Reds. The data coincide fairly well with the information obtained from growers, even though no volume data was obtained from processors and there may be a bias toward juice apples.

New York has three general types of apples: fresh, processing and dual purpose apples. Processors were asked if the processing varieties have any significant advantages not found in fresh varieties, and if their operations would be hampered by a reduced supply of the processing varieties.

The majority of processors felt that processing apples do have characteristics that are important to their operations. The primary characteristic mentioned was the firmness of these apple varieties. About half the processors indicated that they could not use fresh varieties in their operations due to their lack of firmness. Size was also mentioned as a positive attribute of processing varieties. But the respondents did not feel immediately threatened by a potential decrease in the supply of processing apples. Due to declining demand for processing varieties there was general agreement that there is sufficient supply to cover their needs for the foreseeable future.

The other half of the processors said they would like to use more fresh culls in their operations. The primary reason cited was to operate their facilities over a longer portion of the year by using cold storage culls. In addition, one processor indicated a desire to obtain more early season processing varieties in order to begin processing earlier. Another suggested a lack of good late season varieties.

Pricing of processed apples was an issue mentioned by three of the respondents. One processor indicated that one "problem" with processing and dual purpose varieties is that growers have a tendency to expect higher prices for these than fresh culls. Another suggested that some processing varieties (e.g. Twenty Ounce and Greenings) are over planted and this depresses the price for processing apples. A third indicated that his biggest worry was that modern horticultural practices, currently being used by a few growers, have the potential to increase production of existing trees by "25-50 percent over the next five years". The implication was that this would add significant downward pressure on prices.

Finally, one respondent indicated a desire to see increased research efforts devoted to developing a juice variety apple.

Source Of Processing Apples

Processors were asked to indicate the proportion of their apples coming from the Northeast. The information is somewhat difficult to aggregate due to the fact that apples are used for both processed products and juice. Producers of

juice often use foreign concentrate to blend with juice made from locally grown apples. Consequently, it was impossible to obtain a clear picture of the amount of foreign concentrate used by juice processors.

In any case, five of the seven respondents indicated that, excluding imported concentrate, the vast majority (i.e. 90%) of their raw product supplies come from the Northeast. The other two processors indicated that, in most years, 75 percent of their apples come from the Northeast. In early season, some processors obtain apples from the Southeast. Other important sources of apples include Michigan and Canada.

Acceptability Of Fresh Market Culls

To determine the acceptability of fresh market culls processors were asked if apples not meeting fresh quality standard would be acceptable for processing. All but one processor indicated that they would use fresh variety culls in their operations if they were available. A few indicated they are already do so. About half of the respondents had definite opinions about specific varieties. One indicated that all fresh varieties except Red Delicious could be used for processing, and if used would improve the market for fresh apples. Another indicated: "Unfortunately, I do not think processors know what good quality is. A lot has to do with varieties and too much use of McIntosh apples".

Important Quality Characteristics

Quality requirements vary according to the end product being made. Consequently, processors were asked to indicate the quality characteristics important to their operations. Their replies can be summarized as follows: size, firmness, soundness, no Alar, no bruising and no decay which would interfere with storability. While not all respondents mentioned all of the above, each characteristic was mentioned by a majority of processor. Producers of apple juice are also interested in a minimum brix level.

Technological And Product Developments

A major technological development could have a significant impact on an industry. Usually, such a development will reduce processing cost, reduce prices and increase demand for the product. In a similar manner, any new product development could increase the attractiveness of and demand for apple products. Consequently, processors were asked if they foresaw

any major technological developments on the horizon that might improve the economics of apple processing, or any new product developments that would stimulate demand.

In general, no revolutionary changes were anticipated. Several of the processors indicated that minor improvements in equipment and processing techniques are always taking place, but no single innovation appears on the horizon. As one process explained: "There are always new technologies. We feel we have the cutting edge in processing, and we plan to keep it. We keep track of the competition in order to maintain that edge".

A few of the processors saw potential changes occurring in processing technology that may allow them to improve the yield of apples they are currently receiving. Others indicated that changes in packaging could improve efficiencies in storage and transportation as well as increase the attractiveness of products to consumers.

One processor suggested there are several technologies currently available that are not being adopted due to low profit margins in the processing industry. Uncertainty about the future financial viability of the industry as impeded adoption of these techniques.

There was a general awareness among processors of the importance of product innovation. They realize that processed apples have become a commodity business. Two of the processors have recently introduced single serve apple sauce and their apparent success has not gone unnoticed by the rest of the industry.

While specific information was not requested, a majority of the processors indicated that they were currently analyzing, testing or about to make decisions on new processed apple products. It is uncertain whether any of these efforts will result in any new products that will significantly increase the demand for apples, but the most important aspect of new product development is the willingness to search out and try different ideas. The attitude observed during these interviews was in marked contrast to the attitude among apple sauce processor found in 1984 (Uetz et al). At that time, the financial stresses of the industry discouraged most of those interviewed from even considering any effort in new product development.

The Impact of Generic Promotion

Processors were asked to indicate their impression of the impact the generic promotion efforts of the Western New York Apple Growers Association has had on the market for processed products. Unlike generic programs for fresh products, most processed products carry the processors brand name or a private label. With one exception (i.e. a print advertisement that includes products made by the state's five primary apple processors) generic promotion efforts do not identify the brands of processed products using New York apples.

Six of the seven processors said it was difficult to identify the impact of generic promotion efforts. Based on trade contacts one processor felt certain the association's activities were "most effective". As one pointed out, probably the only way one would appreciate the true impact of the program would be if it were temporarily discontinued.

No processor was negatively disposed and most were very positive about generic promotion. Two were neutral. Those that were neutral had specific reasons for their reaction. One felt the market for processed apple products is fixed, and there is little that can be done to increase demand through promotion. Another felt brand advertising is more effective than generic advertising.

A few of the respondents felt merchandising activities are the most effective type of generic promotion. One processor thought it unfortunate there is no national advertising program for apples, "like for orange juice". Another indicated that they "make every attempt to tie in [their] advertising with the [association's merchandising] efforts".

One processor was extremely laudatory of the promotional activities of the Western New York Apple Growers' Association:

"Western New York does the finest job I have seen. They are the best generic program I am aware of. Consistency with the program is very important. They have the most effective in-store merchandising and [point of purchase] activities. Frequency is the key with print ads and mass media."

A related question asked processors to indicate what they felt would be the best use of the Western New York Apple Growers' Association's resources. There was no uniformity to their answers. Two suggested that more monies should be spent on fresh apples, because "that is where the money is". One respondent merely wanted to continue past efforts. One processor suggested to try promotions in cooperation with

retailers, with an emphasis on product quality. And another felt point of purchase materials have the greatest impact, given limited funds. It is interesting that no one suggested reducing the resources or radically shifting the effort.

The final question asked of processors was what they felt were the long term volume prospects for the Northeast apple processing industry. Some thought volume would decline, but most anticipated stable to slow growth. No one was very optimistic.

Several indicated specific trends to anticipate. For example, one processor expects:

Large growers to get bigger and small growers to fall by the way side...There will be more contractual agreements and orchard run arrangements.

Another suggested considerable consolidation will occur. A third realized that there would be greater emphasis on efficiency at the plant and farm levels, with good yields, good land and a low cost structure being the key to success. A fourth merely repeated the fact that poor margins for processors and growers discourage investment. Another hoped for a "big new product to come along".

Summary

The attitudes and perceptions of processors were discussed in this section. In general, processors purchasing New York apples have experienced poor profitability from processed apple products. However, they were modestly optimistic about the future. McIntosh, Greenings, Romes and Golden Delicious are the most popular varieties used for processing. Neglecting foreign apple concentrate, all processors obtained at least 75 percent of their apple supplies from Northeast growers. Even for them quality is important with firmness, size and soundness being the most important characteristics. However, a majority of processors felt they could use fresh market culls in their operations. Processors foresaw no major technological developments affecting the industry. Overall, processors were pleased with the activities of the Western New York Apple Growers Association and want to see them continue.

In the next section the results of the survey of retail produce managers is reported.

SECTION VII

RESULTS OF THE RETAILER SURVEY

Sixteen retailers were contacted through a telephone survey. In this section their responses to the questions asked are summarized.

The Advantages and Disadvantages of Apples

Retailers were asked to indicate the advantages and disadvantages of apples compared to other fruits in the produce section. The most common response was that apples have good shelf life and very little shrink. Other frequent responses were that apples are a high volume product (if not the highest volume fruit in the product section). One respondent indicated that apples are easy to obtain because there are several alternative packers. Moreover, they are available year around. As a result of the above factors apples are a very profitable product for retailers.

In addition to the economic aspects of apples, retailers mentioned several other advantages. There has been a positive health image associated with apples. Whether the health image has been affected by the recent negative publicity concerning Alar remains to be seen. In addition, retail produce managers indicated that apples add color to the produce section and complement other fruits very well. Being a versatile fruit with several potential uses by consumers was cited as another advantage. Apples are often impulse items. And there are a number of varieties.

When asked to indicate any inherent disadvantages of apples, a majority of retailers could not name any. Of those that did name one or more disadvantages there was little uniformity in response. The only common complaint was problems in getting consistent color, quality and/or supply. One retailer suggested that year round availability also has its disadvantages; "consumer do not get as excited about seeing apples as they do soft summer fruit". Another pointed out that bruising can sometimes be a problem.

Number of Various Types of Apples Carried

Retailers were asked to indicate the number of types of fresh apples carried. The results are presented in Table 7.1.

