

Survey of Beet Sugar Agriculture in 1947

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Scope of Survey

IN BOTH 1946 AND 1947 The Beet Sugar Development Foundation conducted surveys designed to obtain information on the various agricultural phases of sugar beet production. Questionnaires were sent out to all of the sugar factory areas in the United States and part of Canada and in 1946 covered 67 percent of the beet acreage. In 1947 the returns were from over 90 percent. From this data certain figures were tabulated based on the grouping of the various sugar production areas into five groups which include those as follows: (1) California; (2) Oregon, Washington, Idaho, western Montana, western Colorado, Arizona, Nevada and Utah; (3) eastern Montana, western North Dakota, Wyoming, western South Dakota, Nebraska, western Kansas, Colorado, New Mexico and Texas; (4) Minnesota, eastern North and South Dakota and Iowa; (5) Wisconsin, Michigan, Illinois, Indiana and Ohio.

In 1947, based on the areas reporting, there would have been 49,161 contracts. This figure does not correspond with the total number of farms raising sugar beets inasmuch as one farm unit may have more than one contract. Generally, however, the two totals will not be very far apart. Information is given as to the average size of contracts by group.

Explanation of Data

Figures indicate that in 1947 four percent more acreage was planted with processed beet seed as compared with 1946. Decorticated seed was used to some extent in 1947 and only experimentally in 1946. Precision planters increased from a total of 191,280 acres planted in 1946 to 381,518 acres in 1947. This indicates that a great deal of interest was excited in the use of improved drilling equipment.

It will be noted that the row widths vary widely and that probably the different widths have come into use largely because of their suitability to local conditions such as irrigation ease, use of common machinery with other row crops, mechanical harvesting, crop yields and a number of other similar reasons. A large percentage of the California acreage is planted on beds hence the alternate row spacing combinations.

It is interesting to note the tendency to increase the acreage thinned with methods that might tend to save labor-- for example, in 1947, 112,235 acres in Canada and United States were long-handled-hoe thinned as compared with 55,531 acres in 1946. This is slightly more than twice as much acreage so handled. In the same way, 16,769 acres were mechani-

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cally blocked in 1947 as compared with 8,181 acres in 1946, or a substantial gain, on the part of farmers in labor-saving devices. Also it was noted in 1947, that 4,935 acres were finger weeded to either kill weeds or to thin beets, or both, as compared with only 218 acres reported in 1946. This also is good indication of the use by farmers of methods to reduce labor.

In the United States, in 1947, 28.99 percent of the acreage was mechanically harvested as compared with 16.83 percent in 1946. These proportions do not tell the entire story of the use of machines, however. A total 230,415 acres were mechanically harvested in 1947 as compared with only 94,336 acres in 1946. A report lists the acreage and proportions by number of the more important harvesters. Also, it gives figures in detail as to the handling of beet tops.

The report includes some detailed figures as to the fertilizer applications, including the acreage planted, the average rate and the method used. This also is grouped including green manuring as well as barnyard manuring. It is interesting to note that there is an increase of about 5 percent of 1947 acreage covered with commercial fertilizer increased over 1946.

It is planned to continue these Foundation sponsored surveys and it is hoped that after an accumulation of figures from a period of time that certain trends and lessons can be learned from application of agronomic results.

Statistical Data—Questionnaires sent out to beet sugar factory districts in United States and Canada. The following summary analysis is based on the returned questionnaires which report on 90 percent of the total harvested acreage for the two countries. The area subdivisions in United States are given in Appendix I.

