

June 1963

A. E. Res. 118

COSTS AND RETURNS ON SNAP BEAN PRODUCTION

57 FARMS – NEW YORK

1962



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INTRODUCTION

Snap beans continue to be the most important vegetable crop grown for processing in New York State. Between 1939 and 1959 the acreage increased nearly fourfold. The 1959 acreage of 50,325 outranked that of any other vegetable in the State except potatoes and occupied 28 per cent of the entire acreage used in the production of the 19 vegetables grown commercially in the State. The Crop Reporting Service for New York State estimated that 53,500 acres of snap beans were harvested in New York in 1962. These produced 100,800 tons of beans or 15 per cent of the production of the entire United States.

A dozen counties produce the bulk of the beans grown in the Empire State (Table 1). The Erie-Chautauqua area, the counties south of Lake Ontario in the Central Plains-Finger Lakes section and the Oneida-Madison area are the four main localities.

Table 1 - HARVESTED ACREAGE OF SNAP BEANS
FOR MARKET AND PROCESSING BY AREAS IN NEW YORK STATE
1939, 1944, 1949, 1954, 1959

Area	1939	1944	1949	1954	1959
	<u>Acres</u>				
Erie, Cattaraugus and Chautauqua	2,825	6,723	6,579	10,392	13,009
Niagara, Orleans, Monroe, Livingston, Ontario & Yates	1,801	2,535	2,381	4,159	4,599
Wayne, Cayuga and Oswego	717	3,307	6,360	7,637	10,928
Oneida and Madison	3,373	12,516	10,465	11,691	12,825
Other New York Counties	<u>4,540</u>	<u>12,347</u>	<u>9,821</u>	<u>11,098</u>	<u>8,964</u>
Total	13,256	37,428	35,606	44,977	50,325

Source: U. S. Census of Agriculture

Principal States in Production

In the past 10 or 15 years there has been little change in the order of importance of principal snap bean producing states. Oregon has led New York in total annual tonnage (Table 2). This is due to a much higher yield per acre. West Coast growers, in California and Washington as well as Oregon, produce a pole bean under irrigation. Considerable hand labor is used with this method of production. New York and other eastern growers grow the bush bean which is harvested mechanically by most growers. Few New York growers irrigate their beans.

Table 2 - PRODUCTION, ACREAGE AND YIELDS OF SNAP BEANS
FOR PROCESSING IN THE MAJOR STATES
(5 Year Averages 1957-61)

State	Tons Produced (000)	Acreage (000)	Yield per acre (tons)
Oregon	92.1	11.9	7.7
New York	69.3	40.2	1.7
Wisconsin	34.4	21.8	1.6
California	29.2	3.6	8.1
Florida	19.3	11.0	1.8
Tennessee	16.2	7.7	2.1
Maryland	16.0	9.7	1.6
Texas	15.6	9.5	1.6
Michigan	12.1	7.8	1.6
Washington	9.9	1.7	5.8
All other states	80.6	43.0	1.9
United States	394.7	167.9	2.4

Source: Agricultural Statistics and the U. S. Crop Reporting Service

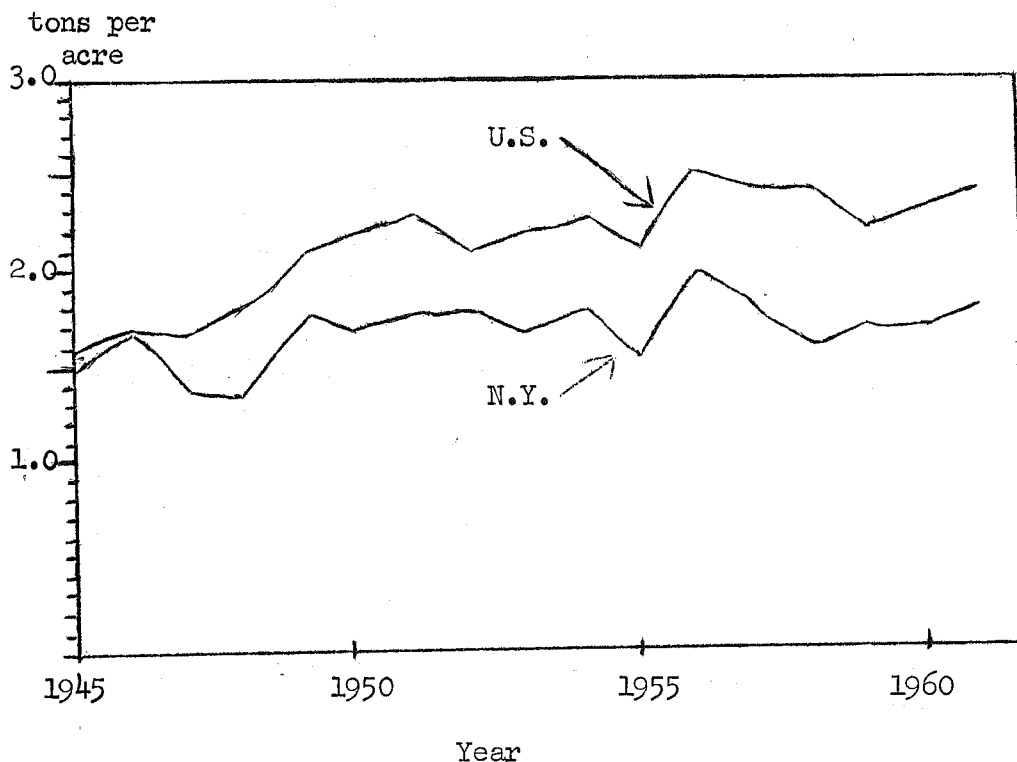
The 13 most important snap bean producing states accounted for 84 per cent of the entire United States production in 1960. Interestingly, these states are widely scattered over the nation.

