

2020 Soybean Singulation Study

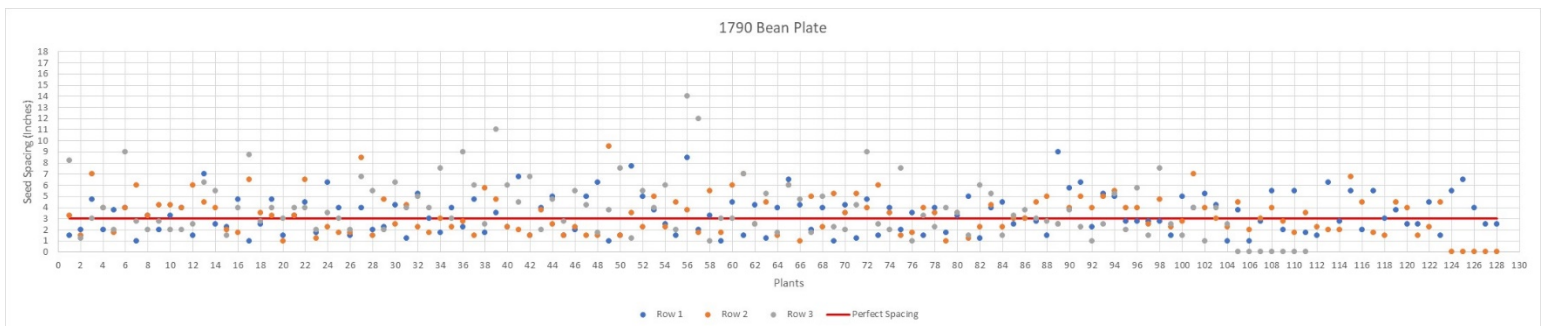
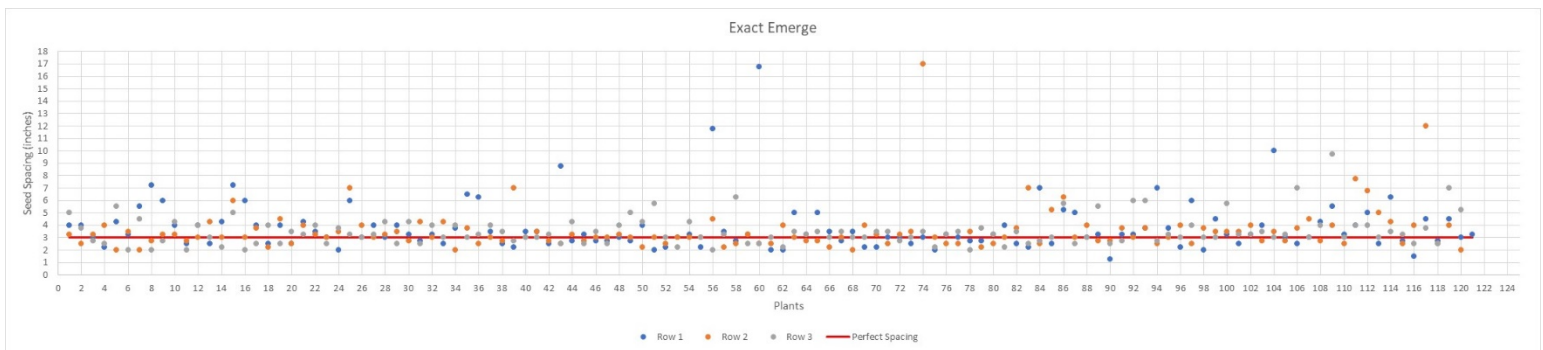
Soybeans were planted on April 21st at 140,000 plants/acre on 15" rows using three different singulation methods to highlight the importance of proper singulation, differences in seeding population and emergence differences, and discuss the late season plant health differences based on singulation. We used a 16R31 ExactEmerge planter to show ExactEmerge singulation and a John Deere 1795 to show singulation utilizing both a bean plate and ProMax 40 corn plate. There were 15 or 16 rows per depth.

We noted daily emergence differences by population counts for seven days. We took a final population count on 5/11 (one week after initial emergence). All population counts were taken from the center two rows of each treatment and the average was recorded.

