

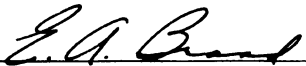
GROWER OUTLETS FOR APPLES IN
NIAGARA AND ORLEANS COUNTIES OF
NEW YORK

Thesis for the Degree of M. A.
MICHIGAN STATE COLLEGE
Philip Edward Barlow
1954

This is to certify that the
thesis entitled
"Grower Outlets For Apples in
Niagara and Orleans Counties of New York"

presented by
Philip E. Barlow

has been accepted towards fulfillment
of the requirements for
Masters of Arts degree in Food Distribution


Major professor

Date December 15, 1954

GROWER OUTLETS FOR APPLES IN
NIAGARA AND ORLEANS COUNTIES
OF NEW YORK

by

PHILIP EDWARD BARLOW

A THESIS

Submitted to the School of Graduate Studies of Michigan
State College of Agriculture and Applied Science
in partial fulfillment of the requirements
for the degree of

MASTER OF ARTS

Department of General Business
Curriculum in Food Distribution

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In interviewing apple growers, the Niagara and Orleans County Agricultural Agents, the Executive-Secretary of the Western New York Apple Growers Association, a food chain executive and numerous apple shippers and buyers, the author enjoyed wholehearted cooperation and a sincere desire to help. To all of these people is extended a full measure of gratitude.

Philip E. Barlow

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AN ABSTRACT

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Statement of the Problem

The overall purpose of this thesis was to investigate the factors that explain the marketing practices of apple growers in the northwestern New York counties of Niagara and Orleans. Preliminary investigation into the grower outlets for apples in these counties revealed a trend towards heavier sales to processors. The author explored, principally from the grower's viewpoint, the underlying causes that contributed to the development of this trend in apple grower marketing activities.

Methodology

In investigating grower marketing practices in Orleans County, the author conducted personal interviews with 35 apple growers, using a standardized questionnaire. The questions asked related to the apple varieties each grower had, how he sold each variety after the 1953 harvesting season and what went into his decision to market his fruit in the manner outlined. In making this grower survey as representative as possible, the author received much guidance and assistance from the County Agricultural Agent in securing a wide geographical dispersion on the grower interviews. More basic information on Orleans County was obtained from a summary report published by the New York State Department of Agriculture and Markets entitled, Survey of Fruit Orchards in Orleans County, New York, 1949.

For Niagara County, the author utilized an extensive marketing survey conducted by the Cornell University Agricultural Experiment Station under the direction of Dr. G.P. Scoville.

This report, Apple Varieties, Marketing the Apple Crop, gave an excellent review of grower outlets for apples in Niagara County over the 40 years prior to 1950. To supplement this report and bring the information it contained up to date, the author informally talked with four Niagara County apple shippers and packers and half a dozen large growers.

Most of the background information for this thesis related to apple production statistics was secured from the various bureau publications of the United States Department of Agriculture.

Major Findings

The author's survey in Orleans County revealed that in 1953, approximately 70 percent of the apple production of those growers interviewed was marketed through processor outlets. Major reasons for this decided preference for the processing outlet were (1) the ready availability of nearby processing plants; (2) force of habit on the part of many growers in dealing with the same outlet for many years; (3) brisk processor demand for apples in 1953; (4) favorable net farm prices to the grower in comparison with fresh fruit market prices; and (5) a noticeable lack of fresh fruit buyers actively purchasing in the county.

In Niagara County, the post-World War II rise in the demand for processed apple products resulted in expanded market outlets for growers in that county. Before World War II, the fresh fruit channels afforded mainly by wholesale houses in Buffalo, Cleveland and Pittsburgh and by country buyers doing brokerage

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I. INTRODUCTION

Purpose of this Thesis

As the title of this thesis suggests, the author will be primarily concerned in this study with the apple marketing practices of fruit growers in the counties of Niagara and Orleans in northwestern New York state. This orientation of the study from the grower viewpoint is designed to afford a kind of "grass roots" approach to the principal issue the writer will attempt to resolve: Why do apple growers in each of these counties sell their fruit by the various methods to be later disclosed? To describe the main issue in another way and more specifically, why have predominate amounts of apples in both counties been sold in recent years through processor outlets? Why have sales to fresh fruit buyers in these counties been on a downward trend while sales to processors have been upward?

To set the stage for the resolution of these primary issues, the following four chapters to this introduction will deal with factual information relating to the history of the apple industry in New York (Chapter II); the leading apple varieties in Niagara and Orleans counties (Chapter III); the current picture of New York in comparison with other leading apple growing states (Chapter IV); and the actual apple marketing outlets utilized by growers in certain years in Niagara and Orleans counties (Chapter V). Then, following a résumé of pertinent factors impinging on the future trends in grower marketing activities (Chapter VI),

the facts assembled will be sifted in an effort to formulate conclusions that may resolve the primary issue.

The Geographical Setting

Niagara and Orleans counties are adjacent to each other in the northwestern corner of New York. Niagara County is bounded on the west by the Niagara River, on the north by Lake Ontario, on the east by Orleans County and on the south by Erie County and the city of Buffalo. Orleans County is bounded by Niagara County on the west, Lake Ontario on the north, Monroe County on the east and Genesee County on the south.

These two counties comprise the westernmost end of the western New York fruit belt, which roughly would cover the counties enclosed by a line drawn on a map between the cities of Buffalo, Rochester, Watkins Glen, Ithaca, Syracuse and Oswego.

Definition of Terms

Processor outlet or market. An apple processor, in terms of an outlet for the grower, takes the apple in its raw or natural state and prepares it for preservation. The processor usually alters the original form of the apple in transforming the raw product into applesauce, apple juice, vinegar, sliced apple pie mixes, quartered apple sections, or apple butter. Utilizing either heat or freezing temperatures, the processor practically eliminates the market factor of product perishability so important in fresh apple distribution.

Fresh fruit market. When the grower seeks this outlet for his apples, he knows that the buyer contemplates the eventual sale of the apple to the ultimate consumer in essentially the same form as they were on the trees.

The intervening marketing functions of grading, storing, inspecting, packaging, et cetera may occur between grower and consumer, but the apple for all practical purposes is still considered to be in the fresh form.

Wholesale house. Synonymous in meaning to the term wholesaler, a wholesale house buys apples in carlot or truckload quantities, principally from large growers or cold storage operators who might assemble lots from numerous smaller growers. In western New York, wholesalers from Buffalo and more distant markets (Pittsburgh, Cleveland, et cetera) buy for later resale to jobbers or chain store buyers.

Trucker or huckster. For purposes of this thesis, a trucker or huckster will be considered as any truck owner living in an apple growing region who furnishes transportation and a selling service to his neighbors who grow apples. The trucker will haul to city produce markets, sell his load and remit the proceeds to his neighbors, less his charge for transportation and selling.

Tree run or orchard run. When an apple buyer purchases fruit "tree run", he is contracting to buy the apples just as they come from the trees. However, tree run fruit is usually carefully picked by the grower with excessive numbers of culls or off-grade fruit eliminated.

How Information was Obtained

Grower survey method. To obtain pertinent data in Orleans County, the author conducted personal interviews with 35 apple growers, using the Apple Grower Questionnaire form depicted in the Appendix. Through the excellent cooperation of the Orleans County Agricultural Agent, Arthur West, the significant apple producing sections of the county were located on a

county highway map. Then, the County Agent listed the names of north-south county and state roads which cut through the rural areas where most of the apples are grown. He suggested taking four or five roads that would geographically represent the whole county and then contacting growers along both sides of each road.

Relying on his judgment and intimate knowledge of the agricultural situation as it existed in Orleans County, the author surveyed the apple growers along five roads in the month of August, 1954. More growers would have been contacted had not the limiting factors of time and expense intervened. The month of August was a busy time for farmers, so the author was forced to use discretion in limiting interview time and the number of interviews so as not to unduly interfere with the farmers' work.

In an Orleans County survey conducted in 1949, 729 farms reported commercial blocks of apples covering an area of about 11,000 acres. Using these figures as a basis of comparison, the author's survey represented about 5 per cent of the farms reporting in 1949 and roughly 14 per cent of the commercial acreage at that time. While these percentages reflect a rather small portion of the total picture, the author believes that his careful selection of geographical areas in the apple growing sections of the county, through the advice and assistance of the County Agricultural Agent, has made his sample both representative and reliable.

Secondary source material. A grower survey similar to the one outlined above was also planned for Niagara County, but time and the expense involved would not permit adequate coverage of growers throughout that county. Therefore, principal reliance for information concerning grower marketing practices in Niagara County has been placed on a continuing

study performed by the Department of Agricultural Economics of Cornell University, Ithaca, New York. Under the guidance of Dr. G.P. Scoville, this survey covered the years 1913 - 1950 with about 100 growers participating in Niagara County. Entitled Apple Varieties, Marketing The Apple Crop - Niagara County and Hudson Valley Surveys, this detailed report suffers only from a lack of current data since 1950. However, the author has filled in this gap with personal interviews with cold storage operators, a few large growers and the Associate Niagara County Agricultural Agent, Frank McNicholas.

Other sources. Because this thesis is limited in scope to a specific geographic area, the frequent use of the personal interview with people vitally connected with the apple industry in western New York was exploited. The Executive-Secretary of the Western New York Apple Growers Association, an A & P vice-president in charge of field buying activities in their National Produce Division, and a representative of an area processing plant were all interviewed on an informal basis.

II. THE HISTORY OF THE APPLE INDUSTRY IN NEW YORK

Early Beginnings

Perhaps one of the significant reasons why New York looms large in the national apple picture today is the state's early start in growing apples. However, the New England area and the Plymouth colony in particular antedated the early developments of apple culture in New York by 75 years. Within a few years after the founding of the Plymouth colony in 1620, apple trees were planted by the hardy colonists. By the turn of the century, numerous apple tree plantings were scattered over the entire New England area.

Credit for the introduction of apple culture in colonial New York went to the Dutch settlers in the lower Hudson River valley, near Kinderhook, and the French Huguenots near what is now the city of Flushing, Long Island. In fact, the Huguenots started the first apple tree nursery in 1730 at their Long Island settlement, from which came the Yellow Newtown Pippin apple. This original apple variety of the New World also set a milestone in 1758 when it became the first trans-Atlantic shipment. Hardly of commercial significance, the shipment amounted to a single package of Newtown Pippins which was sent to Ben Franklin in London.

Prior to the American Revolution, missionaries wandered among the Indian tribes of central and western New York in their religious efforts to convert the "red man" to Christianity. Many of these missionaries carried apple seeds which subsequently fell into the hands of the Seneca and Cayuga Indians. These tribes scattered apple tree plantings in the Finger Lakes region of New York; therefore, young fruit trees were

approaching bearing maturity in this area before civilization and organized settlements of white men started their westward treks. During military campaigns of the Revolutionary War in 1779, General Sullivan told of finding bearing apple trees laden with fruit near Seneca Lake in central New York.

Up to this point in the historical résumé of apple growing in New York state, the reader is cautioned not to attach any commercial importance to this developmental era. This review of noteworthy events and dates merely sets the stage for the evolution of apple growing in New York on a commercial scale after the first quarter of the nineteenth century.

Advent of Commercial Orchards

During the decade following 1820, apple trees were planted in commercial blocks or orchards in the southeastern New York county of Ulster, above New York City. With the Hudson River connecting the production and major consumption areas, a large number of summer, fall and winter varieties were shipped by steamboat in straw-head barrels. In addition to being contracted for by dealers in New York, these apples were also sold by the steamboat captains who transported them to the city. It was not uncommon for these fresh apples to return \$1.00 - \$1.50 per barrel to the grower, the container later being returned. Since a barrel was the equivalent of three bushels, the per bushel price ranged between 35 and 50 cents.¹

Following the completion of the Erie Canal in 1825, apple growing on a commercial scale became economically feasible in the counties of central

¹S.A. Beach, The Apples of New York, J.B. Lyon Company, Printers: Albany, New York, 1905, p. 12.

and western New York. With this new transportation artery, metropolitan markets in and around New York City were tapped and profitably supplemented the limited demand for apples from local markets in these upstate producing areas. In recognition of this market potential, George Ellwanger and Patrick Barry started the Mt. Hope tree nurseries at Rochester in 1840. This date signalled the spawning of commercial apple culture in western New York and much of the credit for the development of hardy tree stocks suitable to this region went to these two pioneers.²

The year 1843 marked the real beginning of commercial apple shipments via the Erie Canal out of the western New York area. Commission men from Palmyra in Ontario county bought apples at 75 cents per barrel for a New York firm and they used the water routes afforded by the Erie Canal and Hudson River to reach their markets.³

Fifty Eventful Years: 1850 - 1900

Expansion. Close on the heels of the opening of the Erie Canal to commerce came the impact of the railroads which added their impetus to the development of commercial apple orchards, especially in western New York. In the ten years from 1860 to 1870, commercial orchard plantings increased rapidly in this particular region of the state.

The fight for survival. In the 40 years following this initial surge in apple tree plantings, the orchardists of western New York fought a

²J.C. Folger and S.M. Thomson, The Commercial Apple Industry of North America, The MacMillan Company: New York, 1921, p. 22.

³S.A. Beach, Loc. cit., p. 12.

running battle of survival against two deadly foes - insects and fungus diseases. The losses of fruit caused by the codlin moth, the canker worm and other leaf-eating insects plus the destruction to the fruit brought about by apple scab and other fungus diseases forced some growers to cut down their orchards in the decade from 1880 to 1890. However, in the previous decade (1870 - 1880) and during this same period, the practical use in the apple orchard of paris green and other arsenical poisons against the insects mentioned above and the introduction of fungicidal sprays to control fungus diseases halted any mass removal of fruit trees.

Dried apple processing. Around 1875, a new processing method was introduced in the western New York apple growing section which aided in broadening the market for its fruit. Previously, the apples that were not sold fresh in barrels were marketed as vinegar and cider products. However, with the advent of this new process - evaporation - more of the identity of the apple in the fresh state was preserved, thus enabling the users of these dried apple slices to make pies and other types of apple desserts.

Specifically, the evaporation process was quite simple. Without getting too technical, the apples were first peeled, then cored and bleached with sulphur. Then they were run through a slicing machine, out of which they came looking like flat discs, circular and doughnut-shaped. From the slicing machine these cored apple segments were placed on trays in an evaporator tower beneath which was located a source of heat. This heating process removed the moisture from the apple slices and the resulting dehydrated product was packed in 50-pound boxes. Export trade in dried

apples soon blossomed with Germany becoming the chief foreign market. In the United States the principal markets for dried apples were found north and west of the Mississippi River, with St. Louis becoming the largest dried apple market in the country. Wayne County near the eastern end of the western New York apple growing belt became the center of dried apple production for the entire country. In some years, as much as 40 per cent of the county's production was used for drying.⁴

The Picture Since the Turn of the Century

Delineation of major producing areas. It was not long after 1900 that the growing of apples in New York started to become a more specialized farm occupation. During the developing years of the apple industry in the nineteenth century, apple tree plantings of many different varieties on farms all over the state supplied the farm family and possibly a local grocer with fruit for limited local consumption. However, as knowledge of the influence of soils, weather and marketing methods on apple growing became more widely understood, apples in unprofitable growing areas disappeared.

