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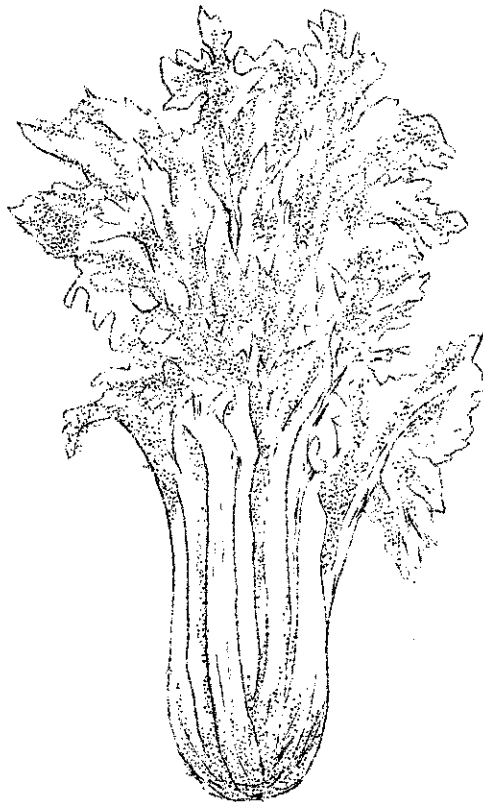
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COSTS AND RETURNS ON
WAYNE COUNTY
CELERY

1933 - 1934 - 1935



Prepared by
T. N. Hurd

Department of Agricultural Economics and Farm Management
New York State College of Agriculture
Cooperating with
The Wayne County Extension Service

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Data for the years 1933 and 1934 are from "Costs and Returns from Wayne County Celery, 1933" by D. A. Russell, and "Some Facts Concerning Profits on Celery in Wayne County, 1934" by L. S. Drake, and are hereby gratefully acknowledged.

COSTS AND RETURNS IN PRODUCING CELERY
IN WAYNE COUNTY, NEW YORK

1933-1934-1935

Introduction

During the past three years, celery growers in Wayne County have cooperated with the Wayne County Farm Bureau and the Department of Agricultural Economics and Farm Management at the State College of Agriculture in keeping records of their celery crops. At the end of each season, the record books kept by the growers were collected and analyzed by the Department of Agricultural Economics, and reports covering the results of the work were prepared. This report includes a detailed summary of the results for the year 1935 together with comparisons with earlier years, and three-year averages for the more important factors.

One of the objectives of the three-year project was to determine comparative costs and returns on "early" or close-culture celery as compared with the "late" or wide-culture crop. The earliest or close-culture crop is ordinarily planted in rows not wider than 24 inches apart. Late celery is ordinarily planted in rows wider than 24 inches and up to three feet apart. In 1933, 20 farmers kept complete records of labor, expenses, and returns on their celery crops. Two of these were close-culture, six were medium culture (24 to 33 inches), and 12 were wide-culture crops. Of the 14 records kept in 1934, four were close-culture and 10 were wide-culture crops. Eight of the 15 records kept in 1935 were on early celery and seven were on the late crop.

Records in 1935

The acreages of early celery in 1935 varied from one acre on one farm to 6 on another, but averaged 2.9 for all farms (table 1). The

seven records on late celery were for acreages varying from 1-1/4 acres to 9 acres per farm but averaged 4.0 for all seven. Yields on the early crop were 474 crates per acre as compared with 298 on the late. Returns per acre were approximately in proportion to yields and averaged \$643 on the early and \$416 on the late crop.

