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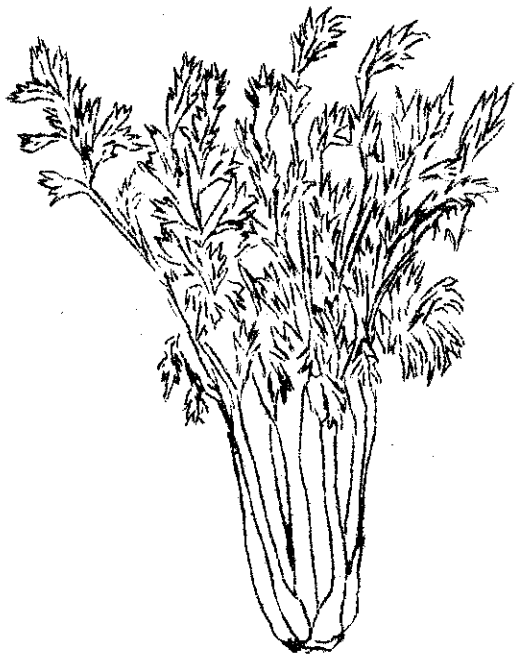
LAND UTILIZATION
DEPT. AGRL. ECON. AND FARM MGT.
CORNELL UNIVERSITY
ITHACA, N. Y.

FARM MANAGEMENT REPORT ON

THE COSTS AND RETURNS FROM WAYNE COUNTY CELERY



1933

New York State College of Agriculture
Department of Agricultural Economics and Farm Management
Cooperating with the Wayne County Farm Bureau

Prepared
by

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A. E. 62

March 1934

A. E. 62

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STUDY AND COMPARE YOUR OWN COSTS
WITH THE AVERAGE FOR THE GROUP

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COSTS AND RETURNS FROM PRODUCTION OF CELERY IN WAYNE COUNTY IN 1933

The Celery Situation

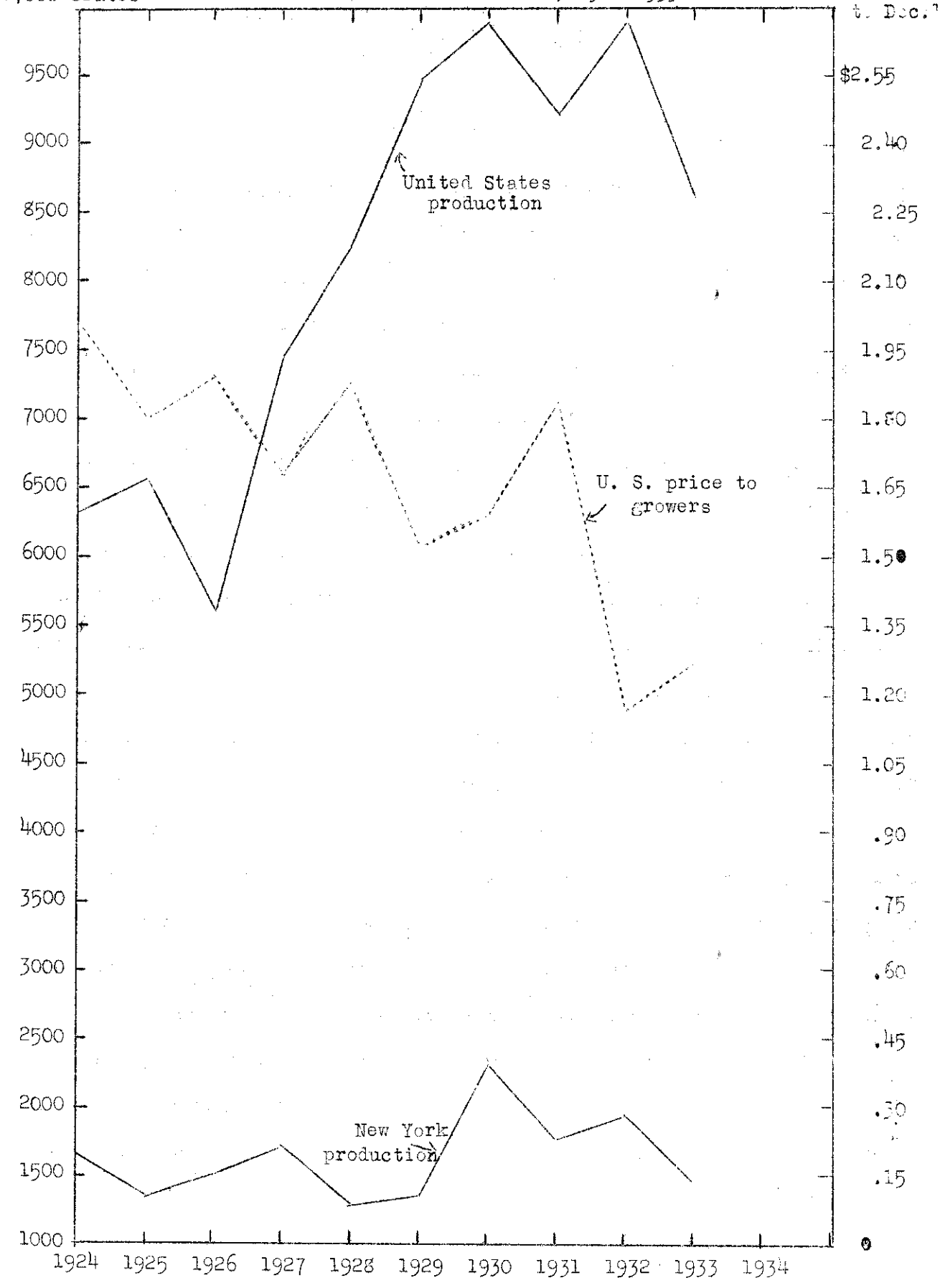
Production and Prices of Celery in the United States and New York.

