tion, farmers face limitations in fully implementing these systems because, with current inputs and variable commodity prices, not all systems will be economically competitive with monocrop cotton every year. Government conservation programs that subsidize effective BMPs with public funding are needed for practices such as winter cover crops to promote implementation and attain their valuable environmental benefits, especially in combination with no till. These studies were conducted with no till, a viable economic practice because of the associated savings in fuel, equipment and labor costs.

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Research Results For Yield And Whole Farm Net Return With Spindle Picker Harvester Cotton In 15-Inch Row Patterns In Mississippi

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The recent introduction of the John Deere PRO 12 VRS 15-inch row spindle picker has allowed growers to grow 15-inch cotton without receiving a lint discount price of 3 to 5 cents that occurred with conventional stripper cotton. Due to limited available information on 15-inch row cotton, studies were conducted to evaluate whole farm cotton net revenue based on gin turnout, lint yield, fiber quality and input cost for 15-inch, 30 and 38-inch row patterns.

A study was conducted in 2003–2005 on a Marietta silt loam soil at Verona, MS; a Falaya silt loam soil at Falkner, MS; and in 2004 and 2005 on a Dubbs very fine sandy loam soil at Clarksdale, MS. The row patterns used in the study were 15, 30, and 38-inch row solid cotton, 15-inch rows with a 2 x 1 skip-row (2 rows of cotton with a 30-inch skip), 15-inch row 2 x 2 skip-row (2 rows with a 45-inch skip), 30-inch rows with a 1 x 1 skip-row (cotton in 60-inch rows), 30-inch rows with a 2 x 1 skip-row (2 rows with a 60-inch skip), and 38-inch rows with a 2 x 1 skip-row (2 rows with a 76-inch skip). Seeding rates were 4 seed/ft of row for all 38-inch rows and 3 seed/ft of row for all 30 and 15-inch row patterns.

Cotton was planted in a conventional reduced tillage seedbed at all locations in late April or early May in 2004 and 2005; and late May in 2003. All plots were harvested with a John Deere 9960 harvester equipped with two John Deere PRO 12 VRS units. The seed cotton from all plots was ginned with a mini gin (small gin equivalent to a commercial gin).

In the hypothetical whole farm revenue analysis, two 4-row harvesters and four tractors were used for the hill farms (Verona and Falkner); and three 6-row unit harvesters and six tractors were used for the delta location (Clarksdale). A John Deere model 9996 cotton picker was assumed to be configured to accommodate each row pattern. The 15-inch skip row patterns required some modifications because the marketed picker is not designed to accommodate skipped rows. Therefore, it was assumed that the picker could be converted to accommodate skip rows at an extra cost. Each picker was assumed to travel at 3.6 mph, have a field efficiency of 70% and to operate for 200 hours during the harvest season. Thus the amount of land per picker was adjusted to maintain the efficiency of the picker for each row pattern treatment. As the effective swath of a picker increased to accommodate the row width and/or skipped row patterns, its harvest capacity (acres/hr) increases, allowing it to cover more acres in the same amount of time. Acreage per harvester for 15-inch row solid cotton was 611 acres for the 4-row harvester and 916 acres for the 6-row harvester.

The estimated machinery cost was 90% of the MSRP. Ownership cost for the machinery items that were assumed to be required for each farm's row pattern was estimated on an annual basis using the capital recovery method at an interest rate of 5%. A land rent charge of $40/acre was assigned to the Hill farms and $80/acre was used for the Delta farm.

Input cost for each treatment and location were recorded and used in estimating operation

costs. These costs were estimated with the Mississippi State Budget Generator using average prices that occurred in Mississippi during 2004. Gross revenue from the cotton enterprise was based on row pattern treatment gin turnout lint yield averages for 2003-2005 at Verona and Falkner and 2004-2005 for Clarksdale and the net loan price. The loan rate of $0.52 per pound for Mississippi was adjusted for treatment lint fiber quality and then used to compute lint revenue for each treatment. Cottonseed price of $88/ton and seed yield was estimated at 1.55 lb seed/lb of lint for each treatment. Since the seed was treated as a revenue item, a charge for ginning at $0.08/lb of lint and hauling at $0.02/lb of lint were included as operating cost.