TABLE 1. FACTORS IN THE PRODUCTION OF CELERY
15 Accounts, Wayne County, New York, 1935

Factors	Average 8 early accounts	Average 7 late accounts
Average acreage per farm	2.9	4.0
Average yield (crates)	474	298
Returns per acre	\$642.62	\$416.34
Costs per acre	<u>294.32</u>	<u>202.13</u>
Net return per acre	\$348.30	\$214.21
Price per crate	\$ 1.35	\$ 1.40
Cost per crate	<u>.62</u>	<u>.68</u>
Net return per crate	\$ 0.73	\$ 0.72
Man hours growing per acre	231.8	159.5
Man hours harvesting per acre	<u>201.8</u>	<u>128.2</u>
Total man hours per acre	433.6	287.7
Returns per hour of man labor	\$ 1.05	\$ 0.98
Cost per hour of man labor	\$ 0.248	\$ 0.237
Tons of manure per acre*	2.3	3.2
Pounds of fertilizer per acre	2482	1845

*Includes 40 per cent of 1935, 30 per cent of 1934, 20 per cent of 1933, and 10 per cent of 1932.

Total costs of growing and harvesting an acre of early celery averaged \$294 as compared with \$202 for the late crop. Net returns of \$348 per acre were approximately \$135 larger than for the late crop. Contrary to most seasons, the average price per crate of \$1.40 for the late crop was slightly higher than for the early crop. Costs per crate

were almost identically the same for the early and late crops, and there was practically no difference between the two in net returns per crate.

The total hours of man labor required to produce and harvest an acre of early celery averaged 434 hours as compared with 288 for the late crop. Since harvesting requires more labor than any other operation, it is reasonable to expect the hours of man labor to vary in general with yields.

One of the best measures of the profitableness of a crop or livestock enterprise is the return per hour of labor it gives the grower. "Return per hour" merely refers to the pay a farmer receives for each hour he spends on the particular crop or livestock enterprise. It is figured by subtracting from total returns, all expenses except those for labor, and then dividing the remainder by the number of hours worked. In 1935, early celery paid an average of \$1.05 for each hour spent on it, and the late crop paid an average of \$0.98.

All figures in the above paragraph refer to averages for the records on the early crop and on the late crop. There was, however, much variation between individual farms in yields, costs, hours of labor and net returns.

Growing and Harvesting Costs per Acre

On the average it cost \$294.32 to grow and harvest an acre of early celery, of which \$174.38 or 59 per cent was for growing, and \$119.94 was for harvesting (table 2). Growing and harvesting costs on late celery averaged \$202.13 per acre of which \$123.81 or 61 per cent was for growing and about 39 per cent was for harvesting.

TABLE 2. COSTS PER ACRE TO GROW AND HARVEST CELERY
15 Accounts, Wayne County, New York, 1935

Expenses	Amount per Acre			
	Early	Per cent of total	Late	Per cent of total
<u>Growing</u>				
Use of land	\$26.17	8.9	\$22.12	10.9
Manure	7.15	2.4	6.22	3.1
Plowing and fitting	7.23	2.5	8.46	4.2
Fertilizing	37.85	12.9	29.95	14.8
Plants	23.25	7.9	8.52	4.2
Planting	23.13	7.9	17.33	8.6
Cultivating and weeding	32.20	10.9	21.06	10.4
Dusting and spraying	15.76	5.3	9.78	4.8
Other	1.64	0.6	0.37	0.2
Total	\$174.38	59.3	\$123.81	61.2
<u>Harvesting</u>				
Crates	\$ 63.56	21.6	\$ 42.46	21.0
Man labor	51.34	17.4	30.89	15.3
Horse labor	1.04	0.4	2.08	1.0
Truck and auto	3.68	1.2	2.37	1.2
Other	.32	0.1	.52	0.3
Total	\$119.94	40.7	\$ 78.32	38.8
Total costs per acre	\$294.32	100.0	\$202.13	100.0

The charges of \$26.17 per acre for the use of land on the early crop and \$22.12 on the late crop included interest at 5 per cent on the value of the land, plus the proper share of the taxes on the total farm. Because the growers valued their muck land at from \$150 to \$800 per acre, this charge for the use of land is relatively high. Apparently land used for early celery was valued at a slightly higher figure than that used for the late crop.

