SKIP ROW PLANTING PATTERN FOR COTTON IN THE HILLS

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ABSTRACT: The availability of land to plant row crops in the Hill Section has limited producers from considering skip row planting patterns. Today with fewer producers planting row crops, the opportunity for skip row cotton in the Hill Section is much greater than in the past. With today's farm prices the total production per acre is more important than the amount of acres in production. The Hill Section is usually droughty during most summers. Often cotton is stressed to the point that yields are reduced from the lack of moisture. Cotton yields in the Hill Section of Mississippi could be greatly enhanced if water was available to the plant during the time of boll set, filling and maturation. This time period occurs from the last week of July to first week of September. Late season stress has been noted for causing boll shedding, small bolls, immature fibers and reduced yields. If yields are to increase in the Hills there is a need to supply supplemental water to the crop or develop a management system where water is reserved in the soil and is available to the plant during August. Average rainfall in the Hill Section in Mississippi is approximately fifty inches annually. August is the second driest month of the year averaging three inches of rain and a daily pan evaporation of one-half inch. In prior years a study was conducted on Keith Morton's farm near Faulkner Mississippi evaluating 2X1 and 4X1 skip row patterns (2001 North Mississippi Annual Report MAFES Info Bull 386) The 2X1 skip pattern had higher boll weight than the outside or inside rows of the 4X1 pattern. Boll weight was also higher for the 2X1 skip than the solid planted cotton. Skip row plots were evaluated at Holly Springs in 2002. Yields were higher for the two outside rows of the 4X1 skip than the 2X1 skip or the solid planted cotton. We found a 27% and 30% increase on a planted row basis for 2001 and 2002 respectively, for a 2X1 pattern versus a solid row.

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KEY WORDS: Cotton, Skip Row, Planting pattern, Bolls per Acre, Boll Weight

MATERIALS AND METHODS: Cotton was planted on beds in the first week of May in a skip row pattern. The land had been disked, hipped, and do-all previous to planting. Fertilizer was spread by a custom applicator according to soil test recommendation prior to any fieldwork. The experimental design was a RCB with 4 replications. Field was planted in Sure-Grow 215 BGRR variety of cotton with approximately 4 seed per foot of row. Terrachlor (pentachloronitorobenzene) 18.8 G Granules 1.5 lb ai/ac. + Temik (aldicarb) 15 G 0.75 lb ai/ac was applied in furrow at planting. Cotoran (fluometuron) at 1.0 lb ai/ac was broadcast sprayed over the entire plot area behind the planter. Roundup at 1.0 lb/ai/ac was sprayed over the entire plot area two weeks after emergence. CyPro (cyanazine) at 0.75 ai/ac was direct sprayed over the plot area as a lay by treatment.

The skip rows were kept free of weeds and grasses by spraying the skip with Roundup (Glyposate) at 1.0 ai/ac. Cotton was defoliated in the first week of October and picked the middle of October. Before harvest bolls were hand harvested for the outside and inside rows of the 4X1 skip, the rows of the 2X1 skip, and the solid planted cotton. .

RESULTS AND DISCUSSION: Cotton has been grown in skip-row patterns in the Delta for many years. Hill producers have been exposed to skip-row cotton production in the past but it was not advantageous to the Hill producer because of a shortage of suitable production acreage. Today, with no government acreage controls, producers are free to seek their most profitable crop mix. In the 1950's cotton planted at the North Mississippi Branch Station in a 4X4 skip pattern increased yields by 815 lbs of seed cotton per land acre over solid planted cotton (unpublished data). A 4X4 pattern doubles the acreage needed for skip-row cotton. Similar results had been obtained in dryland production in the delta where on a land acre the yields were 295 lbs. lint higher or 32%. A more practical system for the Hill Section is a 4X1skip pattern or a 2X1 skip pattern. A 30 percent increase in yields was obtained on the outside rows of the 4X1 skip. The 2X1 skip pattern had land yields equal to those of the solid planted cotton.

The potential economic outcome of any production system is the major factor in determining its acceptability. The materials applied down the row for a 2X1 skip row pattern are 67% of the solid planted cotton. The yield reduction should be considered less than the reduction in linear feet of row or about 88-96% of solid on a land acre basis.

Our study was the second year for a 2X1 skip pattern. We found a 13% increase in yield on a 2X1 skip on a planted row over solid cotton. On a 4X1 skip we found no increase on a planted row over the solid planted cotton.

TABLES:

Table 1. Boll weight and Seed cotton yield of skip row cotton.

Row Pattern	Boll Size in Grams	Bolls per Acre	Seed Cotton yield per acre of Land
Solid	5.62	323,376	2668
2X1 Skip	6.15	426,56	2023*
4X1 Skip	5.92	471,59	2152**
LSD 0.05	NS	98,758	513
C.V.%	12	18	14

*Seedcotton yield on a planted row is 3034 lb/ac
** Seedcotton yield on a planted row is 2690 lb/ac