Trends in Yields

Yields of snap beans in New York State have remained fairly stable in the past 12 or 15 years (Figure 1). The highest average yield recorded in the State was 2 tons per acre in 1956. Then most of the crop was still harvested by hand, but beginning in 1957 an increasing amount has been machine picked. Mechanical harvesting involves a "once-through" operation unlike hand harvest where two or more pickings are usually made. Management practices that bring most of the crop to maturity at one time are necessary for mechanical harvesting.

New York State producers have maintained yields well when compared with other states growing the same types of bush beans and where irrigation is not generally practiced. When compared with the entire United States average, however, yields in New York have been about one-half ton less per acre.

Figure 1 - AVERAGE YIELD PER ACRE OF SNAP
BEANS FOR PROCESSING
(New York and United States)

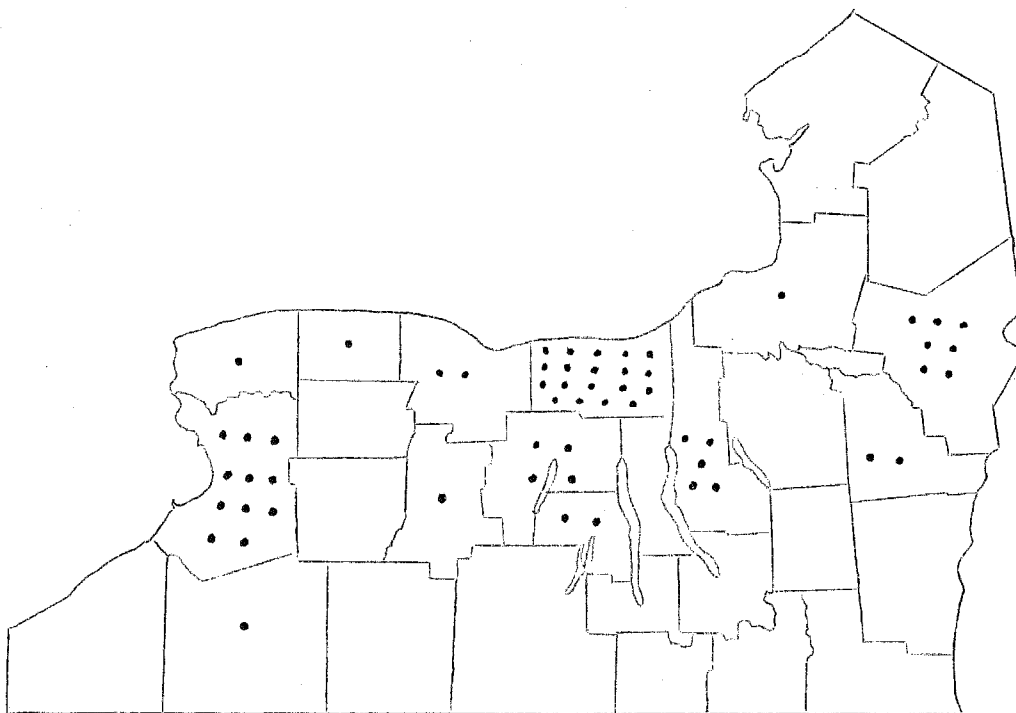


THE STUDY

In 1962 records of production costs and returns were obtained from 57 snap bean growers in most of the counties in New York State where the crop is of commercial importance (Figure 2). More than 95 per cent of these beans were grown for processing, either canning or freezing.

The 57 farms studied produced a total of 15,675 acres or an average of 275 acres per farm. This was more than one-quarter of all the snap beans grown in New York State in 1962.

Figure 2 - NUMBER OF PRODUCERS STUDIED
(57 New York State Farms, 1962)



Each dot represents one farm

Description of Farms Studied

The 57 farms produced a variety of crops and livestock products (Table 3). Snap beans, of course, were grown on all these farms. The next most common use of cropland was idle land for which government payments were received. Thirty-eight farms had retired some cropland.

Wheat, oats, corn and hay were produced on many of the farms.

There was a variety of fruit, both small and tree types. Strawberries were found in the Erie section and apples and cherries were plentiful in the fruit belt south of Lake Ontario. Nineteen farms had dairy cows, averaging 62 milkers per farm.

The 57 farms were larger than most New York State farms. The average number of man work units was 2471. Crops accounted for 2191 of these and livestock for 280.

Table 3 - CHARACTERISTICS OF THE FARMS
ON WHICH THE SNAP BEAN ENTERPRISE WAS STUDIED
57 Farms, New York State, 1962

	Number of farms	Average per farm having	Average per farm all farms	Your Farm
Acres operated:				
Owned	56	448	440	_____
Rented	53	327	<u>304</u>	_____
Total operated			744	
Use of Cropland (acres):				
Vegetables:				
Snap beans	57	275	275	_____
Tomatoes	12	38	8	_____
Cabbage	11	18	3	_____
Potatoes	7	62	8	_____
Sweet corn	16	85	24	_____
Peas	15	29	8	_____
Dry beans	16	120	3	_____
Other vegetables	19	56	19	_____
Field Crops:				
Rye	20	27	9	_____
Wheat	34	37	22	_____
Oats	30	45	23	_____
Corn	30	45	24	_____
Hay	26	81	37	_____
Idle cropland	38	43	28	_____
Fruits:				
Strawberries	12	18	4	_____
Grapes	5	52	5	_____
Apples	15	92	24	_____
Peaches	4	7	1	_____
Cherries	10	21	4	_____
Pears	5	7	1	_____
Non-bearing orchard	6	37	4	_____
Total cropland			<u>534</u>	
Livestock:				
Dairy cows	19	62	21	_____
Heifers and calves	21	41	15	_____
Beef animals	7	20	3	_____
Hogs raised	3	233	12	_____
Hens	8	2,800	393	_____

The Growing Season

In the areas studied there was considerable variation in rainfall in 1962. In general it was a dry season with many growers reporting that some plantings produced much lower yields than usual. Where normally the growing season rainfall is approximately 16 inches, the 1962 rainfall was less than 14 inches at most stations in the area or about 85 percent of normal (Table 4). Snap beans have a short season, being ready for harvest in 55 to 60 days after planting. Lack of adequate rain during this period can seriously cut yields.

