

## Seed Size & Plantability – Corn

Hybrids vary in seed size for two reasons: genetics (seed size characteristics of the parent), and environment (growing conditions in the seed field). Just like hybrids, the inbred parents used to produce hybrid corn seed vary in the seed sizes they produce. Some inbreds produce larger seed compared to others, and some make mostly rounds while others make predominantly flats. Environment generally has less influence on seed size compared to genetics, but conditions during pollination and grainfill can influence seed size. Poor pollination and/or optimal conditions during grainfill generally results in larger seed, while strong pollination followed by poor growing conditions (drought, cool temperatures, or cloudy weather) generally results in smaller seed. All seed sizes offered by Rob-See-Co have been thoroughly tested and meet or exceed our quality standards. While it would be great to plant the same size and weight seed across all acres, yield stability over environments and specific agronomic traits are more important considerations than seed size when selecting hybrids.

Rob-See-Co and Innotech Brand<sup>1</sup> hybrids are packaged in either an 80,000 kernel (80K) unit bag, or a bulk box containing a specific number of 80K units. Rob-See-Co seed sizes are based first on seed shape, and during the conditioning process seed is divided in these two shape categories – round or flat. Both of these shape categories are then further divided into three seed size categories, one, two, or three, based on seeds per pound. Bag weight and seeds per pound ranges for seed sizes available from Rob-See-Co are shown in Table 1.

Table 1. Rob-See-Co Seed Size Information

Seed Size	Seed Shape	Seeds / Pound	Weight Range / 80K Unit
F1	Flat	2500 - 1861	32.0 – 42.9
R1	Round		
F2	Flat	1860 - 1429	43.0 – 55.9
R2	Round		
F3	Flat	1428 - 1291	56.0 – 61.9
R3	Round		
F4	Flat	1290 - 1143	62.0 – 70.0
R4	Round		

Accuracy of seed drop plays an important role in reaching a yield goal. When seeds are spaced evenly, individual plants do not have to compete as much with their neighbors for nutrients, water, and sunlight. This allows all plants an equal opportunity to produce their maximum ear size. Skips, or areas in the row where a seed should have been dropped but was not, reduce yield potential and provide places for weeds to grow. Conversely, doubles and triples (two or three seeds dropped at the same time) can drive population above optimum levels, increasing production costs. All planters are designed to plant corn accurately – the job they do depends on how well they are maintained and adjusted. Planting accuracy can be improved by conducting an annual planter tune-up, and then by adjusting the planter to each specific seed size(s) being planted.

<sup>1</sup> Innotech is a Syngenta Brand distributed by Rob-See-Co

To prevent in-season breakdowns, inspect all chains, bearings, and hydraulic components, and replace any worn parts before going to the field. The manufacturer operator’s manual is the best source for the maintenance schedule and in-depth information on how to keep a planter performing as designed. Upkeep of the seed delivery mechanism is perhaps the most important part of annual planter maintenance, because it directly determines the accuracy of seed placement. A well maintained and properly adjusted planter will still require fine-tuning when switching from one seed size to another. Table 2 provides suggestions for maintaining optimal seed drop by seed size for popular plateless planters.

Table 2. Plantability Suggestions by Seed Size for Plateless Planters

Planter Type		Seed Size		
		F1 / R1	F2 / R2	F3 / R3, F4 / R4
John Deere Finger		Follow Manufacturer’s Recommended Speed		
Kinze Finger				
John Deere Vacuum	Seed Disc	A43215	A43215	F – A52391 R – A50617
	Inches of Vacuum	8.0 to 11.5	11.5 to 13.5	F – 15.0 to 16.5 R – 10.0 to 12.5
Case IH – Cyclo	Brush Setting	F1 – Full Up <sup>2</sup> R1 – Half Down <sup>3</sup>	F2 – Half Down <sup>3</sup> R2 – Full Down <sup>4</sup>	F – Full Down <sup>4</sup> R – Wired Down <sup>5</sup>
	Ounces of Pressure	8 to 10	9 to 12	11 to 14
Case IH – Vacuum	Seed Disc	4855		
	Inches of Vacuum	18 to 22		
White Air	Seed Disc	852436 <sup>6</sup>	852435 <sup>7</sup>	852434 <sup>8</sup>
	Ounces of Pressure	2.0 to 3.4	1.5 to 2.5	2.0 to 2.5

<sup>2</sup> Recommended brush setting for kernel sizes greater than 2000 seeds/pound

<sup>3</sup> Recommended brush setting for kernel sizes between 1900 and 1500 seeds/pound

<sup>4</sup> Recommended brush setting for kernel sizes between 1500 and 1350 seeds/pound

<sup>5</sup> Use the wire hook only if full down results in lower than desired seed drop

<sup>6</sup> Recommended seed disc for kernel sizes between 2800 and 1600 seeds/pound

<sup>7</sup> Recommended seed disc for kernel sizes between 1900 and 1300 seeds/pound

<sup>8</sup> Recommended seed disc for kernel sizes between 1400 and 1100 seeds/pound

These suggestions are a starting point. Check the seed furrow after the planter has planted a few rounds at the chosen speed to confirm desired seed spacing, seed depth, and furrow closure. Refer to the planter operator’s manual for additional information on planter settings, tire pressure, and use of lubricants.

Planting at a higher than recommended ground speed has a substantial effect on planter accuracy. Finger planters typically over plant as ground speed is increased, especially with smaller sized seed, but can also under plant larger sized seed at faster ground speeds. Vacuum planters are less sensitive to increased ground speed and typically under plant at faster planting speeds. Table 3 highlights additional causes of under or over planting by planter type.

Table 3. Common Causes of Over or Under Planting by Planter Type

Planter Type	Problem	Possible Causes
Finger Pick-up (John Deere or Kinze)	Over Planting	Worn brushes Worn face plate Finger tension too loose Ground speed too fast (especially smaller seed sizes)
	Under Planting	Finger tension too tight Broken finger tension spring(s) Ground speed too slow Ground speed too fast (larger seed sizes only) Too little graphite
Vacuum (John Deere or Case IH)	Over Planting	Wrong seed disc Too little talc Vacuum too high
	Under Planting	Wrong seed disc Vacuum too low Ground speed too high
Case IH – Cyclo	Over Planting	Air pressure too high Brush too far from drum Worn brush
	Under Planting	Air pressure too low Brush too close to drum Drum or hopper seal leaking
White Seed Boss	Over Planting	Wrong disc Worn brush Air pressure too high
	Under Planting	Wrong disc Air pressure too low Build-up of seed debris in seed reservoir
Plate Type Planters	Over Planting	Wrong plate Worn or warped floor plate Worn cut-off tongue Weak knocker or cut-off springs Floor plate groove turned up when it should be down
	Under Planting	Wrong plate Dirty or worn plate New plate with burrs in plate cells Ground speed too fast Floor plate groove turned down when it should be up