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The New York Vegetable Industry Situation and Trends Extension Programming

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THE NEW YORK VEGETABLE INDUSTRY

SITUATION AND TRENDS

EXTENSION PROGRAMMING

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This paper was a project of the Interdepartmental Vegetable Industry Committee of the College of Agriculture and Life Sciences at Cornell University. The following individuals contributed specific statements on which this report is based: R. A. Ackerman, R. F. Becker, H. R. Davis, D. U. Fisher, R. B. How, E. D. Markwardt, A. A. Muka, P. A. Minges, E. E. Motsenbocker, R. C. Nichols, R. F. Sandsted, J. B. Sieczka, A. F. Sherf, H. A. Smith, K. W. Stone, F. N. Swader, D. H. Young.

NEW YORK VEGETABLE INDUSTRY SITUATION
Vegetable Industry Program Committee

Economic Importance

Potatoes, vegetables for fresh market and processing, and dry beans grown in New York in 1974 were harvested on 244,000 acres, and had a farm value of \$174 million. These crops, based on marketing margins for similar commodities that year, had an estimated retail value of over \$650 million. Vegetables including potatoes and dry beans, accounted for about 12 percent of New York cash farm receipts from sales of all farm products.

Although New York ranked 24th in total cash farm receipts among the states in 1974, the state ranked 8th in farm value of potato production, 5th in value of vegetables sold for fresh market, 7th in value of vegetables for processing, and 10th in farm value of dry beans. New York production of certain individual vegetables has been even more important, especially during certain seasons of the year. During the summer months New York ranks first in the nation in the production of fresh market snap beans, cabbage, and sweet corn, and first among states east of the Mississippi in production of lettuce. Among vegetables used for processing New York ranks first in production of cabbage for sauerkraut and red beets for canning, and third in production of snap beans.

Economic Characteristics

New York vegetable production is diversified, land use intensive, and risky. Production is reported separately for 10 different vegetables for fresh market and 6 for processing. The farm value of potatoes and several vegetables exceeded \$1,000 per acre, and even so many growers may not have covered costs. Vegetable growing is subject to large unexpected changes in prices and unplanned changes in production.

Recent Trends in Production

New York growers have increased production of some vegetables over the past 10 years, maintained production of some, and reduced production of others. Unfavorable weather conditions for vegetable growing and favorable prices for grain corn have contributed to acreage changes. Major reductions have occurred in production of potatoes on Long Island and Upstate, and in dry beans. New York vegetable production in total has not kept pace with some Midwest and Western states but has fared better than others such as New Jersey.

Climatic and Soil Resources

New York's cool, moderately humid climate and relatively short frost-free season tends to favor frost tolerant short season crops and short season frost sensitive crops that prefer moderate temperatures (beans, potatoes). The supply of soils suitable for vegetable production is still adequate. Except on deep muck, most crops would benefit from one or more irrigations most years. Water management is the greatest single problem in managing muck soils. Larger farms, heavier equipment, and shorter rotations have increased the skill needed for good soil management.