When the respondents indicated a range the mid point of the range was used. In most cases a range was given because more varieties and types of packaging (i.e. bulk, bagged, cells) are carried during the fall harvest season.

Table 7.1 Number of Types of Apples Carried, Responses From 16 Produce Managers In Retail Grocery Chains.

Responses	Percent Indicating
Less than 5	0%
5 - 8	37
9 - 12	44
More than 12	19
Total	100%

Most retailers indicated they try to carry nine to twelve different varieties and/or types of packaging. Those stocking fewer types of apples also had less variation in the number carried during the year. Available shelf space limits the number of types carried.

The Major Attributes of Apples

Retailers were asked what factors they felt influence consumers purchase of apples. Visual appearance was the overwhelming reply. Three quarters of the respondents specifically mention color, while two others suggested eye appeal. A few retailers felt waxing is an important component of eye appeal. However, five individuals pointed out color is only responsible for the initial sale. Thereafter the apple must deliver taste and flavor. One retailer used the Granny Smith variety to illustrate the important combination of color, taste and flavor. Other factors mentioned included: the absence of bruising, uniformity, aroma and freshness.

The factors considered by consumers in the purchase of apples is one thing, the factors that produce managers consider in buying product can be different, especially since the latter rarely have the opportunity to visually inspect the product until it arrives at the distribution warehouse. All the respondents indicated that quality is the primary factor considered. Many cited specific quality standards. But many produce managers qualified their reference to quality by indicating they depend on a close working relationship with

the packer. Other factors included: size, color, condition, uniformity of product, and delivery schedule.

Given that quality is such an important factor in the purchase of apples by produce managers, they were asked to compare the quality of New York apples, and specifically Western New York apples, with the quality of apples from other regions. Since some of the retailers included in the survey are not located in the Northeast, a few produce manager were not familiar with New York apples.

The general impression of retailers is that Western New York produces a very good quality apple, but not as good as Washington State especially with respect to Red Delicious and Golden Delicious. However, four respondents mentioned a significant improvement in Western New York apples over the last two to five years. One indicated that current quality is comparable to Washington State. Also important was the "interesting varieties" offered by New York packers. One retailer indicated that: "the Empire is a GREAT apple".

In addition to the qualitative attributes of apples, retailers were also queried concerning the services they are looking for from packers. Two services were named by several respondents. The one most often suggested was timely deliveries. The next most frequently mentioned service was "good communications" between the packer and the retailer. That includes packers learning what each particular buyer is looking for in his/her apples. Other desired services included: good waxing, no violations, more prominent use of the packer's name on the package, cooperative marketing program, and special promotions.

When asked what packers can do to better serve retailers' needs and increase the sale of apples, the responses were similar to that of the previous question. However, for this question there was more emphasis on promotional programs, both generic programs and programs by individual packers. It was suggested that generic programs be oriented at promoting the New York Seal of Quality and individual varieties. The Empire apple was specifically mentioned. Two respondents indicated that they receive a great deal of promotional support from Washington State organizations.

Retail produce managers also suggested that packers increase their participation in cooperative advertising programs, and realize that there should be price flexibility during promotional periods in order to increase volume. It was also pointed out that retailers need longer lead times (ideally 12 weeks) to set up promotional and merchandising programs. Also, it was suggested, based on successful

experience, that growers become more actively involved in promotional activities, for example via in-store demonstrations.

A few packers are currently spending a great deal of effort and resources to establish brand names on fresh produce. Consequently, retail produce managers were asked to indicate if they thought it was possible or desirable to attempt to establish brand names for apples.

Only two retailers thought it was a good idea, but even they qualified their approval. One indicated that customers like brand name products, but it can only be used on the highest quality products and it must be accompanied with a significant amount of promotion and advertising. The other retailer thought a brand name assures consumers of higher quality and this would be good for those consumers who rely on brand names to convey quality, but it is not applicable to all consumers.

A few respondents thought branding of apples was desirable, but not possible. They pointed out that it took SunKist 20 years to establish its brand name, that branding has not been successful for Campbell's mushrooms, and that consumers and retailers will be unwilling to pay for the additional costs involved. Others thought it was possible, but not desirable. They suggested that a brand name does not always convey a quality image, and that as apples shrink it causes labels to become imbedded in the skin.

A majority of retail produce managers suggested that growers and packers focus on improving the quality and consistency of their apples instead. This is particularly important due to the characteristics of the apple industry. That is, retailers stock apples from approximately the same sources throughout the year, and there is considerable regional variation in varietal preferences.

Packaging of Apples

Another topic of interest focused on the packaging of apples. One question asked retailers to estimate the proportion of apples they sold in bags compared to those sold loose or in bulk. The results are presented in Table 7.2.

A majority (56%) of the retailers sell a predominate share (more than 65%) of their apples loose or in bulk as compared to in bags. Bagged apples represented more than 55 percent of apple volume for only one out of the sixteen retailers.

Table 7.2 Proportion of Apples Sold Bagged and Loose, Responses From 16 Produce Managers In Retail Grocery Chains.

Responses	Percent Indicating
Less than 26% bagged, rest loose	19%
26-35% bagged, 65-74% loose	37
36-45% bagged, 55-64% loose	6
46-55% bagged, 45-54% loose	19
More than 55% bagged, rest loose	6
No response	13
Total	100%

Another question asked produce managers to outline what they perceived as the advantages and disadvantages of current apple packaging, and to indicate what can be done to improve the packaging of apples.

About half the respondents indicated they are satisfied with current packaging alternatives. However, a few indicated that they preferred one method of packaging (tray packs) over other methods (cell packs). Retailers also felt current packaging methods satisfy consumers needs rather well. Four produce managers expressed concern with bags. One felt bagged produce has a tendency to be bruised in transport, and two others suggested that bags encourage mishandling by personnel in the store. Two others pointed out bagged apples are more susceptible to damage because lower quality apples are usually put in bags.

Additional comments were elicited, mostly concerning bagged apples. One retailer expressed the desire to continue the practice of using clear bags (so consumers can see what they are buying), but greater effort should be made to make the variety, weight and uses of the apples more prominent on the packaging. Another retailer felt bags should be packed tighter to reduce the potential of bruising.

New Varieties

Over the last decade several new apple varieties have become available in the market. Retailers were asked if consumers have been made sufficiently aware of the attributes of these new varieties, and what more could be done to improve the sales of these new products.

Produce managers were nearly unanimous in their attitude that consumers are not sufficiently aware of new apple varieties. Three specifically mentioned Empires apples as an example. In contrast, three respondents pointed to the success of Granny Smith apples among consumers. One suggested there may be something inherent in the apple: "The Granny Smith speaks for itself because it is such a beautiful apple". Another three individuals mentioned the confusion among consumers caused by changing the name of Mutsu to Crispin.

Advertising and Promotion

Concerning what can be done the primary suggestion was increased advertising, promotion and demonstrations focusing on varietal attributes and uses. One respondent indicated that the industry should select a geographical target market, use television, radio and print media to compare the characteristics of key varieties, and then assure there is sufficient supply available in that market to meet demand.

When asked about generic point of purchase materials to inform consumers about apple attributes and uses, approximately half the retailers indicated they use them while the other half said they do not, use only those made in-house, or use them only occasionally. The reasoning of the latter group was that point of purchase materials can make a store look very cluttered. Of those that used them, respondents felt point of purchase materials were fairly to very important promotional activities, especially recipes.

Retailers were also asked how often they promote apples. Five managers indicated they promote some type of apples almost every week of the year. About half indicated they feature apples every week during the harvest season. With one exception, the remaining respondents indicated they promote apples an average once or twice a month.

When asked if generic advertising of fresh apples makes a contribution to their overall sales of apples, produce managers were unanimously positive in their response. The most negative comment was that generic advertising has made "some" contribution, "But I am not sure how much".

One retailer felt magazine and newspaper advertisements were the most effective, while another felt magazine promotions were not effective, but television did make a contribution. Two respondents pointed out that apples are often an impulse item, so advertising is rather important. Another felt advertising should be more directed at promoting new apple varieties. Finally, one manager indicated that:

Regional advertising which pits one region's apples against another is counter-productive. We must work together to increase the total consumption of apples. We can not continue to be so provincial. We like the idea of an independent grower/packer, but he no longer has the tools to compete. The only way we can successfully compete is to have larger packers and more generic advertising.

Finally retailers were asked what a regional industry-wide promotion and research organization, such as the Western New York Apple Growers' Association can do to help them sell more apples. Ideas mentioned by two or more retailers included: continue current advertising effort, target a specific geographic area and assure sufficient product is available, provide monies for cooperative advertising with retailers, conduct more in-store demonstrations and sampling, continue emphasizing the different uses of various varieties, and impress upon growers the importance of supplying high quality apples.

Summary

Retail produce buyers consider high volume, good shelf life and little shrink as the primary advantages of apples in the produce section. Few could think of an disadvantages. About two thirds of the retailers stock at least nine types of apples on a regular basis. Visual appearance is the major feature retailers thought consumers use in their purchase decisions. Most apples are sold loose or in bulk. Retailers are very enthusiastic about new apple varieties, but felt too little promotional effort has be devoted to the new varieties. In trying to advertise and promote apples retailers thought attention should be given to varietal attributes and uses. About half the respondents indicated they would not use generic point of purchase materials. In general, retailers were very positive toward the activities of regional advertising and promotion organizations.

SECTION VIII

OBSERVATIONS FROM THE WASHINGTON STATE APPLE INDUSTRY

Washington State is the leading producer and marketer of apples in the U.S. As part of this study several organizations associated with the Washington industry were visited and officials interviewed. The following is a summary of major observations from the Washington State apple industry.