Table 4 - RAINFALL DURING THE 1962 GROWING SEASON
Selected Stations, New York

	May	June	July	Aug.	Sept.	Total
- inches -						
Utica	2.54	2.39	4.02	3.40	3.09	15.44
Morrisville	1.12	2.00	1.84	4.88	2.74	12.58
Oswego	2.15	2.50	1.95	3.02	4.29	13.91
Auburn	1.14	1.37	2.34	2.77	2.36	9.98
Geneva	1.77	2.04	3.89	1.95	3.20	12.85
Sodus Center	1.11	1.73	1.15	3.29	4.25	11.53
Rochester	2.70	3.02	1.89	3.53	4.01	15.15
Penn Yan	0.71	3.25	1.43	5.14	2.66	13.19
Batavia	3.16	5.21	2.30	3.64	3.95	18.26
Gowanda	2.08	3.87	1.54	2.80	4.01	14.30
Ithaca	0.96	2.26	1.18	3.82	4.61	12.83

Source: Climatological Data for New York State. Published monthly by the United States Weather Bureau.

Another quirk of weather which cut yields to below normal was an early killing frost in September. Growers in Erie County who had rented bean acreage in the higher elevations of Chautauqua and Cattaraugus Counties were particularly affected, with the last planting on a few farms completely destroyed.

Practices and Inputs Used

Labor - Under 1962 conditions snap bean growing involved little labor. The average grower used a little less than 4.5 hours of labor per acre in growing beans, and where mechanical harvesting was practiced, a little more than 7 hours per acre were required in the harvest operation.

Table 5 - INPUTS USED PER ACRE OF SNAP BEANS
57 Snap Bean Enterprises, New York State, 1962

Inputs	Size of Enterprise			Your farm
	Less than 150 acres	150 to 399 acres	400 acres or more	
Number of farms	23	20	14	_____
Acres of snap beans	52	237	695	_____
Yield per acre, tons	1.6	1.7	1.6	_____
Man hours:				
Growing	4.3	4.3	4.4	_____
Harvesting	17.9	7.1	7.4	_____
Total hours	22.2	11.4	11.8	_____
Tractor hours	3.9	3.7	3.4	_____
Truck miles	9	11	14	_____
Pounds of seed	83	87	84	_____
Commercial fertilizer:				
Pounds of N	31	33	34	_____
P ₂ O ₅	58	76	80	_____
K ₂ O	56	56	53	_____

Chemical weed control was practiced by 49 of the 57 growers. Two methods of applications were used. One was to apply herbicides at the time the beans were planted; the other was to apply such materials to the land a few days after the beans were planted, but before they came up. The usual practice was to apply the chemical in narrow bands over the planted row rather than covering the entire surface of the ground.

The use of weed sprays has reduced but not eliminated the number of cultivations and has cut the over-all labor requirement. Forty-one of the 57 growers cultivated twice; only six cultivated three times, the remaining ten used at least one cultivation. Some fields on some farms were cultivated more times than others.

Twenty-four growers sprayed or dusted for insects and/or diseases. Leaf hoppers and bean beetles were the most common insect pests with mildew and root rot the most prevalent diseases.

Power - Tractor use in growing beans averaged less than four hours per acre with each of the three size groups. The operations with 400 acres and more of snap beans required somewhat fewer tractor hours per acre than those with smaller acreages (Table 5). Trucks were used mainly

to haul fertilizer at planting time and for hauling the crop to the processors at harvest.

Most of the growers used a type of bean picker which was mounted on a tractor. A mechanical picker pulled by a tractor was used by some growers.

Seed - The amount of seed used per acre has increased in recent years and now averages about 85 pounds per acre. Many of the growers using the white-seeded varieties in 1962 found the germination to be rather low and increased the amount to over 90 pounds per acre. Most growers liked to have a stand of 8 or 9 plants per foot. A close stand tends to produce pods set higher on the plant and thus permits easier and cleaner harvesting.

All of the 57 growers produced green beans, and 42 of the 57 also grew some wax, mostly Kinghorn variety. Green beans afforded a greater choice among varieties. Tendercrop, Tenderwhite, Tendergreen, Wadex, Slenderwhite, Harvester and Corneli were among the green varieties which were grown.

Fertilizer - Fertilizer amounts in terms of pounds of actual nitrogen, phosphoric acid and potash have tended to increase somewhat in the past few years. The analysis most common was a 1-2-2 ratio, often an 8-16-16 formula. Four hundred pounds per acre of fertilizer with such a formula was the most common application.

Most of the growers were using a type of planter that placed the fertilizer in a band to one side and below the seed. Such placement helps avoid fertilizer burn and allows the plants to make better use of the nutrients.

A dozen growers used manure on a part of their bean acreage. Thirty-seven of the 57 used cover crops. Both rye and rye grass were commonly used. Twenty-eight of the growers had used lime at some time in the last three years.

Cost of Producing One Acre of Snap Beans

Before the advent of the mechanical bean picker labor was easily the biggest item in the cost of producing snap beans. Now on many of the farms, particularly the larger operations, labor costs are equaled or exceeded by such costs as land, seed, equipment and soil nutrients. Mechanical harvesters are expensive pieces of equipment, the most common type costing about \$13,000. However, for a grower with a moderately large acreage of beans this is a much cheaper method of harvest than the old hand method which previously cost in excess of \$80 an acre.