The United States production of celery increased rather steadily and rapidly from 1926 to 1930 (figure 1). Production fell off some in 1931 but reached a new high in 1932 of 9,894,000 two-thirds crates from 35,600 acres. Production in 1933 fell off very decidedly due in a large part to a reduction in acreage because of low celery prices in 1932.

New York acreage and production has been relatively stable. The peak in production for the State was in 1930, and the peak in acreage, 6,050 acres, with the second highest total production of any year, was in 1932. In 1933 the acreage was the lowest since 1928, and production the lowest since 1929. Again this may be accounted for by low prices for celery in 1932. The increase in total celery production has taken place largely outside of New York State, the biggest increases occurring in California and Florida. In 1924 and 1925 New York was producing about 23 per cent of the total United States celery production. In 1933 New York produced only 17 per cent of the United States production. Over the last 10 years New York State production has averaged about 20 per cent or one-fifth of the total United States production.

Since 1924 the trend of celery prices in the United States has been down, In other words, price trends have been just opposite to production trends. The average United States price of celery to growers in 1932 of $1.17 per crate was more than 30 cents below the average price of any year for which records are available. The average United States price in 1933 was somewhat higher than in 1932 but still far below any previous year except 1932.

FIGURE 1. NEW YORK AND UNITED STATES PRODUCTION OF CELERY AND THE UNITED STATES PRICE TO GROWERS, 1924-1933



The Importance of Wayne County in Celery Production. Wayne County celery growers produce about 80 per cent of the celery shipped by rail from New York State (table 1). Orange County produces some celery which goes to New York City by truck. However, this is early celery and does not compete with Wayne County celery. Wayne County celery growers produce about one-sixth of the total United States celery crop.

TABLE 1. CARLOT SHIPMENTS OF NEW YORK CELERY
5-Year Period 1927-31

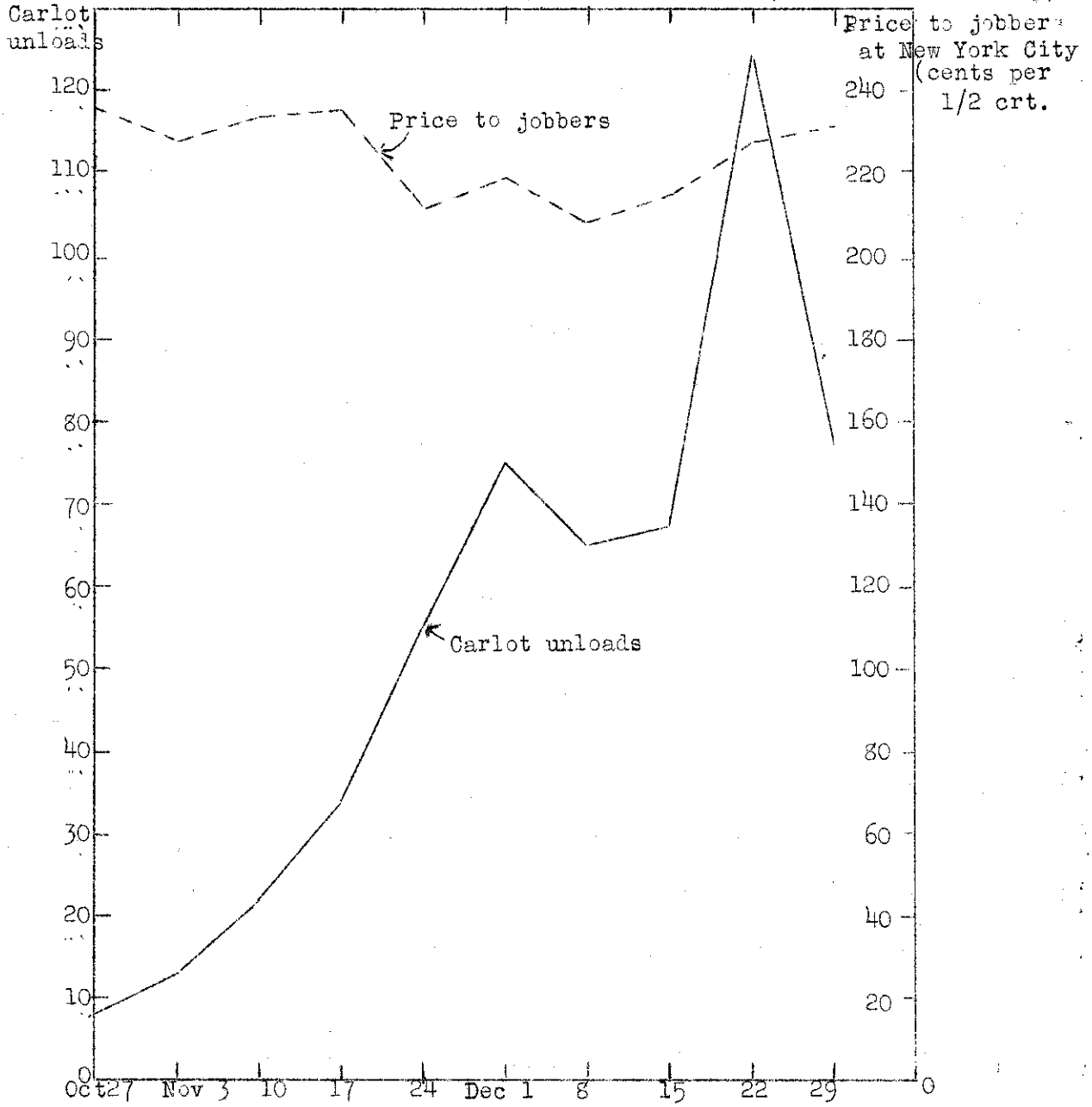
	Carlot shipments			
	Wayne County	Other counties	Total New York St.	% Wayne Co shipment is of tot.
1927	4,586	1,307	5,893	78
1928	3,444	749	4,193	82
1929	3,193	654	3,847	83
1930	4,553	898	5,451	84
1931	3,264	611	3,875	84
Average 1927-1931	3,808	844	4,652	82

Shipments and Prices of New York and California Celery in the Fall of 1933.