This evolutionary process resulted in the concentration of apple growing on a commercial scale in three rather widely separated areas of the state - the Hudson River valley, western New York and the Lake Champlain region. The counties of Orange, Ulster and Greene on the west bank of

⁴ The author wishes to thank Mr. Henry J. Williams, Vice President, National Field Offices, National Produce Division of the Great Atlantic & Pacific Tea Company, Rochester, New York for supplying the data here on dried apple processing.

the Hudson along with Putnam, Dutchess and Columbia on the east comprised the growing area with the "ready-made" market of New York City about one hundred miles south. In western New York, the six counties bordering the south shore of Lake Ontario - Niagara, Orleans, Monroe, Wayne, Cayuga and Oswego - were destined to become during the 1920s from the standpoint of quantity production and total acreage, the most important apple region of the United States. The most northeastern county in New York, Clinton county on the western shores of Lake Champlain, was the last area of the state to become a major producing section. In fact, the Lake Champlain region remained rather obscure in terms of apple production until the decade of the 1930s.

The leading apple varieties. As recently as 1950, grower surveys have revealed as many as 75 apple varieties in both the Hudson Valley and western New York. Many factors have explained the cause for this multiplicity of varieties, the more important of which have been changing market outlets, a twenty year lag between the setting out of trees and full production, and weather and climate differences between growing areas. More detailed information on apple varieties of Orleans and Niagara county will be discussed elsewhere in this thesis.

However, for the period of time from 1900 - 1925, an apple survey was conducted by the Department of Agricultural Relations of the New York Central Lines, covering 785,000 barrels of apples shipped out of western New York, from 1921 - 1925. Of this total, 44 per cent were Baldwin; 20 per cent were Rhode Island Greening; and the remaining 36 per cent consisted of Northern Spy, Roxbury Russet, Ben Davis, Tompkins King, Twenty Ounce, McIntosh, Wealthy, Dutchess and other varieties. At about this

same time, Baldwin, Rhode Island Greening and Northern Spy were leading varieties in the Hudson River section, with heavy younger plantings of McIntosh indicating heavy production in that variety within twenty years. McIntosh had also established itself in the newer plantings near Lake Champlain, where the Northern Spy and Fameuse (Snow) varieties were produced to perfection.

The western New York fruit belt. The emergence of the western New York section as a major apple producing area of the country can be dated roughly during any year from 1900 to 1910. During those years, the major commercial plantings of the 1860s and 1870s had reached full production maturity, exhibiting a unique vigor and productive capacity at 40 to 50⁵ years of age. Folger and Thomson summarized the apple situation in western New York shortly after World War I by listing these principal advantages and disadvantages:

A. Advantages of western New York

1. Western New York is an established, well developed and productive apple region. . .
2. Land values have been reasonable in comparison with those in other apple regions.
3. The bulk of the production is of standard commercial varieties well adapted to the section.
4. Western New York is a stable progressive region, where land booms do not flourish and where there is not over-specialization of any particular crop.
5. It enjoys proximity to market and has excellent facilities for storing and handling fruit.
6. The land is easily worked and the maintenance cost is not excessive.
7. This region is rather densely populated and sufficient labor is usually available from the nearby towns and cities during harvest time.
8. Good yields.

B. Disadvantages of western New York

1. The varieties, Baldwin and Greening, for which this section is best known, are not of the highest quality and as a rule undersell such varieties as Winesap, Jonathan and Grimes.

⁵J.C. Folger and S.M. Thomson, Op. cit., pp 100 - 101.

2. Orchards are susceptible to scab and in many cases the crop has been practically ruined and the percentage of high-grade fruit cut to a minimum on account of this disease.
3. The average orchard in western New York does not receive the highly intensive care which characterizes some other regions. This disadvantage can be remedied by the individual owner, however, and is not inherent to the region.
4. Bearing orchards are well advanced in years and do not as a rule bear the high percentage of fancy fruit which may be expected from young trees.
5. Trees are slow coming into bearing.
6. Rigorous winters are common.

An active foreign export market for western New York apples maintained the popularity of the wooden barrel as a marketing container. Domestic shipments of fresh apples were also made in barrels and when it became necessary to hold large quantities of fruit in cold storage, the barrel was the container used. No other apple growing section in the country ever exceeded this area in the use of barrels as an apple container. When the United States became involved in World War I, the export market naturally fell off, but on January 1, 1919, shortly after the Armistice was declared, a heavy percentage of barreled western New York apples was once again shipped to Europe. Not until 1923 did the bushel basket replace the barrel as a market container. Tub-bottom bushels replaced the barrels in export trade and round-bottom baskets took over as the leading container for domestic channels. With the collapse of the export market in the late Twenties, the barrel became obsolete altogether.

In 1920, an ill-fated attempt was made by the apple growers of western New York to form a cooperative marketing organization. Inaugurated as the Western New York State Fruit Growers' Cooperative, the marketing functions of grading, packing and selling were assumed by the cooperative. Almost from the start, the complete lack of grower unanimity concerning expenditures for packing house operations and promotional advertising hindered

the organization in the performance of its marketing functions. As a consequence, the Cooperative experienced a brief two years' existence after which it was abandoned. This occurrence could very well have signalled the subsequent steady decline of the fresh fruit apple market for this region and the beginning in the ascendance of the processed apple market.

The early years of the "Roaring Twenties" saw another unstabilizing influence that harmed the distribution and eventually the market for western New York apples sold for fresh fruit. In tune with the times, speculators moved into the apple picture and they took full advantage of the two million barrel capacity afforded by some 55 commercial cold storages dispersed throughout the growing areas.⁶ Gambling on a winter price rise, these speculators cornered the fall apple harvest and filled the storages with fruit. With apple processing in this area still in its infant stage, growers had no choice but to sell to these speculators. Portioning out supplies during the winter months to commission merchants who, in turn, sold the apples to the old line grocery-retailers, the speculators successfully demoralized the fresh apple market. With the advent of fresh fruit and vegetable displays by the food chains in the late Twenties, apples became a principal fruit item. This new retail outlet for fresh apples partially eliminated the abusive speculator practices, but⁷ the damages to the fresh apple market had been done.

⁶R.W. Rees, Apple Survey of the United States and Canada, Rochester Herald Press: Rochester, New York, 1926, p. 17.

⁷The author is indebted to his father, Ross E. Barlow, and Mr. Henry J. Williams both of whom generously shared their personal experiences of the western New York apple industry in the 1920s with the author.

To add to the economic depression of the Thirties, western New York apple growers were dealt another damaging blow by the severely cold winter of 1933 - 34. Freezing damage to trees was widespread, especially crippling to Baldwin orchards. Rhode Island Greenings also suffered and since these two varieties were the leading producers prior to the "freeze out", apple production in western New York dipped sharply. Some serious efforts were made by growers to rebuild their Baldwin and Greening orchards, but most of the severely damaged orchards were pushed out. The later years of the 1930s saw a number of new varieties introduced, among the most important of which was McIntosh.

With the outbreak of World War II, the combination of the rush of former housewives to defense industries to replace the men taken into the military services stimulated the need for all types of processed food products. Working housewives had less time to prepare meals, so ready-to-eat foods became menu necessities. The military services in combat literally lived out of cans, eating many different types of dehydrated or concentrated food products.

Consequently, apples in processed forms flowed from canning factories all over the western New York fruit belt. As a result of this wartime stimulus, the processing market for apples became firmly established and growers depended more and more in the post-war years on this outlet for their apples.

III. THE LEADING APPLE VARIETIES OF
NIAGARA AND ORLEANS
COUNTIES

Definition of Variety

Webster has define a variety as "a group of animals or plants related by descent, but distinguished from other similar groups only by characters considered too inconstant or too trivial to entitle it to recognition as a species". With apples, these so-called "trivial" characteristics that distinguish one variety from another many times have a marked influence on the way the fruit is marketed. Therefore, any discussion of apple marketing should be preceded by a review of those varietal characteristics - that is, color, size, uniformity of size, skin texture and keeping quality - which collectively determine whether an apple is best suited for the fresh market or the processing trade.

The nine apple varieties presented in TABLE I comprised over three-quarters of all the apple trees in Niagara and Orleans County in 1949, the latest year such information was obtainable. Upon this basis of selection, each variety will be reviewed and its salient characteristics pointed out.

TABLE I
DISTRIBUTION OF APPLE TREES OF ALL AGES BY VARIETIES¹

		Niagara County, 1949 98,055 trees ²	Orleans County, 1949 321,158 trees ³
Variety	Season ⁴	Per Cent of Total Trees	
McIntosh	Fall	15.3	13.5
Rhode Island Greening	Early Winter	12.6	16.7
Cortland	Fall	11.4	4.7
Baldwin	Winter	10.8	25.6
Wealthy	Fall	9.4	6.9
Rome, Red Rome	Winter	9.0	6.1
Red Delicious	Winter	7.2	5.3
Jonathan	Early Winter	2.8	---
Twenty Ounce	Fall	---	3.0
Total		78.5	81.8

¹Source: G.P. Scoville, Apple Varieties, Marketing the Apple Crop, Niagara County and Hudson Valley Surveys, A.E. 919, Department of Agricultural Economics, Cornell University: Ithaca, New York, 1953, p. 2.

²Based on a survey of 100 apple growers.

³Based on a Summary Report covering 1,315 farms, Survey of Fruit Orchards in Orleans County, New York, New York State Department of Agriculture and Markets in cooperation with the United States Department of Agriculture, Albany, New York, December, 1949.

⁴Approximate time of harvest if fruit was allowed to reach full maturity on the trees.

The Leading Varieties

McIntosh. The bright, deep red color and good size of this very attractive variety establishes it as a leading competitor in the fresh fruit market for apples. A rather leathery skin covers a flesh that is tender, perfumed and delicious. However, this lack of flesh firmness makes the McIntosh very susceptible to bruising, making it a difficult variety to handle in storage and market over wide areas. Another undesirable feature of this variety is its lack of color during some years when weather conditions inhibit the development of high color. Ripening in late September or early October, McIntosh bears fruit at a rather young age and it yields consistently well year after year. In addition to being used primarily for eating out of hand, this apple can also be used for culinary purposes. The storage season for McIntosh usually lasts from early October to January.

Rhode Island Greening. A top processing apple, this variety colors to a deep grass-green in autumn, later ripening to a more or less yellow color. Generally a reliable cropper, the Rhode Island Greening is a good variety to grow with the Baldwin in commercial orchards because it's a little earlier in season and can be picked and marketed before it is necessary to pick Baldwins. It is very important that this variety be hurried into storage as soon as it is picked if storage is desired. The storage season for Rhode Island Greening lasts from October to March or April.

Cortland. Of comparatively recent vintage, the Cortland apple was originated around 1915 at the Cornell University Agricultural Experiment Station in Geneva, New York. The variety is a cross between the Ben Davis

and McIntosh varieties. Designed to replace the venerable McIntosh in New York, the Cortland averages larger and possibly a little more uniform in size than its predecessor. This variety has more color of a lighter and brighter red than the McIntosh, a firmer but equally juicy flesh, and a taste barely distinguishable from that of a McIntosh, oftentimes richer with a little less aroma. Cortlands mature from one to three weeks later than McIntosh and they do not drop from the trees so readily. Capable of "going both ways" in marketability (fresh or processed forms), the Cortland is fast becoming a mainstay throughout the entire state of New York.

Baldwin. The historical favorite of the western New York apple region, this variety is a bright red winter apple, above medium to large in size, and very good in quality when grown under favorable conditions. Because of its firm texture and thick skin, the Baldwin handles well in storage, its season being from November to May and even later. Somewhat slow in reaching bearing maturity, this variety has the fault of bearing too heavily one year and hardly at all on alternate years. The adaptability of the Baldwin to general market, dessert and culinary uses has contributed to its popularity over the years.

Wealthy. The Wealthy is a hardy variety to grow, being particularly suitable for cold climates. Bright red in color, this variety suits itself equally well for both fresh fruit and processing markets. If the Wealthy is to be stored at all, it should be placed in storage immediately after harvest. Since a crop often ripens unevenly, more than one picking is necessary to secure the fruit in prime condition. Fruit of good size is obtainable from young trees, but as the trees mature and

grow at a slower rate, a considerable percentage of the yield is apt to be undersized. Even with storage, the Wealthy should be utilized fresh or in some processed form by the early winter months.

Rome, Red Rome. The Rome or Rome Beauty and the Red Rome vary only to the extent that the latter strain has a bright red color. The variety, when well grown, is of good uniform size, smoothly surfaced and handsomely colored. Being thick skinned, the Rome can stand handling remarkably well and therefore it is considered a good keeper, capable of being stored from its harvest time in November to April or May. Compared with the Baldwin variety, the Rome is not quite as good in quality either for dessert or culinary uses, but the tree bears at a much earlier age and under the right growing conditions it is more nearly an annual cropper. Like the Cortland, the Rome Beauty has dual purpose market qualities in both fresh and processed forms. However, it is more desirable for fresh fruit distribution not only because of its high color, but also its resistance to bruising. As a variety for baked apple desserts, the Rome has few peers.

Red Delicious. This high class dessert apple is yellowish-red in color, usually striped, but sometimes more or less deep solid red. Generally medium to large in size, the Red Delicious is harvested in early October and it can be stored until March. Storing this variety beyond that time is dangerous because the flesh tends to become somewhat dry and mealy. Since this apple is principally noted for its fresh fruit qualities - an apple to be eaten out of hand - any development of dry, mealy conditions in the flesh would destroy its marketability. The Red Delicious does cook fairly well, but its sweet taste precludes any

extensive use for general culinary purposes.

Jonathan. This variety possesses a beautiful, brilliant red color, is highly flavored and of excellent quality for either dessert or culinary use. As grown in New York, the Jonathan is ordinarily rather small with a comparatively high percentage of uneven and irregular fruit. Its flesh is whitish or somewhat yellow, firm, crisp, juicy and very aromatic. The Jonathan may be commercially stored from November to January or later, but the formation of dark spots, commonly known as Jonathan spot, in the skin must be guarded against during the storage season. Especially desirable for prepackaging in film bags, the unusually small fruit of this variety are marketed as "Schoolboy Johnnies", ideal as a hand apple for school children.

Twenty Ounce. Extremely desirable for processing, the Twenty Ounce tends to be large to very large in size, with a whitish flesh that is coarse, moderately tender, juicy and slightly acid in taste. These characteristics, in combination with an overall form which is usually roundish and sometimes broadly ribbed, make this variety a leading choice among applesauce processors. Its thick, tough skin is colored by a mottled, yellowish shade, splashed with bright red stripes. For a fall variety, the Twenty Ounce keeps well in storage and it is in season from September to early winter. The tree bears rather young and the almost annual yields of moderate to good size have established the Twenty Ounce in Orleans County as a profitable variety to grow.

