EVALUATING THE CURRENT PRODUCTION PRACTICES TO IMPROVE THE EFFICIENCY IN COTTON PRODUCTION

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Abstract

Cotton growers in Georgia are faced with in-season production and management decisions like fertility and integrated pest management. Researchers from the University of Georgia (UGA) have developed tools such as UGA soil test recommendations on nutrient applications and economic thresholds for pest management with the goal of improving profitability for growers. However, there is a large percentage of Georgia cotton growers who do not follow UGA production recommendations. Some growers may over apply nutrients and pesticides. Even though higher yield could potentially be achieved, the revenue generated from these increment in cotton yield might not cover the additional cost. In other instances, growers may not use enough nutrients in their field, wait too late to apply pesticides, or not control pests at all, which can drastically reduce yield.

To address these issues and improve farming productivity and profitability, we conducted field trials in 2018 at the Southeast Georgia Research and Education Center in Midville, Georgia to compare three different types of production practices, including UGA Recommendations for cotton production (UGA System), a high management system, and a low management system. The high management system follows the practices of cotton farmers where an excessive amount of nutrients and pesticide are used, where the low management system follows the practices of cotton farmers where minimum efforts were applied in applying nutrients and managing pests. A comparative analysis of these three production systems was conducted in maintaining profitability and sustainability for cotton farmers. The goal of this research is to improve the profitability of Georgia cotton growers, while reducing the input usage and cost.

Economic analysis was conducted by using budgeting analysis to investigate the cost and benefits of each production system. The cost of inputs and prices for cotton were used to identify the economic profitability of each strategy. Results indicated that high management system achieved the highest seed cotton yield and lint yield, with the highest cost of production. At the loan price, there is no revenue difference between all their systems. Using the market value as cotton prices, high management system achieves the highest net return. These results show that cotton price plays a significant role in the optimal level of inputs to maximize profit. When the cotton price is high, farmers have the incentive to increase input usage and expand production. When the cotton price is low, farmers should decrease input usage and reduce production.