University of Nebraska - Lincoln
DigitalCommons@University of Nebraska - Lincoln

Historical Materials from University of Nebraska-Lincoln Extension

Extension

3-1933

EC865 Potato Production Costs Nebraska 1932

Ralph H. Cole

Follow this and additional works at: http://digitalcommons.unl.edu/extensionhist

Cole, Ralph H., "EC865 Potato Production Costs Nebraska 1932" (1933). *Historical Materials from University of Nebraska-Lincoln Extension*. 2328.
http://digitalcommons.unl.edu/extensionhist/2328

This Article is brought to you for free and open access by the Extension at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Historical Materials from University of Nebraska-Lincoln Extension by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

AGRI
S
85
E7
#865

March 1933

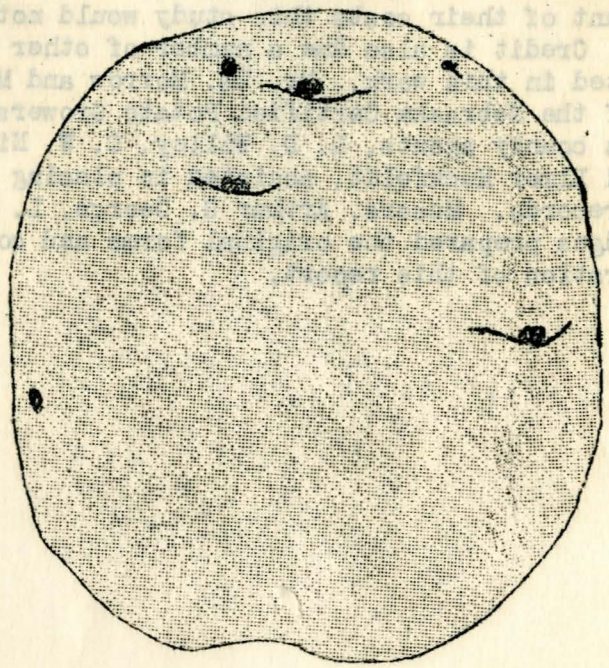
Extension
Circular
865

RECEIVED
MAR 11 1970
COLLEGE OF AGRICULTURE
LIBRARY

POTATO PRODUCTION COSTS

NEBRASKA

1932



Pt 12 Mr
1933

Nebraska
COOPERATIVE EXTENSION WORK
IN AGRICULTURE AND HOME ECONOMICS
U. of N. Agr. College & U. S. Dept. of Agr. Cooperating
W. H. Brokaw, Director, Lincoln

ACKNOWLEDGMENT

Without the splendid cooperation of the growers who kept account of their costs this study would not have been possible. Credit is also due a number of other individuals who assisted in this work. Mr. Wm. Morrow and Mr. Marx Koehnke of the Nebraska Certified Potato Growers Cooperative, as well as county agents, L. D. Willey, C. W. Nibler, Russell Batie, and Elmer Huckfeldt, assisted in placing and collecting the cost records. Messrs. Arthur G. George, L. F. Snipes, and Harold Hedges prepared the original forms and contributed to the preparation of this report.

11892m

POTATO PRODUCTION COSTS

Ralph H. Cole

The acreage in potatoes each year makes up only a small part of Nebraska's total crop acreage. However, for the three-year period, 1928-1930, inclusive, potatoes ranked sixth in value among the crops of the state. This emphasizes the fact that potato culture is intensive as compared with that of most other crops which are grown in Nebraska. The importance of potatoes based on acreage, production, and value is shown in Table I.

Table I. Average acreage, production, and value of six leading crops in Nebraska ranked on basis of value, three years, 1928-1930, inclusive

Crop	Acreage	Average Yield	Production	Value
Corn	9,084,000	25.2	228,713,333	145,088,333
Wheat	3,676,667	18.0	66,583,000	53,352,000
All Hay	4,574,000	1.35	6,178,333	52,032,000
Oats	2,452,333	33.3	81,752,333	28,399,000
Barley	600,667	30.9	18,413,333	8,137,000
Potatoes	97,000	97.7	9,468,000	7,615,333

For the five-year period, 1924-1928, inclusive, Nebraska ranked fourteenth among the states in potato production. Table 2 presents figures showing the acreage and production of potatoes in the seven leading producing states and in Nebraska for selected years.