Trends in the Leading Varieties

Now that the principal characteristics of the leading apple varieties

grown in Niagara and Orleans County have been reviewed, some idea of their perpetuation in importance can be gleaned from TABLE II. This table is actually a further breakdown of the percentages given in TABLE I.

In 1949, of the apple trees less than eight years of age, 83.2 per cent of them in Niagara County and 91.1 per cent in Orleans County were represented by the eight leading varieties for each county depicted in TABLE I. Further inspection of TABLE II reveals that young plantings of Regular and Red Rome, Red Delicious and Cortland varieties were high, percentage-wise, in each county. Jonathan ranked fourth, close behind Cortland in the recently planted trees in Niagara County, while Rhode Island Greening was the second most important young variety in Orleans County.

On the other hand, TABLE II indicates that on the basis of recent plantings, the varieties of Wealthy, Rhode Island Greening and Baldwin in Niagara County were receiving less attention from growers. In Orleans County, too, the varieties of Wealthy and Baldwin were showing declining significance.

For Orleans County, the information contained in these two tables points towards an upward trend in production during the next five to seven years for Regular and Red Rome, Red Delicious and Cortland. Because of comparatively high percentages of older, less productive trees, the immediate outlook for McIntosh, Wealthy, Rhode Island Greening and Twenty Ounce in terms of production indicates a downward movement. However, if processor demand remains stabilized at its currently favorable level for Rhode Island Greening and Twenty Ounce, an eventual upturn in production in ten to fifteen years should follow heavier recent plantings

TABLE II
APPLE VARIETIES RECENTLY PLANTED*

Trees less than 8 years old

Variety	Niagara County, 1949 11,427 trees	Orleans County, 1949 21,782 trees
	Per Cent of Total Trees	
McIntosh	6.6	7.1
Rhode Island Greening	3.9	19.6
Cortland	11.1	13.3
Baldwin	0.5	3.4
Wealthy	1.1	2.9
Rome, Red Rome	32.6	20.4
Red Delicious	16.5	17.6
Jonathan	10.9	----
Twenty Ounce	----	6.8
Total of Above Varieties	83.2	91.1
Other Varieties	16.8	8.9
Total	100.0	100.0

*Source: G.P. Scoville, Apple Varieties, Marketing the Apple Crop, Niagara County and Hudson Valley Surveys, A.E. 919, Department of Agricultural Economics, Cornell University: Ithaca, New York, 1953, p. 6.

of these two varieties.

The shifting emphasis on the leading apple varieties in Niagara County roughly from the mid-Twenties to the more recent post-World War II period is evident in the production percentages listed in TABLE III. To corroborate the evidence contained in TABLE II concerning varietal preferences based on recent plantings, TABLE III shows the established preference of McIntosh, the rapid acceptance of Cortland, the apparent stability of Wealthy and the rise to contending productive positions of the Red Delicious, Regular and Red Rome and Jonathan varieties. The unpopularity among growers in the inconsistent bearing habits of the Baldwin is confirmed in TABLE III by the rapid production decline in this variety. The Rhode Island Greening has also declined in importance, but at a more gradual pace than Baldwin.

TABLE III
CHANGES DURING 25 YEARS IN THE RELATIVE
PRODUCTION OF THE MORE IMPORTANT
APPLE VARIETIES*

Niagara County Survey

Variety	1922 - 1926	1947 - 1950
	Per Cent of Total Bushels	
<u>Production increased</u>		
McIntosh	1.3	22.1
Cortland	0.0	13.8
Wealthy	5.5	8.6
Red Delicious	0.1	5.4
Rome, Red Rome	0.2	4.2
Jonathan	0.4	1.8
Northern Spy	0.7	1.0
Kendall	0.0	0.8
Golden Delicious	0.0	0.6
<u>Production decreased</u>		
Baldwin	45.5	14.6
Rhode Island Greening	27.0	17.6
Duchess	4.3	0.8
Tompkins King	3.5	1.4
Roxbury Russet	2.6	0.0
Other Varieties	8.9	7.3
Total	100.0	100.0
Total bushels:	1,195,963	1,498,619

* Source: G.P. Scoville, Apple Varieties, Marketing the Apple Crop, Niagara County and Hudson Valley Surveys, A.E. 919, Department of Agricultural Economics, Cornell University; Ithaca, New York, 1953, p. 7.

IV. NEW YORK IN THE NATIONAL APPLE PICTURE

In furthering a clearer understanding of the market for apples in Orleans and Niagara counties, much perspective can be gained by analyzing recent statistics gathered and published annually by the United States Department of Agriculture concerning apples grown in this country. Although these data are broken down only as far as the state level, they would have some degree of pertinence relative to the major producing areas within a state.

In the case of New York for example, apple production is heavily concentrated in about a dozen counties in the western New York region and the Hudson River valley. Western New York's share of state apple production since 1948 was estimated at 60 per cent, while in the crop year of 1949, close to 20 per cent of New York's 20 million bushels came collectively from Orleans and Niagara counties. Besides this element of concentrated producing areas, the reader should also bear in mind that in New York, in general, Hudson valley growers have sold predominately to fresh fruit buyers while western New York growers have solicited processor outlets for their fruit.

New York Second in Commercial Production

With these factors in mind, TABLE IV reveals that New York has consistently ranked second behind Washington in commercial apple production in recent years, with Virginia holding third place in four of the five years. The state of Washington overtook New York in production during the Twenties and it has never been headed by any other state

TABLE IV

APPLES, COMMERCIAL CROP: PRODUCTION AND UTILIZATION
FOR SELECTED STATES, 1948 - 1952,
IN THOUSAND BUSHELS*

1948 apple crop

State	Pro- duction harvested	Farm Disposition		Utilization of quantities sold	
		For farm use	Sold	Fresh	Processed**
Washington	25,684	108	25,576	23,468	2,108
New York	11,456	644	10,812	6,523	4,289
Virginia	8,154	500	7,654	4,377	3,277
California	5,870	112	5,758	2,661	3,097
Michigan	4,830	240	4,590	3,525	1,065
Pennsylvania	4,520	480	4,040	2,140	1,900
Totals	60,514	2,084	58,430	42,694	15,736
Total U.S.	87,559	4,852	82,707	63,384	19,323

1949 apple crop

Washington	29,480	120	29,360	26,094	3,266
New York	17,368	700	16,668	7,919	8,749
Michigan	9,388	360	9,028	5,758	3,270
Pennsylvania	8,925	700	8,225	4,725	3,500
California	9,445	112	9,333	4,215	5,118
Virginia	8,525	450	8,075	3,211	4,864
Totals	83,131	2,442	80,689	51,922	28,767
Total U.S.	121,841	5,693	116,148	80,001	36,147

TABLE IV CONTINUED

1950 apple crop

State	Pro- duction harvested	Farm Disposition		Utilization of quantities sold	
		For farm use	Sold	Fresh	Processed **
Washington	34,488	138	34,350	27,600	6,750
New York	17,232	438	16,794	7,394	9,400
Virginia	12,340	420	11,920	5,072	6,848
Michigan	7,120	300	6,820	4,222	2,598
California	6,748	112	6,636	3,232	3,404
Pennsylvania	6,270	500	5,770	2,870	2,900
Totals	84,198	1,908	82,290	50,390	31,900
Total U.S.	120,610	4,494	116,116	76,620	39,496

1951 apple crop

Washington	19,108	108	19,000	16,600	2,400
New York	14,256	448	13,808	6,781	7,027
Virginia	8,860	455	8,405	4,877	3,528
Michigan	7,450	325	7,125	5,210	1,915
California	7,832	112	7,720	3,728	3,992
Pennsylvania	6,656	500	6,156	3,256	2,900
Totals	64,162	1,948	62,214	40,452	21,762
Total U.S.	101,047	4,794	96,253	68,921	27,332

TABLE IV CONTINUED

1952 apple crop

State	Pro- duction harvested	Farm Disposition		Utilization of quantities sold	
		For farm use	Sold	Fresh	Processed **
Washington	22,780	110	22,670	20,380	2,290
New York	11,395	380	11,015	5,646	5,369
Virginia	9,577	350	9,227	5,200	4,027
California	9,200	112	9,088	4,350	4,738
Michigan	5,508	260	5,248	3,910	1,338
Pennsylvania	4,590	480	4,110	2,110	2,000
Totals	63,050	1,692	61,358	41,596	19,762
Total U.S.	92,489	4,037	88,452	64,501	23,951

* Sources: Agricultural Statistics. United States Department of Agriculture - 1950. p. 178.

Agricultural Statistics. United States Department of Agriculture - 1951. p. 162.

Agricultural Statistics. United States Department of Agriculture - 1952. p. 192.

Agricultural Statistics. United States Department of Agriculture - 1953. p. 161.

Crop Reporting Board, Fruits (Noncitrus) Production, Farm Disposition, Value, and Utilization of Sales, 1951 - 52, United States Department of Agriculture, Bureau of Agricultural Economics, Washington, D.C., July, 1953. pp. 7-8.

** Canned, dried, frozen and crushed forms.

since that time. This table also shows that national apple production is focused in the six leading states of Washington, New York, Virginia, California, Michigan and Pennsylvania which together have grown 70 per cent of the crop.

In terms of volume of apples sold to processors, New York apple growers outsold the growers of any other state in recent times, reaching a maximum total of 9,400,000 bushels in 1950, a year when the national crop was nearly 18 per cent heavier than the ten-year average of the commercial crops grown between 1943 - 1952.

Processed Market Apples versus Fresh Market Apples

The comparative percentages depicted in TABLE V were adapted from the last three columns of production figures in TABLE IV. These percentage ratios of fresh market sales as opposed to processing market sales by apple growers in the six leading states disclose a number of interesting facts. Readily apparent at first glance is the decided preference of apple growers from the state of Washington to sell their fruit through fresh market channels of distribution. To a less noticeable degree, Michigan apple growers also have sold more of their output in the fresh market. The same holds true for Pennsylvania growers. On the other hand, California is the only major apple producing state in recent years to consistently sell more of its fruit to processors than to marketers of fresh fruit. Only growers in New York and Virginia have exhibited varying market choices in the five year span from 1948 to 1952.

TABLE V
COMPARATIVE PERCENTAGES SHOWING UTILIZATION OF
APPLES FROM THE FARM LEVEL, FOR
SELECTED STATES, 1948 - 1952

State	Percentages of Apples Sold From Farm For Fresh Market*				
	1948	1949	1950	1951	1952
Washington	92	89	81	88	90
New York	60	47	44	49	51
Virginia	57	40	43	58	56
California	46	45	49	48	48
Michigan	77	64	62	73	75
Pennsylvania	53	57	50	53	51

*For percentages of apples sold from the farm for the processed market, subtract above percentages from 100.

Surplus Apples Alter Marketing Picture

The effect that heavier-than-normal crop years can have on the way apples are marketed is also illustrated in TABLE V. For three successive years (1949, 1950 and 1951), the national apple crop ranged from $4\frac{1}{2}$ per cent above average in 1951 to 26 per cent above average in 1949. Using the percentage ratios of the 1952 crop year (nearest normal production of the five years) as a basis of comparison, it is noted that practically every state marketed a greater portion of their apples through processors in each of the three surplus years. For instance, New York apple growers sold more to processors in all three years than they did to fresh fruit buyers. Conversely, in 1948 and 1952, two years of less-than-normal production, apple growers in New York marketed a greater portion of their fruit through fresh apple channels. The conclusion to be drawn from these observations is that in years of apple surplus, the twin factors of fresh apple market gluts and the perishability of the fruit not only spell lower prices to the grower but also larger packs of processed apple products.

TABLE VI indicates that in the past eight years the commercial production of apples in New York has fluctuated from a low of 12 per cent of United States production in 1952 to a high of 16 per cent in 1951. The ten-year 1943 - 1952 average pegs New York's annual production at 14 million bushels or 13 per cent of the average national production for those years. Recalling from TABLE IV that New York apple growers have sold more fruit to processors in recent years than in any other state, TABLE VII points out that from 22 to 26 per cent of all apple sales to processors in the country have taken place in New York.

TABLE VI

COMMERCIAL APPLE PRODUCTION IN NEW YORK AND
COMMERCIAL UNITED STATES CROP SINCE 1948
AND 1943 - 1952 AVERAGE

Year(s)	United States Production	New York Production	New York as a Percentage of United States Production
	-----thousand bushels-----		
1948	88,407	11,750	13
1949	133,742	20,090	15
1950	124,488	18,700	15
1951	110,660	17,291	16
1952	92,489	11,395	12
1953	92,877	13,120	14
(Average 1943 - 1952)	105,802	14,009	13
(Indicated 1954)	101,999	14,555	14

TABLE VII

APPLES PROCESSED IN NEW YORK
AND IN THE UNITED STATES,
1948 - 1952

Year	Apples Processed, United States Total (fresh basis)	Apples Processed, New York Total (fresh basis)	New York as a Percentage of United States Total
	-----thousand bushels-----		
1948	19,323	4,289	22
1949	36,147	8,749	24
1950	39,496	9,400	24
1951	27,332	7,027	26
1952	23,951	5,369	22

Furthermore, at least three-quarters of New York's annual share of national apple sales to processors have originated in the western New York fruit belt.

Production Leaders Among the Varieties in New York

Seven of the more important apple varieties grown in New York are tabulated in TABLE VIII in terms of annual production for the years 1951, 1952 and 1953. Average production for the ten years from 1942 to 1951 is also included as a trend indicator not only for New York's production, but also the output of other leading states and areas.

National production of the Wealthy shows a gradual tapering off as does New York's actual production and its percentage of national output. For the ten-year average, New York yearly produced about one third of the crop, but in 1953 its share had dipped to a little over one fifth. Baldwin was another variety that showed declining significance from a production standpoint - more so than the Wealthy. New York has led the nation in Baldwin production for decades and even in the face of national and state production declines, the state's share of national output has increased from 43 per cent during the 1942 - 1951 period to 48 per cent for the 1953 crop year.