VEGETABLE ACREAGE AND FARM VALUE: NEW YORK

Crop	Location	Acreage Harvested			Value of Production		
		1972	1973	1974	1972	1973	1974
		- thousand acres -			- million dollars -		
<u>Potatoes</u>	Long Island	27.0	25.0	27.0	20.0	30.9	24.3
	Upstate	25.5	29.0	26.8	22.1	42.0	36.2
Total		52.5	54.0	53.8	42.1	72.9	60.5
<u>Vegetables, fresh market</u>							
Sweet corn		14.5	15.2	15.0	5.8	6.4	7.7
Cabbage	Upstate	5.6	5.4	4.8	7.2	7.2	4.9
	Long Island	1.0	1.3	1.2	1.1	1.9	1.3
Onions		11.5	13.6	13.7	19.2	18.2	26.3
Snap beans		6.8	6.9	7.7	3.8	4.2	4.8
Cauliflower	Upstate	1.2	1.4	1.4	1.3	1.8	2.1
	Long Island	1.2	1.3	1.2	2.4	1.7	1.6
Tomatoes		2.9	2.9	2.7	3.4	5.3	5.0
Lettuce		2.2	3.6	3.2	2.2	7.3	5.6
Cucumbers		2.2	2.1	2.0	1.9	1.4	1.9
Carrots*		1.5	1.8	1.7	2.2	3.2	2.8
Celery*		1.3	1.2	.8	2.5	3.1	2.7
Other miscellaneous		3.4	4.3	4.5	1.5	2.2	3.3
Total		55.3	61.0	59.9	54.5	63.9	70.0
<u>Vegetables, processing</u>							
Snap beans		45.5	49.3	49.7	7.2	10.7	14.6
Beets		3.5	4.2	5.1	1.0	1.8	3.1
Cabbage for sauerkraut		3.4	4.3	4.5	1.6	2.2	3.3
Sweet corn		NA	15.2	17.9	NA	1.6	4.0
Green peas		NA	6.3	6.8	NA	1.1	2.1
Tomatoes		2.7	3.0	2.9	1.3	2.1	2.9
Other miscellaneous		17.2	1.3	1.4	2.3	.4	1.1
Total		72.3	83.6	88.3	13.4	19.9	31.1
<u>Dry Beans</u>		36.0	39.0	42.0	4.8	9.9	12.4
<u>Total Vegetables</u>		<u>216.1</u>	<u>237.6</u>	<u>244.0</u>	<u>114.8</u>	<u>166.6</u>	<u>174.0</u>

*Includes quantities used for processing.

Source: New York Agricultural Statistics, New York Crop Reporting Service.

Cultural Practices

The selection and efficient use of essential cultural practices requires a wide body of knowledge involving many areas of technology. Adjustments in cultural practices to suit the individual farm are required for efficient operation. A continuous, balanced, educational program is essential to train and keep present growers abreast of developments and prepare new growers as they move into the complicated and sophisticated vegetable industry.

Insect Pests

Vegetables in New York State are attacked by a wide variety of insect pests which damage both the plant and the marketable fruit. Because of the number of damaging pests associated with these crops, a substantial load of pesticides are required for successful vegetable production.

Vegetables have a small tolerance for insect injury yet the costs of insecticide development force chemical companies to consider them minor crops. Recently developed chemicals may only have a useful life of 3-5 years before insect resistance develops, however, increasingly complicated and stringent regulations have lengthened development time of new pesticides to 5-7 years. New concepts such as pest management deserve to be more fully explored as possible avenues to integrate chemical controls with other methods. The long range outlook on chemicals labelled for use on vegetable insect control is not an optimistic one.

Plant Diseases

Diseases continue to take a modest toll of vegetable production in both field and storage. Real progress has taken place since 1965, making some crops in most years almost disease free. Virus diseases still inflict considerable losses. Disease resistant varieties and systemic fungicides have proved especially useful. The methods growers use to apply pesticides need improvement. Work is required to reduce post-harvest and long storage diseases. We need to consolidate new pieces of technology. Specialists must spend more time searching out new information and less in the field. New techniques and information will soon permit more sophisticated and economical disease control.

Mechanization and Storage

Labor costs have encourage growers to continue to mechanize. The harvest of most processing vegetables and some fresh market vegetables has been largely mechanized. Lettuce has been a difficult crop to harvest by machine, but a harvester may soon be available commercially. The Cornell dry bean harvester is being considered for commercial manufacture. Further work needs to be done to reduce bruising of potatoes at time of harvest.

The design and management of ventilation systems and loading and handling arrangements present the greatest challenge in vegetable storage construction and operation.

Farm Business Management

Management decisions facing vegetable growers include deciding what crops to grow and choosing between alternative production practices or quantities of fertilizer or other materials to use. Information on costs and returns can help improve such decisions. Information obtained from growers' own records is necessary to supplement recommendations based on group experience. Growers also need to be kept abreast of developments in the fields of credit, taxation, business arrangements, and financial management in general as well as techniques such as capital budgeting.