The average total cost of producing an acre of beans in 1962 on these 57 farms was about \$125. In general 75 to 80 percent of this was the growing cost.

Table 6 - AVERAGE COST OF PRODUCING
ONE ACRE OF SNAP BEANS
New York State, 1962

Items of cost	Size of enterprise			Your Farm
	Less than 150 acres	150 to 399 acres	400 acres or more	
Acres of snap beans	52	237	695	_____
Yield per acre, tons	1.6	1.7	1.6	_____
Growing costs:				
Labor	\$ 5.96	\$ 6.25	\$ 6.29	_____
Tractor	5.39	4.75	4.50	_____
Other power	0.17	0.25	0.29	_____
Fertilizers:				_____
Commercial	13.52	14.65	15.21	_____
Manure	1.96	0.35	0.21	_____
Cover crops	2.13	4.80	8.00	_____
Lime	0.65	1.25	1.29	_____
Spray and dust	3.65	3.90	4.14	_____
Seed	27.22	30.65	27.14	_____
Land charge	12.87	14.60	18.64	_____
Use of equipment	7.26	6.45	6.43	_____
Overhead	4.00	4.45	4.57	_____
Interest	1.00	1.00	1.00	_____
Total growing cost	\$ 85.78	\$ 93.35	\$ 97.71	_____
Harvesting costs:				
Labor:	\$ 3.61	\$ 7.00	\$ 7.64	_____
Custom work	39.96	7.25	4.21	_____
Trucking & other power	1.48	1.65	2.71	_____
Mechanical equipment	10.61	11.80	12.64	_____
Overhead	1.22	0.55	0.79	_____
Total harvesting cost	\$ 56.88	\$ 28.25	\$ 27.99	_____
Total cost per acre	\$142.66	\$121.60	\$125.70	_____

Over half of the farms had growing costs between \$80 and \$99 per acre (Table 7). The growers with large acreages spent a little more per acre for fertilizer and considerably more for cover crops than did their small competitors. The larger size operations tended to have higher growing costs per acre than those with fewer acres. This was somewhat contrary to expectations. Part of this may be explained by the rather far-flung nature of the large operations. The competition for good bean land has been keen and has forced the operators of large enterprises to go farther afield and pay more for land. Some farmers rented land as much as 80 miles distant from the home farm. Land rents ranged from \$7.00 to \$35.00 an acre. The operators of larger farms paid considerably higher rentals, averaging \$18.64, than did those growing fewer acres.

Table 7 - VARIATION IN GROWING COSTS PER ACRE
New York State Farms, 1962

Cost per acre	Size of Enterprise			All Farms
	Less than 150 acres	150 to 399 acres	400 acres or more	
\$ 60 - 69	2	1	1	4
70 - 79	4	-	-	4
80 - 89	10	8	3	21
90 - 99	3	6	2	11
100 - 109	3	3	4	10
110 & over	1	2	4	7

Harvesting costs in the days of hand picking were more than half of the total cost of production. Now they are less than one-quarter of the cost for most farmers. With machine picking farmers are encouraged to strive even harder for high yields since the additional tonnage adds little to the production cost. With hand picking the advantage of higher yields was not so clear-cut as most crops were picked on a piece-work basis and the increase in yield was accompanied by a proportional increase in harvesting cost.

Yield Per Acre

Yield per acre varied from 0.5 to 2.7 tons. The average was between 1.6 and 1.7 tons (Table 8). As noted before, insufficient rainfall doubtless cut yields on many of the farms. In spite of this about 20 percent of the growers had yields which exceeded two tons per acre.

Table 8 - VARIATION IN SNAP BEAN YIELDS
57 New York State Farms, 1962

Yield (tons)	Less than 150 acres	150 to 399 acres	400 acres or more	All Farms
0.5 - 0.9	3	-	1	4
1.0 - 1.4	5	5	2	12
1.5 - 1.9	9	12	9	30
2.0 - 2.4	4	3	2	9
2.5 - 2.7	2	-	-	2

Harvest Costs Per Ton

It is significant to note that 30, or more than half the growers, harvested their beans for less than \$20 a ton (Table 9). Generally, growers with low harvest costs paid considerable attention to keeping their equipment in good working order. Often they used equipment longer and thus reduced depreciation.

Table 9 - HARVEST COSTS PER TON
57 New York State Farms, 1962

Harvest Cost per ton	Less than 150 acres	150 to 399 acres	400 acres or more	All Farms
Under \$10.00	1	2	-	3
\$10.00 - 19.99	6	12	9	27
20.00 - 29.99	2	4	5	11
30.00 - 39.99	7	2	-	9
40.00 - 49.99	2	-	-	2
50.00 and over	5	-	-	5

Operators of 43 of the 57 farms owned mechanical harvesting equipment. The remaining 14 either had their beans custom harvested by machine, harvested by the processor, or hand harvested. The 43 growers with harvesting equipment had 95 per cent of the total snap bean acreage in the study. In general the growers that used their machines over the largest acreage had lowest harvesting costs (Table 10). On the 13 farms with machine use of more than

250 acres per machine there were a total of 23 machines. The average harvest costs on these farms was \$15 per ton compared with \$18 per ton for the farms using machines on 175 to 250 acres and \$20 on those with less than 175 acres per machine. Yields of the operators who picked less than 175 acres per machine averaged 1.8 tons per acre. This was somewhat higher than the other two groups which averaged 1.6 and 1.5 tons per acre.