Production

Growers in Washington State are planting more semi-dwarf trees. Soil conditions do not allow for a deep root stock, and dwarf trees achieve only stunted growth under these conditions. Also, growers are planting trees in rather low density. Plantings are estimated to average about 200 trees per acre.

New training systems are being developed to control tree size, to decrease the vigor of tree growth, and to train trees to fruit earlier. There is also interest in achieving the same results through the use of chemicals.

Washington State, as many other states, is trying to move away from the use of Alar. Tree Top has notified growers it would not buy apples treated with Alar. This could hurt some growers. Problems with water core were thought by some to be directly related to not using Alar. Some sources expect a company to develop an Alar clone, under a different name, that will become the new growth control mechanism.

In the future, labor supply will increasingly become a problem for Washington State. Compared to New York, Washington is very dependent on significant numbers of migrant workers.

Several interviewees felt that a major problem facing the Washington apple industry is absentee growers who operate orchards merely for their investment potential. There is a perception that many of these absentee growers do not have a long run interest in the industry, and this could create problems for the industry when surpluses arise and financial conditions become tight. Moreover, absentee growers are thought to be poorer managers of orchards than on site managers.

Another cultural practice that is changing is summer pruning. Apparently several growers in Washington have

limited or ceased summer pruning. Some consider it of questionable value.

Apple Quality

At least one individual close to the industry felt that U.S. quality standards are very outdated. He pointed out that current standards were established in the 1920-30's to provide minimum quality criteria. The respondent felt the industry needs to start over by determining what it is that contributes to a high quality apple, and devise standards around those criteria.

In Washington State quality is maintained at the warehouse (shed) level where quality is continually monitored by warehouse management. U.S. Department of Agriculture inspectors are on the premises of most large warehouses on a full-time basis. Every shipment that leaves these warehouses must be inspected.

Larger sheds also employ field personnel who advise growers on cultural practices, timing of harvest, etc.

Some respondents felt there was now adequate storage capacity in Washington State. However, it was suggested that some storage rooms are too big, and optimal capacity is about 1000 bins.

The Washington Apple Commission is not a marketing order, consequently it cannot institute quality control provisions. Although quality is of primary importance to the industry the Commission is powerless, by design, to directly influence quality.

One interviewer pointed out that the following factors should be considered if any new quality standards are established: pressure, soluble materials, starches, and mineral analysis.

Packing

There is a trend toward more centralized packing. Many packing houses have excess capacity they would like to fill in order to help pay for the high fixed investment in capital equipment such as pre-sorters, controlled atmosphere storage, etc.

Growers are paid when the fruit is packed and shipped. They are paid based on the wholesale price received minus

packing house expenses and the check-off. Growers have some input into whether or not their fruit will be sold immediately or put into controlled atmosphere storage for sale later in the year.

Many packing houses have field personnel as well as sales people. Field personnel work with growers on all aspects of production in an effort to produce apples of the highest quality. Field personnel are also charged with promoting the packing house and soliciting new growers who can deliver consistent quality.

At some packing houses growers may choose to have their apples placed in any one of several "pools". These pools differ according to the time of the year the apples will be marketed. By designating the time of year, growers also determine the type of apple storage. Growers make these decisions in consultation with the packing house manager. Factors considered include: the availability of storage capacity, market considerations, grower financial status, and apple "legs" (i.e. storability).

One new development being adopted by a few controlled atmosphere storage facilities is the forced pumping of nitrogen in to rooms. This hastens bringing rooms to ideal storage conditions.

Pre-sorting Operations

Pre-sorting of apples prior to storage is an operation that has yet to be perfected, but is being used by several packing operations. New pre-sort lines promise the ability to size more accurately than older technology. In addition the new pre-sorters will be able to pre-sort Golden Delicious, which now cannot be done on existing lines because the variety is too susceptible to bruising.

One respondent indicated that studies their organization have conducted show that packing houses must pack in excess of 1 million boxes of apples a year to justify the purchase and use of a pre-sort line. Cost estimates for pre-sort operations were in the range of \$3.0-3.5 million. There is at least one example of several packing houses jointly owning and using a single pre-sort facility.

A pre-sorter floats apples out of their bin and first runs them over a miniature sorter where small apples drop to a processing line. Next there is a manual sort where apples with imperfections (brown, bruised, pitted, etc.) are culled out. The pre-sorter then separates apples by color and

weight. The sorted apples are carried by conveyor to a machine which automatically places the correct amount of apples back into bins. Pre-sorted apples then go into cold storage to await later packing. Only a very small portion of these bins go into controlled atmosphere storage.

Pre-sorting allows flexibility in marketing. It eliminates the need to re-pack for special orders. Special orders are packed directly from the pre-sorted bins. The pre-sorter has the ability to distinguish blush and stripe colored apples. Pre-sorting is especially useful in meeting orders where specific colorings are preferred. Many packers that handle over 1 million boxes a year have a pre-sort operation.

Growers are charged for pre-sorting of their apples. In 1986-87 a charge of \$3.50 per box was common for fresh apples. Processing apples were charged only \$1.50 per box since many culls are eliminated prior to the pre-sort. Grower can decide whether to send their apples through the pre-sorter or have them sent directly to processing. On average, culling rates of 25-35% or higher are too costly for pre-sorting. High investment costs, increased time demands, and several growers wanting their fruit sized, requires efficient use of pre-sorters.

Pre-sorting allows packers to supply a consistent pack (blush, stripe, or exact size). In addition, it has permitted at least one packing house to move to a centralized facility and reduce the number of laborers from 450 to 150. That firm packs 600-800 bins per 9 hour shift. When the apples are pre-sorted they can be more efficiently run through high speed packing lines.

Varieties

There is little doubt about the varieties that will be produced by the Washington State apple industry in the next few years. Five respondents provided exactly the same reply. Washington will continue to feature Red Delicious apples.

The fate of Golden Delicious apples is more uncertain. Most of the interviewers indicated that Golden Delicious apples are more difficult to grow and feasibly market, due to bruising problems which detract from the final yield. While no one foresaw a major decline in the variety, some individuals interviewed felt there may be a slight decline in the plantings of Golden Delicious apples.

Market acceptance of Red and Golden Delicious apples is an important factor for continued reliance on these varieties,

but other issues are also involved. As one respondent expressed it:

I do not encourage growers to deviate too much from Red and Golden Delicious plantings because the conditions in Washington are best suited for those apples. In addition, the Washington State industry (and Extension Service) has built up a body of knowledge about these varieties, and we are therefore best suited to manage only these varieties. If a grower calls with questions regarding new varieties I do not have the knowledge to help them, although I am trying to acquire it.

In general, there appeared to be only moderate interest in planting new varieties. The varieties most often mentioned were Criterion, Jonagold, Gala, and Granny Smith.

Marketing

Despite what appears to be a well coordinated marketing strategy by the Washington State industry, one individual interviewed suggested the industry still lacks an integrated marketing effort. The Apple Commission is only permitted to engage in advertising and promotion. Shippers sell the apples. Consequently, there is no organization charged with overall the responsibility for coordinating a marketing program. As a result it was implied the industry was missing an opportunity to increase demand and returns.

Washington State is the mass marketer in the apple industry. What should be the role other states? One respondent felt that smaller packers (both in New York and Washington) can be financially successful by following a niche strategy; that is, finding a special role by offering unique apples and services.

One new marketing opportunity was identified; supplying not-for-profit organizations with apples to sell for fund raising events. It was pointed out that SunKist initially identified this market and has been very successful with it. The Washington apple industry has identified this market as having potential and is increasing emphasis in the area. It was suggested that the market for produce sold through fund raising organizations is very large.

Another suggested area for market growth was the food service industry. A study conducted by the Washington Apple Commission indicated significant potential, but the recommendations were never implemented. In 1986-87 the Commission

will spend about \$450,000 on this market. The program includes sending out public relations kits to food service firms. Other promotional efforts are being aimed at consumers in hotels, restaurants, and food service. A study is planned to determine if the perception of apples among food service firms has changed as a result of these activities.

Another element of the Washington marketing program includes targeting the convenience store market. One way used to access this market is the development of a "fresh pack", a clear plastic egg carton type box with an individual apple. It was suggested that convenience stores pose a unique marketing challenge. Establishing a distribution channel is particularly difficult. A large sales force is needed. Shelf space, especially refrigerated shelf space, in convenience stores is scarce and difficult to re-stock.

Washington State has established Universal Product Codes for all bagged apples in the state, and retailers have been notified. Work has been completed for the uniform implementation of the program at the retail level.

Branding Of Apples

Brand names have begun to appear on several types of produce. Consequently, representatives from the Washington State apple industry were queried about the potential of fresh produce branding. Their responses were mixed.

One respondent felt branding was not a good idea because it is impossible to control quality to the extent necessary. As an alternative the Washington Apple Commission has encouraged identification on shipping cartons that the apples were produced in Washington.

Another interviewee expected branding will grow. He indicated that a few large packing houses in Washington are currently branding all their apples. He believed this trend will continue. He felt consumers have responded favorably, and will come back and look for the brand on repurchase if they were satisfied with the original purchase. It was pointed out that those packing houses that do brand apples supply a consistent quality and the services that go along with a branded product. Moreover, it was indicated that in some markets, specifically the Far East, brand names are very important to consumers, and are therefore a prerequisite for making a sale.