Table 2. Acreage and production of potatoes in seven leading producing states and Nebraska, average 1924-1928, annual 1929-1931

State	Acreage (1,000 acres)				Production (1000 bushels)			
	Average 1924-1928	1929	1930	1931*	Average 1924-1928	1929	1930	1931*
Maine	148	171	181	196	37,684	49,932	42,250	50,960
Minnesota	321	330	314	361	33,855	25,740	22,608	28,880
New York	245	213	198	202	28,363	21,513	23,364	28,684
Michigan	243	225	227	250	26,510	15,975	14,301	23,750
Wisconsin	240	215	239	268	26,308	20,640	18,164	24,924
Pennsylvania	200	195	189	191	22,872	20,865	17,955	26,549
Idaho	84	82	98	110	16,503	15,416	24,500	24,200
Nebraska	95	101	101	131	7,969	9,393	9,595	6,812

*Preliminary

Although Nebraska ranks only fourteenth in the production of all potatoes, her place in the production of seed potatoes is more prominent. The growing of certified seed has become an important industry in the panhandle section of the

state. Because of the desire of men engaged in the industry to secure information concerning their costs, a study of the potato enterprise was begun in 1932. The response of these men in keeping records of their production costs was remarkably good. Thirty growers, all but one of whom are producers of certified seed potatoes, furnished the cost records which form the basis of this report.

The farms on which the records were kept are located in the more important certified seed producing counties of Nebraska as follows: Box Butte, 14 farms; Sheridan, 6; Dawes, 4*; Cheyenne, 4; and Kimball, 2.

EXPLANATION OF COST TABLES

A statement of the items of production costs, yield, and other data is shown in Table 3 on the following pages. It is well to bear in mind that the figures shown in Table 3 do not tell the whole story. The cost figures shown include only the operations up until the potatoes are placed in the storage cellar. Usually before the potatoes are sold they must be sorted, sacked, and hauled to the railroad for shipment. Furthermore, an allowance should be made for the cost of storage until time of marketing.

Again the cost per bushel indicated in each case represents the cost of producing the entire crop including both marketable and unmarketable potatoes. While it is preferable to show the cost on the basis of marketable potatoes, the data necessary to do this were not available at the time this report was made up. These data will be included in a supplementary report to be made later. The amount of sort-out will affect the cost per bushel of marketable potatoes and will undoubtedly change, somewhat, the ranking of the farms, since the ranking is on basis of cost per bushel. In the main, the records included in this study represent the growers who were most successful. Some who had yields so low as to make digging the crop unprofitable dropped out and failed to turn in a record of costs. Due to the difficulty of making a proper allowance for the acreages of such growers they were left out entirely.

No charge was made for supervision or overhead expense. Although it is obvious that the items of supervision and overhead are present on practically every farm, the difficulty in placing a money value upon them makes it advisable not to attempt to do so, but instead to call attention to them as among the intangible items which must be considered.

Somewhat the same difficulty in valuation arises with respect to the various cost elements such as man labor, horse labor, use of tractor, and use of machinery. In general these cost factors were valued at uniform rates. We know that not all labor is worth the same rate per hour. Likewise not all horse labor costs the same amount per hour, nor does the use of all tractors of a given size cost the same per hour. Each man's supply of labor, power and machinery is an individual problem and must be treated as such. Yet to take into account all the variations and individual differences which exist in these cost factors would involve an endless amount of detail, and would not be practicable in a cost study such as this one.

---

* Two records were secured from one farm making a total of 5 records from Dawes county.

Let us conclude then that while the per bushel costs indicated in this report are not entirely comparable among the various growers who kept cost records, because of the intangible elements, yet they give definite indications of the variations in cost. The per bushel costs shown in this circular for each grower can not be compared with the selling price received in order to determine net return, because of these same intangible items and because of marketing costs which are not considered in this report. Furthermore the per bushel cost figures shown are not representative of all potato growers in the section for the simple reason that the men who submitted the data used are above the average in efficiency.

In Table 3 which follows, each column contains the result for some one farm. The farms are arranged in order of the cost per bushel of potatoes produced. The costs are grouped into three classes as follows: growing costs, harvesting costs, and land charge.

MAN LABOR.- All man labor except that hired on a day or per bushel basis, was figured at 20 cents per hour. In case of day labor hired for potatoes only the wage actually paid in each case was used. The same is true of labor hired for picking up potatoes and paid at a given rate per bushel. Where board and lodging were furnished to day labor and to labor paid on a bushel basis, an allowance of 75 cents a day was made to cover these perquisites.

