

Recommendations for Late Planted Cotton

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In the past, late planted cotton was never a good option because of late season insect pressure from caterpillar pests and most notably the cotton boll weevil. Recent success in eradication of the boll weevil coupled with Bt worm protection technologies in current cotton cultivars allow for increased profit potential with later planted cotton. Location is the key to success when double-cropping cotton and wheat. The length of the production season can vary greatly from Northeast to Southeast Arkansas. Table 2 below shows latest recommended planting dates for cotton for each cotton growing region. Regardless of where the cotton is planted, fall weather will decide the fate of the crop and the overall yield potential. The following are a list of management considerations when planting a late cotton crop.

Variety Selection

Variety selection is very important with late planted cotton. Only varieties that mature early and are determinant in growth characteristics should be planted past May 15 due to the compressed growing season. Planting an early maturing variety containing Roundup Ready Flex or Liberty Link weed control technologies and stacked with Bollgard II or Widestrike insect management traits are recommended. Table 2 contains variety performance data from 2009 at Marianna. Earlier maturing varieties such as FM 1740B2F, DP 0912 B2RF, ST 4554 B2RF, and PHY 375 WRF performed better than later maturing varieties such as ST 5458B2RF. UA 48 conventional is one of the earliest varieties available to Arkansas producers in 2011 and should perform well when planted late; however, because there is no Bt technologies for caterpillar protection, production costs may be higher to protect this variety from late season worm pests.

Table 1: Yields of seven cotton cultivars planted on June 8, 2009 at Marianna, AR. Plots were harvested on November 9, 2009.

Variety	Lint Yield	Lint Percent	Mic	Strength	Staple	Uniformity
Fibermax FM 1740 B2RF	890	36	3.9	31.4	37	82.8
Deltapine DP 0912 B2RF	854*	37.7	3.9	28.6	35	81.4
Stoneville ST 4554 B2RF	819*	36.1	3.6	29.7	34	81
Phytogen PHY 375 WRF	798*	35.8	3.6	28.7	36	82
Dyna-Gro DG 2570 B2RF	754	36.1	4.3	30	35	82
Americot AM 1550 B2RF	659	34.9	3.3	29.2	35	81.8
Stoneville ST 5458 B2RF	622	35.1	3.7	32.8	37	81
LSD (P=.05)	93.4	.	.	.	.	.
CV	11.1	.	.	.	.	.
Grand Mean	771	35.90	3.76	30.06	35.57	81.71

* Not significantly different from the highest yielding variety in the trial.

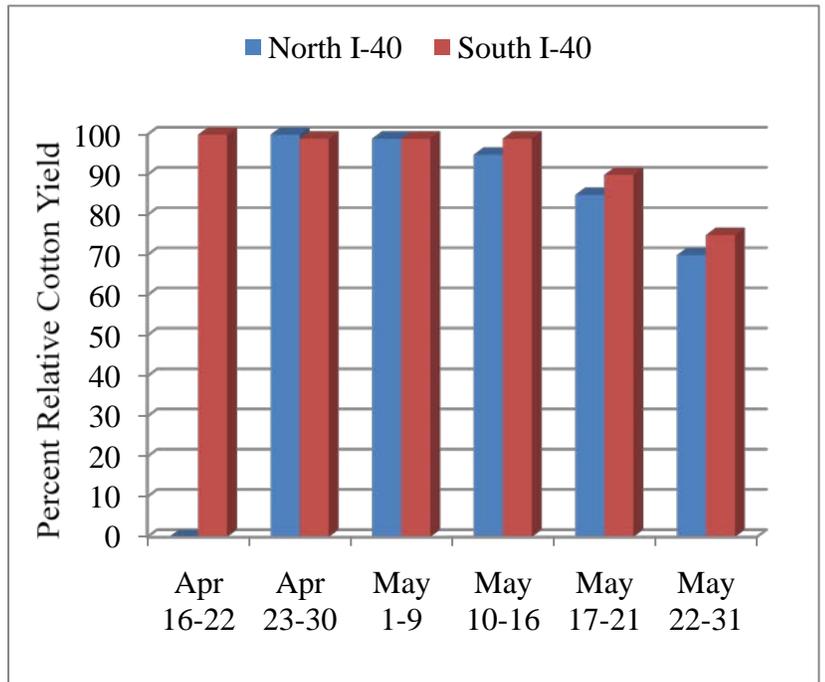
Planting Dates

Table 1 includes latest possible planting and cutout dates for cotton based on COTMAN averages of the last 5 and 30 years. Based on this information cotton should not be planted after the first week of June in Central and Southeast Arkansas, because on average there will not be enough heat units available in the fall to mature the crop out if planted past these dates. The optimum cotton planting dates in Arkansas are from April 20 to May 20 most years.

Table 2. Planting dates and last effective bloom dates (cutout dates) based on COTMAN and probability of accumulating 850 heat units passed cutout.