The charge for manure includes the value of barnyard manure and the cost of applying it, and also the expense of seed for green manure.

Because the value of manure is obtained over several years, the charge for manure includes only 40 per cent of that applied in 1935, 30 per cent of that applied in 1934, 20 per cent of that applied in 1933, and 10 per cent of that in 1932.

Expenses for plowing and fitting averaged \$7.23 per acre on the early crop and \$8.46 on the late crop. These figures included all man, horse, and tractor labor, and charges for the use of machinery. The rate per hour for man labor was determined for each individual farm by using the actual cash expense of hired labor, and the farmer's own estimate of the value of his own and his family's time. This varied from \$.20 on one farm to \$.32 on another.

Charges for the use of horse, tractor, truck, and automobile labor were based upon results of cost accounts kept on 93 New York farms in 1934. Horse labor was figured at \$0.17 per hour, automobiles at \$0.037 per mile, tractors from \$0.51 to \$0.725 per hour depending on size; and trucks, from \$0.037 to \$0.059 per mile depending upon capacity.

Fertilizing expenses of \$37.85 per acre on the early crop and \$29.95 on the late crop included the expense of 2482 pounds per acre on the early and 1845 pounds per acre on the late, as well as the expense for labor and machinery in applying it. The charge for plants included the actual cost of purchased plants and the labor, seed and other expenses incurred by those who raised their own plants. Planting charges included all labor and expenses in setting plants. Cultivating and weeding charges of \$32.20 and \$21.06 per acre included all hand hoeing and weeding.

Expenses for dusting and spraying were \$15.76 per acre on the early crop but \$9.78 on the late crop.

The most important harvesting expense was that for crates. Several growers purchased crates already made while others purchased crates "knocked down" and constructed them themselves. The usual charge was \$0.125 per crate "knocked down," and either \$0.15 or \$0.16 per crate constructed and ready for use. The charge for crates included the labor of making them on those farms which bought crates "knocked down."

Man labor for harvesting averaged \$51.34 per acre on the early crop and \$30.89 on the late crop. All labor in harvesting, hauling, and selling was included. Other smaller harvesting expenses were for horse labor, and for the use of automobiles and trucks. Because a number of growers sold their crops at the farm or hauled to a nearby market, charges for trucks and automobiles are relatively small. In the case of one large grower who hired a large part of his crop trucked to Philadelphia, the cost of such trucking and selling was deducted and not figured in the average for all growers. Prices for this farm were figured at what the grower received at the farm.

Labor per Acre to Grow and Harvest

Approximately one-half of the total man labor required to grow and harvest an acre of early celery was for growing and one-half was for harvesting (table 3). For the late crop, 55 per cent of the total was for growing and 45 per cent was for harvesting. Relatively small amounts of man labor were required for manuring, plowing and fitting, fertilizing, and raising plants. On the average 71 hours per acre or 16 per cent of the total were required to plant an acre of early celery, as compared

with 50 hours or 17 per cent for the late crop. Cultivating and weeding required 27 per cent of the total man hours on the early crop as compared with 25 per cent on the late crop.

TABLE 3. LABOR PER ACRE TO GROW AND HARVEST CELERY
15 Accounts, Wayne County, New York, 1935

Operation	Early		Late	
	Hours	Per cent of total	Hours	Per cent of total
<u>Growing</u>				
Manuring	2.9	.7	2.2	.8
Plowing and fitting	8.9	2.1	12.7	4.4
Fertilizing	5.4	1.2	6.6	2.3
Raising plants	18.1	4.2	10.1	3.5
Planting	71.3	16.4	49.9	17.3
Cultivating and weeding	116.8	27.0	72.2	25.1
Dusting and spraying	8.4	1.9	5.8	2.0
Total	231.8	53.5	159.5	55.4
<u>Harvesting</u>	201.8	46.5	128.2	40.6
Total hours per acre	433.6	100.0	287.7	100.0

Costs per Acre by Operations

The most important expenses in plowing and fitting land for early celery were for man labor (table 4). Horse labor cost \$1.32 for the two operations and the use of tractors averaged \$1.91 per acre. Since much of the fertilizer was applied by hand, the expense of man labor in applying it was the next most important expense in addition to the cost of the fertilizer. Man labor averaged \$17.52 per acre out of a total of \$23.13 for planting. Cultivating and weeding expenses were mostly for man labor. Harvesting costs were largely man labor and expenses for crates.