Packaging

Two respondents estimated that 90 percent of Washington apples are sold loose in boxes, while the other 10 percent are marketed in bags.

The Washington Apple Commission

Technically the Washington State Apple Commission is a state agency formed in 1937, and not a marketing order. It is one of the oldest commodity groups in the nation.

In 1986-87 growers were assessed \$.20 per box of fresh apples. The check-off is collected by the warehouses and deducted from grower returns. Warehouses are billed by the Apple Commission based upon the number of boxes shipped. The \$.20/box charge was raised to \$.23 in 1988-89, and will increase to \$.25/box in 1990-91. There is no check-off on processed apples.

The Commission has a thirteen member board of directors; nine are elected by growers, and four by shippers. The board meets on a monthly basis. The Commission is empowered to conduct marketing activities; primarily advertising and promotion. They cannot carry out political lobbying or horticultural research. They do, however, some marketing research. The Commission has sixteen full-time employees at headquarters, sixteen retail field representatives in the U.S, and a sales representative in Rotterdam. The individual in Rotterdam is attempting to "break into the U.K. market."

In 1986-87 the Apple Commission had an operating budget of \$10.5 million. The crop in that year was approximately 58 million boxes.

The Commission's primary objective is to improve market conditions and the quality of apples. Consequently, it recommended minimum soluble standard in 1986, and minimum pressure tests in 1987. A third priority is to establish and monitor core temperature standards. The purpose of these measures is to improve apple quality and, as a result, consumption. Some felt circumstances are ripe for increased consumption of apples. It was noted that consumers generally have a good image of apples. This situation has been at least temporarily impacted by the recent publicity surrounding the use of Alar.

Apple Commission merchandising personnel report to the Commission once a week on market conditions. These reports are then sent out to growers and shippers. The system of information exchange and the sophisticated merchandising

network are considered the two most important factors in Washington State's success in the apple industry.

Informational Services

There exists an information pool for the Washington State apple growers. Growers pay a subscription and anonymously provide weekly apple shipment information. In return subscribers receive a weekly report on apple shipments in the state by variety, size, grade, and (f.o.b.) price. However, it was suggested that there is still a general lack of information regarding varieties of trees in the ground, which varieties are currently being planted, and where apples are being shipped.

The Commission's communications with members include a weekly bulletin which reports from each of the field merchandising personnel. Field personnel report on retail prices as well as market conditions for Washington and competing apples. They also report problems and leads for additional sales opportunities. These reports are often accompanied by a general letter from the Commission. Specific problems reported from the field are not reported in the newsletter, but are handled by telephone. The newsletter is primarily sent out to shipping houses, and not to growers. Every other month a newsletter is sent out to all members and provides general information on the industry.

Despite this market information, at least one individual expressed concern about growers feeling their job ends after the apples are grown and put on trucks to packers. There still exists a general lack of interest in what is happening at the retail level, and what the Commission is doing to improve the market for apples. This interviewee suggested that if growers would become more informed about the whole marketing system it would make for more effective performance in the marketplace.

International Trade in Apples

One respondent who recently returned from Europe indicated that market would be a very difficult to enter. However, he and another interviewee felt there is substantial potential in the Far East, and especially in Japan. But another individual pointed out that Chile is likely to begin shipping heavily into the Far East and this will have a negative impact on Washington's efforts in the area.

Another individual did not foresee significant increases in the export of apples. For example, recently there was a substantial reduction in exports to Saudi Arabia. It was estimated that 10-20% of the Washington apple crop is, and will continue to be, exported. One factor mentioned was the industry's unwillingness to make long term commitments to export markets at the expense of the domestic markets in short seasons.

There was no major concern about imports of foreign fresh apples, but the concern about the imports of foreign apple concentrate continues.

Miscellaneous Issues

One packer packs under the firm's brand name, and two other brands. The philosophy is if a buyer becomes disgruntled with one brand, for any reason, the firm can offer to ship another brand. This essentially gives the packer three tries with every buyer.

Several packers employ field personnel. Their responsibilities include assuring that growers produce high quality fruit (by using appropriate growing, pruning, and trimming techniques, as well as new plantings), that the fruit is harvested at the right time, and that the fruit is put to its best and most economical use. Field personnel do not make spraying recommendations, except under unique circumstances. Field personnel are also charged with recruiting new growers and serve as the communications link between the packer and its growers.

Summary

Washington State is the dominant marketer of fresh apples. The state's production is expected to increase, with Red Delicious continuing to be the major variety. Packing sheds control apple quality. Pre-sorters are used by several packers, but such operations have significant economies of scale. While some packers are branding apples via stickers, the long run viability of this practice received mixed reviews. The Washington State Apple Commission has recently increased its check-off and spending on fresh apple marketing. In summary there is every reason to believe Washington will continue to be the dominant force in fresh apple markets for the foreseeable future.

SECTION IX

PROJECTIONS OF APPLE PRODUCTION

The purpose of this section is to discuss the procedures used to project apple production in primary producing states to the year 2000, and to present the results of those projections.

The Methodology

In developing a marketing strategy it is useful to have an idea of the production expected in future years. For this study projections were done for New York State, as well as most of the states that are New York's primary competitors.

While it is never possible to predict future production with certainty, knowing general trends can be useful for planning purposes. However, it must be stressed that the projections presented in this section are only estimates of future production. The projections are based on several assumptions that have an extremely important impact on the results. The primary assumptions used as basis for the estimates are presented below.

The model used was developed by the Western New York Cooperative Extension Fruit Team to project Western New York apple production. It has been adapted to estimate production of various state by using data published in the Orchard and Vineyard Surveys of major apple producing states.

The method projects production based on acreage of apple trees and average yields in a base year, which is the year the Orchard and Vineyard Survey was conducted in each respective state. To account for the changing age distribution of planted trees production is converted to "mature production equivalents". In addition, tree plantings in the year of the Survey are used to estimate future plantings. The one major unknown is tree removal rates. Consequently, two removal rates of trees were computed. Low removal rates result in the "High" projections and high removal rates produce the "Low" estimates.

Procedures and Assumptions

The following procedures and assumptions were used in the model:

- a) The number of trees per acre for trees of all ages was calculated based on the total number of trees and total acreage of apples. This was done for both standard and dwarf (including semi-dwarf) trees.
- b) Total production was obtained.
- c) The number of "mature acre equivalents" was calculated by multiply the numbers acres for each age class of trees by the following assumed mature production equivalents. This was done for both standard and dwarf trees.

<u>Age (Years)</u>	<u>Mature Production Equivalents</u>
1- 6	0.00
7-11	0.33
12-21	0.67
22+	1.00

- d) The yield per acre of mature equivalent trees was computed by dividing total production for standard and dwarf trees by the number of mature equivalent acres.
- e) Planting rates for the most recent year, as given by the Orchard and Vineyard Survey, were assumed to continue in the future.
- f) Two removal rates were assumed for mature trees (i.e. those 22 years and older). In the results presented a "High Estimate" represents a one percent tree removal rate and the "Low Estimate" denotes a five percent removal rate.
- g) The base year for all states was assumed to be 1986. All projections are indexed, with actual or estimated production in 1986 being 100.

The projections presented contain several build-in assumptions. They include:

- a) The per acre yield in the year used for computation was representative for the state and variety.
- b) Planting patterns in the year the Orchard and Vineyard Surveys were conducted will continue at the same absolute rate through the year 2000.

- c) The production equivalents used are an accurate estimate of the average production capacity of trees of those ages.
- d) Removal rates will remain constant to the year 2000, irregardless of production and prices in prior years.

The Results

Again, the reader is reminded that the projections reported contain several restrictive assumptions and represent only one way to estimate future production. It is thought that the results presented may over estimate what will actually happen. The primary reason for making this assertion is that for most states the model projects a significant increase in production. The model does not include any economic data, only production data based on the past planting behavior of growers and the assumptions spelled out above. If in fact over production does occur prices will fall and trees will probably be removed or abandoned at an increased rate. This in turn will reduce future supply.

Projections of total production for the major apple producing states are presented in Table 9.1. "High Estimates" indicate a tree removal rate of one percent and "Low Estimates" denote a removal rate of five percent.

A major increase in production is projected by all producing area under both assumptions of tree removal. Fortunately, the two states with the greatest projected increases in production are those with the lowest current production; that is, South Carolina and Oregon. The projections for Washington indicate production could double by the year 2000, and the state already has the dominant share of U.S. volume. Other important producing states illustrate about the same trend in production as New York with increases between 60-70 percent.

The general conclusion to be derived from Table 9.1 is that all the primary apple producing states are likely to increase their production of apples in the near future. Due to lack of data, no projections were made for states that are minor producers of apples. It is probably reasonable to expect that apple production will decline in those states. This assumption is based on the general trend of agricultural production concentrating in those areas most suited for a particular product. On the other hand, financial stress in

Table 9.1 High and Low Projections of Volume of Apple Production in Selected States, 1986-2000, (1986 = Index 100).

State and Estimate	1986 Production (1000 Bu.)	1986	1988	1990	1995	2000
New York	21,429					
High		100	110	119	143	166
Low		100	106	111	125	138
Washington	73,810					
High		100	122	142	190	233
Low		100	120	137	177	208
Michigan	16,667					
High		100	110	121	149	178
Low		100	107	114	133	153
Pennsylvania	14,762					
High		100	110	120	145	170
Low		100	107	114	131	146
Virginia	10,952					
High		100	107	114	132	150
Low		100	104	108	118	126
North Carolina	2,857					
High		100	110	121	147	174
Low		100	108	115	134	150
Oregon	2,500					
High		100	125	151	217	288
Low		100	124	147	206	265
South Carolina	714					
High		100	138	188	331	509
Low		100	137	184	321	488

the agricultural community has forces many non-traditional producing areas to experiment with new crops.