POWER COST.- Both horses and tractors were used as sources of power. Horse labor was figured at 9 cents per hour. The charge made for tractor use varied with the size of the tractor. The schedule of rates used appears below:

2-plow tractor	$ .65 per hour
3-plow tractor	1.00 per hour
4-plow tractor	1.10 per hour

EQUIPMENT.- A charge of 3½ cents per horse hour was made for the use of horse drawn equipment. For use of tractor equipment a charge was made in accordance with the following schedule:

2-plow tractor	14¢ per tractor hour
3-plow tractor	21¢ per tractor hour
4-plow tractor	28¢ per tractor hour

The equipment charge is intended to cover all costs incident to the use of equipment and includes interest, depreciation, repairs, oil, grease and blacksmithing. In case of horse drawn equipment the charge made includes that for the use of harness along with that for the implement used.

SEED AND SEED TREATMENT.- The charge made for seed was the estimated value of the seed used. In a few cases seed was purchased, but a majority of growers had their own seed and valued it according to the price which prevailed in the spring of 1932.

The cost of material for seed treatment was included as a separate item. Seventeen of the 31 records showed that the seed had been treated, while the remaining 14 showed no charge for seed treatment.

11892m

Table 3. Potato production costs (Acre Basis)

Items Affecting Cost	Farm Number 1	2	3	4	5	6	7	8	9	10
Growing Costs per Acre										
Man labor	$5.44	$1.29	$3.76	$1.72	$3.01	$ .88	$3.55	$4.32	$2.11	$2.20
Horse labor	1.39	.07	.67	-	1.12	-	1.33	3.08	.08	.93
Tractor use	2.47	1.92	2.00	2.62	2.16	2.39	1.71	-	2.15	3.05
Equipment	1.07	.43	.68	.56	.89	.55	.88	1.20	.49	1.07
Seed	8.25	3.93	3.37	4.00	4.42	3.60	3.60	4.27	4.10	8.25
Seed treatment	-	.03	.13	-	.16	-	.17	-	.08	.05
Certification	1.00	1.00	1.00	1.00	1.00	-	1.00	1.00	1.00	1.00
Total	19.62	8.67	11.61	9.90	12.76	7.42	12.24	13.87	10.01	16.55
Harvesting Costs per A.										
Man labor	$4.00	$2.29	$3.85	$2.64	$2.83	$4.00	$2.87	$2.27	$2.15	$2.90
Horse labor	1.44	-	-	-	.64	-	-	-	-	-
Tractor use	-	1.16	1.01	.93	-	.81	.78	.78	1.04	1.12
Equipment	.56	.25	.21	.20	.25	.18	.17	.16	.22	.24
Sacks	-	.20	.64	-	.29	1.80	-	-	.14	.32
Hauling	2.60	1.21	.39	1.07	.74	1.12	1.62	1.20	.92	1.70
Total	8.60	5.11	6.10	4.84	4.75	7.91	5.44	4.41	4.47	6.28
Land Charge per Acre	$2.50	$2.77	$3.00	$2.50	$2.50	$2.00	$2.50	$2.50	$2.50	$1.65
Total	$30.72	$16.55	$20.71	$17.24	$20.01	$17.33	$20.18	$20.78	$16.98	$24.48
Number of Acres	5	165	37½	42	43	80	40	15	78	110
Yield per Acre: Bus.	175	81	95	78.7	92	75	87.6	80	61.1	88.2
Cost per Bushel	$.18	$.20	$.22	$.22	$.22	$.23	$.23	$.26	$.28	$.28

11892a

Table 3. Potato production costs (Acre basis)

Items Affecting Cost	Farm Number 11	12	13	14	15	16	17	18	19	20	21
Growing Costs per Acre											
Man labor	$2.00	$3.79	$3.50	$1.90	$2.55	$3.36	$2.90	$4.03	$2.44	$2.74	$4.09
Horse labor	1.20	.39	.91	1.08	1.89	1.09	-	1.48	.68	1.20	1.02
Tractor use	2.51	2.91	3.02	1.37	-	1.13	2.49	1.39	3.90	1.58	1.80
Equipment	1.10	.85	.99	.77	.74	.71	.54	.87	1.09	.81	.79
Seed	10.00	5.85	4.80	5.00	3.84	4.41	5.17	6.43	4.40	11.00	7.50
Seed treatment	-	.36	.21	-	-	.05	.44	-	-	.32	-
Certification	.13	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total	16.94	15.15	14.43	11.12	10.02	11.75	12.54	15.20	13.51	18.65	16.20
Harvesting Costs per A.											
Man labor	$4.95	$2.40	$2.39	$1.40	$2.08	$2.88	$3.16	$2.64	$1.56	$3.85	$1.67
Horse labor	1.08	-	.54	.63	1.16	1.67	-	1.16	.32	.63	.90
Tractor use	-	1.30	1.26	-	-	-	1.06	-	.60	-	-
Equipment	.42	.28	.48	.25	.45	.65	.23	.45	.25	.25	.35
Sacks	2.40	.22	-	-	-	.20	.55	-	-	2.88	-
Hauling	1.50	1.80	.55	.71	.75	.88	1.34	.65	1.62	1.25	1.08
Total	10.35	6.00	5.22	2.99	4.44	6.28	6.34	4.90	4.35	8.86	4.00
Land Charge per Acre	$2.50	$3.90	$2.50	$2.50	$2.50	$2.50	$5.00	$2.50	$2.50	$2.50	$2.50
Total	$29.79	$25.05	$22.15	$16.61	$16.96	$20.53	$23.88	$22.60	$20.36	$30.01	$22.70
Number of Acres	90	80	50	8	52	68	40	14	10	16	18
Yield per Acre: Bus.	100	80	66.4	47.5	49	58.8	66.2	60.7	55.	76.8	51.4
Cost per Bushel	.30	.31	.33	.35	.35	.35	.36	.37	.37	.39	.44