Location	5 – Year		30 – Year	
	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 22	May 24	Aug 12

Arkansas producers should expect at least a two percent loss of yield potential every day cotton is planted past May 20. The figure to the right shows the percent yield potential across planting dates, from cotton fields in over 20 years of the verification program. Fields planted past May 16 resulted in decreased yield potential. If cotton is planted the first week of June, this suggests that the maximum yield potential is reduced 25 to 30 percent. Therefore if field averages are normally 1200 lbs lint/A, producers should budget production costs based on 850 lb lint/A maximum yield.



Seeding Rates

Cotton seeding rates should be increased 10 percent on average when planting late. Higher seeding rates are necessary to ensure an even stand and to maintain earliness. Higher plant populations will result in fewer 2nd and 3rd position fruit, thus increasing earliness and resulting in natural plant growth management. The ideal live plant population for later planted cotton is 3 live plants per foot of row, or approximately 41,000 plants per acre.

Fertility

Soils should be sampled for adequate phosphorous, potassium and pH levels prior to wheat planting. Mixed fertilizers for both the wheat and cotton crops can be applied in the fall. Nutrients should be applied based on soil test results and an estimated maximum cotton yield of

850 lbs lint/A. Nitrogen should be applied at approximately two thirds of a normal season rate with a maximum of no more than 80 units/A. Total nitrogen should be applied prior to first square to prevent late season growth and delays. Higher nitrogen rates will delay maturity and cause issues with growth management and defoliation later in the season.

Insect and Disease Management

Early season thrips populations can delay cotton development and reduce yields, therefore it is recommended that producers use an insecticide seed treatment on cotton seed when planting late. Seedling disease pressure in late May, early June is generally low due to drier conditions and higher soil and air temperatures. Thus a systemic fungicide seed treatment for seedling diseases such as *rhizoctonia*, *pythium* and *fusarium* is generally not necessary for late planted cotton, however adding one provides insurance for cool weather conditions that may occur. Planting cotton late will generally expose the cotton to higher populations of plant bugs, stink bugs and multiple caterpillar pests during the season; therefore, close scouting is crucial to maintaining earliness and maximum yield potential. The grower and consultant should be prepared for high populations of these pests and be prepared to act quickly and shorten time intervals between applications if necessary. Dual gene varieties containing Bollgard II and/or WideStrike should be strongly considered to provide protection from late season caterpillar pests, however, keep in mind, if large populations of caterpillar pests are present, supplemental foliar applications may be necessary to maintain yield potential.

Weed Management

Glyphosate resistant Palmer pigweed and horseweed (Marestale) may be prevalent in many fields prior to planting. These two weeds must be controlled before the first cotton seed is planted. An application of Gramoxone or Ignite should be made to fields prior to planting if glyphosate-resistant weeds are present. Residual herbicides should be used at planting regardless of weed control technology utilized. Obviously, a rainfall event or sprinkler irrigation immediately after planting and herbicide application will improve residual herbicide performance. Field scouting is critical with late planted cotton to identify pigweed and other weeds early to make decisions regarding post-directed herbicide applications. Early weed competition will lead to further delays and yield loss.

Irrigation and Plant Growth Management

Timely irrigation is crucial to maintain earliness and yield potential. Irrigation initiation will probably be necessary earlier with later planted cotton due to typical dry weather patterns during June and July. There is a direct relationship with irrigation timing and plant growth regulator applications. If irrigation is initiated on time, plant growth regulators will most likely be needed; however, if irrigation is delayed, cotton will be stunted and take some time to recover before plant growth regulators are warranted. Generally if late planted cotton has ample moisture and high heat unit accumulation, rapid growth will occur. Many times cotton will delay fruiting until 7 or 8 nodes under these conditions. It is important to monitor fields for fruit retention on lower nodes and cotton internode length to time plant growth regulator applications. If cotton does not set squares on 6th or 7th node and internodes are over 2.5 inches, a growth regulator application is warranted to retard the rapid growth and increase fruit set. If fruit set appears normal (beginning on nodes 5 or 6) then plan on growth regulators around first bloom or after irrigation. The goal

is to gain as many fruiting nodes as possible prior to the last effective fruiting date. The timing of the last irrigation in late planted cotton is critical, because the longer irrigation is applied, the later the crop will mature. Irrigation on late planted cotton should be terminated at 350 heat units passed cutout (NAWF =5) to prevent further delays in maturity.

Termination Timings

The probability that late planted cotton will not cutout or reach NAWF = 5 (node above white flower) prior to the last effective bloom date is high. Therefore it should be noted that heat unit accumulations toward insecticide and irrigation termination as well as defoliation applications should begin when the last effective bloom dates determined by COTMAN and listed earlier in Table 1 are reached. This will insure that cotton earliness is maintained and excess money will not be spent on upper bolls that will most likely not mature under late season environments and temperatures.

References

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