TABLE 4. COSTS PER ACRE OF DOING DIFFERENT OPERATIONS
15 Celery Accounts, Wayne County, New York, 1935

Operation	Man labor	Horse labor	Tractor labor	Use of machinery	Other	Total
<u>8 Early Accounts</u>						
Plowing	\$0.86	\$0.50	\$0.63)	\$1.65	---	\$7.23
Fitting	1.49	0.82	1.28)			
Fertilizing	1.38	0.25	---	0.24	\$35.98*	37.85
Planting	17.52	0.13	---	5.40	0.08	23.13
Cultivating & weeding	27.88	1.18	2.68	0.40	0.06	32.20
Dusting and spraying	1.96	0.14	1.02	3.37	9.27**	15.76
Harvesting	51.34	1.04	1.34	0.32	65.90***	119.94
<u>7 Late Accounts</u>						
Plowing	1.19	1.50	0.12)	1.64	---	8.46
Fitting	1.87	1.13	1.01)			
Fertilizing	1.48	0.22	---	0.13	28.12*	29.95
Planting	11.54	---	---	5.79	---	17.33
Cultivating & weeding	16.68	2.71	1.48	0.19	---	21.06
Dusting and spraying	1.35	0.39	0.52	2.51	5.01**	9.78
Harvesting	30.89	2.08	0.54	0.26	44.55***	78.32

* Includes fertilizer

** Includes materials

*** Includes crates

On late celery, the importance of each of the items involved in each operation was about the same as on the early crop. With the exception of plowing and fitting, however, costs per acre were all lower for the late crop.

Costs and Returns per Acre and Per Crate

Gross receipts were \$642.62 per acre or \$1.35 per crate on the early celery (table 5). Total growing and harvesting costs were \$294.32 per acre or \$0.62 per crate. The difference or net profit was \$348.30 per acre or \$0.73 per crate. With both lower yields and lower costs on the late crop, but with a slightly higher price, costs and net profits per crate were \$0.68 and \$0.72 respectively or approximately the same as for the early crop.

TABLE 5. COSTS AND RETURNS PER ACRE ON CELERY
15 Accounts, Wayne County, New York, 1935

Factor	Early		Late	
	Per acre	Per crate	Per acre	Per crate
Gross receipts	\$642.62	\$1.35	\$416.34	\$1.40
<u>Costs</u>				
Growing	174.38	0.37	123.81	0.42
Harvesting	119.94	0.25	78.32	0.26
Total	\$294.32	\$0.62	\$202.13	\$0.68
Net profit	\$348.30	\$0.73	\$214.21	\$0.72
Yield per acre	474	---	298	---

Returns per Hour of Labor

To determine returns per hour of labor on celery, the cost of labor per acre was subtracted from total costs per acre to obtain costs other than labor. The remainder was deducted from total returns per acre and the result was then divided by the number of hours of man labor required per acre. On the early crop, total costs were \$294.32 per acre of which \$107.53 was for man labor (table 6). Returns for labor were \$455.83, which when divided by 433.6 hours of labor per acre resulted in an average return per hour of \$1.05. For the late crop the average was \$0.98.