Soybean Singulation	Average Population at 24hr emergence (5/5 AM -5/6 AM)	Final Population at 7 days (5/11)
ExactEmerge	80,000	114,000
1795 bean plate	28,000	95,000
1795 ProMax40	20,000	97,000

Table 1. Soybean planting depth population counts. Multiply population listed x 1000..

The ExactEmerge soybean pass came up with excellent vigor and had noticeably better emergence than both 1795 passes. The 1795 bean and ProMax 40 plates had delayed emergence compared to the ExactEmerge but the gap closed between treatments at final emergence. Late emergers came up later in the season, but harvest stand counts were not taken due to how thick the soybeans were. There were no visual stand differences between the treatments.



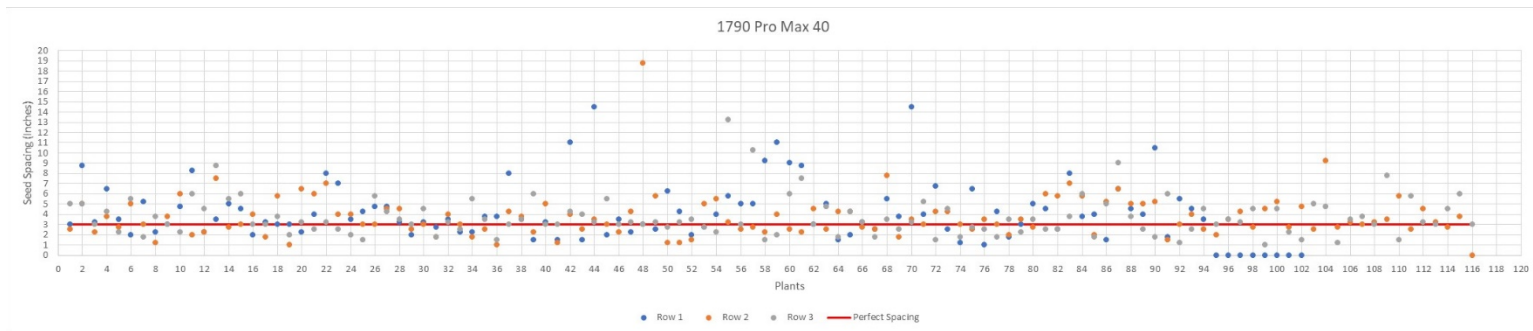


Figure 1. Soybean singulation graph showing the differences between ExactEmerge, 1795 bean plate, and 1795 ProMax 40.

ExactEmerge	Row 1	Row 2	Row 3	All	1790 Bean Plate	Row 1	Row 2	Row 3	All	1790 ProMax 40	Row 1	Row 2	Row 3	All
Average	3.73	3.55	3.49	3.61	Average	3.13	3.00	3.82	3.28	Average	3.13	3.00	3.82	3.28
Standard Dev	2.07	1.83	1.20	1.72	Standard Dev	1.90	1.97	2.61	2.17	Standard Dev	1.90	1.97	2.61	2.17
Coeff of Var	3.49	0.52	0.34	0.48	Coeff of Var	0.61	0.66	0.68	0.66	Coeff of Var	0.61	0.66	0.68	0.66
	Avg Stand 120,000 sds/ac 2 doubles					Avg Stand 118,000 sds/ac 35 doubles					Avg Stand 118,000 sds/ac 35 doubles			

Figure 2. Statistic information for each soybean singulation method.

Figure 1 shows the variability in soybean plant spacing in the center three rows of each treatment. There are more outliers in the 1795 treatments and spacing between plants in the ExactEmerge treatment are more uniform and grouped tighter to the perfect spacing line. The perfect spacing line represents what spacing between plants should be if all 140,000 emerged and were evenly spaced. Figure 2 further illustrates the singulation differences seen in figure 1. The ExactEmerge treatment had lower standard deviation and coefficient of variation, in addition to less doubles than the 1795 bean plate and ProMax40 treatments.

Soybean Singulation	Moisture	Dry Yield (bu/ac)
ExactEmerge	15.1%	68.79
1795 bean plate	14.9%	63.83
1795 ProMax40	15.1%	57.48*

Table 2. Soybean planting depth yield data.

*There were sprayer tracks that ran over several rows in the 1795 ProMax 40 treatment.

*This study was for demonstrative purposes only and was non-replicated.