Labor

Vegetable growers hire large numbers of both regular and seasonal workers. Potato growers as a group face the greatest seasonal labor requirement, and compete for labor with apple harvest. Growers of storage cabbage still use considerable labor at harvest time. Now that mechanization of major operations on most farms is virtually completed the hired labor force is expected to stabilize at about present levels unless major changes in production occur. New York vegetable farm operations are particularly sensitive to labor regulations, and to the effectiveness of personnel management.

Markets and Marketing

New York growers are favorably located with respect to major markets but face tough competition from other production areas especially for processed products. The market for table stock potatoes is still large but shrinking, and total sales of potato chips have not increased in recent years. The sale of fresh vegetables direct to consumers has expanded significantly in the last 10 years. New York processors have maintained purchases of snap beans for processing at about the same level, but increased purchases of sweet corn and peas for canning and freezing. The market for New York dry beans has suffered because of the growth in canning, largely located in the Midwest, and the difficulties in maintaining export trade.

Growers need to have full knowledge of market conditions both short and longer run in order to plan production and obtain maximum returns consistent with an expanding volume of sales.

New York marketing firms have had to expend considerable sums to meet state and federal regulations for the maintenance or improvement of worker health and safety, environmental protection, and product quality. The likelihood of additional expenditures is causing some firms to re-examine future prospects in New York relative to other producing areas. While location in New York offers proximity to major markets, such an advantage can be easily offset by higher costs of operation in relation to other areas.

COMMODITY SUMMARIES

Potatoes

On Long Island potato acreage continues to decline at about 1,400 acres per year, and recent yields have not been as high as those recorded in the mid-1960s. Upstate acreage has also declined over the past 10 years, while yields have been highly variable without significant trend.

Increased mechanization of all operations has greatly affected the efficiency of growing, harvesting and handling the crop. The industry still faces a number of problems in production, harvest and storage, and marketing.

There is a need for high quality and high yielding varieties with resistance to golden nematode and to major diseases that cause severe production problems. Measures need to be found to control scab in tablestock, and to maintain good chip color from year to year in chipping stock. Growers need to adjust fertilizer applications to soil fertility levels and crop requirements. Insect resistance continues to plague Long Island growers. Nutsedge and quackgrass are difficult to control.

Damage to tubers at harvest is serious especially on stoney soils, and causes storage problems. Unfavorable weather conditions at harvest also cause storage problems. High storage temperatures required for chipping potatoes increase losses.

Table stock packs need to be upgraded to maintain fresh markets on which Long Island and much of the Upstate industry still relies. Better grading and handling of chipstock would result in less storage loss and better quality product.

Vegetables for Fresh Market

Onions

Acreage and yields in New York have declined since the early 1960s, due in part to unfavorable weather conditions. Production problems include shortages of hybrid seed, erratic rainfall and temperature patterns, and difficulty in controlling some insect, disease, and weed pests. Practices enabling sweet Spanish type onions to be grown and new varieties less pungent yet storeable are needed. Yields per acre of marketable onions must be increased.

Means of stabilizing onion prices and of developing better cost information need to be developed. Better pest control and soil management practices need to be developed and put into practice.

Sweet Corn

Yields have increased while acreage has declined over the past 10 years. Sweet corn is the principal item sold over roadside markets and is grown in virtually every county in the state. Variety turnover has been almost complete since 1965. Large growers are turning to machine harvesting. Bird damage causes severe losses, as do insects if not kept under control. Corn diseases were serious in the Hudson Valley in 1974.

Lettuce

Acreage and yields are relatively stable. Severe losses from flooding have occurred in recent years. Labor costs are becoming excessive, indicating need for improved chemical weed control and mechanical harvest or harvesting aids. Improved varieties are needed.

Storage Cabbage

Acreage and production of storage cabbage has remained relatively stable in recent years following a gradual decline. About three-quarters of the crop is marketed as coleslaw. Most storage cabbage is still transplanted in the field and harvested by hand. A variety with yellows resistance adapted to mechanical harvesting is needed. Storage losses are significant, and refrigeration and controlled atmosphere are being adopted in an attempt to reduce losses, although at considerable cost. Insects and weeds continue to present problems.

