Science Societies

Low soybean plant population: Is replanting necessary?

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Early in the growing season, soybean plant poplulations may be reduced by a number of factors. This photo shows hail-damaged soybean.

The decision to replant a soybean crop can be difficult. Collaboratively, U.S. soybean agronomists representing a diversity of growing regions collated replant guidelines for their region to generate widely applicable recommendations and pictures depicting early-season stressors that reduce soybean plant population. The decision to replant should focus on profitability and if possible, repair plant to improve the final stand instead of completely starting over. This management guide is intended to support educated replant decisions across the major U.S. soybean regions.

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Self-study CEU quiz

Earn 1 CEU in Crop Management by taking the quiz for the article. For your convenience, the quiz is printed below. The CEU can be purchased individually, or you can access as part of your Online Classroom Subscription.

1. One key reason soybean can tolerate low plant populations is its ability to

a. increase seed size.

b. produce additional axillary branches.

c. extend the reproductive period indefinitely.

d. increase root nodulation beyond normal levels.

2. Research cited in the paper suggests that near-maximum soybean yields can be achieved with plant populations as low as

a. 25,000 plants per acre.

b. 40,000 plants per acre.

d. 50,000 plants per acre.

d. 90,000 plants per acre.

3. In most regions, approximately how many healthy, uniformly distributed plants per acre are needed to reach 95% of maximum yield?

a. 40,000–50,000.

b. 60,000–65,000.

c. 70,000–75,000.

d. 90,000–100,000.

4. Compared to southern regions, northern soybean-growing regions generally require

a. higher minimum plant populations.

b. lower minimum plant populations.

c. the same minimum plant populations.

d. no minimum population threshold.

5. Why is delaying replant decisions by about 7–10 days after an early-season stress event often recommended?

a. To allow insurance adjusters to visit the field.

b. To reduce weed pressure.

c. To ensure soil temperatures increase.

d. To determine whether surviving plants will recover.

6. Soybean plants cut below the cotyledons are unlikely to recover and should be considered dead when assessing stands.

a. True.

b. False.

7.“Repair planting” differs from a full replant because repair planting

a. always uses a higher seeding rate.

b. destroys all existing plants.

c. adds seed without completely removing the existing stand.

d. is only used after flooding events.

8. Flooding and prolonged waterlogging during early vegetative stages can reduce soybean yield by up to 50%.

a. True.

b. False.

9. According to the article, which of the following should most strongly influence a soybean replanting decision?

a. The uniformity and distribution of existing plants and profitability considerations.

b. The original seeding rate used in the field.

c. The cost of seed treatment products.

d. The crop’s maturity group.

10. When soybean stands are sparse, wide row spacing (≥30 inches) can lead to increased risk of

a. lodging.

b. weed pressure due to delayed canopy closure.

c. nitrogen deficiency.

d. herbicide injury.

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