Table 9.2 shows the projections of apple production by variety for New York State. Crispin and Empire are the two varieties that are likely to experience the most growth in production increasing three to four times current levels. On the other hand, processing varieties are most likely to decline. Included in this group are Rhode Island Greenings and Twenty Ounce. All other varieties are likely to exhibit a moderate increase in supply.

Table 9.3 and 9.4 present estimates by variety of future supplies for Western and Eastern New York, respectively. The trends for New York are more or less repeated in the two regions. However, fresh varieties will likely experience a greater increase in production in Western New York, while there will be a greater decline of processing varieties in Eastern New York.

Projections for various states by variety are show in Table 9.5. Not all states or varieties are included; only those for which data was available to make a projection. However, it is interesting to note that Red Delicious will constitute a significant portion of the increased production in Washington State. This, along with the information obtained from Washington officials, indicates that Washington will not be competing with the same varieties as New York.

Summary

Although accompanied with a great deal of uncertainty, the general conclusions to be drawn from projections of future supply are:

- Based on the assumptions used to make the estimates, most major producing states are likely to increase the supply of apples over the next decade,
- Washington State will become an even more important supplier of apples in the future. However, every indication is that Red Delicious will be the primary variety in Washington and it will not be competing with the same varieties as New York,
- In New York a significant increase in new varieties (i.e. Empires and Crispins) should be expected, and

Table 9.2 High and Low Projections of Volume of New York Apple Varieties, 1986-2000, (1986 = Index 100).

Variety and Estimate	1986 Production (1000 Bu.)	1986	1988	1990	1995	2000
Red Delicious						
High		100	110	118	140	159
Low		100	106	111	123	131
McIntosh						
High		100	108	117	139	163
Low		100	104	108	120	133
Empire						
High		100	131	162	241	323
Low		100	130	160	235	307
Winesap						
High		100	103	105	108	107
Low		100	98	95	86	72
Crispin						
High		100	132	171	284	423
Low		100	131	168	275	403
RI Greening						
High		100	101	102	102	101
Low		100	95	90	77	66
Twenty Ounce						
High		100	102	104	107	108
Low		100	97	94	86	75
Cortland						
High		100	106	113	130	148
Low		100	101	103	109	117
Idared						
High		100	112	123	148	166
Low		100	110	119	136	143
Rome						
High		100	108	115	133	149
Low		100	104	107	114	119
Staymen						
High		100	109	118	138	154
Low		100	106	111	121	126
Jonathan						
High		100	109	117	138	159
Low		100	105	109	120	130
Golden Delicious						
High		100	106	112	127	142
Low		100	102	103	107	112
NY Total	21,429					
High		100	110	119	143	166
Low		100	106	111	125	138

Table 9.3 High and Low Projections of Volume of Western New York Apple Varieties, 1986-2000, (1986 = Index 100).

Variety and Estimate	1986	1988	1990	1995	2000
Red Delicious					
High	100	111	121	145	166
Low	100	108	114	129	140
McIntosh					
High	100	110	121	149	178
Low	100	106	113	131	150
Empire					
High	100	132	166	256	354
Low	100	132	165	250	337
Winesap					
High	100	104	106	111	110
Low	100	100	97.5	90	76
Crispin					
High	100	132	170	280	416
Low	100	130	167	271	397
RI Greening					
High	100	101	102	102	101
Low	100	95	90	77	65
Twenty Ounce					
High	100	102	104	107	108
Low	100	97	94	86	75
Cortland					
High	100	108	118	142	168
Low	100	104	109	122	138
Idared					
High	100	112	123	149	168
Low	100	110	119	137	145
Rome					
High	100	108	115	132	147
Low	100	103	106	113	117
Staymen					
High	100	117	135	184	239
Low	100	112	126	165	210
Jonathan					
High	100	107	115	134	155
Low	100	103	107	116	126
Golden Delicious					
High	100	106	113	128	143
Low	100	103	105	110	114

Table 9.4 High and Low Projections of Volume of Eastern New York Apple Varieties, 1986-2000, (1986 = Index 100).

Variety and Estimate	1986	1988	1990	1995	2000
Red Delicious					
High	100	109	116	136	153
Low	100	105	109	117	124
McIntosh					
High	100	111	123	152	184
Low	100	108	116	136	156
Empire					
High	100	129	157	227	295
Low	100	129	156	221	279
Winesap					
High	100	101	102	102	100
Low	100	96	91	77	63
Crispin					
High	100	139	185	317	482
Low	100	138	183	311	465
RI Greening					
High	100	101	101	101	98
Low	100	94	88	73	59
Twenty Ounce					
High	100	98	96	91	87
Low	100	90	81	62	46
Cortland					
High	100	103	106	114	120
Low	100	97	95	90	85
Idared					
High	100	111	120	141	153
Low	100	109	116	129	130
Rome					
High	100	109	116	135	151
Low	100	105	109	118	123
Staymen					
High	100	108	116	131	142
Low	100	105	109	115	115
Jonathan					
High	100	99	97	94	90
Low	100	92	84	65	50
Golden Delicious					
High	100	105	110	125	142
Low	100	100	100	103	109

Table 9.5 High and Low Projections for Selected Varieties
in Primary Producing States, 1986-2000, (1986
= Index 100).

Variety and Estimate	1986 Production (1000 Bu.)	1986	1988	1990	1995	2000
Washington						
Red Delicious	38,000					
High		100	121	140	184	222
Low		100	119	136	172	198
Total	73,810					
High		100	122	142	190	233
Low		100	120	137	177	208
Michigan						
Red Delicious						
High		100	112	124	157	193
Low		100	108	118	142	169
McIntosh						
High		100	110	122	151	182
Low		100	107	114	134	156
Winesap						
High		100	103	106	112	118
Low		100	98	96	91	86
RI Greening						
High		100	104	106	113	116
Low		100	100	99	94	87
Cortland						
High		100	107	115	134	156
Low		100	103	106	115	127
Idared						
High		100	118	139	192	251
Low		100	116	134	181	230
Rome						
High		100	115	130	170	212
Low		100	112	124	157	189
Jonathan						
High		100	102	104	108	111
Low		100	96	93	89	78
Golden Delicious						
High		100	104	106	111	111
Low		100	100	99	94	84
Michigan Total	16,667					
High		100	110	121	149	178
Low		100	107	114	133	153

Table 9.5 (Con't) High and Low Projections for Selected Varieties in Primary Producing States, 1986-2000, (1986 = Index 100).

Variety and Estimate	1986 Production (1000 Bu.)	1986	1988	1990	1995	2000
Pennsylvania						
Total	14,762					
High		100	110	120	145	170
Low		100	107	114	131	146
Virginia						
Total	10,952					
High		100	107	114	132	150
Low		100	104	108	118	126
North Carolina						
Red Delicious						
High		100	109	117	139	159
Low		100	106	112	125	134
Golden Delicious						
High		100	113	125	158	191
Low		100	110	120	146	168
Rome						
High		100	113	127	164	204
Low		100	110	121	150	180
Staymen						
High		100	107	114	131	148
Low		100	103	107	114	121
Others						
High		100	114	129	168	212
Low		100	111	124	155	190
Total	2,857					
High		100	110	121	147	174
Low		100	108	115	134	150
Oregon						
Total	2,500					
High		100	125	151	217	288
Low		100	124	147	206	265
South Carolina						
Total	714					
High		100	138	188	331	509
Low		100	137	187	321	488

- Traditional processing varieties in New York are likely to decline in volume.

SECTION X

STRATEGIC ALTERNATIVES FOR THE NEW YORK APPLE INDUSTRY

The purpose of this project has been to provide background and identify alternatives for a marketing strategy for the New York apple industry. Previous sections have described the characteristics and attitudes of growers, processors, retailers, and a competing area. This section is devoted to outlining alternative strategies for the apple industry.

The issues presented below were presented to and discussed with the long term planning committee of the Western New York Apple Growers Association. The first part of the section presents a summary of those discussions. The second part of this section presents a list of recommended actions.

The Marketing Alternatives

The marketing alternatives are separated into seven areas: target marketing, an industry identity, quality issues, grower issues, fresh marketing issues, processing issues, and organizational issues.

Target Marketing

One of the primary elements of a marketing program is to target customers. Several issues concerning a target market were identified.

The typical strategy for most small and medium sized regional associations is to focus on the geographic area where they are located. For the Western New York Apple Growers Association this market is from Erie, Pennsylvania to Utica, New York. That geographical area is the historic and core market for most firms located in the region. By focusing on the local market growers have an opportunity to see and hear the activities they are financing. Moreover, it may be more economical and easier to service this market than more distant markets. In addition it may be easier to obtain and keep the support of the trade, because they realize they are the association's primary customers.

However, there are also disadvantages with such a strategy. One disadvantage is that the market is relatively small compared to supply. As one participant indicated: "If we could sell all our apples in Western New York, we would". Another disadvantage of focusing on the local market is that with no diversity in geographic markets, prices may tend to

exhibit more variability as supply and demand conditions change.

Given the increased emphasis on fresh market apples there appears to be general support for pursuing a dual targeting strategy. That is, to continue emphasizing the traditional core market, while selectively targeting more distant markets. Such a strategy may even include focusing on specific buyers in the distant geographical areas. If additional funding were to be available, it is suggested that the additional resources be devoted for additional distant markets.