Table 10 - HARVEST COST AS RELATED TO ACRES PICKED PER MACHINE
(43 New York State Farms, 1962)

Item	acres harvested per machine		
	Under 175	175 to 250	More than 250
Yield per acre (tons)	1.8	1.6	1.5
Number of machines	17	30	23
Acres per machine	129	210	307
Harvest cost per acre	\$30	\$28	\$22
Number of farms	11	19	13
Harvest cost per ton	\$20	\$18	\$15

Price Per Ton

The average price per ton received by the growers was about \$93. Prices varied considerably among growers depending on quality, percentage of culls, and market. Seven growers received less than \$80 a ton, seventeen \$80 to \$90, twenty-one \$90 to \$100 and twelve received more than \$100. Most beans were sold for freezing or canning. A few were sold for fresh market. In some cases final figures for the 1962 crop could not be obtained. These were estimated.

Returns

Growers with profitable enterprises out-numbered those with losses by 38 to 19. Some farmers in each size of enterprise group were successful. There was some tendency for the growers with the smaller enterprises to have higher returns, but these were more than offset by their higher costs (Table 11). The 150 to 300 acre enterprises had good returns and low costs and showed the greatest profits. They, of course, did not have so many acres on which to profit as did the growers with 400 acres or more.

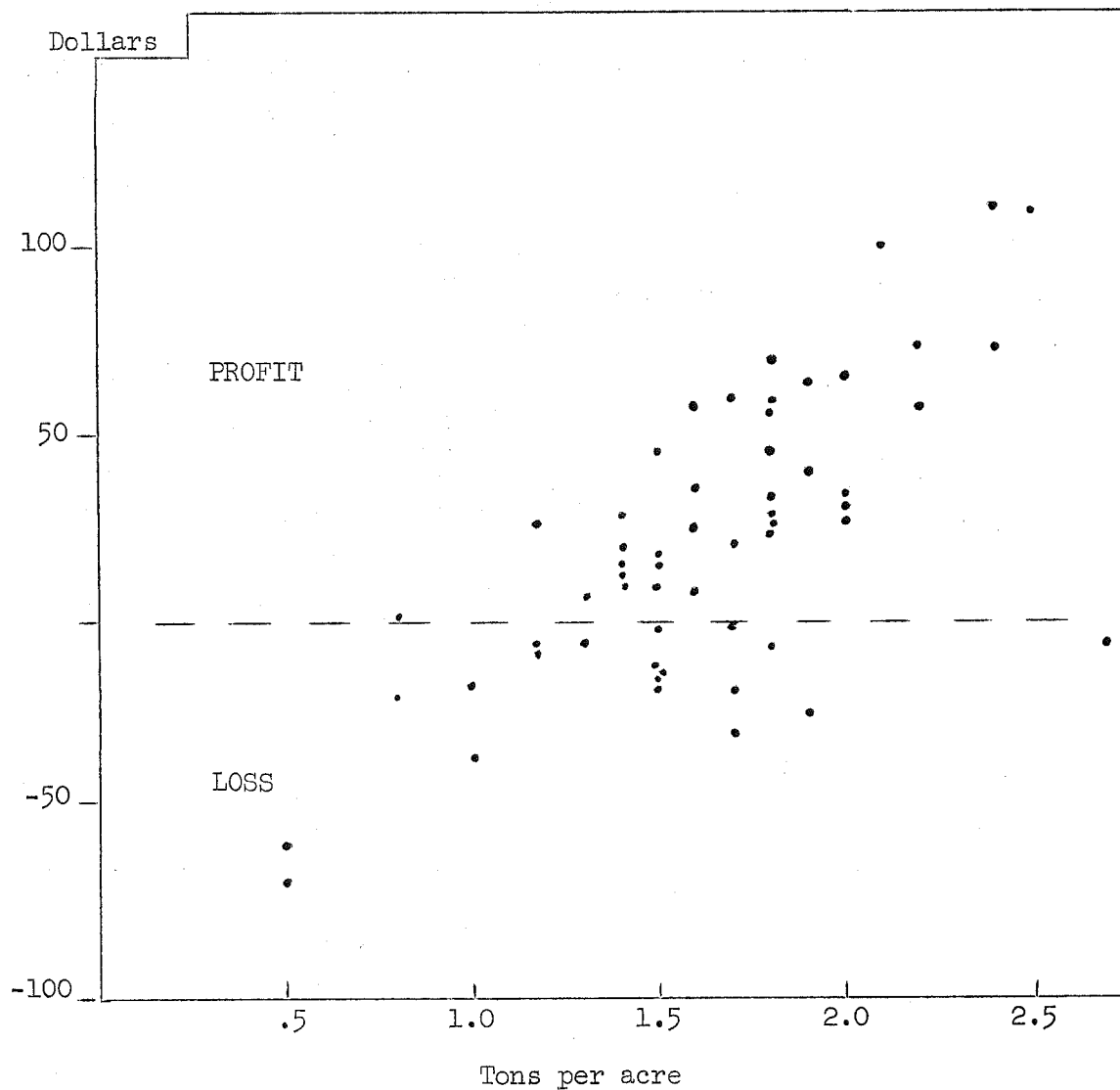
Table 11 - RETURNS AND PROFIT PER ACRE FROM PRODUCING SNAP BEANS
57 New York State Farms, 1962

	Size of Enterprise			Your Farm
	Less than 150 acres	150 to 399 acres	400 acres or more	
Yield per acre, tons	1.6	1.7	1.6	_____
Average price per ton	\$95	\$ 92	\$ 92	_____
Total returns per acre	157	153	147	_____
Total cost per acre	143	123	126	_____
Profit per acre	14	30	21	_____

Relation of Yield and Profit Per Acre

Figure 3 indicates the positive relationship between yield and profit per acre. Six growers had total returns of less than \$100 an acre; their yield was 0.8 tons, and they had a loss of \$34 an acre. There were eight growers with average returns of more than \$200 an acre, a yield of 2.2 tons and a profit of \$56 an acre.