	Combined totals for U.S. and Canada	Total for U.S. alone	Total for Canada alone	Total for area 1	Total for area 2	Total for area 3	Total for area 4	Total for area 5
PERCENT OF AREA REPORTING	90	90	95	89	88	95	100	71
GENERAL INFORMATION:								
1. Number of contracts	44,245	38,941	5,304	2,182	11,736	15,133	1,265	8,625
2. Average size of contract (acres)	19.24	20.41	10.67	61.00	15.73	22.83	41.21	9.23
3. Number of contracts								
a. 15 acres or less	24,098	20,214	3,884	311	7,159	5,678	166	6,900
Percent of total number contracts	54.47	51.91	73.00	14.00	61.00	38.00	13.00	80.00
b. 16 through 49 acres	16,939	15,639	1,300	905	4,342	8,055	698	1,639
Percent of total number contracts	38.28	40.16	25.00	42.00	37.00	53.00	55.00	19.00
c. 50 acres or over	3,208	3,088	120	966	235	1,400	401	86
Percent of total number contracts	7.25	7.93	2.00	44.00	2.00	9.00	32.00	1.00
4. Acres harvested	851,315	794,741	56,574	133,108	184,630	345,294	52,125	79,584
5. Average yield per acre (tons)	13.92	14.16	10.48	18.75	16.72	13.50	8.62	7.12
6. Average sucrose percentage	16.15	16.11	16.73	16.63	16.17	15.99	14.85	15.69
SEED INFORMATION:								
1. Number acres planted with ungraded whole seed	67,011	45,054	21,957	8,697	2,899	11,374	3,290	18,794
Percent of total acres planted	7.99	5.77	33.64	6.00	1.50	3.07	5.83	19.50
2. Number of acres planted with graded whole seed	25,521	25,521	---	13,350	21	2,940	---	9,210
Percent of total acres planted	3.12	3.39	---	9.22	.03	.79	---	9.56
3. Number of acres planted with processed seed								
a. Segmented	812,860	769,553	43,307	107,452	186,665	355,584	53,105	66,747
Percent of total acres planted	86.73	88.50	66.36	74.19	98.45	95.96	94.17	69.26
b. Decorticated	15,980	15,980	---	15,340	---	640	---	---
Percent of total acres planted	1.96	2.12	---	10.59	---	.18	---	---
c. Pellets	1,644	1,644	---	---	17	3	---	1,624
Percent of total acres planted	.02	.22	---	---	.02	---	---	1.68

Statistical Data—Continued

PLANTER INFORMATION:

1. Number acres planted with precision planter-----	405,265	381,518	23,747	22,067	114,037	170,590	14,743	60,081
Percent of total acres planted-----	43.91	44.48	36.39	15.24	60.15	46.04	26.14	62.34
2. Number acres planted with non-precision planter----	517,753	476,236	41,517	122,772	75,567	199,951	41,652	36,294
Percent of total acres planted-----	56.09	55.52	63.61	84.76	39.85	53.96	73.86	37.66
3. Number planters calculated for 100 percent report----	15,148	13,585	1,481	1,413	2,295	7,440	710	1,648
John Deere Nos. 4, 12, 112								
Percent of total number-----	4.52	4.29	6.32	---	14.08	4.50	---	2.74
Percent of total acres planted-----	4.10	3.98	5.92	---	15.48	4.05	---	1.87
John Deere Nos. 7, 10, 11, 32 Conv.								
Percent of total number-----	5.64	6.10	1.99	1.10	12.97	7.74	---	---
Percent of total acres planted-----	4.96	4.79	7.52	.66	12.15	6.68	---	---
John Deere Nos. 11, 21, 55								
Percent of total number-----	9.50	8.10	20.54	1.67	3.78	8.66	---	19.91
Percent of total acres planted-----	10.00	9.26	19.00	2.64	4.11	8.22	---	33.14
John Deere Nos. 22, 21, 55 Conv.								
Percent of total number-----	10.45	11.02	6.04	2.78	11.42	11.93	.70	20.26
Percent of total acres planted-----	10.90	10.68	14.03	5.26	6.86	12.80	1.73	19.22
John Deere No. 18								
Percent of total number-----	2.84	3.14	.57	12.16	.22	2.70	.28	---
Percent of total acres planted-----	4.50	4.85	.85	16.72	.19	3.22	.27	---
John Deere No. 18 Conv.								
Percent of total number-----	2.80	3.03	1.07	.48	4.55	2.80	12.68	---
Percent of total acres planted-----	3.20	3.33	2.15	.84	2.31	4.18	11.25	---
John Deere No. 64								
Percent of total number-----	1.62	1.52	2.42	---	---	.96	---	8.63
Percent of total acres planted-----	1.91	1.80	3.55	---	---	1.65	---	7.64
John Deere No. 66								
Percent of total number-----	2.82	3.12	.43	.16	1.66	2.89	10.42	4.44
Percent of total acres planted-----	4.61	4.98	.83	.33	2.37	5.04	18.11	6.24
Rassmann								
Percent of total number-----	1.02	1.13	.14	---	.22	.65	9.15	1.20
Percent of total acres planted-----	1.32	1.42	.16	---	.40	.44	14.85	.28
Lindeman or Cobbley (on sleds or frames)-----								
Percent of total number-----	1.93	2.15	.14	3.18	19.40	.21	---	.77
Percent of total acres planted-----	2.62	2.84	.40	4.26	14.77	.55	---	.70
Oliver-Plate and internal feed								
Percent of total number-----	4.75	5.06	2.27	2.38	3.99	3.10	13.53	15.47
Percent of total acres planted-----	4.77	4.66	6.38	4.76	5.44	2.31	13.26	7.81