TABLE VIII shows that the Cortland variety has followed a rather unpredictable production increase from the ten-year average period to 1953 in most of the leading production areas. New York has definitely dominated Cortland production in recent times, but its share of national output has slipped slightly from the 68 per cent mark in the average period to 56 per cent in 1953. Diametrically situated from the Cortland with respect to New York's share in national production is the Red Delicious

TABLE VIII
COMMERCIAL APPLE PRODUCTION, BY VARIETIES,
FOR SELECTED STATES AND AREAS
1953 WITH COMPARISONS*

Area and/or State	Average 1942- 1951	1951	1952	1953
-----THOUSAND BUSHELS-----				
		<u>Wealthy</u>		
New York	714	605	625	328
Michigan	411	472	286	279
New England	183	183	120	152
Ohio	109	154	87	108
Totals	1,417	1,414	1,118	867
Total U.S.	2,169	2,073	1,598	1,519
		<u>Baldwin</u>		
New York	1,574	1,556	1,253	918
New England	1,089	981	762	572
Michigan	398	291	209	260
Ohio	384	352	125	108
Totals	3,445	3,180	2,349	1,858
Totals U.S.	3,683	3,351	2,452	1,905
		<u>Cortland</u>		
New York	1,321	1,902	1,481	1,378
New England	312	462	312	566
Pennsylvania	145	229	92	123
Ohio	53	176	112	135
Totals	1,831	2,769	1,997	2,202
Totals U.S.	1,957	3,064	2,168	2,468

TABLE VIII CONTINUED

Area and/or State	Average 1942- 1951	1951	1952	1953
-----THOUSAND BUSHELS-----				
	<u>Red Delicious</u>			
Washington	14,411	8,064	11,686	13,219
Virginia	915	1,004	1,388	989
Oregon	772	527	916	711
California	629	861	1,288	938
New York	611	605	741	656
Michigan	544	981	496	1,104
Totals	17,882	12,042	16,515	17,617
Total U.S.	21,716	17,192	20,877	21,081
	<u>McIntosh</u>			
New York	4,550	5,706	3,362	4,723
New England	3,662	4,985	1,943	4,823
Michigan	1,099	1,544	931	1,676
Totals	9,311	12,235	6,236	11,222
Totals U.S.	10,393	13,354	7,190	12,105
	<u>Rhode Island Greening</u>			
New York	1,974	3,112	1,026	2,296
Michigan	173	236	143	219
New England	108	154	48	116
Totals	2,255	3,502	1,217	2,631
Totals U.S.	2,344	3,649	1,255	2,690

TABLE VIII CONTINUED

Area and/or State	Average 1942- 1951	1951	1952	1953
-----THOUSAND BUSHELS-----				
		<u>Rome Beauty</u>		
Washington	1,658	1,147	956	972
New York	733	1,038	798	853
Pennsylvania	717	915	505	656
Ohio	628	814	573	595
New Jersey	584	863	514	688
Totals	4,320	4,777	3,346	3,764
Totals U.S.	6,692	7,828	6,229	6,428

*Sources: Crop Reporting Board, Fruits (Noncitrus) Production, Farm Disposition, Value, and Utilization of Sales, 1951 - 52, United States Department of Agriculture, Bureau of Agricultural Economics; Washington, D.C., July, 1953. pp 10-13.

Crop Reporting Board, Apples, Production By Varieties, 1953 With Comparisons, United States Department of Agriculture, Agricultural Marketing Service; Washington, D.C., December, 1953. pp 4-7.

variety. The Western States have grown about 75 per cent of all Red Delicious apples in the United States in recent years, it being the standout variety shipped East for fresh fruit consumption. Despite western dominance, New York still has ranked in recent years among the top six states in production, showing a microscopic increase in output from 2.8 per cent of national yield in the ten-year average period to 3.1 per cent in 1953.

From TABLE VIII it is evident that the McIntosh variety is largely concentrated in the production areas of New York, New England and Michigan. New York's annual production has remained relatively stable at the $4\frac{1}{2}$ million bushel mark which, from 1942 to 1951, accounted for 44 per cent of national output. In 1953, the McIntosh crop in New York represented 39 per cent of the United States total and the variety should continue to be the leader in terms of volume for many years to come.

Second only to McIntosh from the standpoint of volume in recent years has been the Rhode Island Greening. The crop of 1953 rose about 300,000 bushels over the ten-year average figure of almost two million bushels. As a percentage of national output, New York has produced 85 per cent of this variety, which is by far the highest percentage of any single commercially significant apple variety grown in the state.

The final variety listed in TABLE VIII, Rome Beauty, experienced a slight production increase in 1953 over the ten-year average period in New York. In gradually closing the production gap on the state of Washington, New York in 1953 produced 13 per cent of the national crop of Rome Beauty.

Apple Prices and Causal Factors

The composite purpose of TABLE IX and X is to illustrate price-quantity relationships during recent crop years in the major apple producing states. The heavier-than-normal crop of 1951 saw apple prices in New York dip to a drastically low point - in fact the lowest of any major producing area in the country. However, in the crop years of 1952 and 1953, average season prices to New York growers were more on a par with prices received by growers in the other leading states, with the exception of Washington. This can be partially explained by decreases in production to levels below average during each crop year.

However, other factors besides fluctuating production contribute to the arrival at any seasonal price average for a particular state or growing area. Such factors would include (1) methods of marketing (fresh or processed); (2) consumer preference and demand for certain varieties; (3) weather; (4) distance from major markets; (5) inventory levels on processor packs from the previous year; (6) storage facilities; (7) selling practices of a grower; (8) presence or absence of grower marketing associations; and (9) grower-buyer relations. The usually top price received for their apples by Washington growers can be attributed largely to fresh market sales in remote Eastern markets where consumer preference for the varieties grown in the Northwest has been built on years of earnest promotional effort by the grower marketing associations.

TABLE IX

APPLES, COMMERCIAL CROP: PRODUCTION AND SEASON
AVERAGE PRICE PER BUSHEL RECEIVED
BY FARMERS, FOR SELECTED STATES,
AVERAGE 1941-50, 1951 CROP*

State	Production		Economic abandonment	Price for crop of	
	Average 1941-50	1951		Average 1941-50	1951
	-----thousand bushels-----			----dollars----	
Washington	29,458	19,108	-----	2.22	3.05
New York	14,591	17,291	3,035	1.71	1.10
Virginia	9,486	9,560	700	1.66	1.25
California	7,989	7,832	-----	1.40	1.33
Michigan	6,962	9,085	1,635	1.66	1.40
Pennsylvania	6,684	7,626	970	1.78	1.20

*Source: Agricultural Statistics, United States Department of
Agriculture. 1953. p. 159.

TABLE X

APPLES, COMMERCIAL CROP: PRODUCTION, FARM DISPOSITION,
AND VALUE, FOR SELECTED STATES*

1952 apple crop

State	Farm Production Marketed	Season average price per bushel	Value of sales
	thousand bushels	dollars	thousand dollars
Washington	22,670	3.85	87,280
New York	11,015	2.05	22,581
Virginia	9,227	1.80	16,609
California	9,088	1.47	13,359
Michigan	5,248	2.15	11,283
Pennsylvania	4,110	2.00	8,220
Totals	61,358	2.60	159,332
Total U.S.	88,452	2.56	226,173

1953 apple crop

	thousand bushels	dollars	thousand dollars
Washington	24,190	4.25	102,808
New York	12,690	2.25	28,552
Michigan	7,920	2.20	17,424
California	7,103	2.20	15,627
Virginia	6,545	2.15	14,072
Pennsylvania	3,662	2.20	8,056
Totals	62,110	3.00	186,539
Total U.S.	88,521	2.85	252,224

*Source: Crop Reporting Board, Production, Farm Disposition,
And Value, Principal Fruits and Tree Nuts, 1952 And 1953 Seasons
United States Department of Agriculture, Agricultural Marketing
Service: Washington, D.C. January, 1954. pp 4-5.

National and State Rank of
Niagara and Orleans
Counties

To bear out the generalization stated at the beginning of this chapter to the effect that apple production in a state is concentrated in a comparatively few counties, TABLE XI shows a partial listing of the 100 leading counties in the United States in terms of number of trees and production for selected years. The aggregate production of these 100 leading counties amounted to 57 per cent of national output in 1939, 66 per cent in 1944, and 70 per cent in 1949. In other words, these figures help to augment the widely held argument that apple growing is rapidly becoming a specialized farm operation with huge investments in equipment, land, growing trees, spray materials and storage facilities.

Niagara County has ranked among the top ten counties in the country in numbers of trees of all ages from 1940 to 1950. In terms of production, however, the county has ranged from ninth to twenty-fifth to eleventh in the respective growing seasons of 1939, 1944 and 1949. Comparing Niagara with other leading New York counties, it stood second behind Wayne County in 1940 with respect to numbers of trees of all ages, but dropped to third in 1945 and 1950 in yielding second place to the Hudson valley county of Ulster. Production-wise, Niagara County held third place in the state in 1939 and 1949, but jumped to sixth in an off-year, 1944.

Orleans County has shown a more stabilized trend both in numbers

of trees of all ages and production when compared with its neighboring county. On the national basis, Orleans County ranked thirteenth, sixteenth and thirteenth as far as apple trees of all ages were concerned in the respective years of 1940, 1945 and 1950. The county's national position based on production in each of the crop years 1939, 1944 and 1949 was seventh, thirteenth and twelfth. On the statewide comparison, Orleans County ranked fifth in 1940, sixth in 1945 and fifth in 1950 among New York counties in number of trees of all ages. Apple production in the county in 1939, 1944 and 1949 placed Orleans in second, third and fourth position, respectively, with respect to other New York counties.

TABLE XI

APPLES: NUMBER OF TREES OF ALL AGES, 1950,
WITH QUANTITY HARVESTED, 1949,
AND WITH COMPARISONS, 1945,
1944, 1940 AND 1939*

For selected U.S. counties, with 100 leading-county totals
and U.S. totals

County**	Trees of all ages					
	Number			U.S. Rank		
	1950	1945	1940	1950	1945	1940
U. S.	50,586,262	65,775,697	71,663,067			
100 counties	21,438,252	26,435,934	27,756,496			
Yakima, Wash.	1,341,953	1,240,471	1,277,971	1	1	1
WAYNE, N.Y.	829,785	976,174	953,178	2	2	2
Chelan, Wash.	801,044	770,485	897,482	3	4	3
Sonoma, Calif.	705,832	857,501	876,285	4	3	4
Frederick, Va.	586,239	733,451	719,099	5	5	7
Berrien, Mich.	585,354	707,336	752,908	6	6	6
Okanogan, Wash.	583,268	496,412	530,591	7	13	15
Santa Cruz, Calif.	565,549	581,689	581,923	8	11	9
ULSTER, N.Y.	543,238	687,962	583,748	9	7	8
NIAGARA, N.Y.	531,455	649,571	758,032	10	8	5
COLUMBIA, N.Y.	442,490	614,363	579,219	11	9	11
Adams, Pa.	408,625	602,305	536,908	12	10	14
ORLEANS, N.Y.	391,219	442,835	569,610	13	16	13
Berkeley, W. Va.	378,295	558,173	575,259	14	12	12
DUTCHESS, N.Y.	291,470	463,812	366,058	19	14	20
MONROE, N.Y.	274,663	321,043	341,662	21	26	26

TABLE XI CONTINUED

County **	Quantity harvested					
	Bushels			U.S. Rank		
	1949	1944	1939	1949	1944	1939
U. S.	131,252,817	135,968,320	150,092,940			
100 counties	91,190,261	90,611,098	85,654,841			
Yakima, Wash.	11,982,375	12,982,310	10,501,754	1	1	1
WAYNE, N.Y.	4,239,091	3,791,104	4,752,241	4	4	3
Chelan, Wash.	10,608,128	9,592,880	6,267,425	2	2	2
Sonoma, Calif.	2,917,125	2,909,917	2,687,882	6	5	5
Frederick, Va.	1,626,817	2,478,967	2,034,317	14	7	10
Berrien, Mich.	1,974,445	1,593,479	2,395,509	8	12	8
Okanogan, Wash.	6,491,609	6,193,195	3,468,601	3	3	4
Santa Cruz, Calif.	3,090,833	1,993,208	2,488,949	5	10	6
ULSTER, N.Y.	1,910,782	2,015,613	1,726,544	9	9	12
NIAGARA, N.Y.	1,770,503	967,203	2,388,883	11	25	9
COLUMBIA, N.Y.	1,162,576	1,365,290	1,289,634	18	15	16
Adams, Pa.	1,645,425	1,613,034	1,807,494	13	11	11
ORLEANS, N.Y.	1,760,464	1,525,814	2,401,411	12	13	7
Berkeley, W. Va.	1,054,332	1,440,019	1,488,675	21	14	14
DUTCHESS, N.Y.	849,149	988,676	862,489	26	22	23
MONROE, N.Y.	942,237	876,197	1,230,021	24	27	19

*Sources: United States Census of Agriculture, 1950, Special Reports - Ranking Agricultural Counties, Department of Commerce, Bureau of the Census, p. 50.

United States Census of Agriculture, 1945, Ranking Agricultural Counties, Department of Commerce, Bureau of the Census, p.48

**New York counties in caps.

V. CURRENT MARKETING PRACTICES BY GROWERS

Before telling how the market outlets for apples in Orleans and Niagara counties have developed to their current positions in each county, the pertinent influences which affect the marketing practices of any apple grower should be stated.

Influences Affecting Apple Marketing

Availability of outlets. Implied in the significance of this factor is not only the physical availability of a certain market outlet (whether it actually exists) but also the nearness to the grower in terms of miles of haul.

Size of crop. As was illustrated statistically in Chapter IV, heavier-than-average apple crops, on a national scale, caused growers to market a greater proportion of their fruit through processor outlets. Apple crops have frequently varied in size among the important commercial apple growing regions and these interregional crop size differences have affected which outlet growers select.

Economic importance of apple growing. The apple grower who receives 75 per cent of his farm income from the marketing of his apples will naturally devote more time and thought to his choice of outlets than will a grower receiving only 25 per cent.

Varieties. Chapter III on apple varieties pointed out the varietal characteristics which, in total, have a bearing on the type of market for which each variety would be best suited. In addition to these varietal characteristics, the number of varieties a grower has

and yearly production levels for each variety can affect his choosing of a market outlet.

Prices. The market outlet which returns the highest net farm price to the grower will exert an influence on his choice of outlets. Net farm prices are composed of the residual left to the grower after he has allowed for his harvesting expenses, container expenses, hauling expenses and other expenses incident to his moving his crop to market. Different types of market outlets frequently have furnished containers or have made an allowance to growers for hauling expenses. Whether these inducements are offered or not has a direct bearing on net farm prices to apple growers, thus influencing their selection of a market outlet.

Labor supply. Whether the apple grower has enough help at harvest time and the care with which the available help handles the fruit contributes to the decision a grower must make in choosing a market outlet.

Past grower-buyer relations. Over the years, if a grower has been satisfied with the returns a certain buyer has given him for his apples, he will be apt to resist any changes to alternate market outlets in the future.

Storage facilities. The ready availability and the cost of cold storage for apples will also affect the marketing practices of growers. The storage factor not only will affect the choice of an outlet but also the time of year a grower will sell his fruit.

Now that these factors affecting the marketing practices of apple growers have been mentioned and briefly described, the discussions of the market outlets for apples in Orleans and Niagara counties will follow.

