



SOYBEAN SEEDING RATE/PLANT POPULATION FACT SHEET

This is one in a series of fact sheets from the Mississippi Soybean Promotion Board and the soybean checkoff. Each sheet presents a brief overview of a topic important to Mississippi soybean production. More information on each topic can be accessed through the link at the bottom of the sheet. To see other fact sheets, click [here](#).

There is no perfect seeding rate for soybeans because of: 1) varying quality (germination and vigor) of seeds that are planted; 2) varying soil conditions (moisture, pathogen presence, soil texture, and seed-soil contact after planting) that affect germination and emergence of planted seed; 3) varying environmental conditions (amount of rainfall, air temperature) following planting that will affect germination and emergence; 4) unknown or unsuspected pathogen presence in soil at the planting site; and 5) how the achieved plant population will be affected by the growing conditions (both abiotic and biotic) that follow emergence.

Cost of soybean seed is estimated to comprise 12-22% of the estimated costs per acre for growing soybeans in Mississippi. Thus, planting too many seed or more than is estimated to achieve an acceptable stand is an expensive mistake.

Similar yields can be obtained across a range of plant populations. Therefore, the most profitable strategy is to plant at a rate that will achieve the minimal plant population of 90 to 100 thousand plants/acre that is necessary to achieve maximum soybean yield regardless of row spacing.

The following points should be considered when choosing a soybean seeding rate for any field:

- Producers must determine the quality of the seed they are planting, and there are two accepted ways to measure this trait. The first is percentage germination (SG) of the seed lot, and the second is vigor of the seed, usually determined by the accelerated aging (AA) test. However, results from these tests accurately predict field performance only in ideal field conditions at and immediately following planting. A producer must determine before planting if seedbed conditions at planting are or are expected to be less than ideal.

- Accurate sampling is required to determine the final plant population following complete emergence so that a replanting decision is not mistakenly made. This is an important activity since replanting costs money and loses the advantage of earlier planting achieved with the perceived failed stand.
- Accepting a minimum number of plants per acre as sufficient assumes that those plants are uniformly distributed/spaced regardless of the row spacing.
- The acceptable minimum plant population assumes that there will be no abiotic or biotic stresses to significantly reduce stand later in the season. Regrettably, there is no objective way to determine this since growing conditions/pest presence for the subsequent growing season cannot be accurately predicted.
- Use of seed treatment fungicides and insecticides is beneficial and economical for ensuring maximum soybean germination and emergence, and for reducing pest effects on young soybean stands early in the season.
- An initial plant population that exceeds 125-140 thousand plants/acre will result in economic loss because of money wasted on planting too many seed.
- Planting soybeans at a rate that exceeds 130-140 thousand seeds/acre will likely result in a lower net return.
- A seeding rate of 125 thousand high-quality seeds/acre that have been treated with a broad spectrum seed treatment should be ideal in good planting conditions.
- Using a seeding rate lower than 100 thousand seeds/acre will likely result in both lower yield and net return.

Click [here](#) for a detailed discussion of this topic, and [here](#) for a seed treatment White Paper on this site.

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