Shipments of California celery increased quite steadily from the last week in October to the week of December 22 and then fell off rapidly. Prices of California celery remained fairly steady throughout this period. Prices decreased slightly about the middle of November but increased again about the middle of December.

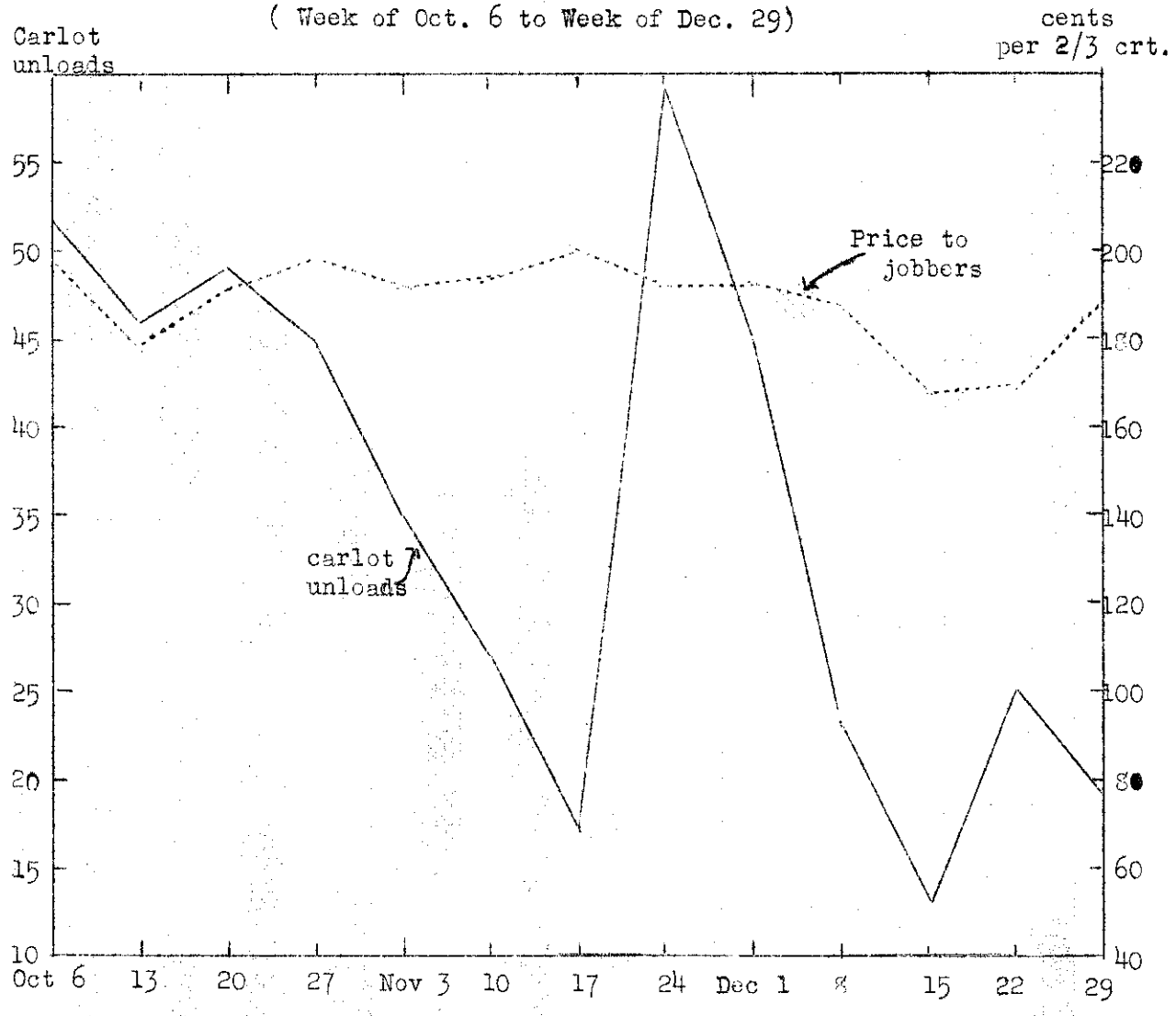
Carlot unloads of New York celery at New York City during the period from the week of October 6 to December 29 were more irregular than from California. At first of October shipments to New York City were high. After the 20th of October shipments fell off rapidly until the week of the 17th of November. The following week shipments increased sharply and reached a peak for the season, this being the week before Thanksgiving. Thereafter shipments from New York fell off rapidly except for a slight jump at the Christmas Holidays. Except for

Figure 2. CARS OF CALIFORNIA CELERY UNLOADED AT NEW YORK CITY AND THE PRICE TO JOBBERS AT NEW YORK CITY (week of October 27 to week of Dec. 29)



the week of October 13th prices of New York celery at New York City were fairly steady until about November 17th. After that prices declined somewhat until the week of December 15th after which a slight rise occurred.