Orleans County

Based on 1953 production figures obtained by the author from 31 Orleans County apple growers, 340,175 bushels of apples were harvested by them during that crop year. Of these, 204,825 bushels (60 per cent) were sold direct to processing outlets. However, these direct sales to the processors were augmented by a few large grower sales to wholesaler-distributors who, in part, functioned as wholesale buyers for distant processing firms. Allowing for these indirect sales to processors, then, a more realistic percentage approaching 70 would better indicate the balance that existed in the 1953 crop year between grower sale to processors and fresh fruit buyers.

Sales outlets for the leading varieties. In Chapter III, the leading apple varieties in Orleans County based on number of trees of all ages were McIntosh, Rhode Island Greening, Baldwin, Cortland, Rome Beauty and Red Rome, Red Delicious, Wealthy and Twenty Ounce. The author's survey substantiated the leadership of these varieties on a production basis, too, because they were reported by the growers as being the heaviest producers in 1953.

The significance of processors as grower outlets for certain apple varieties in Orleans County is illustrated in Table XII. Substantially more than half of Rhode Island Greening, Wealthy and Twenty Ounce apples harvested by the surveyed growers in 1953 were sold to processors, while significant amounts of Baldwins and Cortlands were also marketed in this manner. Even the fact that 44 per cent of Rome Beauty and 41 per cent of McIntosh apples were sold to the processors further emphasizes their predominant influence as a market outlet in Orleans County. These latter

two varieties are more customarily marketed through fresh fruit market channels.

Buyers of fresh fruit apple varieties in Orleans County have been forced by the keen competition of local processor buyers to diversify their marketing functions. Frequently, a single fresh fruit buyer would simultaneously function as a trucker, a wholesaler - distributor, and a cold storage operator. Or, another combination of marketing functions commonly found among fresh fruit buyers was the cold storage operator - repacker.

About 62 per cent of the fresh fruit sales by the 31 surveyed growers were made to a triple function trucker, merchant - distributor, and cold storage warehouser. In other words, this type of buyer would purchase apples on a tree run basis, truck the fruit from the grower's farm to his own storage or one he leased, distribute the processing apple varieties to an out-of-county processor and store for later grading and re-packing such typical fresh fruit varieties as McIntosh, Red Rome, Red Delicious and Rome Beauty. Nineteen per cent of fresh fruit sales went to cold storage operators who performed the market functions of storage, grading, and re-packing at widely scattered local points, later selling at wholesale prices to chain store buyers or city jobbing concerns. Sales to fruit brokers accounted for approximately 8 per cent while the remaining 11 per cent was fairly evenly divided between a local wholesaler and wholesale houses operating out of Buffalo.

Reasons for large percentage of apple sales to processors. On the basis of this Orleans County grower survey, about two bushels out of every three leaving the farm were heading for some processing plant.

TABLE XII
GROWER SALES TO PROCESSORS, LEADING APPLE VARIETIES

Orleans County Survey - 1954*

Variety**	Bushels Harvested	Bushels Sold to Processors	Percentage Sold to Processors
Rhode Island Greening	80,325	65,325	81
Baldwin	78,850	51,350	68
McIntosh	78,400	31,850	41
Cortland	25,150	16,450	65
Rome Beauty	20,750	9,200	44
Red Rome	10,350	-----	00
Wealthy	8,150	7,750	95

* Data based on interviews with 31 apple growers.

** Red Delicious: bushels harvested, 7,525; bushels sold to processors, 475 (6 per cent).
Twenty Ounce: bushels harvested, 7,600; bushels sold to processors, 7,600 (100 per cent).

To probe for the reasons behind this decided preference, the author asked each grower if he had found that the comparative prices paid by processors had increased with respect to the prices received from fresh fruit buyers of the same variety over the past 5 years. Twenty-seven growers answered in the affirmative to that question. As will be pointed out in a succeeding chapter, the demand for the many forms of processed apple products since the end of World War II has gone up and this rise has been reflected back to the grower level in the form of a closer relationship between prices paid by the processors and fresh fruit buyers.

The surveyed growers were also asked if they had experienced more profit in producing apples for the processing industry or for the fresh fruit market. Of the 22 growers who made categorical replies, 15 stated that it was more profitable for them to sell to processors while seven said that more profit could be realized by selling their fruit in the fresh market. However, a few growers hedged the question with five insisting that it depended on the varieties as to which market would be the most profitable, three saying that they sold apples profitably in both markets and one answering that it depended on the volume of the crop and overall market conditions for apples throughout the country. With nearly 50 per cent of the growers contacted finding it more profitable to market their fruit through processors, coupled with an almost unanimous belief that processor prices have firmed up in the past five years, insight into the growers' choices of market outlets is gained.

Another subjective question was asked of each grower in the survey to ascertain his thoughts on new outlets for apples. A few growers

gave more than one answer to this question, but a grouped breakdown of the various replies indicated that 18 saw the most promise in processor outlets and 14 in fresh fruit outlets. It was interesting to note that 12 of the 14 replies in favor of fresh fruit outlets specifically mentioned apple prepackaging in film containers.

Apple grades. The application of various grading standards to both fresh fruit and processing apples has afforded a more equitable and orderly marketing of apples. These standards are important for the grower to know because fresh fruit and processors' apple grades place quality factors on differing bases. For example, the factor of uniform surface color in apples destined for fresh fruit markets contributes to the assigning of a top quality grade. On the other hand, uniformity of surface color is not a determining quality factor on apples going to processors, who instead establish premiums on large size. Therefore, the apple grower should take these grading standards into consideration when choosing a market outlet that will be most profitable for him.

Grower sales to processors were made on the basis of two grades: United States government standards for grades of cannery apples and individual processor standards which largely have their basis established on United States standards. The United States government standards are:

"U.S. No. 1 (Cannery). This grade consists of apples of one variety which are not overripe; which are free from decay, worm holes, freezing injury, internal breakdown, and from any defect which cannot be removed during the usual commercial preparation for use without causing a loss of over 5%, by weight, of apple in excess of that which would occur if the apple were perfect.

U.S. No. 2 (Cannery). This grade consists of apples of one variety which are not overripe; which are free from freezing injury,

internal breakdown, and from any defect which cannot be removed during the usual commercial preparation for use without causing a loss of over 25%, by weight, of the apple in excess of that which would occur if the apple were perfect."¹

Excerpts obtained from a grower-processor contract will illustrate the similarity between the standards set up by the United States government and the standards established by an individual processing firm:

"Apples (are) to be hand picked, well sprayed and shall consist of one variety of a size $2\frac{1}{4}$ inch and up which are not overripe or underripe, which are free from decay, worm holes, freezing injury, hail injury, internal breakdown, red banded leaf roller damage, and from any defect which cannot be removed during the usual peeling operation. Buyer reserves the right to reject any apples not conforming to the above. It is agreed between buyer and seller that delivery shall be complete without any removal or sorting of the better grades before delivery. Apples picked before maturity will not be accepted and buyer reserves (the) right of determining maturity date. Apples containing 10% culls must be graded before delivery."²

These apple grading standards were established by an Orleans County applesauce processor who has specialized in packing a "Grade A Fancy" brand of sauce for over 25 years.

Purchases from growers by fresh fruit buyers were, as mentioned before, made on a tree-run or orchard-run basis. The grading of this fruit would be done later by these fresh fruit buyers, following the rules and regulations on apple grades established by the state of New York. These New York standards, for all practical purposes, are identical to the standards established by the United States Department of Agriculture. (See Appendix for the essential parts of the United

¹R.M. Smock and A.M. Neubert, Apples and Apple Products, Economic Crops - Volume II, Interscience Publishers, Inc: New York, 1950, Interscience Publishers, Ltd: London, 1950, p. 281.

²Reprinted by permission of the Lyndonville Canning Company, Inc., Cannery License No. 486, Lyndonville, New York. Grading information taken from a sample contract used in buying during the 1954 processing season.

States standards.) Buyers who pack or repack apples in a closed package for sale in New York are required by law to mark on the container the variety, grade, minimum size, quantity of contents and their name and address.

Improving grower marketing activities. The 1954 agricultural extension program for Orleans County, formulated by and under the guidance of the County Agricultural Agent, has outlined some rather specific courses of action that county fruit growers might follow in realizing more profit from their farming operations. Committees composed of the growers themselves have been formed to study common problems and to initiate concerted efforts in all parts of the county toward the solution of these problems.

Published each year in mimeographed form, the 1954 edition of the program for Orleans County contained a concise, lucid "Situation Report" affecting fruit marketing in the county. The writer thought that parts of this report³ were especially significant to the apple grower, so they are quoted as follows:

1. Orleans County depends primarily on processing outlets for fruit. Growers with good varieties and good quality should plan to have packages on hand and use more common storage.
2. Citrus production is likely to remain high. (Calls attention to competitive influences)
3. Demand for better quality is increasing. Processors want larger sizes.
4. Lack of storage facilities in the county.
5. Present demand for fresh fruit is showing a slight increase.

³Anon. 1954 Agricultural Extension Program - Orleans County, April 1, 1954 to March 31, 1955, pp. 1-2.

6. Quality of fruit at retail level is showing substantial improvement.
7. Retail stores are taking advantage of new research work and improving merchandising of fruit, especially apples.
8. Western New York Apple Growers Association is doing a good job of getting needed market information to growers.
9. Growers are now moving early varieties out of storage earlier.
10. Demand for processed products is showing a gradual increase.
11. Outlet for poor varieties is disappearing.
12. Limited export demand. Fruit considered luxury by many consumers.
13. Competition from other fruit sections is increasing.
14. Lack of grower-processor understanding is being overcome by fruit industry organizations.
15. Processed stocks are in a favorable statistical position and demand is good with some price increases showing.
16. Growers need more information on grading, packaging, merchandising and salesmanship.

An equally succinct analysis of the principal problems of the fruit industry in Orleans County were stated, in part, as follows:⁴

1. Reduce costs per unit.
2. Use labor and equipment efficiently.
3. Need efficient but cheaper spray program.
4. Selection of new equipment to reduce manpower and time outlays.
5. Improve quality of fruit through best cultural practices.
6. Need for more improved dual-purpose varieties.
7. Continue to improve grower-processor relations.

⁴Ibid., p. 2.

8. Get fruit from tree to consumer in best possible condition.
9. Need for improved storage facilities.
10. Outlet for packing house sorts.
11. To keep culls off the market.
12. Expansion of fresh fruit market outlets.
13. Meeting competition between growers, from other areas and from citrus fruit.

Now that the analysis of the apple growing and marketing situation uncovered the major problems facing the grower in Orleans County, a plan of action was inaugurated to meet and overcome them. Through a series of meetings, demonstrations, service letters, news articles,
5
farm visits and radio broadcasts, concrete steps were taken in 1954 to:

1. Provide growers with complete cultural and marketing information, except that marketing information which the Western New York Apple Growers Association provides.
2. Promote better quality with growers who want to expand fresh fruit outlets through thorough spraying, careful handling of fruit and best pruning, fertilization and thinning practices. During the summer growers will be urged by letter and twilight meetings to arrange early for packages and storage space for the best fruit.
3. Provide growers with latest market merchandising information at winter meetings and in news stories.
4. Try to get the trade to do a better job of merchandising at the retail level through the cooperation of the Western New York Apple Growers Association and personal grower contacts.
5. Supply growers with the best available outlook information, especially at the county fruit committee meetings and also report of the college fruit committee's recommendations as a basis for individual and fruit committee planning.
6. Keep growers informed on all new developments in use of concentrate sprays including advantages, disadvantages and proper

⁵Ibid., pp. 3-4.

nozzling adjustments.

7. Run several demonstrations on farms of fruit committeemen and others to study chemical thinning and orchard mulching in relation to size and quality of crop and under varying weather conditions.
8. Cooperate with the Western New York Apple Growers Association . . . and the Horticultural Society to effect better understanding and cooperation of growers and processors in marketing our fruit crop.
9. Push promotional activities of fruit industry organizations . . . to move volume faster at stable prices by encouraging growers to contact retail outlets to increase their use of new research marketing information from Cornell (University).
10. Inform research workers of growers' demands for new varieties, economical spray materials, labor saving equipment and methods, and marketing information.
11. Continue to work in close cooperation with the local cooperative cold storage in exploring new markets, establishing a brand for Orleans County, to develop an advertising fund and program to get markets and provide continuous grade inspection to insure getting a uniform pack to the buyers. Also, to establish a pool to provide a continuous supply of apples from harvest through April. This will include annual allocations from growers to establish and hold a market. This will take several years, but it has possibilities. The brand will be built on a good U.S. # 1.
12. Get the latest information on harvest dates for apples relative to storage quality in relation to the use of stop drop sprays in the fall to improve color as well as to prevent premature fruit drop.

If nothing else, this Orleans County extension program has given the apple growers something constructive and challenging to think about. A point of reference from which might be established future goals has been clearly and unmistakably marked out. The burden of proof for future success in the program that has been outlined for improvements in grower production and marketing activities rests squarely on the shoulders of the growers themselves. A unified spirit of cooperation engendered by the hope of a mutually higher monetary return from better marketing operations should be the goal of Orleans County apple growers.

Niagara County

Trend picture for market outlets. Broken down into six or seven year intervals between 1932 and 1950, Table XIII presents a capsule summary of the changes that have gradually evolved over the 18-year period in the apple marketing activities of Niagara County growers.

During 1945-1950, four bushels of fruit moved to consumption through Buffalo wholesale houses for every five sold through wholesalers located in New York, Cleveland, Cincinnati, Pittsburgh, Chicago, Toledo and the state of Florida. In general, a higher average price was realized by growers who sold their apples outright to Buffalo wholesalers than if they marketed their fruit on a consignment basis through commission merchants in that city. Consequently, 74 per cent of sales to Buffalo wholesalers were on an "outright" basis while the remaining 26 per cent involved commission fees being deducted before remittance was made to the grower.

On the basis of the 100 growers making up this Niagara County survey, their sales to wholesalers in cities other than Buffalo have remained relatively stable, hovering about the 20 per cent level for almost 20 years. Here, too, more apples were sold outright to these more remote wholesalers than were consigned to them. The price differentials for U.S. No. 1, 2½-inch apples in favor of outright sales to these distant wholesalers over sales made on consignment averaged from 1943 to 1950, 40 cents for McIntosh, 31 cents for Baldwin, 35 cents for Rhode Island Greening and 47 cents for Rome Beauty.⁶ In the post-war years of 1946-

⁶G.P. Scoville, Apple Varieties, Marketing the Apple Crop, Niagara County and Hudson Valley Surveys, A.E. 919, Department of Agricultural Economics, Cornell University: Ithaca, New York, 1953, p. 37.

1950, Cleveland wholesale houses bought from Niagara County growers about 60 per cent of the apples destined for wholesalers, located in distant cities. Pittsburgh wholesale houses ranked second in volume in this classification.

The rapid decline in buying activity of country or local buyers reflected by the percentages given in Table Xlll almost inversely coincides with the equally significant rise in grower sales to processors. In all probability, these local buyers have felt the combined "competitive pinch" of increased buying activity since the beginning of World War ll from Buffalo wholesale houses and the processors.

