INSECT CONTROL STRATEGIES

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Recommendations

For arthropod pest management in cotton, several key components have been identified and are recommended by a multi-disciplinary team of scientists. These recommendations of BMP's are formally published in the '*First Forty Days'* and '*Fruiting to Finish'* handbooks. These BMP's are comprehensive and include establishing cropping plans prior to planting the crop as well as in-season plant protection recommendations.

With the assistance of the agricultural consultants, producers should select and organize the fields that are to be planted to cotton with the following considerations. Locating fields away from potential arthropod pest refuges (native vegetation or crop), and arranging fields to create a large un-broken contiguous area of cotton is a simple strategy to reduce the impact of pest migration at cotton:alternate host interfaces. Selection and application of a pre-plant herbicide use strategy should provide complete destruction of all in-field vegetation and maintain clean seedbeds for a minimum of three weeks in advance of planting. Proper pre-plant weed management can eliminate alternate in-field hosts for arthropod pests. Probably the most important decision that a producer makes in a given season is choosing a variety. There is a considerable range of genetic diversity and combination of traits that must be considered. The optimum combination of crop yield, lint quality, plant maturity, insect resistance, and herbicide tolerance should be selected for each producer's specific situation.

At the time of planting, systemic insecticides either as granules applied in the seed furrow or on the seed should be evaluated according to the historical needs of each field or farm. These treatments will form the base pest management strategy for the next 40-50 days after planting. This is a preventative treatment to reduce the potential impact of arthropod and nematode pests. During the remainder of the season foliar pesticides should be applied according to action thresholds established by each state's Cooperative Extension service. Any 'automatic' or 'convenience' applications are discouraged without first collecting information on pest incidence in cotton fields. Misuse of pesticides in this manner can result in 'flaring' more-difficult and more-expensive pests that were not the original target. All sprays should be restricted only to those fields or areas of fields with economic pest infestations. When a treatment is to be applied, the effective dose should not be reduced to achieve maximum immediate effectiveness and the longest potential residual efficacy. Many cotton pests frequently re-infest fields during the season and additional treatments should be applied according to the temporal and geographical distribution of those pests. Overall plant maturity across fields should be managed with agronomic practices to reduce the period of time that the crop is susceptible to arthropod pests. As soon as the crop has matured to the point that cotton yield and quality are tolerant to pest injury all pest management strategies should be terminated.

Chemical control of arthropod pests is one of the most important management tools available to the cotton industry. All products in every field treatment should be applied to optimize the effectiveness against the specific target. Labeled rates and proper timing of pesticides applied with recommended application methodology should be a goal of cotton pest management. Producers and agricultural consultants should have realistic expectations of product performance and be willing to re-treat as soon as an action threshold for that target or other pest is exceeded. Finally, individual products should be rotated as a tactic to delay the evolution of resistance pests.

Summary

These prescribed BMP's were formulated to provide an effective cotton integrated pest management strategy for the entire production system. All recommendations were considered by a multi-disciplinary team of scientists to reduce negative environmental consequences, and enhance economical acceptance by producers. The overall key to implementation of BMP's for arthropod pest management in cotton production systems depends on the support of the agricultural consultant.