Figure 3 - RELATIONSHIP BETWEEN YIELD AND
NET RETURN PER ACRE OF SNAP BEANS
(57 New York State Farms, 1962)



Yield Necessary to Break Even

The yield necessary to break even in the production of snap beans varies with several factors. Among these are growing cost per acre and price per ton of beans. For the purpose of these comparisons harvest costs of \$20, \$30 and \$40 an acre were assumed. Thus, with beans at a price of \$90 a ton,

growing cost of \$105 an acre and harvest cost of \$30 an acre, a yield of 1.5 tons would be required to break even (Table 12).

A grower can determine his own break even point as follows: Estimate (1) price per ton of beans, (2) the harvesting cost per acre, (3) the growing cost per acre. Then --

$$\text{Yield in tons per acre to break even} = \frac{\text{Harvest cost per acre} + \text{Growing cost per acre}}{\text{Price received per ton}}$$

Table 12 - YIELDS NECESSARY TO BREAK EVEN WITH
DIFFERENT SELLING PRICES FOR SNAP BEANS
57 New York State Farms, 1962

Price per ton	Harvest cost per acre	Yield necessary to break even with growing costs per acre of:				
		\$75	\$85	\$95	\$105	\$115
\$80	\$20	1.2	1.3	1.4	1.6	1.7
80	30	1.3	1.4	1.6	1.7	1.8
80	40	1.4	1.6	1.7	1.8	1.9
90	20	1.1	1.2	1.3	1.4	1.5
90	30	1.2	1.3	1.4	1.5	1.6
90	40	1.3	1.4	1.5	1.6	1.7
100	20	1.0	1.1	1.2	1.3	1.4
100	30	1.1	1.2	1.3	1.4	1.5
100	40	1.2	1.3	1.4	1.5	1.6

Example: Growing costs at \$95/acre + Harvest cost \$30/acre
Price per ton - \$80

The break even yield would be 1.6 tons.

THE EFFECT OF DIFFERENT PRACTICES ON YIELD AND NET RETURNS

It is the job of the grower, if he wishes to be successful, to constantly study and adopt whatever methods or practices will give him satisfactory yields and results. Although conditions and consequently answers to problems will vary from farm to farm, a study of the causes of variation can help those who are striving to compete. Some of the factors, such as weather, are out of the grower's control, but many are within the ability of the farmer to control or adjust to. Since it is difficult to separate with certainty the effects of various practices on yields, a study of various

practices followed by the growers will give clues, not final answers, as to how each affected snap bean yields in 1962.

Irrigation

Seven growers irrigated a part of their acreage in 1962 and reported varying results. It appears that snap beans may be a crop that does not respond sufficiently to irrigate successfully from an economic point of view. However, some growers who irrigate other crops and have a convenient and cheap source of water may make extra water pay off on beans in time of drought.

Commercial Fertilizer

Fertilizers with eight different ratios (nitrogen, phosphoric acid and potash) were used on the 57 farms. The ratio most commonly used was the 1-2-2. Forty-two growers used this particular ratio. There were five different analyses of the 1-2-2 ratio. The 8-16-16 was used by 29 growers. Others were 10-20-20, 5-10-10, 6-12-12 and 9-18-18.

The second ranking ratio in frequency of use was the 1-2-1. This was used by 15 growers. Analyses of 10-20-10 and 8-16-8 were used most often.

The eight ratios included a total of 20 analyses.

There did not appear to be any significant correlation between different ratios and yields or between varying amounts per acre of nitrogen, phosphoric acid and potash and yield.

Growers will need to continue to study results of field tests by research and extension people and make careful observations and comparisons on their own farms.

Amount of Seed Used

The amount of seed used per acre and its relation to yields is shown in Table 13. More pounds of seed are required per acre when seed size is large. Growers also put in more seed per acre when the germination is low.

Table 13 - AMOUNT OF SEED USED PER ACRE
AS RELATED TO YIELD
57 Snap Bean Enterprises, New York State, 1962

Amount of seed	Number of growers	Yield per acre (tons)
65 - 75 lbs.	14	1.5
80 - 89 lbs.	16	1.6
90 and over	27	1.7

Total Cost of Growing

Cost of growing an acre of snap beans had some wide variation and was one of the causes of variation in profits. Three different groupings have been made in Table 14. In general, man hours and value of plant nutrients added went up with growing costs. Yields also rose but not enough to offset higher growing costs.

Table 14 - COST OF GROWING ONE ACRE OF
SNAP BEANS AS RELATED TO YIELD AND OTHER FACTORS
57 Snap Bean Enterprises, New York State, 1962

Growing Cost per acre	Number of Farms	Man hours per acre to grow	Value of plant nutrients added per acre	Returns per \$100 of cost	Tons Yield per acre
\$ 65 - 79	8	3.4	14	127	1.4
80 - 99	32	4.1	20	113	1.6
100 & over	17	5.0	26	113	1.7

Over-all there were 19 of the 57 growers or one-third who failed to make a profit on their enterprise in 1962. Their growing costs averaged \$95 an acre. The 38 who made a profit grew beans up to harvest for \$90 an acre.

COSTS AND RETURNS IN FOUR AREAS

For purposes of comparing some of the factors in snap bean production the area studied was divided into four groups - Tables 15, 16, 17, and 18.

