An Overview of the Arkansas Cotton Research Verification Program

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RESEARCH PROBLEM

Prior to 1980 Arkansas cotton production was behind that of neighboring states Louisiana and Mississippi. At the time producers lacked confidence in research-based production recommendations. Many producers believed small-plot research findings were not transferable to large-scale production practices. University and Extension personnel believed enhanced adoption could be achieved with a program that verified University of Arkansas recommendations at the farm level.

BACKGROUND INFORMATION

In 1980, the Cotton Research Verification Program (CRVP) was established by Gene Woodall in an effort to train producers and county extension agents in University of Arkansas cotton recommendations. The initial year of the program was a resounding success. The excessive heat and droughty conditions of 1980 allowed the CRVP to demonstrate the benefits of irrigation. At that time, Arkansas produced 645,000 acres of cotton and averaged 330 lb/acre. Louisiana produced 560,000 acres with an average of 394 lb/acre, while Mississippi produced 1,125,000 acres and averaged 488 lb/acre (Table 1). In its initial season, the CRVP more than doubled the state lint yield average with 816 lb/acre (Fig. 1) and efforts were made to expand the program. The program of today has the following objectives: i) Conduct on-farm field trials to verify the utility of research-based recommendations with the intent of optimizing potential for profits, ii) Develop an on-farm database for use in economic analyses and computer-assisted management programs, iii) Aid researchers in identifying areas of production that require further study, iv) Improve or refine existing recommendations that contribute to profitable production utilizing all production systems applicable to the commodity, v) Increase county extension agents’ expertise in the specified commodity, and vi) Utilize
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and incorporate data and findings from the Research Verification Program into Extension educational programs at the county and state.

RESEARCH DESCRIPTION

To accomplish these objectives, a producer agrees to follow University recommendations on a field over two production seasons. During that time, the county extension agent and the CRVP coordinator meet with the producer on a weekly basis and determine inputs. Since 1986, the CRVP has utilized COTMAN in each field as both a training device and a means of enhancing the database. At seasons’ end, cropping inputs, yield and fiber quality are used to develop an economic analysis of the field. These data are distributed through newsletters and annual reports to extension agents and clientele.

RESULTS AND DISCUSSION

Over the last 27 years, cotton lint yield in the Mid-South has trended upward (Table 1). Much of the success can be attributed to improved genotypes, but education has certainly played a role. Cotton educational programs vary from state to state and all have been successful. However, the University of Arkansas, Division of Agriculture is unique in being the only system with a Cotton Research Verification Program (CRVP). Since 1980, the trend line of Arkansas irrigated state lint yield/acre has increased at a faster rate ($y=16.792x+509.62$) than those of Mississippi ($y=7.6862x+647.25$) and Louisiana ($y=9.8584x+563.91$). Irrigated cotton lint yield has increased in Arkansas 70% and 118% more than in Louisiana and Mississippi, respectively (Fig. 2).

PRACTICAL APPLICATION

Throughout the duration of the program, 217 fields have been enrolled and all 24 cotton-producing counties have participated. The program has been instrumental in the testing and training of the University of Arkansas Irrigation Scheduling Program and COTMAN. The extensive database of inputs across various production systems allows for multi-year economic analysis and tracks the evolution of Arkansas cotton production. The CRVP database is the information source for cotton crop budgets. These data have been successfully incorporated into county programs and continue to serve as the training vehicle for county agents, producers, and consultants across the state. The success of the program has led to the development of similar programs in soybeans, wheat, rice, corn, grain sorghum, beef cattle, and catfish.
Table 1. Mid-South cotton production for 1980 and 2006.

<table>
<thead>
<tr>
<th>Region</th>
<th>Acreage</th>
<th>Lint (lb/acre)</th>
<th>Acreage</th>
<th>Lint (lb/acre)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arkansas</td>
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<td>330</td>
<td>1,160,000</td>
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<tr>
<td>Louisiana</td>
<td>560,000</td>
<td>394</td>
<td>620,000</td>
<td>991</td>
</tr>
<tr>
<td>Mississippi</td>
<td>1,125,000</td>
<td>488</td>
<td>1,210,000</td>
<td>853</td>
</tr>
</tbody>
</table>

Fig. 1. Arkansas and CRVP average irrigated cotton lint yields from 1980 through 2006.

Fig. 2. Mid-South cotton lint yields from 1980 through 2006.