



SOYBEAN FACTS

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Calibrating Drills for Soybean Production

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Variations in the size of soybean seed can lead to excessive or inadequate populations if drills are not properly calibrated. Dropping too many seeds can increase the incidence and severity of white mold, plant lodging and seed costs. Dropping too few seeds can increase weed competition due to insufficient shading. Michigan State University recommends planting 175,000 seeds per acre when planting soybeans with a drill. This recommendation assumes that high quality seed is planted into good soil conditions on a timely basis. Planting populations should be increased by 10% when planting in April and when planting into rough seed beds. Consider increasing seeding rates to 190,000 to 210,000 seeds per acre when planting during the first half of June and 210,000 to 225,000 seeds per acre when planting after June 15th to compensate for shorter plants that typically result from late-planting. After you have determined your desired seeding rate, calibrate your drill to deliver this rate. Three easy calibration methods are listed below.

Method 1– Field Calibration

- Locate your drill’s row width and corresponding 1/100th acre feet for that row in Table 1. (For example, 1/100th acre for 7.5 inch rows is 697 feet long).
- Measure this distance in the field and mark each end with a flag.
- Disconnect several seed tubes and attach large (1 gallon), plastic freezer bags to the bottom of the seed cups using rubber bands, wire or hose clamps.
- Lower the openers and drive the course laid out in step #2.
- At the end of the course, carefully detach the bags and weigh them. Multiply the total weight by 100 and divide by the number of seed cups from which you caught seed. This equals the pounds of seed per acre.
- Multiply pounds of seed per acre times the number of seeds per pound listed on the bag of seed to get seeds per acre.

Table 1. Row Lengths for 1/100th of an Acre at Various Row Widths

Row Width (inches)	1 Acre (feet)	1/100 th Acre (feet)
7	74,674	746.7
7.5	69,696	697.0
8	65,340	653.4



Method 2 - Seeds per Foot

- Locate a flat, compacted and straight area where the drill can be operated.
- Reduce down pressure springs and/or set the depth control as shallow as possible.
- Operate the drill at the desired speed, dropping seed on the ground.
- Lay a yardstick beside the seed and count the number of seeds. Do this at least five (5) times.
- Determine the average number of seeds per foot.
- Use Table 2 to determine the number of seeds per acre from the seeds per foot.

Method 3 - Seed Replacement

- Fill the drill and level the seed so that it is even with the top of the seed box.
- Lower the openers and plant one pass in the field at your desired speed.
- Use a measuring wheel to determine the length that you planted.
- Multiply the length by the width of the drill to figure the area planted
(1200 feet long x 15 feet wide = 18,000 square feet).
- Refill the drill precisely as in step #1.

- Weigh the amount of seed remaining in the seed bag and subtract this from the weight of the full bag to find out how many pounds of seed you have planted in the area calculated in step #4.

(50 lbs. (full bag of seed) – 24 lbs. (seed remaining in the bag) = 26 lbs. of seed planted).

- Determine how many pounds of seed you planted per acre.

(lbs. of seed planted in test x sq. ft. per acre ÷ sq. ft. in the test) = lbs. of seed per acre.

(26 lbs. of seed x 43,560 square feet ÷ 18,000 square feet = 63 lbs. of seed per acre).

- Multiply pounds of seed per acre by the seeds per pound listed on your bag to get seeds per acre.

(63 lbs. per acre x 2,800 seeds per lb. = 176,400 seeds per acre).

This fact sheet was originally produced by the Soybean 2010 project and will be updated as needed by its successor, the Soybean Management and Research Technology (SMaRT) program. The SMaRT program was developed to help Michigan growers increase soybean yields and farm profitability. Funding for SMaRT is provided by MSU Extension and the Michigan Soybean Promotion Committee. Additional information about increasing soybean yields and profitability can be found online at <http://www.michigansoybean.org>.

Desired Seeding Rate (seeds per acre)	Row Width (inches)		
	7	7.5	8
	-----seeds per foot of row-----		
225,000	3.0	3.2	3.4
210,000	2.8	3.0	3.2
190,000	2.5	2.7	2.9
175,000	2.3	2.5	2.7