	Combined totals for U.S. and Canada	Total for U.S. alone	Total for Canada alone	Total for area 1	Total for area 2	Total for area 3	Total for area 4	Total for area 5
Moline (monitor and tractor mounted)								
Percent of total number.....	13.58	14.74	4.41	2.15	---	19.77	8.73	12.91
Percent of total acres planted.....	9.55	9.59	9.48	2.20	---	14.97	6.26	10.33
Case, old								
Percent of total number.....	1.08	1.21	.07	---	---	1.47	---	2.56
Percent of total acres planted.....	.90	.97	.09	---	---	1.17	---	3.12
Case, new or converted to machine plate								
Percent of total number.....	1.68	1.89	---	.08	.22	2.93	---	---
Percent of total acres planted.....	1.53	1.69	---	.27	.43	3.24	---	---
Planet, Jr.								
Percent of total number.....	10.11	11.39	---	66.06	2.99	5.76	---	---
Percent of total acres planted.....	11.30	12.31	---	50.20	3.03	4.69	---	---
Milton								
Percent of total number.....	.68	.48	2.27	---	---	.75	---	---
Percent of total acres planted.....	.79	.56	3.51	---	---	1.13	---	---
I. H. C. No. 40								
Percent of total number.....	3.78	4.12	1.07	3.58	4.66	4.44	4.23	2.31
Percent of total acres planted.....	5.29	5.58	2.30	6.05	8.38	5.44	5.51	3.09
1. H. C. No. 40, converted to smooth tube								
Percent of total number.....	2.64	2.93	.28	.32	5.65	3.83	---	---
Percent of total acres planted.....	2.79	3.00	.81	.15	6.00	4.66	---	---
I. H. C. No. 42								
Percent of total number.....	2.78	3.13	---	1.75	2.55	2.97	12.39	.43
Percent of total acres planted.....	4.83	5.28	---	2.93	7.88	4.86	18.25	.52
1. H. C. No. 42, converted to smooth tube								
Percent of total number.....	.92	1.04	---	.48	2.77	1.19	---	---
Percent of total acres planted.....	1.26	1.40	---	.87	3.38	1.73	---	---
Others								
Percent of total number.....	3.10	3.49	---	.08	.78	2.18	27.89	2.39
Percent of total acres planted.....	2.13	2.30	---	.10	.54	2.26	10.51	3.14
4. Seeding rate most common to your area								
Whole.....	12.40	12.50	10.00	13.00	15.00	11.00	---	10.71
Segmented.....	4.80	4.84	4.30	4.90	4.10	5.10	6.50	3.63