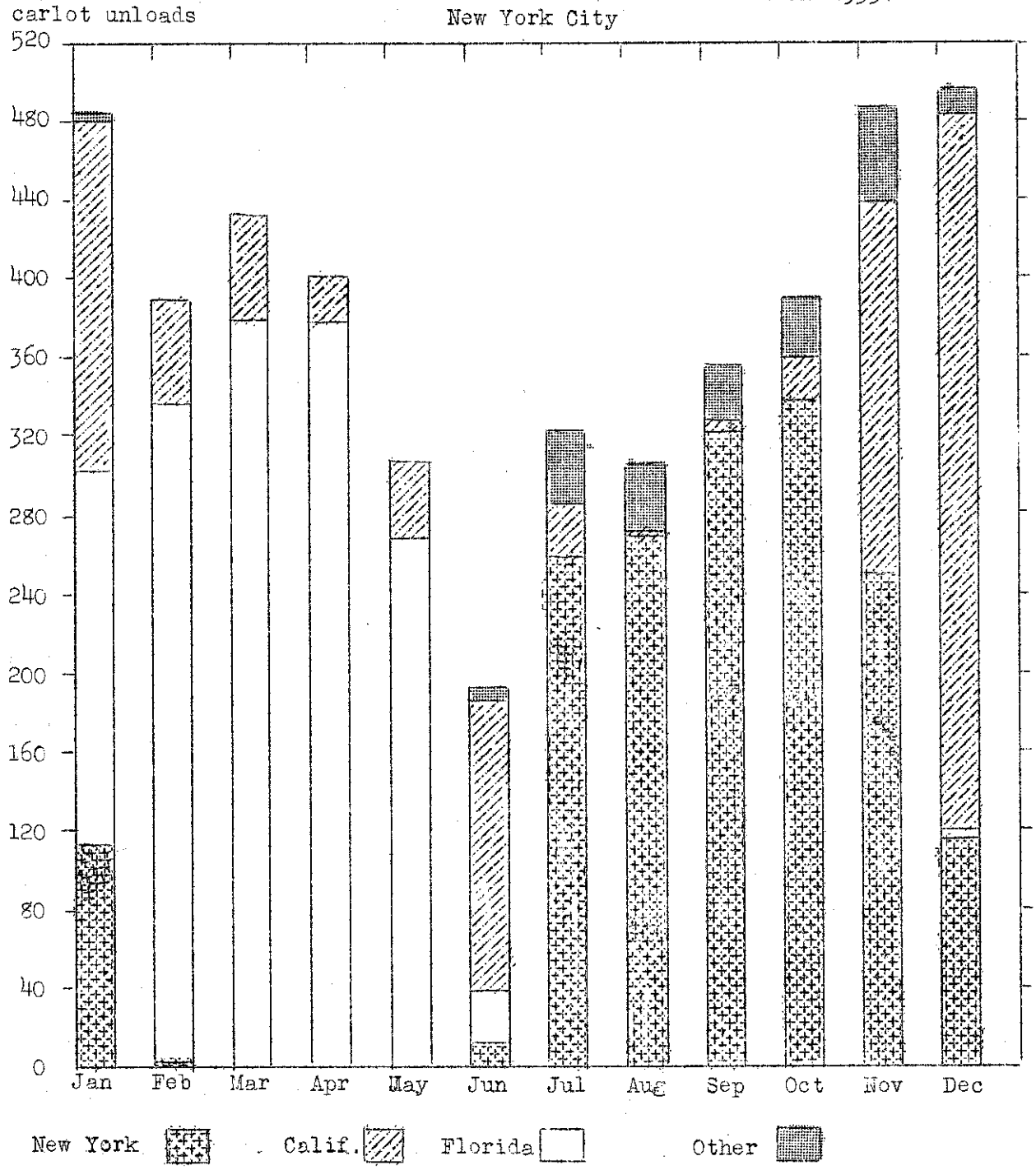
Figure 3. CARS OF NEW YORK CELERY UNLOADED AT NEW YORK CITY AND THE PRICE TO JOBBERS AT NEW YORK CITY (Week of Oct. 6 to Week of Dec. 29)



Where New York City Gets its Celery Throughout the Year. Since New York City is the biggest market for Wayne County celery it is well to know from where the competition for this market comes. Very little New York celery is shipped to New York City before July. From July shipments increase until the peak is reached in October. After that shipments decline with the last New York State celery being shipped in January.

There is very little competition for New York celery in the New York City market during the months of July, August, September, and October. California ships to New York City little during these months and other states of lesser

Figure 4. CARLOT UNLOADS OF CELERY BY STATES DURING THE YEAR 1933.



importance in celery production ship some. In November, California celery begins to reach the New York market in some volume. In December, California shipments to New York City reach a peak and are more than three times as great during this month as the New York State shipments. In January, Florida, California and New York celery are all on the New York City market. Florida

celery reaches New York City in the greatest volume during February, March, April, and May. Early California celery is on the market in rather large volume in June, although the total unloads of celery at New York City during this month are less than for any other month during the year.

New York City is supplied with celery all the year. California was the only state which put celery into the New York market during every month of 1933. Figure 4 shows graphically the source of celery for New York City during the year 1933. It also shows when New York State celery is shipped and the source of competition for New York State celery on the New York City market.

Results of Celery Cost Accounts in Wayne County, 1933

This report is based on records kept by 14 Wayne County celery growers in cooperation with the Wayne County Farm Bureau. These growers kept a record of all their expenses on certain plots of celery. The expenses included the use of land and machinery as well as labor, fertilizer, seed, and the like. In this way an attempt has been made to determine the net profit from celery in 1933.