It is suggested that the Association, in consultation with area growers and packers, annually select one specific distant market for such an effort. Among the factors to be considered should be: a) a concentrated geographic area, b) few local growers, and c) a history of interest in varieties similar to those grown in Western New York.

The key to successfully pursuing such a strategy is a coordinated marketing effort. This includes an overall advertising and promotion program accompanied by growers, packers, shippers and even processors establishing and developing trade contacts within the selected market.

It is essential that a sufficient supply of appropriate quality apples and apple products be available to accompany such a marketing program. Moreover, the marketing effort must be a long term commitment and not merely a short term activity. It is essential that buyers realize they can depend on a constant and consistent supply of the type of apples they desire. If there are likely to be problems in servicing the area on a year round basis, those problems should be identified and discussed with the trade at an early stage. Meeting these requirements implies greater coordination of supplies between growers, packers and shippers. It is suggested that this coordination be handled directly by the parties involved, whenever possible. The primary role of the association would be to provide advertising, promotion and merchandising support in the selected area. In addition, the association should provide frequent market reporting from that market. However, the most important role the association can play is in providing leadership in the implementation of such a strategy.

Another key to the success of targeting distant markets is obtaining the support of shippers. Shippers are those who will continue to be the ones responsible for developing the working relationships with the trade, for making the sales, and for delivering the product and service.

While such a strategy would primarily involve the marketing of fresh fruit, it could also be complemented with marketing efforts for processed products.

Finally, a strategy of targeting selective distant markets requires the understanding of growers. Consequently, growers must be kept informed of such activities. Moreover, emphasis should be given to the impact expanded demand has on market conditions in the local area. In other words, even a grower that is producing processed apples should realize that selling another local grower's fresh apples in a market distant market should have a positive long run impact on the local market for processed apples.

Identity

Most regional advertising and promotion organizations attempt to develop a regional image for their product. In New York, this is more difficult than in most areas because there are two advertising and promotion organizations: the Western New York Apple Growers Association which serves growers west of Herkimer County, and the New York and New England Apple Institute serves growers in the counties east of Herkimer County.

The existence of two New York organizations can be confusing. This was specifically mentioned by two individuals contacted in the retail survey. Since they were located at some distance from New York and had no direct contact with either organization, they were aware of but unfamiliar with both organizations. However, the opposite was true of retailers that had contact with one or both organizations. They indicated that each organization and geographical area did have specific and unique images. Consequently, it is recommended that each association continue to develop their unique image with the trade by emphasizing the area where their apples are produced.

With two New York organizations it is more difficult to create a unique image in the minds of consumers, especially if that desired image is related to the origin of a product. At the same time, there may be latent marketing potential in presenting a united New York image. For example, it may be easier to promote Empire apples as "the New York variety". Although there may be negative connotations associated with New York City, trying to develop an image of being the "Big Apple State" may also offer opportunities.

However, it is recommended that developing an image in the minds of consumers concentrate on the apple varieties produced in each state, rather than trying to create an

identity for the region or association sponsoring the advertising and promotion.

Quality Issues

Quality is probably the most important element of any product strategy. As evidenced by the surveys, the importance of producing and marketing high quality, uniform apples is well understood and appreciated by growers, retailers and processors. A promotion and advertising association must provide leadership in stressing the importance of quality.

There are two general ways to increase quality. One is to let the market provide price incentives and disincentives to improve quality within existing standards. This is the strategy currently being used. One disadvantage is that the quality demands of the market are higher than official minimum standards. Consequently, minimum standards may not satisfy the wants and needs of consumers to the extent they should. Moreover, it takes a long time for a market to adopt a pricing mechanism that generates appropriate premiums and discounts and achieves the desired results. In addition, there is no guarantee that all growers, packers and shippers will abide by the higher quality standards sought by the market. As a result, a small number of market participants could give an entire industry a "bad name" by supplying apples that meet only minimum standards.

The alternative is to establish higher quality standards for the entire or a portion of the New York industry. This could be done by requesting a marketing order with quality provisions. The standards could include minimum requirements in terms of color, size, soluble solids, and condition. Grower approval would be required of any proposed marketing order as well as additional financing to inspect and enforce the higher quality standards.

As a means of assuring higher quality standards there may be a need for some regulation of controlled atmosphere storage facilities. There was some indication that it may take too long to fill controlled atmosphere rooms. Apparently there are new technologies using nitrogen that speed the filling of rooms. This technology could be a substitute for added regulation.

Grower Issues

There was general agreement that apple growers should become more customer and market oriented. The goal of encouraging growers to become more market oriented is to adopt production techniques that more likely will result in apples that satisfy customer wants and needs, particularly with

respect to quality. It is suggested that grower associations take a more active role in providing information to growers about the needs of the market.

Another alternative is to establish a system of field personnel to provide advise and suggestions concerning cultural and harvesting practices. Private organizations in Washington State have field personnel that provide this service, as do apple processors. The primary reason Western New York packers and shippers currently do not have field personnel is probably because they feel they are too small to afford this service.

As packing and shipping operations increase in size it is logical to expect that specialized field personnel will be hired to provide technical advise to growers. Grower associations should encourage private firms to seriously consider this alternative, but probably should not become directly involved in this activity.

A delicate issue is what role an association should play in encouraging growers to expand their production of any specific type of apples, such as fresh varieties, and if an association should recommend specific varieties. These are two separate issues.

Currently, growers are discouraged with the market for processed apples, while fresh apples seem to offer greater long run potential. In addition the demand for fresh apples appears to be increasing. At the same time, New York processors are beginning to see the rewards of more aggressive product innovations, and new technologies and products are anticipated.

It would be a disservice if growers are encourage to reduce their acreage of processing fruit and increase their acreage of fresh fruit, only to find a major shift in current market trends. Moreover, it was pointed out that changing from growing processed apples to growing fresh apples is not a simple task. Growing fresh apples requires greater attention and different production techniques. Despite the disadvantages, it is suggested that grower associations in consultation with shippers and processors identify a limited number of fresh and processing varieties. In addition there should be increased emphasis on producing high quality fruit, both for the fresh market and processing usage.

Fresh Market Issues

The fresh apple industry in New York is characterized by hundreds of growers and several small to medium sized packing

houses. Apples are sold to a large number of retailers, most operating several stores. Fresh produce requires significant care and attention at each stage of the market channel. However, the structure of the market makes control of quality extremely difficult. While grower associations should provide leadership in increasing the consciousness of growers, packers, and retailers concerning quality, packers should be encouraged to assume ultimate responsibility for apple quality in the industry.

While a packer can not assume total responsibility for the handling of apples after they arrive at buyer warehouses, they should be encouraged to assume increased responsibility for the product they ship. There was some indication from retailers that this is currently being done by a few packers. Such a strategy would encourage packers to work more closely with growers and buyers to assure that consumers receive the types and qualities of apples they demand.

It was suggested that enforcement of quality standards may vary with the size of the crop. In other words, in seasons with poor crops, inspection is less stringent than in seasons with ample supply. Such a practice does damage the reputation of an industry, and reduces long run returns. Buyers may reduce their purchases or prices offered if they are not assured they are receiving the quality they think they are buying. Consequently, grower associations should also encourage packing house inspection which includes pressure and soluble solids as a factor of grade.

If Western New York is to increase its emphasis on fresh market fruit, sufficient storage space is required to service customers on a year around basis. Apple processors occasionally use apple storage facilities, thus limiting the amount available to fresh fruit. Building and operating additional cold storage and controlled atmosphere storage facilities is completely the domain of private firms. However, grower associations can emphasize the need for additional controlled atmosphere and cold storage facilities.

Processing Issues

It is extremely difficult to develop generic advertising and promotion programs for processed products. The reason is that processors are primarily interested in developing their brand franchise through their own marketing programs. Therefore, greater experimentation should be encouraged to find unique ways to increase the sales of processed product.

An important way to increase the demand for processed apple products is to publicize alternative dishes where those products are used as an ingredient. Two specific methods

currently being used include developing receipts and distributing information to food editors. These efforts should be continued at their current levels.

Primary focus should be on developing merchandising programs for and with grocery managers and food service buyers. The objective would be to increase the sale of processed products using New York apples. Such an effort may require the cooperation of processors to, for example, provide information on the impact of these efforts on sales. Another alternative may be to use video tapes that show various dishes that can be made from processed apple products. A third alternative could be for grower associations to co-sponsor, along with processors, a tour by grocery managers to New York State processing facilities. A final alternative is to experiment with cooperative advertising on a limited basis.

Since new ideas are needed, experimentation should be encouraged. Moreover, unsuccessful activities should be expected and not looked on critically.

Organizational Issues

A small advertising and promotion association has limited resources. In addition, as a democratic organization that is subject to periodic approval by growers, there is a tendency for an association to become involved in a wide variety of activities. It is easy to take on too many marketing initiatives in an attempt to satisfy all possible constituencies. Moreover, pressures may encourage such associations to become involved in some activities that are only indirectly related to the organization's primary purpose. Activities not directly related to increasing the demand for apples should be continually reviewed and discontinued if they are not directly related to the main objective of the organization. In addition, growers should be constantly reminded of the mission of the association, and informed the organization will not become involved in secondary activities.

It is essential for all organizations to have a written marketing plan, including objectives, goals and strategies. Therefore, it is recommended grower associations annually develop a marketing plan for board approve. This marketing plan would be a complement to the organization's media plan. The marketing plan should include the activities to be carried out, their timing, and the amount of resources, both financial and in terms of personnel, devoted to each activity.