11892a

Table 3. Potato production costs (Acre basis)

Items affecting Cost	Farm Number 22	23	24	25	26	27	28	29	30	31
Growing Costs Per Acre										
Man Labor	$2.56	$1.90	$2.61	$5.22	$1.96	$2.72	$2.44	$4.08	$3.02	$1.91
Horse labor	1.01	.68	.60	2.63	2.07	.36	1.35	1.98	.90	1.50
Tractor use	2.92	.89	1.25	-	-	3.30	1.19	-	3.00	1.28
Equipment	1.01	.45	.50	1.02	.80	.98	.77	.77	.98	.86
Seed	5.00	9.00	9.00	6.62	8.74	5.87	10.12	6.75	9.38	5.00
Seed Treatment	.50	.15	-	.29	-	.15	.11	.16	-	-
Certification	1.00	.88	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total	14.00	13.95	14.96	16.78	14.57	14.38	16.98	14.74	18.28	11.55
Harvesting Costs per A.										
Man labor	$2.21	$1.42	$1.25	$2.53	$2.97	$1.51	$1.52	$1.66	$1.72	$ .30
Horse labor	.29	-	1.88	.85	.85	-	.51	.65	.45	-
Tractor use	1.04	.97	-	-	-	.88	-	-	1.25	.99
Equipment	.33	.21	.73	.33	.33	.22	.20	.25	.44	.21
Sacks	.40	.20	-	.31	-	-	.38	.13	1.17	-
Hauling	.62	.68	.62	.92	7.49	.50	.33	.45	.15	1.09
Total	4.89	3.48	4.48	4.94	11.64	3.11	2.94	3.14	5.18	2.59
Land Charge per Acre	$2.00	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50	$4.00	$2.00	$2.50
Total	$ 20.89	$ 19.93	$21.94	$24.22	$ 28.71	$ 19.99	$22.42	$21.88	$ 25.46	$ 16.64
Number of Acres	25	40	24	34	7	15	42	30	20	45
Yield per Acre: Bus.	40	37.5	41.5	44.1	50	33.3	33.3	32	34	20.7
Cost per Bushel	.52	.53	.53	.55	.57	.60	.67	.68	.75	.80

11892a

CERTIFICATION: All the acreage included in this study excepting a part of that on three farms was entered for certification with the Nebraska Certified Seed Producers Association. The certification charge for each acre entered was one dollar per acre. However, because the total certification charge was distributed over the entire acreage used in this study, including some acreage for which certification was not applied, the certification charge averages $.88 per acre.

SACKS.- Some of the potatoes were stored in sacks while others were stored loose in the bin. Some used new sacks, in which case the purchase price of the sacks was included as a cost. Others used old sacks which were on hand. This accounts for considerable variation in the sack charge from farm to farm.

HAULING.- The hauling charge was made for labor, power and equipment used in getting potatoes from the field into the storage cellar. In most cases this charge was based upon the number of hours of man and horse labor, or truck use actually used. In cases where data on the hours spent were not available a charge of 1½ cents per bushel of potatoes was made for hauling.

LAND.- In case of land rented for cash the charge made was the amount of cash rent paid. On land which was farmed by the owner the land charge was estimated using, as a guide, the prevalent cash rent figure in the particular section.