Statistical Data—Continued

PLANTER INFORMATION—Continued

5. List approximate acreages planted at various row width:

a. 18 inch	37,961	36,972	989	97	---	700	36,149	26
Percent of total acres planted.....	4.11	4.31	1.51	.01	---	.19	64.10	.03
b. 20 inch	331,321	321,695	9,626	31,673	79,310	199,638	11,054	20
Percent of total acres planted.....	35.86	37.50	14.75	21.97	41.83	53.88	19.60	.02
c. 21 inch	225	225	---	---	---	225	---	---
Percent of total acres planted.....	.03	.03	---	---	---	.06	---	---
d. 22 inch	279,092	239,303	39,789	1,736	85,473	128,475	4,820	18,799
Percent of total acres planted.....	30.21	27.90	60.97	1.20	45.08	34.67	8.55	19.51
e. 24 inch	48,344	36,794	11,550	1,037	15,696	6,367	4,152	9,542
Percent of total acres planted.....	5.24	4.29	17.70	.72	8.28	1.72	7.36	9.90
f. 26 inch	9,222	8,952	270	647	620	4,944	50	2,691
Percent of total acres planted	1.00	1.04	.41	.45	.33	1.33	.09	2.79
g. 28 inch	80,551	77,951	2,600	8,011	374	4,319	---	65,247
Percent of total acres planted.....	8.73	9.09	3.98	5.53	.20	1.17	---	67.79
h. 30 inch	12,555	12,165	390	9,670	540	1,755	150	50
Percent of total acres planted.....	1.36	1.42	.60	6.68	.28	.47	.27	.05
i. 32 inch	7,109	7,079	30	6,991	74	14	---	---
Percent of total acres planted.....	.77	.83	.05	4.82	.04	.01	---	---
j. 34 inch	6,891	6,891	---	6,891	---	---	---	---
Percent of total acres planted.....	.75	.80	---	4.75	---	---	---	---
k. 36 inch	170	170	---	---	---	170	---	---
Percent of total acres planted.....	.02	.02	---	---	---	.05	---	---
l. 38 inch	206	206	---	---	---	206	---	---
Percent of total acres planted.....	.03	.03	---	---	---	.06	---	---
m. 40 inch	388	388	---	---	---	388	---	---
Percent of total acres planted.....	.05	.05	---	---	---	.10	---	---
n. 12 x 30 inch	12,465	12,465	---	12,465	---	---	---	---
Percent of total acres planted.....	1.35	1.45	---	8.61	---	---	---	---

	Combined totals for U.S. and Canada	Total for U.S. alone	Total for Canada alone	Total for area 1	Total for area 2	Total for area 3	Total for area 4	Total for area 5
o. 12 x 32 inch	125	125	---	125	---	---	---	---
Percent of total acres planted.....	.02	.02	---	.01	---	---	---	---
p. 14 x 26 inch	46,202	46,202	---	45,852	350	---	---	---
Percent of total acres planted.....	5.01	5.39	---	31.77	.18	---	---	---
q. 14 x 28 inch	4,468	4,468	---	4,468	---	---	---	---
Percent of total acres planted.....	.48	.52	---	3.08	---	---	---	---
r. 16 x 24 inch	10,119	10,119	---	4,884	4,306	929	---	---
Percent of total acres planted.....	1.10	1.18	---	3.37	2.27	.25	---	---
s. 18 x 22 inch	18,304	18,304	---	---	130	18,174	---	---
Percent of total acres planted.....	1.98	2.13	---	---	.07	4.90	---	---
t. 18 x 23 inch	47	47	---	---	---	47	---	---
Percent of total acres planted.....	.01	.01	---	---	---	.01	---	---
u. 18 x 24 inch	700	700	---	---	700	---	---	---
Percent of total acres planted.....	.08	.09	---	---	.37	---	---	---
v. 20 x 22 inch	4,190	4,190	---	---	---	4,190	---	---
Percent of total acres planted.....	.45	.49	---	---	---	1.13	---	---
w. 20 x 24 inch	2,097	2,097	---	117	1,980	---	---	---
Percent of total acres planted.....	.23	.24	---	.01	1.04	---	---	---
x. 18 x 26 inch	50	50	---	---	50	---	---	---
Percent of total acres planted.....	.01	.01	---	---	.03	---	---	---
y. 20 x 40 inch	733	733	20	713	---	---	---	---
Percent of total acres planted.....	.09	.10	.03	.49	---	---	---	---
z. 24 x 32 inch	20	20	---	---	---	---	20	---
Percent of total acres planted.....	---	---	---	---	---	---	.03	---
Others	9,462	9,462	---	9,462	---	---	---	---
Percent of total acres planted.....	1.03	1.10	---	6.53	---	---	---	---
6. Number of acres planted with ridge covering.....	5,111	4,871	240	---	694	4,177	---	---
Percent of total acres planted.....	.57	.57	.37	---	.37	1.13	---	---
7. Number of acres treated with a soil fumigant prior to planting	3,574	3,549	25	2,575	970	4	---	---
Percent of total acres planted.....	.37	.40	.04	1.78	.51	---	---	---

Statistical Data—Continued

THINNING OPERATIONS:

