INSECT MANAGEMENT AS A COMPONENT OF A SUSTAINABLE COTTON PRODUCTION SYSTEM

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Eradication of the boll weevil in the southeastern United States has provided a vastly improved opportunity for sustainable cotton production. In the absence of early season boll weevil treatment interventions, there is the opportunity to utilize cover crops and conservation tillage as a effective means of early season buildup of natural enemy/ pest balances for relay into cotton. Thereby, the practices of conservation tillage/ soil conservation can be integrated together for mutual benefit.

On-farm pilot initiatives were conducted in cooperation with several growers at varied locations in Georgia 1996-1998. The management practices studied were: 1) habitat management -- cover crops and conservation tillage; 2) minimal and least disruptive inputs -- fertilizers, pesticides, and fossil fuel; and 3) broad-based intervention decisions -- pesticide treatment decisions. Comprehensive sampling and analyses of included thorough soil properties, insect populations, plant growth/ damage, predation/parasitization, energy inputs, yields, and net profits.

The following general conclusions were made:

- In addition to long-term natural resource conservation benefits, sustainable versus conventional practices are competitive in terms of year-to-year profitability.
- There is a limited knowledge on various cover crop attributes and their management. There is a need for more knowledge relative to various cover crop options, attributes and management requirements.
- Perennial management systems do provide a balance of beneficial/pest insect populations.
- There is a need for improved methods to obtain reliable cotton crop stands with conservation tillage practices.
- There is a need for increased knowledge on potential benefits of wildlife and improved soil ecology.