The accounts have been divided according to the distance between the rows of celery. This has been done because the costs of producing celery, and to some extent the practices involved, vary with the width between the rows. A total of 20 accounts covering 63 acres of celery was obtained. These were divided as follows: 2 accounts for celery grown in 22 to 24 inch rows, 5 accounts in 28 to 30 inch rows, and 12 accounts in 34 to 36 inch rows and one account which had 28 and 36 inch rows combined. In general, it may be said that the earlier varieties of celery were grown in the closer rows. Probably the principle reason for this is that late celery requires banking for proper blanching and therefore necessitates greater distance between rows.

It should be clearly understood that the number of records seriously limits the conclusions which can be drawn from these records especially with

regard to the closer culture celery. This report is not an attempt to say what is the proper width between rows of celery or what type of celery should be grown in Wayne County. Many more records are required and much more study on these points is needed before it canbe said definitely which are the best practices. This report then merely summarizes the results obtained in 1933 from the few records available. It does suggest the need for more records on and more study of the costs of growing celery.

It should be said here also that the market situation in 1933 favored early celery, a situation which may be reversed in 1934. Prices for earliest Western New York celery in 1933 were higher than for the later crop. This fact greatly influenced the profits from the close culture celery.

Acres and Spacing of Celery on Wayne County Muck in 1929

Table 1 A gives the spacing of celery rows on muck as reported by Wayne County growers in 1929. At that time the most popular distances between rows seemed to be 18 inches and 36 inches. Twenty-four and 30 inch rows were next in importance.

TABLE 1A ACRES AND SPACING OF CELERY ON MUCK
Wayne County, 1929

Space between rows	Number of growers	Per cent of total
16	1	1
18	29	32
20	2	2
24	5	6
28	2	2
30	5	6
32	2	2
34	2	2
36	39	44
40	2	2
42	1	1
Total	90	100

Rainfall in Wayne County During the Celery Season

Dry weather in mid-summer and again in the early fall of 1933 undoubtedly reduced the yield of celery especially late celery. The total rainfall at Newark during the seven months from April 1 through October 31, 1933 was nearly 2 inches below normal (table 2). It was especially dry in June and July when late celery was being set. In July there was only 0.74 inches of rainfall compared with an average for the last 14 years of 3.26 inches. June was nearly as dry. This extremely dry weather while late celery was being set and was getting started and again in September and October when late celery was maturing undoubtedly accounted in part for the low yields of late celery as compared with the earlier celery. Heavy rainfall in May and again in August probably helped the earlier celery more than the late. This would be especially true of the May rainfall. Since most of the wide culture celery is late celery, and since most of the close culture celery is early celery these facts with regard to rainfall should not be overlooked when a comparison of yields and costs is made between early and late celery in 1933. Rainfall during the 1933 celery season was low and this condition undoubtedly was more unfavorable to late than to early celery.

TABLE 2. RAINFALL AT NEWARK, WAYNE COUNTY*
for Seven Months April 1 to October 31, 1931-33
and 14-year Average

	Inches of rainfall							
	April	May	June	July	August	September	October	Total for 7 months
1931	2.07	6.32	2.11	4.73	1.49	2.79	2.16	21.67
1932	2.20	2.88	1.26	4.26	4.12	1.52	4.34	20.58
1933	3.06	4.85	1.38	0.74	5.96	1.53	1.45	18.97
14-year average	2.67	2.99	3.41	3.26	2.98	2.78	2.66	20.75

* Source: United States Weather Bureau.

Costs of Producing an Acre of Celery

As previously stated these accounts have been divided according to the distance between the rows of celery. The costs include all costs in growing, harvesting, and delivering the celery to the local buyer, cold storage, or railroad station. For the close culture celery the average cost of producing an acre was $283, for the medium culture $293, and for the wide culture $228. As would be expected, it costs less to produce an acre of celery with 36 inch rows than an acre of celery with rows closer together. With only two records of the close culture celery too much weight should not be given to the fact that it cost less to grow an acre of this than the medium culture celery. This would probably not be true in most cases or with the average of a large number of records.

Table 3 shows the costs by operations of producing an acre of celery. About 18 per cent of the cost of producing celery was for harvesting and hauling from the farm. To this should be added the cost of crates, one of the largest items of expense. Of course, the expense per acre for crates varied with the yield. The average cost of crates was a little more than 14 cents per crate.

TABLE 3 COST BY OPERATIONS OF PRODUCING AN ACRE OF CELERY
Wayne County, 1933

Distance between rows	22-24in.	28-30in.	33-36in.	Your farm
Number of accounts	2	5	12	
Yield per acre (crt.)	465	542	347	
Use of land	$40.00	$40.00	$31.92	
Manure	7.20	7.79	5.73	
Fertilizer	33.35	25.63	22.10	
Crates	53.10	76.34	52.43	
Plants	55.58	20.33	14.88	
Spray and dust materials	6.18	16.14	4.50	
Plowing and fitting	8.50	8.18	11.35	
Planting and fertilizing	19.07	23.05	16.66	
Cultivation and Weeding	15.88	15.49	15.21	
Irrigation (only 1 farm	--	--	6.28	
Spraying and dusting	11.50	3.77	3.07	
Other	1.69	4.87	4.15	
Total growing costs	252.05	241.59	188.28	
Harvesting and hauling costs	31.30	51.88	40.08	
Total cost per acre	$283.35	$293.47	$228.36	