CAUSES OF DIFFERENCES IN COSTS

The total cost per acre on individual farms ranged from $16.55 to $30.72. The cost per bushel on individual farms ranged from 18 to 80 cents. Farm No. 1, although it had the highest acre cost, showed the lowest cost per bushel in the entire group of farms. This low cost per bushel was brought about by the yield of 175 bushels which was exceptionally good for the year 1932.

The high yield resulted from particular advantages in soil condition, which were practically equivalent to those normally resulting from summer fallowing. The situation is not entirely representative of summer fallow conditions because the use of the land and tillage operations incident to summer fallow are not included as costs. However, the addition of charges for land use and tillage incident to summer fallow would not increase the cost per bushel more than 2 or 3 cents in the case of Farm No. 1.

Farm No. 2 had the lowest per acre cost of the entire group and was second lowest in cost per bushel. The low production cost of 20 cents per bushel was attained through the combination of a reasonably good yield--an average of 81 bushels on 165 acres--with low growing and harvesting costs. The operator of this farm showed superiority in keeping labor and power costs down both for the growing and harvesting of the crop.

Farms No. 1 and No. 2 exemplify the two principal causes of low production cost per bushel. The important factor in the case of Farm No. 1 was the high yield. In the case of Farm No. 2 the major factor was that of keeping labor and power costs down to a very low figure. Yet, that this was done without sacrificing yield, is indicated by the fact that Farm No. 2 ranks seventh among the 31 farms in the matter

of yield.

In the preceding paragraph were discussed the two important factors which caused variations in cost per bushel, namely, (1) yield, and (2) amounts of labor and power used. To determine the causes lying back of these two factors would be very significant. However, the data included in the records upon which this study is based, were not adequate to make possible a definite determination of these causes. In 1933 and the years that follow, an effort will be made to secure information which will make possible a consideration of the causes lying back of variations in yield and in amounts of labor and power used.

COMPARISON OF COSTS

In column 2 of Table 4 are shown the average figures for the 31 farms which are included in this study. Column 3 shows the average figures for the 10 low-cost farms and column 4 the figures for the 10 farms which had the highest costs per bushel. Column 1 of Table 4 is left blank except in copies of this report which go to men who furnished records for this study. Each man who did so will receive a copy of the report with his own figures typed in column 1.

It will be noted that the cost per bushel averaged $.31 on the 31 farms. The average cost on the 10 low-cost farms was $.23 and that on the 10 high-cost farms was $.61 per bushel.

The average yield on the 31 farms was 68.4 bushels per acre. The average on the 10 low-cost farms was 81.6 bushels and that on the 10 high-cost farms was 34.8 bushels per acre. It is evident that yield was a very important factor in causing variations in production cost per bushel.

Table 4. Potato production costs. Average of 31 farms and averages of low- and high-cost groups

Items Affecting Cost	Your Farm	Average of 31 farms	Average of 10 low-cost farms	Average of 10 high-cost farms
Growing Costs per Acre				
Man labor		$2.55	$2.06	$2.86
Horse labor		.83	.49	1.34
Tractor use		1.96	2.22	1.26
Equipment		.76	.68	.80
Seed		5.82	4.70	7.50
Seed treatment		.10	.06	.14
Certification		.88	.87	.98
Total		12.90	11.08	14.88
Harvesting Costs per Acre				
Man labor		$2.61	$2.81	$1.54
Horse labor		.39	.06	.49
Tractor use		.70	.94	.52
Equipment		.30	.22	.30
Sacks		.48	.42	.25
Hauling		1.11	1.20	.81
Total		5.59	5.65	3.91
Land Charge per Acre		$2.62	$2.39	$2.58
Total Cost per Acre		$21.11	$19.12	$21.37
Number of Acres		43.3	61.6	28.2
Yield per Acre: Bushels		68.4	81.6	34.8
Cost per Bushel		$ .31	$ .23	$ .61

11892m

CONCLUSION

The low prices of farm products make it necessary to keep down production costs in an effort to make a profit or at least to avoid loss. This statement applies to the production of certified seed potatoes, an industry which has come to be an important one in western Nebraska.

The records analyzed in this report show considerable variation from farm to farm in the per bushel cost of producing potatoes. The two principal factors which caused variations in cost per bushel were differences in yield and differences in amounts of labor and power used in producing the crop. Therefore it would seem that the potato grower has an opportunity to gain through a study of his production methods with a view to following practices which will enable him to reduce his labor and power expenditures, without a material sacrifice in yield.

While variations in yield are partly due to weather and other factors beyond the control of the grower, he has an opportunity to exert some influence on yield through the production methods which he uses.

3-8-33
MRC 2C

* * *

11892m