TABLE 6. RETURNS PER HOUR OF LABOR FROM CELERY
15 Accounts, Wayne County, New York, 1935

	Early Celery	Late Celery
Total receipts per acre	\$642.62	\$416.34
Total costs per acre	294.32	202.13
Cost of labor per acre	107.53	68.18
Costs other than labor per acre	186.79	133.95
Returns for labor per acre	455.83	282.39
Number of hours per acre	433.6	287.7
Returns per hour of labor	\$1.05	\$0.98

Average Yield, Costs and Returns, 1933, 1934 and 1935

The significance of results obtained on celery costs and returns might be misleading. An average of several years would be expected to give a more reliable picture of the celery enterprise on muck areas in Wayne County. Information contained in the remainder of the report refers to average and comparative costs during 1933, 1934 and 1935.

During the three-year period considered, yields of early celery varied from 465 to 590 crates and averaged 510 (table 7). Total receipts reflect not only differences in yields but also differences in prices. Returns per acre varied from \$643 in 1935 to \$871 in 1933, and averaged \$738 for the period. Growing costs averaged \$193 and harvesting costs \$122 for the three years, making an average total cost of \$315. Harvesting costs varied more than growing costs because of variations in yields.

The net profit per acre varied from \$332 in 1934 to \$588 in 1933 and averaged \$423 for the period. Somewhat more than 400 hours of man

labor were required to grow and harvest an acre of celery in both 1934 and in 1935. The average for the three years was 382 hours.

TABLE 7. EARLY CELERY YIELDS, COSTS, AND RETURNS
Wayne County, New York, 1933, 1934, and 1935

Factor	Per Acre			Average
	1933	1934	1935	
Number of accounts	2	4	8	5
Crates per acre	465	590	474	510
Total receipts	\$871	\$701	\$643	\$738
Growing costs	\$199	\$207	\$174	\$193
Harvesting costs	84	162	120	122
Total	\$283	\$369	\$294	\$315
Net profit	\$588	\$332	\$348	\$423
Man hours growing	138	249	232	206
Man hours harvesting	143	184	202	176
Total	281	433	434	382
Returns per hour of labor	\$2.45	\$1.04	\$1.05	\$1.51
Price per crate	1.90	1.19	1.35	1.48
Cost per crate	.60	.63	.62	.62
Profit per crate	\$1.30	\$.56	\$.73	\$.86

Returns per hour of labor averaged \$1.51 for the period, or considerably above that of most other farm enterprises during the same period. Prices fluctuated from year to year but averaged \$1.48. Costs were almost exactly the same for all three years and averaged \$0.62.

Yields on late celery averaged 333 crates per acre as compared with 510 crates on the early crop. Lower yields and generally lower prices, total returns per acre were more than \$400 in 1933 and in 1935

but averaged \$373 for the period, or approximately one-half that of the early crop. Growing costs varied but little from year to year and harvesting costs fluctuated with changes in yields. Average costs of \$225 per acre to grow and harvest the crop were approximately one-third less than for early celery. The hours of man labor required to grow and harvest the late crop varied comparatively little from year to year and averaged 280 for the three years. Returns per hour of labor were unusually low in 1934, partly because of the unusually low prices as compared with 1933 and with 1935. Costs per crate varied from \$0.68 in 1935 to \$0.82 in 1933, and averaged \$0.73 for the period.

TABLE 8. LATE CELERY YIELDS, COSTS, AND RETURNS
Wayne County, New York, 1933, 1934, and 1935

Factor	Per Acre			Average
	1933	1934	1935	
Number of accounts	12	10	7	10
Crates per acre	347	354	298	333
Total receipts	\$448	\$256	\$416	\$373
Growing costs	\$136	\$141	\$124	\$134
Harvesting costs	92	102	78	91
Total	\$228	\$243	\$202	\$225
Net profit	\$220	\$ 13	\$214	\$148
Man hours growing	138	155	160	151
Man hours harvesting	132	128	128	129
Total	270	283	288	280
Returns per hour of labor	\$1.08	\$0.33	\$0.98	\$0.80
Price per crate	1.25	0.73	1.40	1.13
Cost per crate	.82	.69	.68	.73
Profit per crate	\$0.43	\$0.04	\$0.72	\$0.40