Tomatoes

Acreage declined earlier, but seems to have stabilized in recent years. A major portion of the crop is sold locally, much over roadside markets, although some is shipped out in the fall as mature green fruit. Varieties that set fruit under a wide range of temperatures and are free from blotchy ripening are needed.

Vegetables for Processing

Snap Beans

Acreage has been lower in recent years but production has been maintained through higher yields. Wisconsin has increased both acreage and yields.

Weather conditions have prevented growers maintaining good planting and harvesting schedules. Rots of various kinds - root, stem, and pod - are major problems. Field corn offers competition for the use of the land. New York growers are highly specialized and the decisions of a few large growers will influence the future direction of the industry.

Sweet Corn

After a period of decline sweet corn acreage has increased over the past three years. The two existing New York processors expanded capacity, a third built a new plant for corn, and a Pennsylvania processor began purchasing corn in New York. Industry needs or problems include an earlier maturing variety, methods of controlling bird damage, more effective control of corn borer, corn earworm, and weeds, and knowledge of how to make more effective and economical use of fertilizer.

Peas

Pea acreage is also increasing after a lengthy period of decline. Soil-borne root rots are a major problem, aggravated by short rotations. Variable weather causes highly unstable yields. The availability of custom combining operations may limit the increase in pea acreage in the near future. Pea breeding research is directed at obtaining early varieties that have vigorous root systems to withstand adverse soil conditions that

favor root rotting organisms and other varieties that are more consistent, yield wise, than present varieties. Screening work to locate a more dependable broad spectrum herbicide is continuing. Extension efforts continue to encourage growers to get consistently high yields from proper soil management, field selection, and other important production factors.

Table Beets

Acreage and yield vary widely from year to year without significant trend. Concentration of production on a few farms and use of boron as a fertilizer prevent adequate rotations. Seedling diseases and root rots have become increasingly severe reducing field yields and quality of finished product as well as increasing processing costs. Sugar beet cyst nematode must be contained, soil structure improved, and fertilizer used more economically.

Cabbage

Acreage and yields of cabbage for sauerkraut has varied widely in recent years without significant trend. Mechanization has brought specialization. In 1975 over 80 percent of the processing cabbage was direct seeded, and over 90 percent harvested by machine. Equipment to mechanically thin field seedlings is being adopted. Varieties with high solids are needed. Foliage insects and seed borne diseases present problems from time to time. In general the industry is healthy.

Carrots

About two-thirds of New York's carrot production goes for canning and baby food. Acreage and yields have been fairly constant for the past 10 years. Excessive cullage results from lack of uniformity in size, shape, and color. Hybrid varieties have brought some improvement. Production costs are high, partly due to difficulties in harvesting late in the fall.

Tomatoes

Acreage appears to have stabilized in recent years after a long period of decline. Harvesting the crop is the major problem. Unfavorable weather conditions not only interfere with the development of a good ripening sequence but also cause difficulties at harvest time. Mechanical harvesting has been only mildly successful at best. Present varieties are not suitable for mechanical harvesting in New York. We are not in good competitive position at present.

Dry Beans

Dry bean acreage declined sharply until 1972 but has since recovered modestly. Yields have been variable without trend in recent years.

Root rot and unfavorable weather at harvest time are the biggest problems facing growers. Foliage diseases are sporadic. The new early maturing variety Redcloud should reduce losses from weather damage. Development of disease resistant varieties will enable certified seed to be grown in New York and reduce production costs compared to the use of Idaho grown seed. Efforts to develop direct harvesting aid equipment appear to be showing results.

New York has relied heavily on export markets for sales of dry beans. Resumption of trade with Cuba would give a substantial boost to the industry. The market for black beans in Venezuela continues to be unpredictable.