Table 15 - CHARACTERISTICS OF THE FARMS IN
ERIE, CATTARAUGUS, CHAUTAUQUA COUNTIES

	Number of farms	Ave. per farm having	Ave. per farm-all farms
Acres operated:			
owned	12	411	411
rented	11	478	438
Total operated			849
Use of Cropland(acres):			
Vegetables:			
Snap beans	12	487	487
Tomatoes	6	37	18
Cabbage	1	3	*
Potatoes	1	20	2.0
Sweet corn	-	-	-
Peas	-	-	-
Dry beans	-	-	-
Other vegetables	7	29	17
Field crops:			
Rye	7	36	21
Wheat	3	12	3
Oats	5	27	11
Corn	4	25	8
Hay	4	75	25
Fruit:			
Strawberries	10	21	17
Grapes	5	52	22
Apples	-	-	-
Peaches	-	-	-
Cherries	-	-	-
Pears	-	-	-
Non-bearing orchard	-	-	-
Idle cropland	7	84	49
Total cropland			680
Livestock:			
Dairy cows	2	72	12
Heifers & calves	4	32	11
Beef animals	1	30	3
Hogs raised	-	-	-
Hens	-	-	-

This area consists of counties in Western New York State and produces a sizeable acreage of snap beans (Table 15). Most of the growers live in southern Erie County, but many of their beans are grown in the adjoining counties of Cattaraugus and Chautauqua and a few in Pennsylvania. This is a general farming area with dairy, grape and small fruit common.

* Less than 0.5

Table 16 - CHARACTERISTICS OF THE FARMS IN
NIAGARA, ORLEANS, MONROE, LIVING-
STON, ONTARIO AND YATES COUNTIES

	Number of farms	Ave. per farm having	Ave. per farm-all farms
Acres operated:			
owned	10	335	335
rented	10	483	483
Total operated			818
Use of cropland (acres):			
Vegetables:			
Snap beans	10	113	113
Tomatoes	5	44	22
Cabbage	5	30	15
Potatoes	1	15	2
Sweet corn	8	123	98
Peas	3	57	17
Dry Beans	7	196	138
Other vegetables	4	138	55
Field Crops:			
Rye	5	27	13
Wheat	9	71	64
Oats	4	42	17
Corn	4	24	9
Hay	2	95	19
Fruits:			
Strawberries	1	1	*
Grapes	-	-	=
Apples	4	16	6
Peaches	2	4	1
Cherries	3	4	1
Pears	1	2	*
Non-bearing orchard	1	32	3
Idle cropland	8	38	30
Total cropland			623
Livestock:			
Dairy cows	1	50	5
Heifers & calves	1	57	6
Beef animals	1	67	7
Hogs raised	1	100	10
Hens	2	250	25

A second area in the northwestern part of the State includes snap bean operations in the counties of Niagara, Orleans, Monroe, Livingston, Ontario and Yates (Table 16). This is a general crop and fruit area with considerable livestock south of the fruit belt.

* Less than 0.5

Table 17 - CHARACTERISTICS OF THE FARMS IN
WAYNE, CAYUGA AND OSWEGO COUNTIES

	Number of farms	Ave. per farm having	Ave. per farm-all farms
Acres operated:			
owned	25	428	412
rented	23	270	239
Total operated			<u>651</u>
Use of cropland: (acres)			
Vegetables:			
Snap beans	26	265	265
Tomatoes	1	12	1
Cabbage	4	8	1
Potatoes	1	15	1
Sweet Corn	3	72	8
Peas	9	23	8
Dry Beans	9	61	21
Other vegetables	6	47	11
Field Crops:			
Rye	6	24	5
Wheat	15	30	17
Oats	13	45	23
Corn	15	55	32
Hay	13	71	36
Fruits:			
Strawberries	-	-	-
Grapes	-	-	-
Apples	10	131	51
Peaches	2	11	1
Cherries	7	29	8
Pears	4	8	1
Non-bearing orchard	5	37	7
Idle cropland	15	34	19
Total Cropland			<u>515</u>
Livestock:			
Dairy cows	9	42	15
Heifers & calves	10	36	14
Beef animals	3	15	2
Hogs raised	2	300	23
Hens	4	5,375	827

A third area involves the counties of Wayne, Cayuga, & Oswego lying to the south of Lake Ontario and extending into the Finger Lakes area (Table 17). Some land is rented in adjacent Onondaga county. The area is similar to that of the previous area and is adapted to many different crops and livestock. Wayne is the principal apple and cherry producer among all New York counties.

Table 18 - CHARACTERISTICS OF THE FARMS IN
MADISON AND ONEIDA COUNTIES

	Number of farms	Ave. per farm having	Ave. per farm-all farms
Acres operated:			
owned	9	678	678
rented	9	112	112
Total operated			790
Use of cropland: (acres)			
Vegetables:			
Snap beans	9	203	203
Tomatoes	-	-	-
Cabbage	1	8	1
Potatoes	3	66	22
Sweet corn	5	32	18
Peas	3	19	6
Dry beans	-	-	-
Other vegetables	2	12	3
Field Crops:			
Rye	2	6	1
Wheat	7	19	15
Oats	8	56	50
Corn	7	48	37
Hay	7	100	78
Fruits:			
Strawberries	1	3	*
Grapes	-	-	-
Apples	1	10	1
Peaches	-	-	-
Cherries	-	-	-
Pears	-	-	-
Non-bearing orchard	-	-	-
Idle cropland	8	28	25
Total cropland			461
Livestock:			
Dairy cows	7	87	68
Heifers and calves	6	52	35
Beef animals	2	1	*
Hogs raised	-	-	-
Hens	2	200	44

The fourth area studied includes the counties of Madison and Oneida (Table 18). In this general section of central New York, production of milk is the big enterprise. The area for many years has also been noted for production of snap beans. Farmers in these two counties together with some in nearby Chenango and Otsego counties sell some of their snap beans on the fresh market in the metropolitan centers of New York, New England and the Eastern Seaboard.

* Less than 0.5

Average growing costs in the four areas ranged from \$83 an acre in the Wayne, Cayuga, Oswego area to \$110 an acre in that of Erie, Chautauqua, Cattaraugus (Table 19). Much of this difference was due to higher costs of land and plant nutrients.

Harvest costs were highest in the Oneida-Madison section. Much of this was due to hand harvesting.