Table 4 shows the cost by items of producing an acre of celery. The cost of man labor and the cost of crates were the two largest items of expense, each being about a quarter of the total. Man labor was charged at the rate per hour which the grower gave as the cost. The average cost per hour of man labor was about 21 cents. The use of land was the next largest item of expense. Eight per cent of the value of the land was charged for its use to cover interest and taxes on this land. The average value of the 63 acres of muck included in these accounts was $436 per acre. The expense for fertilizer was a large item and decreased as the distance between the rows was increased. The cost of plants also decreased as the distance between rows increased, due in part to the fact that more plants were used per acre with the close culture celery, and in part to the fact that the plants for the celery grown in 22 to 24 inch rows were mostly green house plants and cost more per thousand

TABLE 4. COST BY ITEMS OF PRODUCING AN ACRE OF CELERY
Wayne County, 1933

Distance between rows Number of accounts	22-24in. 2	28-30in. 5	33-36in. 12	Your farm
Expenses				
Man labor (exc. growing plants)	$54.96	$69.10	$57.87	
Crates	53.10	76.34	52.43	
Use of land	40.00	40.00	31.92	
Fertilizer	33.35	25.63	22.10	
Manure	7.20	7.79	5.73	
Cost of plants	55.58	20.33	14.83	
Spray and dust materials	6.18	16.14	4.50	
Horse labor	5.90	7.91	13.43	
Tractor	4.42	2.82	4.33	
Use of sprayer or duster and truck	20.97	22.54	17.02	
Other	1.69	4.87	4.15	
Total costs	$283.35	$293.47	$228.36	

Some manure was used by all but two growers, less being used on the wide culture celery than on the closer culture celery. A charge of $1.50 per ton was made for manure. It was assumed that the value of manure to crops lasted over a period of 4 years. Forty per cent of the cost was charged to the celery crop, if it were the first crop grown after the manure was applied; 30 per cent, if the celery were the second crop; 20 per cent, if the celery were the third crop; and 10 per cent, if the fourth crop.

Horse labor was charged at 15 cents per hour. This charge presumably covered the cost for the use of tools drawn. On the same basis the use of a tractor was charged at 90 cents per hour unless some other figure was given by the grower.

Cost per Acre of Plowing and Fitting the Muck for Celery

The average cost of plowing and fitting muck for celery on the farms studied in Wayne County in 1933 was $10.13 per acre (table 5). This includes the total cost, except for fertilizing, of preparation of the muck for setting. The cost was about the same for man labor, horse labor, and the use of tractor. Of the 14 growers 9 used a tractor, at least in part, in plowing and fitting their muck for celery. Only 2 of the growers used a tractor entirely for these operations. It took about 15 hours of man labor to plow and fit an acre of muck for celery.

TABLE 5. COST OF PLOWING AND FITTING AN ACRE OF MUCK FOR CELERY
14 Growers, Wayne County, 1933

Item	All farms		Your farm	
	Hours	Cost	Hours	Cost
Man labor	15.2	$3.23		
Horse labor	23.0	3.45		
Tractor labor	3.5	3.41		
Other		.04		
Total cost per acre		$10.13		

Cost of Setting Celery

Of the 14 farmers keeping accounts, 4 set their celery by hand and 10 used a power setter. The 10 growers using a setter represented a total of 16 accounts. In other words some of these growers were growing celery with 2 or more different widths of rows.

It cost about $16 an acre to set celery with a machine in contrast to a cost of nearly $23 when the celery was set by hand (table 6). The saving resulting from the use of a machine was largely in man labor. It took less than half as much time to set an acre with a machine as by hand even though the average distance between the rows set by machine was less. The growers using a machine had, as a result of narrower rows, more plants per acre. The use of the machine cost $6.20 per acre; this cost includes depreciation and interest on the investment as well as gasoline, oil, and repairs.

TABLE 6. COMPARISON OF HAND AND MACHINE SETTING OF CELERY
20 Accounts, Wayne County, 1933

	Hand	Machine	Your farm
Average distance between rows	35"	32"	
Number of accounts	4	16	
Hours man labor per acre	95.0	45.4	
Cost of setter per acre	—	$6.20	
Total cost per acre	$22.60	$15.99	

Besides the saving in man labor through the use of machine the setting may be done more promptly with a machine. The timeliness of setting may be of considerable importance, especially in some seasons, and with growers having large acreages. The cost per acre for the use of a setter decreases with the number of acres set with the machine.

Cost of Fertilizer and its Application

The total cost per acre for fertilizer varied from $33.35 per acre on the close culture celery to $22.10 on the wide culture celery (table 7). This difference was due principly to the fact that less nitrate of soda and sulphate of ammonia were used on the wide culture celery. All but one account recorded side dressing celery with nitrate of soda or sulphate of ammonia. This one was a wide culture account. The man labof for applying fertilizer decreased rapidly as the amount of nitrate applied per acre decreased, since the side dressing for which most of the nitrate was used, was done largely by hand. Only 3 growers used any sulphate of ammonia and they also used some nitrate.

TABLE 7. COST PER ACRE OF FERTILIZER AND ITS APPLICATION
19 Celery Accounts, Wayne County, 1933

	All farms			Your farm
	Distance between rows			
	22-24in.	28-30in.	33-36in.	
Number of accounts	2	5	12	
Pounds of nitrate and sulphate applied per acre	984	529	351	
Pounds mixed fertilizer per acre	1167	1280	1204	
Total cost per acre of all fertilizer	$33.35	$25.63	$22.10	
Applying fertilizer				
Man hours per acre	9.6	7.6	4.8	
Horse hours per acre	1.4	0.5	1.0	
Truck miles per acre	5.5	3.9	1.9	

Cost of Cultivating and Weeding an Acre of Celery

Less hand cultivating and more horse cultivating was done on the wide culture celery than on that grown in closer rows (table 8). This is to be expected since the use of a horse is more convenient where the rows are wider. Also the late celery requires banking for blanching, whereas the earlier celery grown mostly in closer rows does not require this. The total cost of cultivating and weeding an acre of celery was slightly less

on the wide culture celery than on the closer culture celery. More horse labor and less hand labor was used on the wide culture celery.

