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Cotton Comments

Considerations for Replanting and Latest Possible Planting Dates

Bill Robertson
Extension Agronomist - Cotton

Gus Lorenz
IPM Coordinator

The decision of whether or not to replant can be very difficult. The concern of a later crop and the consideration that the success of a second planting is not certain must weigh heavily on the decision. The cost of seed, labor, machinery, pesticides, and time may be greater than the loss from keeping a less than satisfactory stand. Once a stand is established, even though we may consider it inadequate, many factors should be considered before replanting

Stand Requirements

There are several factors to consider when making replant decisions:

1.) Is the average plant density acceptable?
2.) How common are skips greater than 3 feet in length?
3.) Do the existing plants look healthy?
4.) How much yield potential will be lost by replanting?

A minimum stand of 2 plants per row foot (38" rows) is recommended. On irrigated fields, it may be possible to accept a uniform stand of 1.5 plants but some yield loss may occur. Skips greater than 3 feet are a concern. Yield loses are often assumed to be 50% for the skip. However, plants in neighboring rows will compensate as long as skips are not adjacent to one another and the existing plants are in good shape. Weed pressure, seedling vigor, thrips injury, herbicide injury, seedling disease and other problems should also be evaluated. Generally, if the decision to replant is not clear, keep it.

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Date of Replanting

The question of how late cotton can be planted has no clear-cut answer, and is totally dependent on the weather for a given year. However, an old rule of thumb that still has some merit states that up to a two percent loss of yield potential may be experienced for every day planting occurs after May 20.

When using the Target Development Curve (TDC) in COTMAN as a basis for calculating planting dates, the impact of weather for a given year or set of years is significant. Squaring based on the TDC begins 35 days after planting (DAP), flowering at 60 DAP, and cutout at 80 DAP. The last effective boll population (LEBP) is made up of bolls that were white flowers when the plants reach cutout (NAWF=5). The COTMAN program targets defoliation when the LEBP has accumulated 850 heat units (HU). When comparing the last 5-year average temperatures to the 30-year average, the last calendar date that 850 HU were accumulated differed by 10 days for Central Arkansas. Latest possible planting dates may be calculated by subtracting 80 days from the last date that 850 HU are accumulated.

Based on COTMAN, a planting date of May 22 (30-year) or June 2 (5-year) should be the latest possible planting date for any one field in Central Arkansas. Subtract 6 days (30-year) or 4 days (5-year) for Northeast Arkansas, or add 2 days (30-year) or 1 day (5-year) for Southeast Arkansas (Table 1).

Table 1. Cutout dates or the latest dates in which 850 heat units were accumulated and latest planting date based on COTMAN ((Cutout date – 80 days)=Planting date).

	5 – Year		30 – Year	
Location	Planting Date	Cutout Date	Planting Date	Cutout Date
Northeast	May 29	Aug 17	May 16	Aug 4
Central	June 2	Aug 20	May 22	Aug 10
Southeast	June 3	Aug 21	May 24	Aug 12

Keep in mind these dates are for your latest field. All fields usually cannot be harvested on the same date. If replanting the whole farm or significant acreage, subtract days from the latest planting date based on your harvest capacity of the acreage in question.

Planting past these dates increases the risk of not accumulating the required heat units to mature a crop. This does not mean that in all years planting past these dates will result in crop failure. Everyone can recall a field planted in June that made a good crop. On the other hand, most people in the business can recall fields planted in mid-May that got hurt by an early fall. Again, there are no guarantees that planting by these dates will assure a successful crop every year.

Another consideration of late planting is the problem and costs of controlling late-season bollworm/budworm and boll weevil infestations if outside the current eradication zones. A late crop can get very expensive, particularly with resistant budworms in the picture. Obviously, in a situation of budworm problems, Bollgard cotton would be an asset.

When cotton is planted late, extra attention to management and striving for earliness is essential. Every step should be taken to avoid additional delays due to stress. Precision in overall management to achieve the desired balance between vegetative and reproductive development through proper fertility, irrigation, plant growth regulation, and insect control programs can go a long way toward increasing the chances of success. Avoid using too much nitrogen, which can delay the crop. Timely irrigation can prevent fruit shed, which will also delay maturity.

Late-planted cotton is less predictable under dryland situations. The timing of rainfall or lack thereof can have a significant impact on the earliness and yield of a crop. Insect control, particularly thrips, plant bugs and early-season worm infestations are increasingly important in avoiding a delay in maturity.

Weed Pressure

If the herbicide-treated band is not holding the weed pressure, attempting to clean up a poor stand of slowly developing cotton will be difficult. Skips provide additional challenges by providing an excellent opportunity for emerging weeds to become established. Often, the increased cost and crop injury incurred in cleaning up these situations will overshadow all other benefits potentially available from saving the stand.

Required Materials for Replanting

When the decision is made to replant, the question then becomes which pest control materials are necessary and which ones can be eliminated. Normally, in the case of in-furrow insecticides, application with the replanting is needed. However, rates can be reduced or materials changed. Perhaps Orthene seed treatment and very precise timing of thrips scouting and treatment may be a good substitute. Clearly, the need for thrips protection is still there, increasingly so if we are to minimize the potential of having a late crop. The decision to use seed and foliar treatments instead of in-furrow materials is acceptable as long as application(s) are made in a timely fashion.

When determining the need for fungicides at replanting, consider the fact that in many cases the reason for replanting is usually caused by adverse conditions, often wet and cool weather, which brought about seedling disease problems. Replanting in the same drill as the first planting could expose the germinating seed and developing seedling to even higher than normal levels of the disease pathogens. However, with improved weather it may be possible to reduce in-furrow fungicide rates to the lowest recommended rate.

When considering replant herbicides, several factors must be recognized. If the beds are to be reworked and re-bedded, the herbicides are diluted but still in the system. In this case, it may be easy to overdo it and cause herbicide injury. If the treated band is still holding down weed pressure, the herbicide is still active. Much caution is in order if re-treatment is considered in this situation. Perhaps just planting back into the undisturbed bed without additional herbicide would be best in this case. In either situation, the residual activity or length of time for weed control from preemergence herbicides will likely be shorter. These fields should be closely monitored and timely postemergence applications will be necessary.

Recommendations

Whether the decision is made to replant or to keep a less-than-perfect stand, there are some key factors to success. Most importantly, doing everything possible to minimize stress is critical. Thrips must be controlled. Special care should be given to assure that herbicide applications, particularly the first post-directed application, are made precisely, with attention given to rates and the application itself. Herbicide injury at this stage will reduce yields and delay maturity. Maintain good soil fertility and plant nutrition. Enrolling fields in the Cotton Nutrient Monitoring program will aid in nutrient management. Close attention to fruit load and insect pressure is critical. A delay in building the boll load must not occur because of insect damage. Avoid moisture stress with timely irrigation applications. The use of COTMAN can aid greatly in detecting early-season stress offering the opportunity to make adjustments as well as evaluating progress toward cutout allowing for additional adjustments of inputs and aiding in end-of-season management decisions. By reducing stress as such as possible, the chance for a good yield is increased greatly.