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Making Cotton Replant Decisions

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Each year, many producers are forced to replant cotton due to adverse conditions. Replant decisions are often the most difficult decisions to make, so second-guessing is very common. This publication is intended to aid in your replant decision-making.

Factors to Consider:

1. Calendar date.

The recommended planting window for Tennessee is April 20-May 10. Although boll weevil eradication, Bt cotton and early-maturing varieties may have extended the planting window, most researchers agree that planting after May 25 is beyond the optimum planting window. A poor stand may be replanted on May 1 but will more likely be kept on May 25. Regardless of the advances in technology, an early freeze can be devastating to an immature crop (Table 1.). Setting a two-bale crop on the plant and harvesting that same cotton are two different things.

2. Evaluate the existing stand.

Go to at least 10 places within the field and measure 1/1000th of an acre. For example, 13 feet, 9 inches is 1/1000th of an acre for 38-inch rows. (For more row spacings, see Table 2.) Once the desired length has been measured, count the number of plants. Multiply the number of plants x 1000 to determine your plant population per acre. Remember, go to several places and count not only the number of plants, but also observe your stand for uniformity. Take note of any skips longer than 3 feet in length. Once this has been done, you then have to make the decision about those plants that will live and those that will die. If the plant has severe lesions on the stem and the plant is brittle, it will probably die. If the roots are discolored but remain white or green when the brown tissue is scraped away, it will probably live. Also, examine the plant terminal. How do the new leaves look? If there appears to be new growth emerging, the plant may live. If the plant looks sick and you can't make a decision, assume it will die. However, cotton has a tremendous ability to survive if conditions favor growth.

3. How many plants are needed to make a crop?

Research has shown that cotton yields are fairly flat when uniform populations of 20,000-70,000 plants per acre are found. Uniform populations are critical and fields with large skips may need to be replanted. What is the yield potential of the field? Fertile, bottomland fields may have more compensation ability than eroded, droughty hills. Remember, it's getting late and yield potential is decreasing every day. Uniform populations of 1-2 plants per foot (Table 3) can be satisfactory provided the stand is UNIFORM.

4. What are your costs and which cultural practices have been used?

Sometimes replanting to cotton is not the best option. However, several factors help will determine this decision. Has a residual herbicide been applied? Some herbicides, like Cotoran®, Caparol® or Diuron®, will essentially lock you into cotton. Is the land leased

or under a gin contract? Lease agreements are often crop-specific and offer no alternatives. Also, the type of rental agreement can play a role. Extremely high rent will not allow a grain alternative. Has fertilizer been applied? Another factor that has become more important in recent years is the technology fee. Before replanting, determine whether the additional technology fees will be waived. Another factor to consider if replanting to a different crop is that payments in the current farm bill are decoupled from production and payments are made regardless of crop planted.

5. Manage for earliness.

Choose an early-maturing variety with Bt technology if you decide to replant. It is imperative that the variety be early enough to mature and provide late-season worm control. Do not cut corners. If the stand was lost due to disease, use the full rate of fungicide when replanting and try to plant beside the old row. The old furrow will contain disease inoculum and conditions for disease may be worse than the first time. It is imperative to achieve a uniform stand with this planting, because time is precious. Fields that are not replanted will likely be stunted. Fruit retention will be crucial, as time may not allow for late-season blooms to mature. Overtop glyphosate applications should be made within the recommended window. Late applications will delay fruiting and maturity. In addition to early square retention, timely mepiquat chloride (Pix®, Pentia®, Mepichlor®, Mepex®, etc.) applications will help improve earliness. If the stand is partially lost to hail, some of these plants with damaged terminals may lose apical dominance and become "crazy." This vegetative growth will need special care to achieve good fruiting and earliness. In cases when the decision to replant is made, match the correct nitrogen rate to the realistic yield potential of the late-planted crop. Adding more nitrogen than necessary will delay maturity and increase the potential for damage from inclement weather. For more information, see the Extension factsheet titled Managing Late–Planted Cotton (W074).

6. Other points to consider:

- Weather forecast: does the 5-7 day forecast look promising? Will conditions be conducive to plant growth or rapid germination and emergence? The weather forecast can play a big role in replant decision-making.
- If the decision to replant is made, destroy the old stand. Plants from the first planting will mature differently and may become weeds, competing with the replanted population. Some control options are:
  1. 24-32 oz Gramoxone Max®
  2. 24-32 oz Gramoxone Max® + 32 oz Cotoran® or Caparol®
  3. 32-40 oz Ignite®
  4. 32-40 oz Ignite® + 32 oz Cotoran® or Caparol®
  5. 22-32 oz Glyphosate® for Liberty Link® or non-glyphosate cotton
- Should the whole field or portions of the field be replanted? Spot re-planting is a means of reducing seeding costs and time. However, this often complicates crop management, since several maturity ranges will be found within one field. If spot planting, try to block out parts of the field so that management inputs can be directed to larger areas. Also, choose varieties whose growth habits and maturity will closely follow the first planting.

Remember that cotton is very forgiving, and you can make a crop with some luck. Just remember to make your decision and commit to it. Once you make the decision to either replant or not, you must believe that you have made the correct decision and do everything to ensure its success. A common rule of thumb among most university Extension specialists is "If the decision to replant is difficult, then there are probably enough plants to keep the stand."

Table 1. Date and Probability of a fall freeze by location.

	Probability		
Location	50%	25%	10%
Bolivar	11-Oct	31-Oct	18-Nov
Brownsville	8-Oct	5-Nov	30-Nov
Covington	26-Oct	12-Nov	26-Nov
Jackson	24-Oct	31-Oct	7-Nov
Martin	15-Oct	7-Nov	28-Nov
Memphis	6-Nov	13-Nov	19-Nov
Milan	17-Oct	7-Nov	26-Nov
Murfreesboro	13-Oct	4-Nov	25-Nov
Newbern	13-Oct	6-Nov	28-Nov
Samburg	15-Oct	6-Nov	25-Nov
Savannah	20-Oct	10-Nov	29-Nov

Table 2. Length of row need for 1/1000th of an acre.

Row Spacing (inches)						
7.5	10	15	30	36	38	40
row length needed for 1/1000th acre						
69’ 8”	52’ 3”	34’ 10”	17’ 5”	14’ 6”	13’ 9”	13’ 8”

*Plant populations for UNR cotton should be evaluated by plants per square foot.

Table 3. Plant populations at various row spacings.

	Row Spacing (inches)						
Plants per foot	**7.5**	**10**	**15**	**30**	**36**	**38**	**40**
	Plants per Acre						
1.0	69696	52272	34848	17424	14520	13756	13068
1.5	104544	78408	52272	26136	21780	20634	19602
2.0	139392	104544	69696	34848	29040	27512	26136
2.5	174240	130680	87120	43560	36300	34390	32670
3.0	209088	156816	104544	52272	43560	41268	39204
3.5	243936	182952	121968	60984	50820	48146	45738
4.0	278784	209088	139392	69696	58080	55024	52272
4.5	313632	235224	156816	78408	65340	61902	58806
5.0	348480	261360	174240	87120	72600	68780	65340

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