Truckers and hucksters have rather consistently handled about 10 per cent of the apples produced on the surveyed farms in Niagara County. Most of these truckers were neighbors or near-by neighbors of apple growers and they would perform a selling and transportation service by hauling the fruit to wholesale produce markets in Niagara Falls, Buffalo, and Tonawanda. Most of these truckers never took title to the apples. They merely would deduct their charges for transportation and selling and return the net proceeds to the grower.

The increased demand for processed apples during the Second World War is unmistakably shown in Table Xlll where more than three times as many bushels were sold to processors during the years 1939-1944 than in the years 1932-1938. This initial jump in grower sales to processors marked only the beginning of a trend that has taken on greater meaning since 1950. Net farm price comparisons between processor sales and sales to fresh fruit buyers have explained the development of this preference on the part of growers.

"Before 1942 the net farm price for processed apples was 54 per cent of the price paid for apples sold for fresh fruit consumption. Since 1942 this percentage has increased to 76. Since 1943, 50 per cent of the Baldwins and 59 per cent of the (Rhode Island) Greenings have been sold for processing at net farm prices equal to almost 90 per cent of the price these varieties brought when sold for fresh fruit consumption."⁷

Factors behind the developing trends. Why have Niagara County apple growers shifted in marketing more of their fruit in recent years through processors than through fresh fruit buyers?

Between 1950 and 1953, grower sales to processors in Niagara County rose to twice the percentage for that particular outlet listed in Table Xlll for the 1945 - 1950 period.⁸ The reasons behind this rapid increase over only three years were (1) the increase in military needs for processed apple products as a result of the Korean War, (2) the rapid expansion in baby food processing in the western New York area since 1950, and (3) the increased buying activity of trucker - wholesalers who bought apples for many small processing plants located in other New York state areas.

The increase in military movements of applesauce and canned apples from 1950 to 1953 is shown in Table XV in Chapter VI. Since 1950, the Gerber Baby Food Company has built a new baby food processing plant in Rochester, New York and the Duffy - Mott Company, in addition to the purchase of the Clapps Baby Food plant in Rochester, has built a new processing plant at Williamson, New York. The Comstock Canning Company

⁷Ibid., p. 34.

⁸These changes in sales to processors were substantiated by interviews with four wholesale fresh fruit buyers and repackers located in Niagara County.

TABLE XIII
MARKET OUTLET FOR APPLES*
Niagara County Survey 1932 - 1950

Market Outlet	Per Cent of Total Bushels		
	1932 - 1938 1,381,886 bushels	1939 - 1944 1,256,258 bushels	1945 - 1950 1,864,703 bushels
<u>For fresh consumption:</u>			
Wholesale houses			
Buffalo	9	13	17
Distant cities	24	20	21
County buyers, brokers	34	9	2
Buyers name not given**	6	10	14
Export	1	0	0
Government	2	7	3
Truckers, Hucksters	9	11	10
Stores, fruit stands	4	3	2
City markets	3	2	2
Retail	1	1	1
For processing:	7	24	28
Total	100	100	100

*Source: G.P. Scoville, Apple Varieties, Marketing the Apple Crop, Niagara County and Hudson Valley Surveys, A.E. 919, Department of Agricultural Economics, Cornell University: Ithaca, New York, 1953, p. 38.

**For those sales the grower did not know the name of the buyer. This was the case for a number of the sales made by cold storage management.

has also increased its production of canned apple quarters and slices since 1950. Despite the fact that many Niagara County growers are from 90 to 100 miles from these out-of-county processing firms, buyers representing these companies have even furnished transportation in order to attract the increasing supplies required.

These factors accounting for the rise in grower sales to processors in Niagara County were equally applicable during this 1950 - 1953 period in Orleans County. However, their effect on the apple growers in Niagara County was more significant because, as pointed out in Table XIII, in the years before and during World War II, growers in this county marketed a relatively small proportion of their apples through processors. In Orleans County, on the other hand, these factors merely added to the already existent dominance of the processing plants as the principal market outlet for growers.

The 1953 crop year in Niagara County was particularly indicative of the post-World War II trend towards more grower sales of apples to processors. Nationally, processor demand was brisk because inventories of canned apple slices and applesauce on August 1, 1953 were practically nil. With prospects of relatively short apple supplies facing them, processors started roving far afield quoting prices at a higher level than 1952. Processor prices even increased as the harvesting season progressed with some paying as much as $4\frac{1}{2}$ - $4\frac{3}{4}$ cents per pound on $2\frac{1}{2}$ -inch and up, U.S. No. 1 Canners, plus hauling allowances.⁹

⁹Anon. Apples - Drought, heat, a short crop, complacency, brisk processor demand were paradoxical situations in 1953. American Fruit Grower, January, 1954, p. 13.

One large grower contacted by the author in Niagara County reported his 1953 harvest at 39,300 bushels. In previous years, he had sold his apples for the most part of the same fresh fruit buyer, - a local cold storage operator and repacker. He had grown nothing but apples on his 180-acre farm for a number of years. In 1953, this grower sold about 27,300 bushels to processors at a price slightly above the national average mentioned above. It has been situations similar to this which have swung apple growers in Niagara County into a position of actively meeting this high level processor demand.

Commenting in the March 20, 1954 issue of The Rural New Yorker, a Lewiston grower highlighted changing consumer buying habits with respect to apples. Located in western Niagara County in close proximity to heavily populated areas along the Niagara River, this grower still persisted that apples marketed in the fresh form were on the wane. He backed up his convictions by listing these three reasons:

1. People now live in houses or apartments with little if any storage space for bulk, fresh apples.
2. More social life and leisure time activities place a premium on the amount of time a housewife can devote to housekeeping chores and meal planning.
3. The ready-to-eat phobia has caught the imagination of the housewife, so she no longer wants to wash, pare and cook apples.

As a final commentary on what to expect in the future, this Lewiston grower strongly advised the western New York apple grower to plant new apple varieties in considerable quantities that were adapted to processing.

Comparing the Counties

Summarizing the information presented in this chapter, apple growers in each of these counties have marketed their fruit through various outlets, and by their choice of outlets they have established different patterns in the market channels that have developed.

Market channels for apples in Orleans County have been narrowed in scope as a result of the 15 to 20 years of consistently heavy selling to processing plants. By and large, apple growers in this county are non-specialized farmers who, in addition to growing other fruits, diversify their farm operations by growing cash vegetable crops or raising a herd of dairy or beef cattle. Since they have emphasized no single operation, these growers have marketed their apples over the years at the readily available processing plants. Consequently, good market outlets for the fresh fruit varieties like McIntosh, Cortland and Red Delicious have never had a chance to fully develop in Orleans County. The contributing factors of limited and widely scattered production in fresh fruit varieties, grower apathy in trying to broaden his market outlets, and the inconsistent operations of the few fresh fruit buyers that have bought in the county have discouraged any person or group in attempting to correct this unbalance.

In Niagara County, however, apple market channels, especially since 1950, have widened the scope of outlets available to the apple grower. As pointed out in this chapter, fresh apple market channels absorbed about 75 per cent of production during World War II and the immediate post-war period. In other words, the development of market channels in Niagara County was the reverse of the development of processing market

channels in Orleans County.

Therefore, heavy processor buying in Niagara County since 1950 has placed the apple grower there in an advantageous position with expanded market outlets. However, Orleans County growers have experienced only intensification and not diversification of their market outlets with this recent increase in processor buying.

VI. FACTORS IN FUTURE DEVELOPMENT

In the preceding chapter, the marketing practices of apple growers in Orleans and Niagara counties were studied and briefly evaluated in order that some concept of the nature of grower outlets as they existed in 1953 could be pictured. Static for the most part in Orleans County but in a state of flux in Niagara County, these market outlets as well as the marketing practices of growers will probably be molded by the future influence of the four factors to be discussed in this chapter.

In order of their discussion, these factors are: (1) The Western New York Apple Growers Association, Incorporated; (2) Outlook on the demand for processed apples; (3) Newer apple varieties; and (4) Dwarf root stock apple trees.

The Western New York Apple Growers Association, Inc.

Out of the monetary miseries occasioned by the surplus crop year in 1949 was born the Western New York Apple Growers Association. In 1950, a questionnaire was circulated among western New York growers asking them what they wanted to do in the future to alleviate the effects of burdensome surplus crops and associated low prices. The response was both prompt and significant. Within 60 days, over 1,200 growers producing 80-90 per cent of the apples in the western New York area expressed the need for an association of apple growers who, collectively, could more effectively -

1. Promote the use of apples and apple products.

2. Supply better market information particularly at harvest time.
3. Work with processors to help stabilize the industry.
4. Represent growers with government agencies.¹

Shortly thereafter, a full-time executive-secretary was appointed and an office was opened in Rochester, New York. To cope with the problems of organization, the western New York area was divided into five districts with each district electing one director for every 75 members. These directors (growers) made up the board of directors of the Association and they elected officers and selected the paid personnel to carry on the activities of the Association.

Eight standing committees were established - Grower-Processor Relations Committee, Fresh Apple Development Committee, Apple Statistics Committee, Research and Extension Committee, Apple Promotion Committee, New Uses Committee, Membership Committee and Finance Committee.

The income of the Association to carry out its many programs was to be generated from assessments on members at the rates of one cent per bushel for apples sold fresh, two cents per hundredweight on all apples sold for canning, freezing, slicing, or the making of applesauce or baby food, and one cent per hundredweight on apples sold for cider, juice or vinegar. In addition, a new membership fee of two dollars was levied.

National apple promotion program launched. To illustrate just one of the activities of the Western New York Growers Association in the

¹C.G. Garman, How to Market Apples At A Profit, The Eastern Fruit Grower, May, 1953. Mr. Garman is President of the Western New York Apple Growers Association and this published article was delivered as an address before the Virginia State Horticultural Society meeting.

general areas of advertising and promotion, a national apple promotion program was inaugurated in the summer of 1953 at the Annual Meeting in Roanoke, Virginia of the National Apple Institute. Other regional apple growers associations attended this meeting besides the western New York group and all shared proportionately the cost in launching this ambitious undertaking. The program was built around these four major points:²

1. Public Relations and Publicity - aimed to educate the nation's housewives in the use of apples; to secure maximum publicity for apples in newspapers, magazines, trade journals, radio and television; and to encourage national advertisers to feature apples in their ads.
2. Special Feature Publicity - specifically aimed to continue promotion of apples on one of the top national radio shows, but also to secure similar publicity.
3. Medical and Dental Advertising - aimed to resell the known health benefits of apples to doctors and dentists through paid advertisements in professional journals (Journal of the American Medical Association, Journal of the American Dental Association, American Journal of Nursing and Journal of the American Dietetic Association). Here, the message would be built around the apple as an aid in reducing, as an aid to digestion and a help in preventing constipation.
4. Dental Film Exploitation - aimed to get maximum showing of the dental health film, "Gateway to Health".

Designed as a continuing promotion program, this example of sharing promotional costs on a broad national program by independent regional apple grower associations has shown that cooperative effort and enlightened leadership can accomplish results.

Other promotional activities. Supplemental to the national apple

²L.A. Putnam, Annual Report, Western New York Apple Growers Association, Inc., December 1, 1952 - November 30, 1953, pp. 7-8. The author would here like to thank Mr. Putnam, Executive-Secretary of the Western New York Apple Growers Association for the interview time he generously devoted in explaining more fully the activities of the Association.

promotion program, a more localized advertising campaign was sponsored by the Association at harvest time in the fall of 1953 in the western and central New York cities of Buffalo, Rochester and Syracuse. Launched by the Promotion Committee, this regional campaign was designed to bolster a strong fresh apple market at the beginning of harvest so as to avoid any slow-down in movement when supplies begin to mount.

Association officers also personally contacted produce and merchandising managers of leading chain and independent retail organizations in central and western New York to acquaint them with recent merchandising studies conducted by Cornell University. The increased effectiveness of combination bulk and bagged apples in mass display was stressed.

The possibilities of a comparatively new retail outlet for apples were actively investigated by the Association. Apples sold from refrigerated vending machines in railroad stations, bus depots, industrial plants and schools at ten cents per apple not only would broaden the market but also tap consumption at a profitable price level.

Market information to growers. Of possibly more direct benefit to the apple growers of western New York has been the market information communications network established by the Association. Letters and post cards have kept Association members informed "about (1) prices and market conditions throughout the nation, (2) cold storage stocks and movements, and (3) stocks, movement, and market tone of processed apple products."³

As an example of the type of market information in one of these letters, portions of Membership Letter No. 76 distributed on September 14, 1954 read as follows:

³Ibid., p. 13.

"Second Hurricane --- 'Edna' --- Also Hits New England Orchards:

The second hurricane to hit New England is reported to have done about as much damage to apples as the first one. Apples were riper and it was a whippy, gusty type wind with velocities as high as 75 to 85 miles per hour in Eastern Massachusetts and Connecticut. Velocities were higher in Maine.

Only about 1/3 of the crop is left on the trees according to preliminary estimates. Of the apples that were blown off, an estimated one-third were good enough to meet the emergency "hurricane drop" grade and are being sold through retail stores in a special sale...

Hail Hits Lower Hudson Valley: Hail hit the Hudson Valley last week again and caused serious damage to orchards south of Poughkeepsie on both sides of the Hudson river. Actual skin punctures are plentiful. Damage is estimated to run over a half million bushels.

Offers & Sales for Apples for Processing: ...

4. Twenty Ounce, Baldwin, Ben Davis, N. Spy, R.I. Greening, US #1 (fresh fruit grade) except for color, 2½" up -- \$5.25 per 100 lbs. McIntosh & Cortland (2½" up)

U.S. #1 Fresh fruit grade	\$5.25
U.S. #1 (up to 25% below color standard)	\$5.00
U.S. #1 except for color	\$4.75

Deal calls for delivery to cold storage in growers' crates, & payment is based on grade when apples are taken out of storage.

Offers & Sales for Fresh Fruit:

1. Offers -- McIntosh -- tree run -- 4¢ per lb., FOB farm.
2. Sales -- McIntosh -- spot picked -- 5¢ per lb."

Where speed was essential in dispensing market information, radio stations WHAM in Rochester, WSYR in Syracuse and WGR in Buffalo were utilized in early morning, Monday-Wednesday-Friday broadcasts.

Of itself, the Western New York Apple Growers Association has done and will continue to do beneficial services for the grower in western New York counties. However, in recalling from CHAPTER V the liaison already working between the extension program in Orleans County and the

Association, the apple grower can face the future with the realization that the knowledge and proven application in the latest cultural practices and merchandising methods are at his fingertips.

Demand Outlook for Processed Apples

Since apple growers in Niagara and Orleans counties have sold in recent years between 60 and 70 per cent of their fruit to processors, their future success in profitably dealing with this market outlet will, in turn, be dependent on the outlook for future movements of processed apple products into consumption.