VEGETABLE EXTENSION PROGRAMMING

About 25 members of the Extension field staff spend a significant proportion of their time on the vegetable industry. Of these about 11 devote most of their time to this area. Becker and Stone have statewide responsibilities for processing vegetables and fresh vegetable marketing, and in addition Stone has responsibility for production of muck crops in several counties in Western New York. Ackerman, Rutkowski, Motsenbocker, Young and Bostdorff have multi-county responsibilities for vegetables. A position in the Capital District is vacant. Smith in Orange, Reisen in Steuben, and Sanok and Weber in Suffolk specialize in potato and vegetable work in their respective counties. The total field staff input is equal to about 12 person-years.

About the same total number of College as field staff are involved with Extension on vegetables in one way or another, some to a very limited extent. Total input is estimated at about 9 person-years, which does not count research at Ithaca and Geneva. Of this, about half comes from Vegetable Crops, with most of the rest coming from Agricultural Economics, Entomology, and Plant Pathology. Extension staffing is about at the minimum necessary to maintain a viable industry at the present level.

Extension programs are developed informally in many different ways, often through individual personal contact between field staff and College and industry people. Formal program planning is accomplished through the Interdepartmental Vegetable Committee and through advisory committees established for several major crops. These committees are composed of growers and members of marketing and processing firms as well as research and Extension staff. The committees advising on work with processing crops - snap beans, cabbage, red beets, and carrots, - have now been in operation for 15 years and have made some significant accomplishments. Other committees advise on several other crops. Such regional or statewide committees replace some of the county committees that agents used to depend on. The Roadside Marketing Committee is formed of Extension people only, and serves across commodity lines.

In a concentrated industry such as vegetable production and marketing much educational work is accomplished informally on an individual basis. Formal programs are largely based on regional meetings, service letters, or local gatherings to observe demonstration plots on equipment operation. Major regional or statewide meetings include the vegetable and potato sessions at the Horticultural Show, the Processing Vegetable Conference, the Roadside Marketing Conference, and regional dry bean, onion, and potato meetings. Such meetings reach a high proportion of the commercial growers. Vegetable Recommendations provides a summary of available information on varieties, cultural practices and pest control and is widely used in New York and elsewhere. Formal inservice training consists primarily of the program for new agents, the Refresher School in November, and the Indepth Courses in March.

Subject matter at meetings is largely problem oriented, intended to provide information on recent research likely to be useful in solving growers' production problems. Topics are also included that provide background information on current economic trends, farm and food policy, and business management. Growers are encouraged to attend meetings on general topics in management such as schools on income taxes and capital budgetting.

Future Extension programming should build on past experience and possibly move in the following directions.

1. In view of the complexity of the industry the field staffing should continue to emphasize a few key well-trained specialized workers with, apart from few exceptions, regional responsibilities.
2. The use of advisory committees including members of the industry should be continued and strengthened.
3. The emphasis on problems narrowly defined should be shifted to broader goals or objectives that focus on industry needs, may require interdisciplinary action, and use a total systems approach.
4. The increasing difficulty in maintaining an approved list of pesticides for vegetable production points to the necessity of the pest management if not total management approach to problems of maintaining or increasing yields and quality.
5. Increasing concern with soil borne pests and the use of heavy equipment require a new approach to land management from selection of rotations to tillage practices.
6. Consumer interest in fresh produce coupled with increasing costs of marketing through supermarkets suggest the opportunity to greatly expand the growing and marketing of fruits and vegetables direct to consumers, a plentiful resource in this area.
7. The processing industry operates most efficiently on a dependable supply of good quality raw material, and growers profit most from the ability to maintain good planting and harvesting schedules. Weather conditions have caused problems in scheduling the last few years, and efforts should be made to overcome these difficulties.
8. Greater production per acre on a sustained basis would seem to be in the best interests of growers, marketers, and consumers. The combined knowledge and concerted efforts of workers in applied research and Extension should focus on enabling growers to achieve this objective.
9. The economic climate in which the vegetable industry operates will be important in determining future directions. Efforts to explain this to consumers and legislators should be beneficial.