TABLE 8 COST OF CULTIVATINGING AND WEEDING AN ACRE OF CELERY
19 Accounts, Wayne County, 1933

	Distance between rows			
	All farms			Your farm
	22-24in.	28-30in.	33-36in.	
Number of accounts	2	5	12	
Number times hand cultivated	2.5	1.4	1.2*	
Number times horse cultivated	4.0	4.0	6.7*	
Number times hand weeded	1.5	1.4	1.5*	
Man hours per acre	70.4	67.3	51.9	
Horse hours per acre	12.0	12.7	20.1	
Cost of man labor	$14.08	$13.23	$12.55	
Cost of horse labor	1.00	1.90	3.56	
Total cost per acre	$15.88	$15.49	$15.21	

* Information lacking on one account.

The Cost of Spraying and Dusting Celery

Only 2 growers used a sprayer on their celery (table 9). Twelve growers used dust entirely. In dusting, three used power duster and 9 used hand dusters. One grower having an account on all of the three different widths of celery dusted only the close culture celery, the rest receiving neither spray nor dust. Since the equipment used was varied in type and the number of accounts small it is not possible to compare the costs or results of spraying with dusting; or of hand with power dusting. There seemed to be no relationship between the earliness of celery grown or the width between the rows and the amount of dusting or spraying done. Costs varied widely from nothing to more than $20 per acre, depending largely upon the amount of dusting or spraying done and the equipment used.

TABLE 9. COST OF DUSTING OR SPRAYING AN ACRE OF CELERY
17 Accounts, Wayne County, 1933

	Distance between rows			
	All Farms			Your farm
	22-24in.	28-30in.	33-36in.	
Number of accounts	2	4*	11*	
Number using power duster	1	3	3	
Number using hand duster	1	1	6	
Number using power sprayer	0	0	2	
Number of applications	2	2	2.8	
Hours of man labor	4.6	4.4	4.2	
Hours of horse labor	0.7	0.4	2.1	
Cost of material	$ 6.18	$16.14	$4.50	
Cost of applying	11.50	3.77	3.07	
Total cost per acre	17.78	19.91	7.57	

* One account for which no spraying or dusting was done.

The Cost of Harvesting and Selling

The yield per acre was the most important factor affecting the cost per acre of harvesting the celery crop. However, the higher yield obtained on the medium culture celery reduced the cost per crate of harvesting the crop 2 cents, even though the cost per acre was about $12 higher than for the wide culture celery (table 10). Since there were only 2 accounts in the close culture group it should not be concluded that such celery can be harvested at a lower cost per crate than the wider culture celery. More accounts are needed before any conclusions can be drawn on this point.

Less man labor but more horse labor was used in harvesting the wide culture celery than the closer culture celery.

TABLE 10. COST OF HARVESTING AND DELIVERING CELERY TO STORAGE OR RAILROAD
19 Accounts, Wayne County, 1933

	Distance between rows			
	All farms			Your farm
	22-24in	28-30in	33-36 in	
Number of accounts	2	5	12	____
Yield per acre	465	542	347	_____
Man hours	143	198	132	_____
Horse hours	10	18.7	42.1	_____
Tractor hours	--	0.8	0.2	_____
Truck miles*	30	55	48	_____
Total cost per acre	$31.30	$51.88	$40.08	_____
Cost per crate	0.07	0.10	0.12	_____

* For those doing own hauling only.

Effect of Yield per Acre on Costs and Returns

In studying the effect of yield on the cost of producing celery only accounts on wide culture celery were used in order to make them all as nearly comparable as possible. The 12 growers of wide culture celery were divided into 2 groups. Yields as given in this report are on the basis of 2/3 crates, the standard package for this region. Six growers had a yield of 350 or less crates per acre, averaging 284, while six growers had a yield greater than 350 crates per acre averaging 410 (table 11). The growers with the lower yield produced celery at a cost of $56 per acre less than the growers with the higher yields. However, their returns per acre were $217 less, so that the growers getting the higher yields made $161 per acre more as net profit. The growers getting the higher yields produced a crate of celery for 40 cents less than the growers with the lower yields even though it took $56 more per acre to get the higher yields. It took more hours to grow and to harvest the higher yielding crop, but the returns for each hour of man labor spent on producing the higher yielding crop was $1.14 per hour, as compared with a return of $1.03 per hour for the growers with the lower yields.

TABLE 11 RELATION OF YIELD PER ACRE TO VARIOUS FACTORS
12 Accounts on Wide Culture Celery, Wayne County, 1933

	350 crates or less	More than 350 crates
Number of accounts	6	6
Average yield per acre (2/3 crt.)	284	410
Total returns per acre	$339	$556
Total cost per acre	199	255
Profit per acre	140	301
Average price per crate	1.14	1.36
Cost per crate	1.02	0.62
Profit per crate	0.12	0.74
Man hours per acre growing	142	163
Man hours per acre harvesting	102	161
Returns per hour of labor	$ 1.03	$1.14
Cost of fertilizer per acre	17.89	26.30
Cost of spray and dust per acre	4.14	4.86
Value of land per acre	$371.00	$417.00

It should be noted that the growers having the better yields obtained a higher price for their celery. This higher price was undoubtedly due in part to the fact that it was better quality celery. Good quality crops generally accompany high yields. This is a second advantage of high yields.