Summary

Results of the records kept by these 15 growers in Wayne County in 1935 indicate that:

1. Costs per acre on early celery averaged \$174.38 for growing and \$119.94 for harvesting, making a total of \$294.32.
2. Costs per acre on late celery averaged \$123.81 for growing and \$78.32 for harvesting, making a total of \$202.13.
3. The most important expense in producing celery is man labor, particularly for cultivating, harvesting and weeding, and expenses for the use of land, fertilizer and crates.
4. Early celery required 434 hours of man labor per acre of which 54 per cent was for growing and 46 per cent was for harvesting the crop.
5. Late celery required 288 hours of man labor per acre of which 55 per cent was for growing and 45 per cent was for harvesting.
6. Early celery cost an average of \$0.62 to produce and brought an average of \$1.35 per crate.
7. Late celery cost an average of \$0.68 per crate to produce and sold for an average price of \$1.40.
8. Returns per hour of labor averaged \$1.05 on the early crop and \$0.98 on the late celery.

Results of cost accounts on the celery enterprise on a relatively small number of farms during the years 1933, 1934 and 1935 show that an acre of early celery:

1. Produced an average of 510 crates.
2. Cost an average of \$315.
3. Sold for \$738.
4. Required 382 hours of man labor, and
5. Had an average return per hour of labor of \$1.51.

Results of cost accounts for three years show that an acre of late celery:

1. Produced an average of 333 crates.
2. Cost an average of \$225.
3. Sold for \$373.
4. Required 280 hours of man labor, and
5. Paid \$0.80 for each hour of labor spent on it.

The records kept by these Wayne County celery growers would indicate that there is a larger return per hour of labor and per acre from the early or close-culture celery. Many growers raise both close- and wide-culture crops. Such a practice undoubtedly makes possible a more efficient use of labor than might be possible if the early crop were grown exclusively.

A COMPARISON OF YOUR CROP WITH THE AVERAGE

	Your crop	Average of 8 early accounts	Average of 7 late accounts
<u>Important factors</u>			
Acres of celery	_____	2.9	4.0
Crates per acre	_____	474	298
Price received per crate	_____	\$1.35	\$1.40
Cost of labor per hour	_____	\$0.248	\$0.237
Tons of manure per acre*	_____	2.3	3.2
Pounds of fertilizer per acre	_____	2482	1845
Total cost per crate	_____	\$0.62	\$0.68
	<u>Total</u>	<u>Per Acre</u>	<u>Per Acre</u>
<u>Growing costs</u>			
Use of land	_____	_____	\$26.17
Manure	_____	_____	7.15
Plowing and fitting	_____	_____	7.23
Fertilizing	_____	_____	37.85
Plants	_____	_____	23.25
Planting	_____	_____	23.13
Cultivating and weeding	_____	_____	32.20
Dusting and spraying	_____	_____	15.76
Other	_____	_____	1.64
Total	_____	_____	\$174.38
<u>Harvesting costs</u>			
Crates	_____	_____	\$63.56
Man labor	_____	_____	51.34
Horse labor	_____	_____	1.04
Truck and auto	_____	_____	3.68
Other	_____	_____	0.32
Total	_____	_____	\$119.94
<u>Total costs</u>			
	_____	_____	\$294.32
_____	_____	_____	\$202.13
Returns from celery	_____	_____	\$642.62
Man hours growing	_____	_____	231.8
Man hours harvesting	_____	_____	201.8
Total hours	_____	_____	433.6
Cost of labor	_____	_____	\$107.53
Net profit above costs	_____	_____	348.30
Returns for labor	_____	_____	455.83
Returns per hour of labor	_____	_____	\$1.05
_____	_____	_____	\$ 68.18
_____	_____	_____	214.21
_____	_____	_____	282.39
_____	_____	_____	\$0.98

*Includes 40 per cent of that applied in 1935, 30 per cent of that in 1934, 20 per cent in 1933, and 10 per cent in 1932.