MISSISSIPPI STATE UNIVERSITY EXTENSION

Considerations for Replant Decisions in Soybean

Replant decisions typically fall into one of three categories:

1. keep the crop as is,
2. replant it all, or
3. plant a reduced seeding rate into the existing stand.

The decisions to keep the stand or to terminate and start over are generally the simplest. Fields with marginal stands that appear to be thin yet uniform often present more difficult decisions. Usually in these situations, a supplemental planting with a reduced seeding rate is used to bring the total plant population up to the desired level. However, little research has specifically addressed whether the added plants improve soybean yield and profitability.

Research was conducted in Mississippi to evaluate soybean yield at various stands and replanting approaches. The target seeding rate was 130,000 seeds per acre. Several removal and replant treatments were imposed to simulate marginal stands and replant methods commonly used in the field. The treatments listed in Table 1 are expressed as percentage of stand loss relative to the initial planting and replanted density.

Yield results are displayed in Figure 1. When the soybean stand was 50 percent or more of the intended population, replanting into the existing soybean did not improve grain yield compared to maintaining a reduced stand. However, when 75 percent of the initial soybean stand was lost, replanting into the existing stand improved grain yield 12 percent compared with keeping that level of reduced stand as is. This finding suggests that soybean replanting recommendations should vary depending on the degree of stand failure. Assuming uniformity of the existing soybean, stands reduced less than 50 percent may be maintained without replanting. However, when soybean growers experience a severely reduced stand (75 percent stand loss), the best option is to retain the crop and replant additional seed to supplement the reduced stand. When stand failure is complete or the initial planting is terminated, replanting at a later date will likely reduce soybean yield potential considerably.

Additional research was conducted in Mississippi to evaluate soybean yield response to varying replanting seeding rates following significant stand loss. Figure 2 shows soybean yield potential at 0, 20, 40, 60, and 80 percent replanting rates after a simulated 80 percent stand loss. Results indicate that when 80 percent of the initial stand was lost, yield potential recovered to nearly 90 percent of the original yield level by replanting only 20 percent of the desired population. Increasing seeding rates beyond 20 percent did not result in further yield improvement. Therefore, when a replant is warranted, using seeding rates as low as 20 percent of the original target may minimize economic impact while maintaining yield potential.

Table 1. Replant scenario and population description.

Existing population description	Replant treatment	Percent stand loss from initial planting[1]	Percent of target population to replant[2]	Percent of target population achieved[3]
Target population achieved	None	0	0	100
Some stand loss	Reduced rate planted into existing stand	25	25	100
Some stand loss	Keep as is	25	0	75
Moderate stand loss	Reduced rate planted into existing stand	50	50	100
Moderate stand loss	Keep as is	50	0	50
Severe stand loss	Reduced rate planted into existing stand	75	75	100
Severe stand loss	Keep as is	75	0	25
Terminate failed stand	Full replant	100	100	100

[1]Percent loss from targeted population following initial planting.

[2]Percent of targeted population to replant into existing soybean stand.

[3]Percent of overall targeted population achieved either with initial planting alone or between initial planting and one replant attempt.

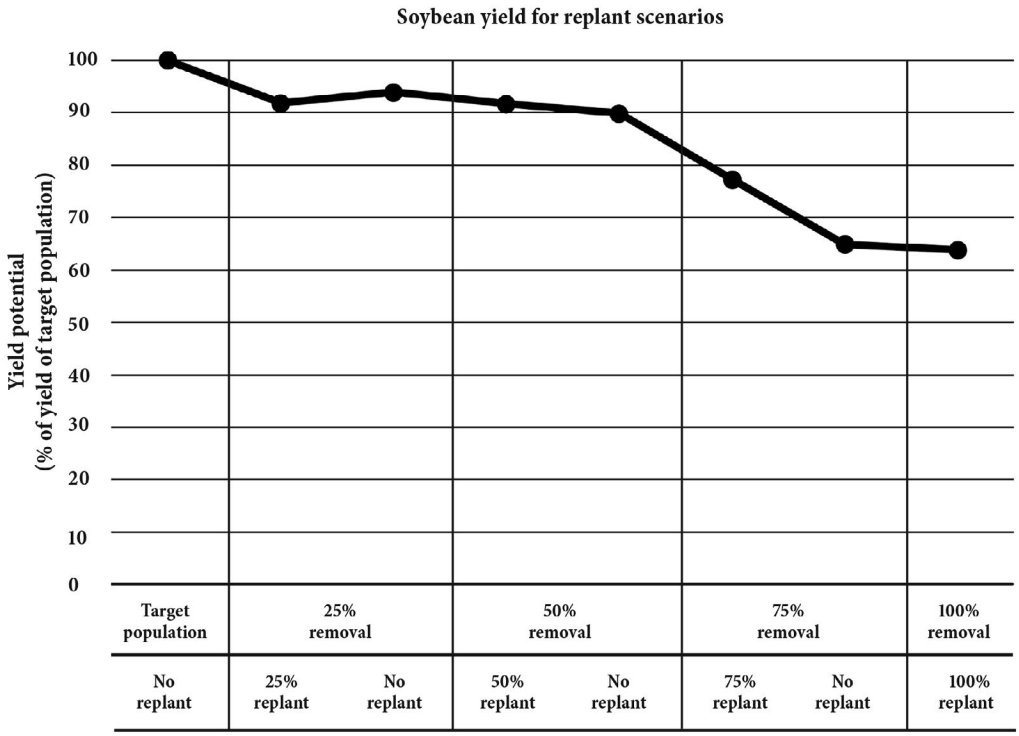

Figure 1. Soybean yield observed across each population removal and replant scenario.

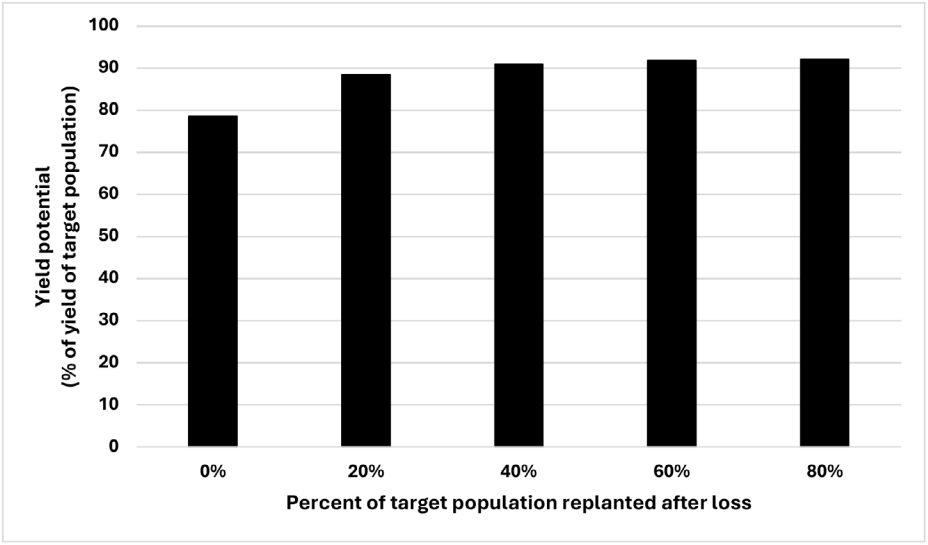

Figure 2. Soybean yield response to varying replant seeding rates following 80 percent stand loss.

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