The results at all locations indicated 15-inch row solid cotton canopied earlier, was 2 to 6 inches shorter in height than 30 and 38-inch rows but showed no differences in maturity (% open bolls at defoliation). The 15-inch rows had smaller stem diameters with minor differences in rotten bolls compared to 30 or 38-inch rows at all locations. There were no meaningful differences in fiber quality (HVI) between treatments. The 3-year average yield for 15-inch rows at Verona and Falkner were 971 lb/acre and 1260 lb/acre, respectively. The 2-year average yield at Clarksdale was 1195 lb/acre. The 15-inch row yield at Verona, Falkner and Clarksdale were 43, 48 and 11 lb/acre higher than 30-inch rows, respectively; and 103, 123 and 1 lb/acre higher than 38-inch rows, respectively.

The whole farm net revenue analysis (above total specified cost) indicated that at all locations the row patterns with the wider harvest swath allowed more acreage to be farmed with the same machinery, which reduced machinery ownership cost/acre and had greater total whole farm net revenue. In the Hills (Verona and Falkner), compared to 15-inch solid, the 15-inch 2 x 2 skip-row pattern allowed doubling the cotton acreage from 1222 to 2444 acres, reduced machinery ownership cost by $49/acre and increased net returns above total specified cost by $72 to $119/acre; and showed the highest total whole farm net revenue. The 15-inch solid and 30-inch solid showed the lowest total whole farm net revenue.

Compared to the 15-inch solid, the 15-inch 2 x 1 skip-row and 30-inch 2x1 skip row at Clarksdale with harvest swath widths of 22.5 ft increased the cotton farm acreage from 2749 to 4124 acres and net return by $42/acre. The 38-inch solid had highest net return of $205/acre but whole farm net revenue was about $11,000 less than 30-inch 2 x 1 skip and 15–inch 2 x 1 skip-row patterns. The higher net revenue was partially due to the whole farm acreage differences that ranged from 3482 acres for the 38-inch rows to 4124 acres for 15-inch 2x1 skip row. This reduced the machinery ownership cost by $10/acre for 30-inch 2 x 1 skip-row and 15-inch 2 x 1 skip-row patterns.

In summary, the 15-inch 2 x 1 skip-row pattern for the Delta and the 15-inch 2 x 2 skip-row pattern for the Hills allowed more cotton acreage to be farmed with the same compliment of equipment and showed greater whole farm net revenue, even with a 5 and 10% lower yield than 15-inch solid respectively. Although 15-inch solid cotton showed earlier canopy closure and some yield advantage, growers interested in growing 15-inch row cotton should consider the impact the chosen 15-inch row pattern may have on their equipment utilization efficiency, harvesting efficiency, and whole farm net revenue.

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Cotton Lint Yields Following Corn And Cotton In Rotation

Presented by Dr. Wayne Ebelhar

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Research was established at the Delta Research and Extension Center (DREC, Bosket very fine sandy loam [Mollic Hapludalf]) and at the Tribbett Satellite Farm (TSF, Forestdale/Dundee silty clay loam [Typic Ochraqualfs/Aeric Ochraqualfs]) beginning in 2000 to investigate the interaction of nitrogen (N) rates and potassium (K) rates in cotton/corn rotation systems. The studies were designed to evaluate rotational effects on poorly drained to somewhat-poorly drained silty clay loam soils (Forestdale/Dundee) and better drained sandy loam soils (Bosket) for optimum cotton and corn production. The studies were setup to examine both the benefits and problems associated with corn/cotton rotations in the Mississippi Delta. Changes in farm legislation in the last decade has allowed mid-south producers the flex-