

Variation in Emergence of Sugar Beet Plants Attributable to Different Drill Units of the Same Planter

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Stand counts in the untreated "checks" of a comprehensive sugar beet seed treatment test in 1961 provided an opportunity for studying the variability of initial stands obtained from planting with different units of the same drill.

The results for two makes of drills (designated A and B) were reported in enough cases for some statistical analysis of the data to be made. A summarization of the highest stand count compared with the lowest is presented in Table 1 for the two makes of drills, both in common usage. Few drills had all units producing stands within the limits of random variation, LSD = 11.

Table 1.—Seedling counts of the row planted by a drill unit which had the highest count and the lowest count in four 100-inch samples per row for two makes of drill.

Total Seedlings per 400 Inches of Row					
Brand A			Brand B		
Highest	Lowest	Difference	Highest	Lowest	Difference
337	43	294	127	104	23
121	100	21	144	119	25
79	60	19	121	81	40
56	50	6	155	129	26
124	90	34	66	56	10
110	92	18	206	183	23
213	189	24	158	124	34
70	60	10	220	140	80
100	58	42	165	93	72
136	117	19	109	76	33
143	90	53			
92	55	37	Ave. 147	111	36
137	125	12			
238	165	73			
153	139	14			
161	135	26			
Ave. 142	98	44			

LSD 5% pt. = 11 between units for each drill.

This variation of the resultant stands may reflect differences between units as to seed metering, depth of planting, pressure on press wheels and uniformity of covering, to list a few. This variation is enlightening because it confirms the need to account for drill unit variation in the design of field experiments in which

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commercial machines are used and in which seedling counts are involved. For the farmer, it indicates that all parts of the drill which might affect uniformity of stands must be carefully calibrated and adjusted before the drill is taken to the field. It is difficult, if not impossible, to produce a uniform final beet population by mechanical means when such large differences as to stand exist in the different rows. A higher degree of precision in the construction of the drill, especially the metering device, together with an over-all construction to achieve a uniform sowing under variations in seed bed, is indicated for drill manufacturers.
