

Stand Count Comparisons of Segmented and Decorticated Sugar Beet Seed

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THE WHOLE field of sugar beet seed processing is in its infancy. Improvements in the methods of processing sugar beet seed and also in the processed seed itself can be expected from time to time.

One of the most recent developments is the mechanics of "decortivating" seed with the production of so-called "decorticated" seed. The advantages claimed for this type of processed sugar beet seed are that (1) the germs in the seedball units are not injured as much as with shearing, (2) the finished product is less angular, viz., there are fewer "lense shaped" seed units, and therefore feeds through the planter better, (3) the accumulation of dust or chaff in the seed bag in which the grower receives his seed is less than for sheared seed, (4) the pre-thinning stands of beet plants are better than for sheared seed, (5) the pre-thinned plants are more vigorous, (6) the recovery at processing is greater than for sheared seed.

This paper will present brief data on the comparisons of pre-thinning stands of decorticated and segmented seed in five locations in the Rocky Mountain area of the United States.

The sheared seed and decorticated seed were graded through a 10/64-inch round hole screen and retained on a 7/64-inch round hole screen. The seed in each location was planted with the same drill with the same plates for both kinds of seed, and the actual weight of seed planted was known. With the weight of seed planted, number of seed units per pound, and total row length it was possible to accurately determine the number of seed units planted per foot. With germination records on all seed used the theoretical germination was easily computed. (See table 1.)

The results of these trials, conducted in the spring of 1947, are shown in table 1.

The average rate of planting per acre by weight of seed alone was 12 percent more for decorticated than for segmented, but the actual number of seed units per unit-of-row length was practically the same for both kinds of seed. The weight per bushel of the decorticated seed was 34 pounds with 37,694 seed units per pound, whereas for the segmented seed it was 27.5 pounds with 44,320 seed units per pound.

Emergence varied considerably among the five factory areas. Decorticated seed averaged 7 percent greater emergence for all tests. In the four areas where the variety MW 4 B was used, decorticated seed averaged less than 1 percent higher in emergence, whereas at Grand Junction,

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Table 1. Comparison of pre-thinning stand counts on decorticated and segmented seed plantings under field conditions in 1947*

Location of test	Processing*	Percent germination	See units planted per foot	Inches per foot containing plants		Percent of inches of row containing			Percent of Potential Emergence
				Theoretical	Actual	Singles	Doubles	Multiples	
Sidney, Mont.....	Dec.	81	8.1	6.56	4.25	54.6	37.9	7.5	64.8
	Seg.	82	8.5	6.97	3.80	56.3	38.4	5.3	54.5
Worland, Wyo.....	Dec.	81	7.9	6.40	2.06	63.6	31.5	4.9	32.2
	Seg.	82	6.7	5.49	1.90	77.4	20.0	2.6	34.6
Sheridan, Wyo.....	Dec.	81	6.5	5.26	2.52	62.3	30.2	7.5	47.9
	Seg.	82	5.5	4.51	2.52	68.2	26.6	5.2	55.9
Swink, Colo.....	Dec.	81	7.4	5.99	1.95	58.5	35.4	6.1	32.6
	Seg.	82	7.1	5.82	1.74	74.7	22.4	2.9	29.9
Grand Junction, Colo.....	Dec.	84	9.1	7.64	4.09	54.5	33.0	12.5	53.5
	Seg.	71	12.2	8.66	2.51	77.3	19.9	2.8	29.0
Average	Dec.		7.8	6.37	2.97	57.6	34.0	8.4	46.6
	Seg.		8.0	6.29	2.49	68.7	27.3	4.0	39.6

*Variety US 22 used at Grand Junction; other locations MW 4B.

Colorado, decorticated seed was 24.5 percent better in emergence where variety US 22 was used. It is entirely possible that varietal differences may be encountered in the decortivating process.

More singles are expected from segmented seed, and this was true in these tests. The segmented had 11 percent more singles. The decorticated seed produced 6.7 percent more doubles and 4.40 percent more multiples.

Under the condition of these tests decorticated seed was superior to segmented seed in pre-thinning stand counts.

Visual vigor readings, using an arbitrary standard, indicated a slightly higher score for the decorticated seed.

Little difference was expected in after-thinning stand counts, and such was the case. The decorticated plantings showed 2 percent more plant containing feet and 4 percent more plants per 100 foot of row. Summary of the after-thinning data is shown in table 2.

Table 2. Average comparison of after-thinning stand counts of decorticated and segmented seed plantings at five locations under field conditions in 1947.

Type of seed	Average total feet of row contain- ing plants	Average plants per 100 feet of row			Total	Average total number gaps 12" or more in row
		Singles	Doubles	Multiples		
Decorticated	80.02	66.59	12.75	.68	94.17	12.96
Segmented	78.34	67.46	10.22	.66	89.83	14.52

A total of 577 stand count comparisons of the two types of seed were made in commercial fields in seven factory districts in the mountain area. The decorticated seed averaged 3.75 percent better in pre-thinning stand counts and 6 percent better in after-thinning counts than the segmented.