Table 19 - A COMPARISON OF COSTS OF SNAP BEANS
IN FOUR AREAS OF NEW YORK, 1962

Area	Number of farms	Cost per acre			
		Land	Nutrients	Growing	Harvest
Erie, Cattaraugus and Chautauqua	12	\$23	\$27	\$110	\$42
Niagara, Orleans, Monroe, Livingston, Ontario & Yates	10	14	21	94	32
Wayne, Cayuga and Oswego	26	11	19	83	33
Oneida and Madison	9	16	18	90	65

The hand-harvested beans were sold mostly as fresh market. In this area the higher price obtained from market beans helped to raise the average price per ton to \$103. This was above the average price for any other area (Table 20).

Table 20 - A COMPARISON OF RETURNS PER ACRE
FROM SNAP BEANS IN FOUR AREAS OF NEW YORK, 1962

Area	Acres per farm	Tons Yield per acre	Price per ton of beans	Gain or loss per acre	Net Returns per farm
Erie, Cattaraugus and Chautauqua	487	1.7	\$97	\$11	\$5,235
Niagara, Livingston, Ontario, Orleans, Monroe, and Yates	115	1.9	91	48	5,474
Wayne, Cayuga, Oswego	266	1.6	89	25	6,701
Oneida, Madison	205	1.4	103	-5	-955

A combination of large acreages of beans per farm and low growing costs helped the Wayne, Cayuga, Oswego area to make the highest net returns per enterprise of any of the areas.

The greater cost of hand harvesting in the Madison-Oneida area was not offset by the higher return for the fresh market beans, and the farmers on the average did not have profitable enterprises.

A combination of higher growing costs and harvest costs were the main factors contributing to the lower net returns per acre of Erie, Cattaraugus, and Chautauqua compared to the Niagara, Livingston, Ontario, Orleans, Monroe, Yates group.

A COMPARISON OF PROFITABLE AND UNPROFITABLE ENTERPRISES

Thirteen of the 57 growers showed a profit on their snap bean enterprise in excess of \$50 an acre. At the same time there were 19 who failed to make any profit. A comparison of these two groups is shown in table 21.

Table 21 - A COMPARISON OF PROFITABLE AND
NON-PROFITABLE SNAP BEAN FARMS

	19 farms with no profit per acre	13 farms with over \$50 profit per acre
Acres snap beans	268	295
Yield per acre	1.4 tons	2.0 tons
Price per ton	\$ 90	\$ 93
Growing cost per acre	\$ 94	\$ 89
Harvest cost per acre	53*	26
Land cost per acre	17	14
Labor cost per acre	12	14
Machinery cost per acre	18	19
Seed cost per acre	27	29
Plant nutrients per acre	21	20
Spray materials per acre	4	3

* includes custom work, mostly hand picking, on 12 of the 19 farms.

The farmers with the more profitable enterprises had higher yields, lower costs per acre of growing and harvesting and a slightly higher price per ton. The farms also had larger acreages of beans.

APPENDIX

Price and Rates Used in Determining Costs of Production

The producer provided information on such direct costs as rented land, seed, commercial fertilizer, spray materials and custom work hired. Charges for use of equipment, operator's labor and power were determined as follows:

Land: When beans were planted on rented land the actual cash rent was charged. Producers using their own land estimated its rental value, and this figure was used as a land charge. Fifty-three of the 57 growers rented land. One of the 53 rented all the land he operated.

Labor: Rates per hour for all classes of labor were estimated by the operators. Rates for operators were either their estimate of the price per hour they would have had to pay to replace themselves or their family on the job or the price per hour actually paid for hired labor doing the same work. Four general classes of labor were established with a rate for each: Operator's, family, regular hired, and day or special labor.

The averages of the rates per hour estimated by the producers for use in this study were:

<u>Class of labor</u>	<u>Less than 150 acres</u>	<u>150 to 399 acres</u>	<u>400 acres and up</u>
Operator	\$1.83	\$1.96	\$1.88
Family	1.31	1.77	1.45
Regular hired	1.38	1.23	1.33
Day or special	1.03	1.06	1.17

Tractors and Trucks: The producers indicated the size of the tractors and trucks used in their snap bean operations and also estimated the extent of their use. Rates used per hour and per mile were obtained from New York State cost account data.

	<u>Rate per hour</u>
2-plow tractors	\$1.15
3-plow tractors	1.45
4-5-plow tractors	1.65
Small truck (1 ton or less)	.08 a mile
Large truck (over 1 ton)	.20 a mile

Lime, Manure and Cover Crops: Lime was charged out over a four-year basis. That is, only one-quarter of the cost of lime applied just ahead of the 1962 bean crop would be charged to the beans.

Manure was also charged out over a four-year basis but on a 40-30-20-10 basis. A charge of \$3 a ton was made for manure. If beans were the first crop after manure was applied, the charge would be 40 per cent of \$3 or \$1.20 per ton applied. If beans were two years (or two crops) away from the manure application, the charge to beans would be 30 per cent of \$3 or \$0.90 a ton.

A uniform charge of \$9 an acre was made for cover crops.

Equipment: Plows and fitting equipment were charged for at the rate of \$2 an acre for each. Cultivating equipment was charged for at the rate of \$0.67 an acre for each cultivation.

These figures were also obtained from recent average acreage costs on New York State cost account farms.

Additional charges were made for special equipment used such as planters, sprayers or dusters, bean pickers, pallets and boxes and fork lifts. Irrigation equipment was charged for at \$2 an acre inch. Such charges were determined from the individual farmer's estimate of the annual costs of operating the equipment and the number of acres on which it was used.

Other: A general overhead charge of 5 per cent was made on all costs. This was to take care of such items as telephone, electricity, office and miscellaneous.

Interest: A charge of 1.6 per cent interest was made on the costs of labor, seed, fertilizer, spray materials, lime, cover crops and overhead.