Perhaps a projection of per capita consumption on selected canned fruits for selected years in the past might be helpful in formulating a trend picture. Table XIV shows that canned apples and applesauce were consumed in 1951 at the rate of 2.3 pounds per person which was about twice that amount shown for 1939 and 1945. A gradual increase in consumption is noted in the early years of World War II, and this was followed by a decline with a sudden rebirth in the post-war years. Canned peaches, canned pineapple and fruit cocktail were the principal competing canned fruits for canned apple products.

Table XV gives some idea of the size of the pack, inventory carryovers and movement trends for both applesauce and canned apples in the post World War II period. Stronger domestic movements of both applesauce and canned apples started in the surplus crop season of 1949-50 and, while not showing significant gains since then, these domestic movements have displayed stability at these higher consumption levels.

TABLE XIV

SELECTED CANNED FRUITS: PER CAPITA CONSUMPTION,
SELECTED YEARS*

Year	Apples and apple- sauce	Salad and cock- tail	Peaches	Pears	Pineapple
	----- in pounds -----				
1919	1.1	---	2.1	1.0	1.9
1925	.9	.2	3.1	.6	3.4
1931	.7	.2	2.0	.7	4.0
1939	1.2	1.2	3.3	1.1	4.2
1940	1.4	1.6	4.2	1.5	4.6
1941	1.4	1.5	3.2	1.5	4.4
1942	1.7	1.8	4.3	1.2	2.8
1943	1.4	1.3	3.2	1.4	2.0
1944	1.0	1.0	1.3	.4	1.9
1945	1.1	2.4	4.9	.9	.7
1948	1.8	2.1	4.5	1.2	2.6
1949	2.0	2.2	4.7	1.4	2.5
1950	2.4	2.6	5.7	1.5	2.8
1951	2.3	2.0	4.6	1.2	3.0

*Source: Consumption of Food in the United States, 1909-52, Agriculture Handbook No. 62, United States Department of Agriculture, Bureau of Agricultural Economics: Washington, D.C., September, 1953, p. 112.

TABLE XV

APPLE PRODUCTS: CANNERS'¹ STOCKS, PACK, SUPPLY,
AND MOVEMENT, SEASONS 1946-47 TO DATE⁴

Canned Applesauce

Season	Carry- in ² (Aug. 1)	Pack	Total avail- able supply	Carry- out (July 31)	Movement		
					Total	Military	Domestic
----- million cases, equiv. 24/#2 cans -----							
1946-47	0.1	9.1	9.2	1.2	8.0	0.2	7.8
1947-48	1.2	6.2	7.4	1.4	6.0	0.1	5.9
1948-49	1.4	4.9	6.3	0.1	6.2	0.1	6.1
1949-50	0.1	8.6	8.7	0.4	8.3	0.3	8.0
1950-51	0.4	12.0	12.4	3.1	9.5	0.5	8.8
1951-52	3.1	8.0	11.1	1.2	9.9	0.6	9.3
1952-53	1.2	8.0	9.2	0.2	9.0	0.4	8.6
1953-54	0.2	10.1	10.3	---	---	---	---

Canned Apples

----- million cases, equiv. 6/#10 cans -----							
1946-47	*	3.3	3.3	0.7	2.6	0.3	2.3
1947-48	0.7	2.2	2.9	0.5	2.4	0.2	2.2
1948-49	0.5	1.7	2.2	*	2.2	0.2	2.0
1949-50	*	4.2	4.2	0.4	3.8	0.3	3.5
1950-51	0.4	5.3	5.7	2.0	3.7	0.8	2.9
1951-52	2.0	3.4	5.4	1.3	4.1	0.9	3.2
1952-53	1.3	2.6	3.9	0.2	3.7	0.3	3.4
1953-54	0.2	2.9	3.1	—	—	—	—

*negligible

¹or processors.

²Canners' stocks for apples and applesauce, seasons 1946-47 through 1950-51, estimated.

³Including exports.

⁴Source: Compiled from reports of National Canners Association, and Agricultural Marketing Service, United States Department of Agriculture.

Data concerning the applesauce pack by states in Table XVI once again highlights the national significance of New York and the Appalachian states of Maryland, Pennsylvania and Virginia. A fluctuating but nevertheless overall upward direction in the size of the applesauce pack is evident in New York and the Appalachian States from 1946 to 1953.

The sobering facts presented in Table XVII from the apple growers viewpoint, indicate that the per capita consumption of citrus fruits in all forms has tripled that of apples in the post-war years. It might be considered a distorted relationship in grouping all citrus fruits against a single deciduous fruit, but by taking just oranges alone, the grim truth remains that not since 1937 has the per capita consumption of fresh apples exceeded that of fresh oranges. Consumption of fresh citrus has declined in recent years but only on account of the popularization of frozen citrus juices and concentrates which has more than made up for any decline in fresh citrus per capita consumption. About the only cheering note apple growers in Niagara and Orleans counties can elicit from the statistics in Table XVII is that canned apple consumption per person has shown a fairly steady increase since 1946.

This series of statistical tables has shown that the future outlook of the demand for processed apples could be viewed with cautious optimism. However, the stiff competition from other canned deciduous fruit products and frozen citrus juice concentrates precludes any feeling of complacency.

TABLE XVI
CANNED APPLESAUCE: PACK BY STATES,
1933 - 1953¹

Year	New York	Appalachian States ²	Washington -Oregon	Calif. ³	Other States	Total
----- thousand actual cases -----						
1933	1,316	337	---	---	77	1,730
1934	1,111	706	---	---	75	1,892
1935	1,038	825	---	---	24	1,887
1936	1,170	1,150	---	---	33	2,353
1937	1,266	1,855	---	---	40	3,161
1938	834	682	---	---	11	1,527
1939	1,635	1,409	---	---	13	3,057
1940	973	1,634	---	---	28	2,635
1941	1,896	2,175	---	---	111	4,182
1942	1,699	2,740	---	---	151	4,590
1943	1,079	994	---	---	153	2,226
1944	1,219	2,766	---	---	317	4,302
1945	*	1,320	---	---	664	1,984
1946	2,434	5,063	---	---	1,343	8,840
1947	2,240	3,408	246	---	190	6,084
1948	1,534	2,922	30	306	60	4,852
1949	2,645	4,684	94	716	472	8,611
1950	3,983	6,702	278	910	668	12,541
1951	3,415	4,203	112	913	339	8,982
1952	2,859	4,162	116	1,406	371	8,914
1953	3,497	5,393	118	1,667	530	11,205

¹Source: Compiled from annual reports of National Canners Association.

²Maryland, Pennsylvania and Virginia.

³Washington-Oregon and California not reported separately until 1946 and 1947 respectively.

*Included in "Other States".

TABLE XVII

FRUITS, FARM-WEIGHT EQUIVALENT: PER CAPITA CONSUMPTION,
1946 - 1952*
Citrus

Year	Fresh	Canned	Canned Juice	Frozen	Total
	----- in pounds -----				
1946	58.3	1.0	34.3	0.3	93.9
1947	61.3	1.6	29.9	0.2	93.0
1948	53.5	1.8	35.7	0.5	91.5
1949	47.1	1.4	25.5	6.6	80.6
1950	40.6	1.6	19.8	10.6	72.6
1951	44.4	1.5	21.0	15.0	81.9
1952**	44.2	1.4	18.9	23.7	88.2

Apples

Year	Fresh	Canned	Canned Juice	Frozen	Dried	Total
	----- in pounds -----					
1946	22.7	1.9	0.5	1.0	1.5	27.6
1947	25.0	1.4	0.4	0.6	1.3	28.7
1948	25.9	2.7	0.4	0.5	1.3	30.8
1949	24.7	2.9	0.8	0.5	1.0	29.9
1950	22.9	3.4	1.0	0.5	1.2	29.0
1951	25.4	3.4	0.9	0.3	1.0	31.0
1952**	21.0	4.0	1.0	0.4	1.0	27.5

*Source: Consumption of Food in the United States, 1909-52,
Agriculture Handbook No. 62, United States Department of Agriculture,
Bureau of Agricultural Economics: Washington, D.C., September, 1953,
p. 116.

**Preliminary.

Newer Apple Varieties

As more and more apple orchards 35 to 40 years of age are pulled out in Niagara and Orleans Counties, growers are faced with the problem of deciding to plant more apple trees or to use the land for some other purpose. Assuming that he elects to set out young apple orchards, another decision has to be made with regard to the varieties that would be the best to plant. Should he stick to the leading varieties with established market outlets? Or should he experiment with some of the newer varieties which have been developed by various state experiment stations and tree nurseries?

Probably the prudent grower would stick pretty much to the established varieties, and that has largely been the case in both counties. However, some of the larger growers in each county have devoted small parts of their young acreage to the newer and largely commercially untested varieties of Webster, Kendall, Macoun, Monroe, Idared and Red Spy.

Newer fall varieties. Webster, Kendall and Macoun can be grouped into the mid-season or Fall classification of varieties reaching their harvest maturity sometime in the month of October.

The Webster is a rather large, red streaked apple that has shown a high rating as a prospective processing variety in preliminary tests. Because of the Webster's relatively early ripening date (around October first), this variety would give northeastern growers something to compete with the southern grown York Imperial.

Of McIntosh parentage, the Kendall possesses a dark red surface color which is covered with a thick bloom. Large and trim in outline,

this apple, when properly ripened, has the whitish, fine-grained flesh of the McIntosh with a flavor that is even more sprightly. The Kendall's harvest season corresponds to that of McIntosh and it is strictly a fresh fruit variety that should be moved out by Christmas time at the latest.

Another McIntosh offspring is the Macoun apple. This variety is noted for its crisp, white flesh and pleasing flavor. Holding up better in storage than its McIntosh parent, the Macoun still must be handled carefully because of its very tender skin and flesh. Two of this variety's principal disadvantages are its slowness in reaching bearing maturity and the thinning work required in order to achieve uniformity in size and a more even bearing of fruit.

Newer early winter varieties. The late season varieties of Monroe, Idared and Red Spy have been developed to fulfill the requirements of specific market outlets.

It was not until 1949 that the Monroe variety was introduced to western New York growers, but its wide acceptance occurred almost overnight. Developed as a cross between the Jonathan and the Rome, the Monroe has won a vote of confidence from apple growers as a possible successor to the fading Baldwin. Unlike the Baldwin, this new variety is vigorous and a heavy annual cropper. The fruit tend to be large and the flesh is yellowish, crisp, juicy and mildly subacid—a combination of traits making the Monroe excellent for processing.

Originated in 1942 at the Idaho Agricultural Experiment Station from a cross between Wagner and Jonathan, the Idared shows promise of being a very satisfactory variety for the fresh fruit markets because of its handsome solid red color. In tests conducted at the New York

Agricultural Experiment Station in Geneva, this variety has reacted favorably to New York growing conditions, showing real promise as a late keeping dessert or general purpose apple.

The Red Spy, a "sport" or redder strain of the Northern Spy, also colors to a solid bright red without either stripes or splashes. This strain of the Northern Spy has been recommended to growers who have experienced difficulty in getting the regular Northern Spy to color properly. Since the average housewife associates bright red color in apples with top quality when she's buying fresh fruit, the Red Spy has demonstrated its ability to satisfy this market requirement.

Whether these newer varieties will become popular with western New York growers in the future only time will tell. Mention of them was considered pertinent because their careful selection by any grower will be predicated on the factors of consistency in annual production; economy in orchard upkeep; resistance to disease, insects and adverse weather; and market outlet requirements.

Dwarf Root Stock Apple Trees

Probably one of the most hotly debated topics of conversation among apple growers in Niagara and Orleans counties today is dwarf apple trees. The subject of this debate is easily and simply explained. Root stocks have been developed by nurserymen that actually stunt or dwarf the eventual growth of the apple tree. At the same time, however, the size of the fruit itself remains as normal as it would be on the standard tree.

The proponents of dwarf apple trees have cited the following advantages of this new method of orchard culture:

1. A smaller tree makes more economical such orchard operations as pruning, spraying and harvesting in comparison with orchards of standard trees.
2. Dwarf trees come into bearing earlier than standard trees. They also reach full bearing maturity sooner - after 12 to 15 years instead of the 20 to 25 years which is typical for standard trees.
3. Orchards can be made more uniform in tree size. Differences in soil composition and drainage that might exist in the same orchard can be compensated for by planting dwarf tree stocks which allow for these differences.
4. To compensate for reduced production per tree on account of the smaller size, production per acre can be maintained on a par with standard trees by planting more dwarf trees to the acre.

Even combining these advantages brings out other favorable aspects of dwarf apple trees, say enthusiastic growers. They point out that since apple production can be maintained with less effort and expense in orchard operations, the grower is able to devote more of his attention to vital marketing problems. In addition, full bearing apple trees after only 12 to 15 years will mean greater flexibility for the grower

in adjusting to the future changes in market preferences or demand for certain varieties.

Those apple growers who say they will stick with the standard tree stocks insist that the dwarf trees have not proven themselves yet on the basis of maintenance of per acre production. They also point to the fact that dwarf root stocks are almost twice as expensive as standard tree stocks. Heavy crops would break off the smaller limbs on dwarf trees and with pneumatic pruning devices and elevated pruning platforms, the expense of keeping a standard tree down to approximately the size of a dwarf tree would not be excessive.

This discussion concerning the pros and cons of dwarf root stock apple trees reveals some of the ideas of forward thinking fruit growers. As in industry, fruit growers must constantly strive to reduce their costs of production and at the same time maintain or increase top quality apple production.

VII. INTERPRETATIONS AND CONCLUSIONS

From the information and data presented in Chapters II through VI, the author in this final chapter will interpret this factual material by giving his personal impressions on the most important topics brought out directly or unmistakably implied in this thesis. Following this analytical examination of the broader issues, the author will summarize these issues by offering his conclusions to this study of grower outlets for apples.

Surplus Crop Year - Points Out Inadequacies of Apple Grower Marketing Activities in Niagara and Orleans Counties

From Chapter IV, one of the statistical tables disclosed that the average price per bushel received by New York state apple growers during the surplus crop year of 1951 was \$1.10. New York apple production that year was 23.5 per cent above the current average normal output of 14,000,000 bushels. Apple production in the other five leading apple growing states was also above normal, but the growers in New York had the dubious distinction of receiving the lowest average price per bushel for their fruit.

What does this fact mean relative to the market outlets for apples and the marketing activities of growers in general? As applied to the situation in western New York, it indicated the following:

1. Growers, hearing about the heavy national crop prospects, dumped their fruit on the market, created a market glut and

depressed prices.

2. Late fall apple prices as low as one and a half cents per pound to the grower were not uncommon.
3. A shortage of storage facilities hampered any efforts that might have been made by growers to hold supplies off the market.
4. Because of a lack of cooperative marketing organization, growers were at the mercy of processors who took advantage of the surplus conditions.
5. The need of a fresh fruit marketing association composed of growers to market and promote early season sales of fresh fruit apple varieties was evident. This would have alleviated the market glut that did develop, and since fresh fruit and processing prices affect each other, the early moving of fresh fruit varieties at even normal prices would have lessened the extremes of later price drops.
6. Growers had become too dependent on a single processor outlet as a market for all the varieties they grew. This left many growers wide open to the unscrupulous, coercive actions of many processors.

