Cotton Replant Decisions

- Cotton replant decisions are difficult and involve much consideration prior to replanting the crop.
- Cotton stands with as low as 1 to 2 healthy plants per foot may be appropriate to keep, especially if the stand is uniformly spaced with minimal skips.
- Cotton has a great capacity to recover from adverse conditions, and decisions to replant should be carefully evaluated.
- If there is any doubt after stand assessment and careful consideration, it is probably best not to replant.

Evaluate the Existing Stand

Optimum cotton plant populations range from about 25,000 to 50,000 plants per acre, or 2 to 4 plants per foot of row in conventional 30 to 40-inch row spacing. However, acceptable yields can be obtained from stands as low as 13,000 to 26,000 plants per acre (1 to 2 plants per foot of row) with uniform plant spacing. To evaluate the stand, go to various locations within the field, and measure the row length needed for 1/1,000th of an acre (Table 1). Count the number of plants in the measured row length, and multiply by 1,000 to determine the plant population per acre. When taking population counts, observe the stand for uniformity and take note of skips longer than 3 feet in length. Uneven plant spacing, including skips in the row (Figure 1), can lead to significant yield reductions even if the average number of plants per acre is sufficient for optimum yields. Plant spacing uniformity is a critical consideration in replant decisions. Take into account the frequency and length of skips in the field.

Table 1. Plant populations (plants/acre) and row length required for 1/1000th of an acre at different row spacing.

<table>
<thead>
<tr>
<th>Plants/foot</th>
<th>30-inch</th>
<th>36-inch</th>
<th>38-inch</th>
<th>40-inch</th>
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</thead>
<tbody>
<tr>
<td>1.0</td>
<td>17,424</td>
<td>14,520</td>
<td>13,756</td>
<td>13,068</td>
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<tr>
<td>1.5</td>
<td>26,136</td>
<td>21,780</td>
<td>20,634</td>
<td>19,602</td>
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<td>2.0</td>
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<td>29,040</td>
<td>27,512</td>
<td>26,136</td>
</tr>
<tr>
<td>2.5</td>
<td>43,560</td>
<td>36,300</td>
<td>34,390</td>
<td>32,670</td>
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<td>3.0</td>
<td>52,272</td>
<td>46,560</td>
<td>41,268</td>
<td>39,204</td>
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<tr>
<td>4.0</td>
<td>69,696</td>
<td>58,080</td>
<td>55,024</td>
<td>52,272</td>
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<td>4.5</td>
<td>78,408</td>
<td>65,340</td>
<td>61,902</td>
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<tr>
<td>5.0</td>
<td>87,120</td>
<td>72,600</td>
<td>68,780</td>
<td>65,340</td>
</tr>
</tbody>
</table>

Row length for 1/1000th of an acre

- 17’5”
- 14’6”
- 13’9”
- 13’8”


Evaluate the Crop Condition

CROP and growing conditions at the time of evaluation play a major role in determining whether remaining plants will recover. Plants cut off below the cotyledon will not recover. Those with deep stem bruises may not recover. If viable buds remain on plants that lost terminals, the plants may survive. Plants with viable stems, having whole leaves or even portions of damaged leaves, have a good chance of surviving. Poor weather conditions (cloudy, cool, wet) can cause damaged or diseased plants to deteriorate rapidly, even after the weather turns hot and sunny. Growers should dig plants and examine roots and stems to determine viability. Black, water-soaked tap roots indicate that disease is present. If the tap root is still intact and the outer covering has hardened, recovery potential is improved. If further disease damage is evident, the stem can be cut lengthwise to check for discoloration in the vascular tissues. Wet weather blight (Ascochyta blight), as well as other disease organisms, may invade the damaged vascular system. If the weather conditions remain marginal, it is best to assume that only the healthiest plants will survive.

Delivering the evaluation for 2 to 3 days of good growing conditions after the initial damage can provide a better indication of how many plants will likely survive. Cotton has an incredible ability to recover from adverse conditions, so the final judgment on the extent of damage should consider crop and growing conditions.
Consider the Calendar Date
Late planting will often result in reduced fiber quality, delayed harvest, increased harvest costs, and reduced yields. The cutoff dates usually coincide with the last practical dates for planting cotton in the region. The calendar date will also affect the variety selection. Earlier maturing varieties will do better in a shortened season because of a late planting date.

Consider the Costs of Replanting
The cost of replanting a field must also be factored into the replant decision. The following costs should also be estimated:

- seed
- fuel
- equipment wear
- labor
- pesticide applications

In some replant situations, seed and technology fees may be refunded. Also consider crop insurance coverage, farm program options, and the potential for planting an alternative crop.

Other Considerations
Fields with previously-applied herbicides may require additional management consideration when making replant decisions. It may be necessary to push off the top of the seed bed to remove potentially high concentrations of preemergence herbicides applied with the first planting. Consideration should be given to the possibility of achieving an acceptable stand with replanting the late-seeded crop. Seed placement and seeding rate should be considered, along with cotton variety, maturity, and technology selection. Fertility levels may need to be adjusted, along with irrigation scheduling, and managing for earliness. Management strategies should be altered and fine-tuned to match the remaining growing season.

When the decision to replant is made, the old stand needs to be destroyed. If not destroyed, plants from the first planting will mature differently and compete with the replanted population.

Filling in skips by replanting portions of the field, or spot planting, is only recommended if performed within 14 days of the original planting date. Spot planting much later can result in management problems later in the season. Cotton varieties should be chosen with growth habits and maturity that will closely follow the first planting. Replanting sections within the field can help by allowing management inputs to be directed to larger areas.

Sources
Web sources verified 04/07/16. 140602060424

For additional agronomic information, please contact your local seed representative. Individual results may vary, and performance may vary from location to location and from year to year. This result may not be an indicator of results you may obtain as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible.

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