The growers getting higher than average yields were using more fertilizer per acre, and somewhat more spray or dust per acre. The higher yields were obtained on the better muck if the growers' estimates of the value per acre of the muck are taken as a measure of the quality of that muck.

Distance Between Rows and the Cost of Producing Celery

In comparing the costs and returns of celery grown with different widths between the rows it should again be remembered that the number of accounts which are available for this study is too small to allow definite conclusions to be drawn. These figures report only what was found for the accounts studied.

It should also be borne in mind that the price received for close culture celery, because it was the earliest celery, was higher in 1933 than for the later celery. This situation may not prevail in 1934. Another factor of importance mentioned earlier in the report was weather. Undoubtedly it was more favorable for early than for late celery in 1933. Weather conditions in 1933 were dry especially in mid-summer and early fall.

Since there were only two accounts for the 22to 24 inch celery not too much reliance should be placed on these figures. Therefore, this comparison deals mainly with the medium culture celery, or that grown in 28 to 30 inch rows, and that grown in 34 to 36 inch rows.

The average yield of the medium culture celery was nearly 200 crates per acre higher than that of the wide culture celery (table 12). This resulted in about $260 higher total receipts per acre for the medium culture celery. It cost $53 more per acre to grow and $12 more per acre to harvest the medium culture celery than the wide culture celery. However, the net profit per acre was still nearly $200 higher for the medium culture celery. The average price per crate received for the medium culture celery was practically the same as for the wide culture celery. Largely because of the higher yield it cost 28 cents per crate less to grow the medium culture celery so that the profit per crate was 28 cents more than the profit on that grown in wider rows.

It took 16 more hours of man labor to grow and 66 more hours to harvest an acre of celery grown in the 28 to 30 inch rows than an acre grown in the wider rows. More hand labor was necessary in cultivating and weeding the closer culture celery and, because of the higher yield, much more hand labor was necessary for harvesting. However, because the profit per acre was so much higher on the medium culture celery the returns for each hour of man labor spent in producing this celery was 30 cents per hour greater than for

the wide culture celery. It should be noticed that the returns per hour of labor were higher than a dollar for all groups. This is probably considerably higher than the return in most years and probably also higher than the average returns for all Wayne County celery growers in 1933. Costs in 1933 were relatively low and prices were relatively favorable.

TABLE 12. COMPARISON OF COSTS OF AND RETURNS FROM CELERY WITH DIFFERENT DISTANCES BETWEEN THE ROWS
19 Accounts, Wayne County, 1933

Width between rows	22-24 in.	27-30 in.	33-36 in.
Number of accounts	2	5	12
	Average per acre		
Yield in 2/3 crates	465	542	347
Total receipts	$871	$709	$448
Cost of growing	252	241	188
Cost of harvesting	31	52	40
Total cost	283	293	228
Net profit per acre	588	416	220
Man hours growing	138	154	138
Man hours harvesting	143	198	132
Total hours man labor	281	352	270
Returns per hour man labor	$2.45	$ 1.38	$ 1.08
Average price per crate	1.90	1.25	1.25
Cost per crate	.60	.54	.82
Profit per crate	1.30	.71	.43

From what has been stated above and shown by the figures in table 12 one might immediately come to the conclusion that all celery growers should grow the closer culture celery. However, this is probably not true. These records cover one year only and they are few in number. The 1933 growing season was probably more favorable for the earlier celery than for the late celery, resulting in a greater difference in yield than would be expected from the difference in distance between rows. This together with the fact that the price situation may be less favorable for early celery in other seasons than it was in 1933 shows the necessity of more study before any decision is made as to whether or not growers should grow close or wide culture celery.

Another factor which should be considered is that the varieties grown as closer culture celery are in most cases different from those grown as wide culture celery. This may have some bearing on the differences in yield.

Summary This study is based on only 20 accounts. More records and more than one year's results are needed before several of the questions about costs can be definitely answered. This is especially true with regard to early, close culture celery. The following are some of the things which these 20 records indicate:

1. It cost the average grower about $250 to produce an acre of celery for market in 1933. The cost per acre was higher for the celery grown in 28 to 30 inch rows than for that grown in 34 to 36 inch rows.
2. Man labor, crates, the use of land and purchased fertilizer were the largest items of expense.
3. It cost about $10 to plow and fit an acre of muck for celery.
4. The cost of setting an acre of celery by machine was about $16 as compared with about $23 for setting by hand. Large acreages of celery help to reduce the cost per acre of operating a power setter.
5. Less fertilizer especially nitrate of soda was used on the wide culture celery than on that grown in closer rows.
6. More horse labor and less hand labor was used in cultivating and weeding wide culture celery than the close culture celery.
7. More than half the growers were using hand dusters. Only 2 growers used sprayers and 3 used power dusters.
8. Higher yields on close culture celery resulted in greater costs per acre for harvesting but less cost per crate than for that grown in wider rows.

9. High yields of celery result in greater production costs per acre but less cost per crate. Greater profits resulted from high yields than from low yields. Higher prices were received for the high yielding celery indicating better quality. The growers getting better yields used more fertilizer and more spray or dust.

10. The yield per acre was higher and the cost of producing an acre was higher for the celery grown in 28 to 30 inch rows than for that grown in 34 to 36 inch rows, but the net profit per acre and per crate and the returns per hour of labor were also higher for the closer planted celery.