1. Number of acres hand blocked and thinned (short-handle hoe) -----	707,361	679,196	28,165	129,643	171,806	300,446	23,605	53,696
Percent of total acres thinned.....	81.11	83.25	49.76	97.35	91.34	85.08	41.91	63.05
2. Number of acres thinned with long-handled hoe ---	112,235	84,956	27,639	2,252	13,202	38,101	---	31,401
Percent of total acres thinned.....	12.87	10.41	48.83	1.69	7.02	10.79	---	36.88
3. Number of acres mechanically blocked.....	16,769	16,204	565	605	500	5,317	9,782	---
Percent of total acres thinned.....	1.92	1.99	1.00	.45	.27	1.51	17.37	---
4. Number of acres mechanically blocked then cross cultivated -----	22,298	22,163	135	---	---	17	22,146	---
Percent of total acres thinned.....	2.56	2.72	.24	---	---	---	39.32	---
5. Number of acres planted at low-seeding rate and hence requiring no thinning -----	1,499	1,499	---	---	1,310	174	---	15
Percent of total acres thinned.....	.17	.18	---	---	.70	.05	---	.02
6. Number of acres mechanically cross thinned.....	680	680	---	---	260	134	276	10
Percent of total acres thinned.....	.08	.08	---	---	.14	.04	.49	.01
7. Number of acres mechanically down-the-row thinned..	1,448	1,368	80	685	170	513	---	---
Percent of total acres thinned.....	.17	.17	.14	.51	.09	.15	---	---
8. Number of acres mechanically down-the-row blocked..	3,181	3,171	10	---	257	2,914	---	---
Percent of total acres thinned.....	.36	.39	.02	---	.14	.83	---	---
9. Number of acres thinned with harrow or finger weeder	1,567	1,567	---	---	339	1,064	164	---
Percent of total acres thinned.....	.18	.19	---	---	.18	.30	.29	---
10. Number of acres on which finger weeder used to either kill weeds, to thin beets or both.....	4,935	4,935	---	---	231	4,404	300	---
Percent of total acres thinned.....	.57	.60	---	---	.12	1.25	.53	---
11. Number of beet acres on which chemical weed control practiced -----	90	85	5	---	---	---	50	30
Percent of total acres thinned.....	.01	.01	.01	---	---	---	.09	.04
a. Type of chemical -----	Salt	Salt	Salt	---	---	---	Salt	Salt
b. Rate per acre -----	250#/A	250#/A	250#/A	---	---	---	200#/A	300#/A

	Combined totals for U.S. and Canada	Total for U.S. alone	Total for Canada alone	Total for area 1	Total for area 2	Total for area 3	Total for area 4	Total for area 5
HARVESTING OPERATIONS:								
1. Number of acres hand harvested	617,572	564,326	53,246	47,214	133,869	267,200	48,342	67,701
Percent of total harvest acres	72.54	71.01	94.12	35.47	72.51	77.38	92.74	85.07
2. Number of acres mechanically harvested	233,743	230,415	3,328	85,894	50,761	78,094	3,783	11,883
Percent of total harvest acres	27.46	28.99	5.88	64.53	27.49	22.62	7.26	14.93
3. Number of harvesters calculated for 100 percent report	3,790	3,688	102	453	1,088	1,793	65	289
a. International—Number								
Percent of total harvesters	24.30	24.20	27.84	6.95	20.56	30.12	87.69	5.85
Percent of total mechanical harvested acres	22.50	22.28	36.93	5.39	28.35	37.44	86.10	4.50
b. Marbeet, Sr.—Number								
Percent of total harvesters	6.15	6.33	---	50.12	.63	.18	---	---
Percent of total mechanical harvested acres	25.35	25.74	---	64.39	1.98	.26	---	---
c. Marbeet, Jr.—Number								
Percent of total harvesters	5.13	5.28	---	41.44	---	.53	---	---
Percent of total mechanical harvested acres	11.59	11.76	---	29.39	---	.61	---	---
d. John Deere—Number								
Percent of total harvesters	48.43	48.26	53.61	---	59.40	61.01	---	.49
Percent of total mechanical harvested acres	28.75	28.42	50.72	---	51.63	53.78	---	.09
e. Kiest—Number								
Percent of total harvesters	4.98	4.80	11.34	---	8.25	4.76	---	---
Percent of total mechanical harvested acres	2.38	2.35	4.39	---	6.10	3.53	---	---
f. Scott-Urschel—Number								
Percent of total harvesters	8.30	8.43	4.12	---	3.44	3.05	7.69	96.17
Percent of total mechanical harvested acres	7.69	7.69	7.57	---	4.63	4.24	10.57	95.11
g. Others—Number								
Percent of total harvesters	2.71	2.70	3.09	1.49	7.72	.35	4.62	.49
Percent of total mechanical harvested acres	1.74	1.76	.39	.83	7.31	.14	3.33	.30
4. Number of acres on which a "beater-topper" was used	19,666	19,666	---	190	19,463	13	---	---
5. Number of "beater-toppers" in area	422	422	2	4	414	2	---	---
6. Number of loaders used in area	9,014	8,603	411	2	1,580	5,983	454	584
7. Approximate harvested acreage handled with loaders ..	435,920	413,672	22,248	340	41,188	279,236	46,806	46,102
Percent of total harvested acres	51.21	52.05	39.33	.26	22.31	80.87	89.80	57.93
BEET-TOP UTILIZATION:								
Actual acreage and percentage of harvested acreage. Note that since certain methods of utilization permit the listing of the same acreage under more than one heading the total of the percentage figures will be greater than 100.								
1. Left in field without windrowing or piling	247,750	223,929	23,821	56,016	38,031	63,940	37,012	28,930
Percent of total harvested acreage	29.10	28.18	42.11	42.08	20.60	18.52	71.01	36.35