Even large organizations with significant resources have difficulty measuring the performance of their advertising and promotion efforts. Given its limited budget, it is unrealistic to expect the New York associations to gather or purchase

formal data that measure the effectiveness of their marketing programs.

But some method of evaluation is needed. Therefore, it is suggested that an informal system be developed. This could merely consist of annually sending a one page questionnaire to packers and processors to obtain their attitudes about the marketing activities carried out over the last year. Such a system will become more valuable after two or three years of data has been assembled.

The evaluation should be based on the marketing program for the most recent year. While it may be impossible to determine the effectiveness of all marketing activities, comparing the informal evaluation results with the resources devoted to each activity could help the board to determine whether or not the results are worth the costs.

Summary of the Alternatives

The above discussion was meant to review alternative courses of action open to a regional advertising and promotion organization, such as the Western New York Apple Growers Association. In the remaining portion of this section, underlying assumptions are spelled out, a mission statement and general objectives are presented, and specific strategies recommended.

A Proposed Marketing Strategy

Underlying Assumptions

All marketing strategies are based on a set of underlying assumptions. The following are the premises used in this study:

- Changes occurring in the New York apple industry represent an opportunity to increase returns to growers and other market participants.
- The New York apple industry has most of the characteristics of a fragmented industry.
- It will continue to be difficult to coordinate the marketing efforts of the various segments and firms within the apple industry, although increased coordination is the primary purpose of any marketing program.

- The marketing system for Western New York apples was designed to serve the processing industry, and has not completely adjusted to handle a large crop of fresh fruit.
- The major advantages of Western New York apples are: unique varieties, the unique taste of the varieties, and modern planting systems that encourage the productions of high quality fruit.
- There is currently and will continue to be an increased emphasis on fresh apples.
- While processing apples will continue to remain important, especially in Western New York, future demand for processed apples is likely to be relatively stable, unless there is a major innovation in technology or new products.
- High and uniform quality is a problem in many segments of the market channel, but an essential requirement of the market.
- The Western New York Apple Growers Association has and will continue to have limited financial resources.
- Promotion associations, as grower instituted and democratic bodies, pose a variety of unique demands on an organization.

Mission Statement

Every organization should have a mission statement. The purpose of a mission statement is to establish an overall objective concerning long term direction with which most key parties can agree. Such a statement is usually proposed by top management, and fine tuned and approved by the board.

The following is a proposed mission statement for the Western New York Apple Growers Association:

The mission of the Association is to improve the economic well-being of area growers by increasing the sales and returns of apples and apple products through conducting promotional, merchandising and advertising activities, exerting leadership, encouraging marketing and product research, providing market information, and working with related organizations.

General objectives include:

- 1) To carry out aggressive programs of promotion, merchandising and advertising that are likely to have the greatest impact on increasing the long term demand for the region's apples.
- 2) To provide strong industry leadership in those areas that are likely to increase the sales and returns of area apples.
- 3) To support or engage in marketing and product research that will likely have a direct and significant impact on the demand for the regions apples.
- 4) To provide information services, not available elsewhere, that will have a valuable economic contribution to the marketing of the area's apples.
- 5) To keep growers informed of market conditions and the association's activities.
- 6) To work closely with the International Apple Institute, other trade and promotion organizations, Cornell University, the Geneva Experiment Station, Cooperative Extension in activities that are likely to have improve the demand for Western New York apples.

Recommendations

Up to this point a conceptual framework has been presented, data from various segments of the apple industry collected and discussed, supplies from major producing areas estimated, and general alternatives presented. The following recommendations represent a synthesis of previous parts of this study, and are based on the mission statement and objectives outlined above.

Most issues have been discuss elsewhere in this report. Consequently, they are presented with no further discussion, but are grouped according to major topic areas. Moreover, every attempt has been made to limit the number of strategic recommendations in order for the organization to focus its resources on the association's primary objectives.

While the recommendations are specifically intended for the Western New York apple industry, they are thought to be

applicable for the entire New York apple industry and many agricultural promotion organizations.

Advertising and Promotion Strategies

1. Allocate resources for promotional, merchandising and advertising activities with the highest potential return to the industry, and to the extent possible, allocate resources based on the source of funds.
2. Each year the association should select a limited number of promotional and advertising activities, and concentrate its efforts on those activities.
3. The association's role should be to stimulate the apple marketing activities of other market participants. For fresh fruit the association's primary promotional efforts should be focused at the market participants between the packer and produce buyers, and between the manufacturer and grocery or institutional buyer for processed product.
4. For marketing programs with the trade, continue to develop an image based on the regional origin of apples.
5. For marketing programs with consumers, deemphasize origin and stress regional varieties and/or product attributes.
6. Within Western New York encourage packers and shippers to pursue a full service, mass marketing strategy that emphasizes satisfying a broad range of buyers and consumers needs. Reliability, high quality, consistency and efficient service are key factors for success.
7. Outside Western New York, encourage fresh fruit packers and shippers to pursue a niche strategy by emphasizing the complementarity regional apples have with Washington State apples. Marketers should stress their unique varieties as well as emphasize reliability, high quality, consistency, and dependable service.
8. Annually select one new geographic market outside New York State to systematically develop through a coordinated effort with regional fresh and processed marketing firms. The association should provide the advertising, merchandising, promotional and informational support.
9. In distant markets a niche strategy which emphasizes unique, high quality apples varieties that appeal to the discriminating tastes of consumers should be pursued.
10. Increase the emphasis on fresh market apples. Rather than encouraging growers to completely shift their

operations, they should be encouraged to diversify their operations and improve their production practices.

11. Give quality top priority. To improve the quality of apples marketed, strict standards should be adopted that include condition, soluble materials, and storability as factors of grade.
12. Encourage packing house inspection of apples.
13. Make a moderate shift of marketing efforts from consumer advertising to merchandising and promotional activities for both fresh and processed apple products.
14. Experiment with new types of merchandising and promotional efforts, especially for processed products.
15. Give priority to inviting buyers from the produce and grocery departments of retail chains, food service operations, and export agencies to tour area orchards, packing facilities, storage facilities, and processors.

Leadership Strategies

1. Make it known that the most important role of a regional advertising and promotion organization is to act as a facilitator between key parties in the marketing channel, and that many of its most effective activities may not be readily observable by growers.
2. Make known to members the mission and objectives of the association.
3. Increase the awareness of growers, packers, and retailers concerning apple quality and the future importance of fresh fruit.
4. Select four or five proven varieties to promote with growers and the trade. The combination of varieties should be selected to serve the long term needs of both the fresh and processing apple markets.
5. Encourage the elimination of selected varieties, particularly processing varieties that are in oversupply.
6. The association should vigorously encourage the strict enforcement of quality standards.
7. The association should encourage packers to assume ultimate responsibility for apple quality and standards of service in the fresh apple industry.

8. Point out the need for additional controlled atmosphere and cold storage facilities.
9. Encourage processors to pursue new product developments that will increase the demand for apples.

Marketing and Product Research Strategies

1. Encourage land grant colleges to pursue research projects that will have a long term impact on the demand for apples.
2. Conduct or support those marketing and product research projects that are likely to have a direct impact on the regional apple industry.

Information Service Strategies

1. Communicate with members on a regular basis concerning market conditions and the association's activities.
2. Develop a formal system to report market conditions in the association's primary sales areas and to deal with any problems of regionally produced apples.
3. On a regular basis, carry out a public relations program to inform the media of market conditions for regional apples.
4. Provide information to food editors concerning the varieties, uses and recipe alternatives for regional apples.

Organizational Strategies

1. The association should concentrate the majority of its financial and personnel resources on promotional, merchandising and advertising activities. It should only undertake other activities if they meet the objectives spelled out above.
2. Prior to the beginning of each marketing year, an annual marketing plan should be developed that specifically outlines the programs to be carry out during the coming year, the timing of each activity, and the resources to be devoted to each activity.
3. Given its limited resources, the number of marketing activities the Association is involved with each year should be limited in order to devote adequate resources to the selected activities.

4. Informal but structured methods should be developed to track the performance of the association's activities, and an internal evaluation should be conducted annually.
5. Develop a plan to increase the check-off for fresh fruit with the intent of using the extra resources for additional fresh fruit marketing.
6. Encourage experimentation with new ways of achieving the objectives of the association.

Summary

The purpose of this section has to analyze important alternatives and to propose in detail a mission statement, objectives and strategies for a growers advertising and promotion organization. Specific recommendations were presented for: advertising and promotion strategies, leadership strategies, informational services, and organizational operations.

SECTION XI

SUMMARY AND CONCLUSIONS

A long run marketing strategy is a commitment by people to achieve certain goals. Such a strategy can not be determined by public institutions or private consulting firms. However, they can outline the alternatives and propose a recommended courses of action.

The purpose of this study has been to do just that. At the same time, it was a case study of a regional generic advertising and promotion association. The initiative for the project originated with the Western New York Apple Growers Association. The organization sought assistance in developing such a long term marketing plan. The lessons learned in conducting this study were numerous. Most of the findings were practical issues of fact, but some of the lessons were organizational.

The practical lessons were:

- a) The Western New York apple growers and industry are ideally positioned to meet the wants and needs of consumers in the future, if they are willing to make the necessary changes to meet the needs of today's and tomorrow's consumers.
- b) Alternative supplies will be available, if New York and Western New York apple growers are not willing to make the necessary commitment to producing high quality product as well as advertising and promotion.
- c) There is a need for more coordinated efforts among private and industry-wide organizations to achieve maximum effectiveness of generic advertising and promotion programs.