Admittedly, heavy supplies of perishable commodities on a declining market inevitably lead to a demoralized market situation. However, it has been too often the case in situations in the past similar to that in 1951 where growers have lavished tender care in raising a bumper apple crop only to sit back when the fall marketing season arrives and expect buyers to beat a path to their doors.

Those three successive surplus crop years of 1949, 1950 and 1951 have jarred the stagnant apathy of many a Niagara and Orleans county apple grower into making his marketing plans ahead of the harvesting season. With the extension assistance and guidance available through each County Agricultural Agent and the ever widening scope of promotional and market information activities of the Western New York Apple Growers Association, no western New York apple grower has reason

to leave himself unprepared should surplus crop years develop in the future.

Better Marketing Methods Needed For Fresh Fruit Apple Varieties

The increased emphasis in recent years on sales of apples to processors has contributed to the unfortunate neglect of the fresh fruit apples in building better channels of distribution. Too often have highly colored fresh fruit apples been sold for processing at a price substantially lower than what they would have brought on fresh fruit markets.

In testimony to the color and quality attainable from intelligent cultural practices, the two fresh fruit varieties of McIntosh and Red Delicious are pictured in Figure 1. These color pictures were taken in September, 1954 on the Orleans County farm of James Oakes near Lyndonville, New York. It is clearly evident from these pictures that the principal factor for consumer acceptance of fresh apples - bright red color - is there. Yet, why do growers of top quality fruit like Mr. Oakes experience frequent difficulties during the growing and storage season in profitably marketing this fruit?

The answer to that question can be given in one sentence. Most of the individual growers, especially in Orleans County, do not have enough volume of production in specific fresh fruit varieties to attract fresh fruit buyers into the area.

What is vitally needed is a cooperative grower marketing association to function in an assembling capacity for the fresh fruit varieties

Figure 1: Fresh Fruit Apple Varieties Growing in
Orleans County, 1954*



Loaded McIntosh Tree



Branches of a Red Delicious Tree

*The farm of James L. Oakes, near Lyndonville, New York

The association would pack out a standardized single brand for each fresh fruit variety and maintain quality by continuous inspection. By thus guaranteeing the uniformity of the pack and by promoting a single brand name, this marketing association could attract buyers who are in the market for carlot quantities. Also, by judicious use of storage facilities, fresh fruit supplies could be fed into the market channels in an orderly manner so as to avoid the price depressing effects experienced when growers dump fruit all at once on the market. This grower marketing association would also remove another price depressing factor by grading out the cull fruit before it has a chance to enter market channels.

Any fruit or vegetable marketing association that is composed of farmers has the very real problem of achieving unified action. This would especially be true in western New York where the agricultural community is composed largely of generalized farmers who do not specialize in the growing of any single commodity. Not having anything significant at stake in the growing and marketing of a single commodity, the farmers have not been accustomed to being organized in a cooperative marketing association. However, the importance of organization and unified action in a grower marketing group is brought out by one authority who states that "producers must achieve a much greater degree of organization before they can effectively carry out their own responsibilities for the better marketing of fruits and vegetables. Thus the development of effective grower groups who will cooperate with others engaged in marketing is probably the most important single step toward

improvement in the commercial fruit and vegetable industry."¹

This writer believes that as apple growing in Niagara and Orleans counties becomes more specialized in the future, the chances of success for a grower marketing association become greater. It stands to reason that the more an apple grower has invested in equipment, spray materials, storage facilities and trees, the more he is going to be concerned about maximizing his returns to protect that investment.

More Market Stability Seen in the Future For

Western New York Apple Growers

By way of summary and conclusion, the author would like to list here some of the factors that were brought out in this thesis which seem to indicate that an era of greater market stability for the western New York apple grower is in sight.

1. Improving grower - processor relations.
2. Selection of varieties that are more exactly tailored to the requirements of a specific market outlet.
3. The popularization on a larger commercial scale of dwarf root stock apple trees.
4. The Western New York Apple Growers Association.
5. Processors paying premiums for top quality and large size apples.
6. A steadily increasing consumer demand for processed apple products.
7. Better merchandising techniques that will move volume amounts of fresh fruit apples.

¹P.R. Taylor, Chapter XX, Fresh Fruits and Vegetables Are Big Business, Paul Sayres, Editor. Food Marketing, First Edition, McGraw-Hill Book Company, Inc.: New York, London, Toronto, 1950, p. 268.

8. More market-conscious growers who are informed of market conditions.
9. Fewer marginal or part-time apple growers.
10. Better cultural practices that have top quality as their goal.
11. Greater mechanization in fruit growing operations (speed sprayers, pneumatic pruning, palletized handling of fruit out of the orchard, mechanical brush choppers, et cetera).
12. Extension work of the County Agricultural Agents.
13. Greater diversification in the forms of processed apple products with more convenience built in for the housewife. (For example, marketing diced or cubed peeled apples in glass jars, ready for a fruit salad).

APPENDIX A

UNITED STATES STANDARDS FOR APPLES¹

Grade Requirements

U.S. Fancy shall consist of apples of one variety which are mature but not overripe, carefully handpicked, clean, fairly well formed; free from decay, internal browning, internal breakdown, scald, freezing injury, broken skins, and bruises (except those incident to proper handling and packing), and visible water core. The apples shall also be free from damage caused by russetting, sunburn, spray burn, limb rubs, hail, drought spot, scars, disease, insects, or mechanical or other means. Each apple of this grade shall have the amount of color specified hereinafter for the variety.

U.S. No. 1. The requirements for this grade are the same as U.S. Fancy except that less color is required for all varieties except yellow and green varieties, for which the requirements for both grades are the same. Apples of this grade shall be of one variety, mature but not overripe, carefully handpicked, clean, fairly well formed; free from decay, internal browning, internal breakdown, scald, freezing injury, broken skins, and bruises (except those incident to proper handling and packing), and visible water core. The apples shall also be free from damage caused by russetting, sunburn, spray burn, limb rubs, hail, drought spot, scars, disease, insects, or mechanical or other means. Each apple of this grade shall have the amount of color specified hereinafter for the variety.

U.S. Commercial shall consist of apples of one variety which meet the requirements of U.S. No. 1 except as to color. This grade is provided for apples which are mature but which do not have sufficient color to meet the specifications of U.S. No. 1.

U.S. No. 1 Early shall consist of apples of one variety which meet the requirements of U.S. No. 1 except as to color and maturity. Apples of this grade may have no red color and need not be mature. This grade is provided for early varieties only, such as Oldenburg (Duchess of Oldenburg), Gravenstein, Lowland Raspberry (Liveland Raspberry), Red June, Summer Hagloe, Twenty Ounce, Wealthy, Williams, Bailey Sweet, Bietigheimer, and other varieties which ripen at the same period and which are often used for cooking rather than for eating out of hand.

¹United States Standards For Apples. Service and Regulatory Announcements No. 154. Agricultural Marketing Service: Washington, D.C.

U.S. Utility shall consist of apples of one variety which are mature but not overripe, carefully handpicked, not seriously deformed; free from decay, internal browning, internal breakdown, scald and freezing injury. The apples shall also be free from serious damage caused by dirt or other foreign matter, broken skins, bruises, russetting, sunburn, spray burn, limb rubs, hail, drought spot, scars, visible water core, disease, insects, or mechanical or other means.

U.S. Utility Early shall consist of apples of one variety which meet the requirements of U.S. Utility except as to maturity. Apples of this grade need not be mature. This grade is provided for early varieties only, such as Oldenburg (Duchess of Oldenburg), Gravenstein, Lowland Raspberry (Liveland Raspberry), Red June, Summer Hagloe, Twenty Ounce, Wealthy, Williams, Bailey Sweet, Bietigheimer, and other varieties which ripen at the same period and which are often used for cooking rather than for eating out of hand.

Combination Grades. Combinations of the above grades may also be used as follows:

Combination U.S. Fancy and U.S. No. 1
Combination U.S. No. 1 and U.S. Commercial
Combination U.S. No. 1 and U.S. Utility

Combinations other than these are not provided for in connection with the United States apple grades. When combination grades are packed, at least 50 per cent of the apples in any container shall meet the requirements of the higher grade in the combination.

U.S. Hail Grade shall consist of apples which meet the requirements of U.S. No. 1 except that hail marks where the skin has not been broken and well healed hail marks where the skin has been broken shall be permitted provided the apples are fairly well formed.

Unclassified shall consist of apples which are not graded in conformity with any of the foregoing grades.

Color²

In addition to the foregoing requirements for U.S. Fancy and U.S. No. 1, each apple of these grades must have the percentage of color shown in the table below:

²This table lists the color requirements only of those varieties having commercial significance in New York state.

Variety	U.S. Fancy Per Cent	U.S. No. 1 Per Cent
Solid red:		
Gano.....	50	25
Opalescent.....	50	25
Winesap.....	50	25
Other similar varieties.....	50	25
Striped or partially red:		
Jonathan.....	50	25
McIntosh.....	50	25
Cortland.....	50	25
Baldwin.....	33	15
Delicious.....	33	15
Gray Baldwin.....	33	15
Ben Davis.....	33	15
Fameuse.....	33	15
Northern Spy.....	33	15
Rome Beauty.....	33	15
Stayman Winesap.....	33	15
Tompkins King.....	33	15
Wagener.....	33	15
Wealthy.....	33	15
Stark.....	25	10
Hubbardston.....	25	10
Williams.....	33	Tinge of color
Gravenstein.....	25	Tinge of color
Duchess of Oldenburg.....	25	Tinge of color
Red Astrachan.....	25	Tinge of color
Twenty Ounce.....	25	Tinge of color
Red cheeked or blushed:		
Maiden Blush.....	Blushed cheek	None
Winter Banana.....	Blushed cheek	None
Yellow or green varieties.....	Characteristic color	Characteristic color

For the solid red varieties the percentage stated refers to the area of the surface which must be covered with a good shade of solid red characteristic of the variety, except that an apple having color of a lighter shade of solid red or striped red than that considered as good shade of red characteristic of the variety, may be admitted to a grade, provided it has sufficient additional area covered so that the apple has as good an appearance as one with the minimum percentage of good red characteristic of the variety required for the grade.

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For the striped red varieties the percentage stated refers to the area of the surface in which the stripes of good shade of red characteristic of the variety shall predominate over the stripes of lighter red, green, or yellow. However, an apple having color of a lighter shade than that considered as good shade of red characteristic of the variety may be admitted to a grade, provided it has sufficient additional area covered so that the apple has as good an appearance as one with the minimum percentage of stripes of good red characteristic of the variety required for the grade. Faded brown stripes shall not be considered as color except in the case of the Gray Baldwin variety.

Tolerances For Preceding Grades

In order to allow for variations incident to proper grading and handling, not more than a total of 10 per cent of the apples in any container may be below the requirements of the grade, provided that not more than 5 per cent shall be seriously damaged by insects and not more than one-fifth of this amount, or 1 per cent, shall be allowed for decay or internal breakdown.

When applying the foregoing tolerances to the combination grades no part of any tolerance shall be allowed to reduce, for the lot as a whole, the 50 per cent of apples of the higher grade required in the combination, but individual containers may not have less than 40 per cent of the higher grade.

The tolerances for the standards are on a container basis. However, individual packages in any lot may vary from the specified tolerances as stated below, provided the averages for the entire lot, based on sample inspection, are within the tolerances specified.

For a tolerance of 10 per cent or more, individual packages in any lot may contain not more than one and one-half times the tolerance specified, except that when the package contains 15 specimens or less, individual packages may contain not more than double the tolerance specified.

For a tolerance of less than 10 per cent, individual packages in any lot may contain not more than double the tolerance specified, provided at least one specimen which does not meet the requirements shall be allowed in any one package.

A Statement Relative To The U.S. Apple Standards

The adoption and use of standardized grades in transactions in farm produce has eliminated much of the source of misunderstanding and dissatisfaction. Clearcut grades based on variations in quality, provide a practicable basis for contracts and purchases upon which buyers and sellers can deal with mutual confidence and understanding . . .

Combination grades are provided to care for many lots of apples which in the past have been marked "Commercial" or "Unclassified", although such lots may have contained a large percentage of high-quality

apples. It is expected that the use of combination grades will reduce the quantity of stock shipped at the present time under the Commercial grade or the Unclassified designation.

Statement of Condition

Attention is called to the statement that scald, decay, or other such deterioration which may have developed on apples after they have been in storage or transit shall be considered as affecting the condition and not the grade. When ordering apples which have been held in storage it is advisable to secure, in addition to the grade statement, information relative to the maturity and relative to the freedom from scald or decay or the percentages of scald or decay which may be in the particular lot in question.

APPENDIX B

APPLE GROWER QUESTIONNAIRE

Niagara - Orleans County

New York State - 1954

NAME: _____ AGE: _____
ADDRESS: _____ EDUCATION: Highest grade, 1-12 _____
_____ Highest class in college _____
PLACE OF BIRTH: _____ College degree _____

- I. Size of Farm: _____
 A. Acres in Fruit (all kinds) _____
 B. Acres in Apples _____
- II. What is your major farm operation, the one from which you derive most of your farm income? _____
- III. About what percentage of your total farm income came from the marketing of your apple crop last year? _____
- IV. What other crop harvesting operations or major farm chores require your time at the same time you're picking and handling your apples? _____
- V. About how many acres and what varieties do you have in young orchards that aren't producing yet? _____
-

A. How many acres and what varieties do you plan to plant in

the next 2 or 3 years? _____

B. How many acres do you now have in dwarf root stock? What
about future acreage in dwarf root stock? _____

VI. Variety and Production Data:

A. What producing apple varieties do you have on your farm?

B. Approximately how many bushels (to the nearest 100) did
you harvest last Fall?

MARKETING CODE

VARIETIES

BUSHEL HARVESTED

VII. Apple Grading Information: (1953 crop)

A. Under what grades did you sell your apple crop?

B. About how many bushels in each grade?

GRADES

BUSHEL

C. Were the prices you received on sales to processors de-
termined by grade and size? _____

VIII. Do you find that the comparative prices paid by processors have
increased with respect to the prices received from fresh fruit
buyers of the same variety over the past 5 years? _____

IX. In your opinion and based on your experience, is it more profit-
able to produce apples for the processing industry or for the
fresh fruit market? _____

A. Do you feel that present marketing tendencies indicate
that you should attempt to grow apples of the highest
quality or only quality satisfactory for the processing
market? _____

X. What new market outlets do you think show the most promise for the apple grower? _____

XI. Unloading Question: (Anything more the grower wants to talk about concerning his marketing problems) _____

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