Statistical Data—Continued

HARVESTING OPERATIONS—Continued

2. Windrowed and left in field	140,712	123,180	17,532	1,895	5,571	98,058	6,750	10,906
Percent of total harvested acreage	16.53	15.50	30.99	1.42	3.02	28.40	12.95	18.70
3. Pastured immediately after harvest	400,950	371,452	29,498	64,935	129,510	131,914	10,312	34,781
Percent of total harvested acreage	47.10	46.74	52.14	48.78	70.15	38.20	19.78	43.70
4. Plowed under shortly after harvest for fertility value	54,266	52,726	1,540	36,369	5,108	3,873	2,626	4,750
Percent of total harvested acreage	6.37	6.63	2.72	27.32	2.77	1.12	5.04	5.97
5. Piled in small piles in the field	167,608	156,692	10,916	1,732	3,763	139,284	7,995	3,918
Percent of total harvested acreage	19.69	19.72	19.30	1.30	2.04	40.34	15.34	4.92
6. Stacked dry	22,471	22,371	100	---	100	21,484	112	675
Percent of total harvested acreage	2.64	2.81	.18	---	.05	6.22	.21	.85
7. Siloed:								
a. Above ground	2,787	2,452	335	---	146	1,750	86	470
Percent of total harvested acreage .....	.27	.31	.59	---	.08	.51	.16	.59
b. In pits	3,022	2,922	300	320	640	1,852	---	110
Percent of total harvested acreage .....	.35	.37	.18	.24	.35	.54	---	.14
8. Dehydrated	40	40	---	---	40	---	---	---
Percent of total harvested acreage	---	---	---	---	.02	---	---	---
9. Hauled off field and fed as green feed	49,173	46,448	2,725	1,932	1,491	20,509	5,080	17,436
Percent of total harvested acreage	5.78	5.84	4.82	1.45	.81	5.94	9.75	21.91
10. Pastured before harvest	2,445	2,445	---	---	---	2,445	---	---
Percent of total harvested acreage .....	.31	.33	---	---	---	.71	---	---
11. Other	300	300	---	---	---	---	---	300
Percent of total harvested acreage .....	.04	.04	---	---	---	---	---	.40

FERTILIZERS:

Percentage of planted acres, average rate and method of application. Since some acreage has had more than one type of fertilizer application, the total percentages of planted acres will exceed 100 percent.

1. Manured for beets—percentage of planted acres	31.59	33.42	10.42	2.58	45.33	45.14	17.24	33.72
2. Green-manured for beets—percentage of planted acres	12.22	12.26	11.69	10.20	4.76	5.12	61.15	20.81
3. Acres on which complete commercial fertilizer added								
percentage of planted acres	27.47	25.63	48.75	19.23	9.55	11.10	43.40	94.81
a. Average rate	250.00	260.00	195.00	558.00	151.00	151.00	159.00	254.00
b. Method of application (percent)								
A	3.88	7.78	---	25.00	2.50	1.77	6.70	2.91
B	2.06	3.12	1.00	3.75	2.50	7.54	1.00	.83
C	11.05	12.11	10.00	12.50	7.50	26.33	---	14.50
D	38.64	26.21	51.00	---	---	---	90.27	27.92
E	28.08	18.16	38.00	---	15.00	21.38	1.70	53.59
F	4.10	8.20	---	31.25	5.00	4.46	.33	.25
G	11.44	22.88	---	27.50	55.00	31.69	---	---
H .....	.46	.92	---	---	---	.46	---	---
I .....	.28	.59	---	---	2.50	.46	---	---
J .....	.01	.03	---	---	---	.15	---	---