The organizational lessons included:

- a) Members of democratic organizations, such as generic advertising and promotion organizations, have a tendency to demand a wide range of activities from their organizations.
- b) Members want to have a strong influence on long term planning, perhaps at the detriment of management commitment.

- c) Grower associations become political organizations because elected representatives are required to address the short term of concerns of members.
- d) In democratic organizations, and specifically in generic advertising and promotion associations, it is difficult, if not impossible, to measure performance.

There is significant potential for apples grown in New York to satisfy the wants and needs of U.S. consumers. A moderate shift to fresh apples is required, with an increased emphasis on apple quality. As Porter indicated the primary issue in fragmented industries is "strategic positioning".

In the processing segment of the industry, it is essential that major firms be continually prodded to engage in new product development. In addition, every effort should be made to coordinate advertising and promotion programs with processors' normal marketing activities.

The economic performance the New York apple industry can be much brighter in the future. The first requirement is a desire on the part of the concerned parties. The second requirement is a commitment to a general marketing strategy for the industry. Successful implementation is in the hands of those who have the most to gain: the industry.

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APPENDIX A
PRODUCER SURVEY

CORNELL UNIVERSITY
 COLLEGE OF AGRICULTURE
 DEPARTMENT OF AGRICULTURAL ECONOMICS

The following is a questionnaire which is being used to gather information for a research project being carried out at Cornell University. Your responses will be held strictly confidential. The information gathered will be used to identify industry wide statistics; no individual growers responses will be identified.

- 1) a) Regarding your apple harvest of 1986, approximately how many bushels of the following varieties went to:

	<u>FRESH</u>	<u>PROCESSING</u>	<u>CIDER/JUICE</u>
McIntosh	_____	_____	_____
Crispin	_____	_____	_____
Empire	_____	_____	_____
Red Delicious	_____	_____	_____
Golden Delicious	_____	_____	_____
Cortland	_____	_____	_____
Rome Beauty	_____	_____	_____
Idared	_____	_____	_____
R.I. Greening	_____	_____	_____
Other	_____	_____	_____

Five years from now, what percent of your total apple harvest do you expect will go to the FRESH market? _____%

Ten years from now, what percent of your total apple harvest do you expect will go to the FRESH market? _____%

Do you feel that growing primarily for the processing market is an option which is financially attractive to a grower?

YES / NO (circle one). Comments: _____

2) Please number (from 1 to 6) the following items, in order of their importance, as factors which negatively effect the quality of WNY FRESH apples. (1 being the item most harmful to high quality fruit):

- Growing practices (old trees, poor pruning ...) _____
- Picking (mishandling, technique ...) _____
- Packing (machinery, packers ...) _____
- Packaging (susceptible to bruising ...) _____
- Storage (too old, too large ...) _____
- Other: _____

3) What percentage of the FRESH APPLES you grow are:

- Sold to a packer or shipper _____%
- Sold to a produce wholesaler _____%
- Sold direct to retailers _____%
- Sold directly to consumers _____%
- Other _____%

TOTAL 100 %

Of the FRESH APPLES which you sold to shippers, packers, wholesalers, and retailers, what percent was

SOLD TO:	<u>Packer/Shipper</u>	<u>Wholesaler/Retailer</u>
----------	-----------------------	----------------------------

AS A RESULT OF:

- | | | |
|--|--------------|--------------|
| An established or ongoing relationship | _____ | _____ |
| Buyer contacted you directly | _____ | _____ |
| New sale initiated by you | _____ | _____ |
| Other: _____ | _____ | _____ |
| TOTAL | <u>100 %</u> | <u>100 %</u> |

b) On a scale from 1 to 5, how would you rate the ease or difficulty that you experienced a year ago (1985-86) in selling your apples: (Circle the appropriate number for both Fresh and Processed)

	Easy				Difficult
FRESH	1	2	3	4	5
PROCESSED	1	2	3	4	5

c) Using the same scale (from 1 to 5), how would you rate the ease or difficulty that you are experiencing this year in selling your apples: (Circle the appropriate number for both Fresh and Processed)

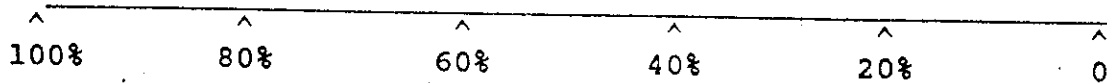
	Easy			Difficult		
FRESH	1	2	3	4	5	
PROCESSED	1	2	3	4	5	

What is the major problem hindering your sales effort: _____

4) Of the FRESH APPLES you sell, what percentage are:

Sold in bulk (bins)	_____ %
Sold packed in bags	_____ %
Sold in tray cartons	_____ %
Other : _____	_____ %
TOTAL	100 %

5) Averaging the last five years, what percentage of your apple production has gone into storage: (Place an X on the appropriate percent.)



6) Although it may be difficult for you to know with certainty, what proportion of your FRESH APPLES would you estimate are:

Sold to WNY Consumers	_____ %
Sold Consumers in NY State outside of WNY	_____ %
Sold to out of state consumers	_____ %
Sold to non-U.S. consumers	_____ %
TOTAL	100 %

7) Did you plant new apple trees this year? YES / NO (Circle) (If no, go to Question 8) If yes, what varieties and quantities:

VARIETY	NUMBER OF TREES	ACRES
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

12) Does Western New York need a set of apple quality standards, and a method of monitoring that quality?

	Check One:
Strongly Agree	_____
Agree Somewhat	_____
Disagree Somewhat	_____
Strongly Agree	_____
No Opinion	_____

13) What is the most encouraging factor facing the members of the Western New York Apple Growers Association? _____

14) What is the most discouraging factor facing the members of the Western New York Apple Growers Association? _____

15) Have you seen or heard (radio) advertisements for Western New York Apples anytime over the last three months?
 YES / NO (Circle one).

Do you feel the present advertising campaign ("Pick Western New York Apples") is effective in selling more Western New York State apples? Circle one:

1	2	3	4	5
Very Effective				Not Effective

Thank you very much for your time. Your responses will help form the basis of a study which we hope will improve the situation for WNY growers. Please return this questionnaire in the enclosed envelope.

APPENDIX B

PROCESSOR SURVEY

NEW YORK STATE APPLE MARKETING STUDY

Department of Agricultural Economics
Cornell University

Questions For Apple Processors

1. What are the major factors impacting the market for processed apple products?
2. What are the major varieties you use in your processing operations?
3. New York apple growers have grown fresh, processing and dual purpose apple varieties. a) Do processing varieties have significant advantages for you? b) Do you feel hampered by the decreasing number of varieties available?
4. What proportion of your raw product apple supplies come from the Northeast?
5. If New York increased its fresh apple production and quality standards, are the apples not meeting fresh quality standards be acceptable for processing?
6. How important is apple quality from your point of view?
7. Do you foresee any major technical developemnts improving the economies of apple processing?
8. Do you anticipate any significant product innovations in apple processing?
9. Do you feel the Western New York Apple Growers Association is making a good investment by engaging in merchandising efforts, developing and making available point of purchase material, and doing consumer advertising of processed products?
10. What do you feel would be the best use of WNY Apple Growers resources?
11. What do you see as the long term volume prospects for the Northeast apple processing industry?

Thank you!

APPENDIX C

RETAIL GROCERY MANAGER SURVEY

NEW YORK STATE APPLE MARKETING STUDY

Department of Agricultural Economics
Cornell University

Interview Questions For Retailers

Statement of Confidentiality: All firm specific information will be held strictly confidential. While specific statements may be used in the final report all comments will be made anonymous by removing any and all references to specific firms and individuals.

1. What advantages and disadvantages do apples have compared with other fruits in the produce department?
2. How many types (i.e. varieties, sizes and packagings) of apples do you attempt to carry at any time?
3. What attributes of apples influence consumer purchases?
4. What apple varieties do consumers like best? And why?
5. Other than price, what are the primary factors you consider when purchasing apples?
6. Do you ever have a problem obtaining the necessary quantities and types of apples you need?
7. Are you able to obtain the quality of apples your customers want? How does the quality of New York and specifically Western New York apples compare with apples from other regions?
8. What factors do you consider when deciding to:
 - a. Buy apples from a specific region (i.e. Western New York, Hudson Valley, Washington State)?
 - b. Buy apples from a specific packer?
9. Washington State apples have a respected reputation in the market. Why? And how do New York State and Western New York apples compare with Washington State apples?

10. What services are you looking for from a packer?
11. What can packers do to better serve your needs and increase the sales of apples?
12. Some companies (i.e. Chiquita, Dole, Sunkist) have been successful in instituting a brand name on their fruits. Do you think this is possible or desirable with apples?
13. What proportion of apples are sold bagged and loose?
14. What are the advantages and disadvantages with the current packaging of apples? What can be done to improve the packaging of apples?
15. Over the last decade, new apple varieties (i.e. Empire and Crispin) have appeared on the market. Have consumers been made sufficiently aware of the attributes of these new apples? What more could be done to improve the sales of these "new products".
16. How important are point of purchase materials for apples? Do you feel the current availability, type and quality of point of purchase materials is good or could it be improved? Where do you obtain your point of purchase materials for apples?
17. How often do you promote apples? Under what circumstances?
18. Do you feel the generic advertising of fresh apples makes a contribution to the overall sales of apples.
19. What can a regional industry-wide promotion and research organization, such as the Western New York Apple Growers Association, do to help you sell more apples?

Thank you for your time and cooperation.