	Combined totals for U.S. and Canada	Total for U.S. alone	Total for Canada alone	Total for area 1	Total for area 2	Total for area 3	Total for area 4	Total for area 5
4. Acres on which commercial phosphate added—								
percentage of planted acres -----	44.15	43.95	46.45	24.30	66.32	53.98	69.25	.52
a. Average rate -----	160.00	166.00	92.00	629.00	120.00	110.00	100.00	400.00
b. Method of application (percent)								
A -----	1.88	3.77	----	----	16.57	2.30	----	----
B -----	2.98	5.97	----	8.68	12.28	8.80	----	----
C -----	38.87	27.75	50.00	4.00	3.00	31.75	100.00	100.00
D -----	34.30	28.53	40.00	----	16.45	26.25	----	----
E -----	10.40	10.81	10.00	16.66	11.99	25.35	----	----
F -----	4.65	9.31	----	38.50	8.00	.05	----	----
G -----	5.23	10.47	----	32.16	17.00	3.20	----	----
H -----	.06	.12	----	----	.57	.05	----	----
I -----	1.53	3.06	----	----	13.14	2.20	----	----
J -----	.10	.21	----	----	1.00	.05	----	----
5. Acres on which commercial nitrogen added—								
percentage of planted acres -----	25.46	23.68	46.00	57.92	36.41	16.94	.53	.52
a. Average rate -----	225.00	247.00	91.00	378.00	126.00	131.00	125.00	300.00
b. Method of application (percent)								
A -----	1.31	2.63	----	----	13.16	----	----	----
B -----	1.38	2.79	----	9.50	4.42	.05	----	----
C -----	29.68	21.73	37.50	2.50	2.42	3.75	----	100.00
D -----	20.34	.67	40.00	.50	----	2.85	----	----
E -----	6.17	2.34	10.00	----	2.57	9.15	----	----
F -----	2.86	5.72	----	6.25	17.71	4.64	----	----
G -----	34.45	56.49	12.50	67.50	53.87	61.01	100.00	----
H -----	3.52	7.05	----	13.75	3.00	18.50	----	----
I -----	----	----	----	----	----	----	----	----
J -----	.29	.58	----	----	2.85	.05	----	----

Statistical Data—Continued

6. Acres on which commercial potash added alone-- percentage of planted acres -----	.20	.22	.22	.37		
a. Average rate -----	99.00	99.00	20.00	118.00		
b. Method of application (percent)-----						
A -----						
B -----	2.91	2.91		5.83		
C -----	13.33	13.33		26.66		
D -----	7.49	7.49		14.99		
E -----	4.35	4.35		8.69		
F -----						
G -----	67.75	67.75	100.00	35.50		
H -----						
I -----	4.17	4.17		8.33		
J -----						
7. Acres on which commercial minor elements added-- percentage of planted acres -----	.43	.46	.02	.22		2.75
a. Average rate -----	18.00	18.00	20.00	25.00		16.00
b. Method of application (percent)-----						
A -----						
B -----	16.67	16.67				50.00
C -----	4.65	4.65		14.00		
D -----	16.00	16.00		38.00		10.00
E -----	22.34	22.34		27.00		40.00
F -----						
G -----	38.67	38.67	100.00	16.00		
H -----	1.67	1.67		5.00		
I -----						
J -----						

KEY TO METHOD OF APPLICATION:

- A—Broadcast then plowed under.
- B—Broadcast then disced or worked into soil after plowing.
- C—Drilled in with combination grain and fertilizer drill.
- D—With planter in seed furrow.
- E—With planter alongside of row.
- F—Side-dressed immediately after planting.
- G—Side-dressed after thinning.
- H—Applied in irrigation water.
- I—Phosphate placed on manure in feedlot or spreader.
- J—Other (list method and percentage).