

**INSECT INFESTATIONS, CROP DEVELOPMENT AND EVOLVING MANAGEMENT APPROACHES
ON A NORTHEAST ARKANSAS COTTON FARM****R. G. Luttrell****K. C. Allen****USDA-ARS Southern Insect Management Research Unit****Stoneville, MS****Patricia O'Leary****Cotton Incorporated****Cary, NC****Tina Gray Teague****Arkansas Agricultural Experiment Station****Arkansas State University, AR****Abstract**

COTMAN information, cotton production records and insect scouting reports for Wildy Farms in Mississippi County, Arkansas were organized into large databases, and studied. Records included observations from 126 individual production fields over an 11-year period from 1997-2007. This period of time transcended introduction of Bt cotton and the start and finish of Boll Weevil Eradication. Yield increased at a rate of ~ 60 lbs of lint per acre per year and was highly correlated with increased adoption of Bt cotton and reduced intensity of conventional tillage. A corresponding yield increase among similar varieties was not observed on a nearby University of Arkansas Experiment Station. Average within-year dates for major production events were: planting – May 2, defoliation - September 15, application of boll opener – September 20, 1st harvest – October 5, 1st foliar spray – May 12, 1st heliothine spray – July 31, 1st plant bug spray – June 22, 3rd square – June 17, 5th square – June 24, 7th square – July 2, NAWF 5 – August 2, 1st detection of plant bugs – June 18, 1st detection of heliothine larvae – July 26, last date of plant bug detection – July 24, and last date of heliothine larvae detection – August 10. Over the 11 years, DD60s from planting to 1st foliar spray decreased at a rate of 56.8 DD60s per year, DD60s to last foliar spray decreased at a rate of 36.5 DD60s per year, number of heliothine sprays decreased at a rate 0.11 sprays per year, number of plant bug sprays increased at a rate of 0.18 sprays per year, and number of cutworm sprays increased at a rate of 0.11 sprays per year. Bt fields had more DD60s from January 1 to planting, more DD60s from planting to 1st heliothine spray, fewer heliothine sprays and fewer heliothine larvae per row foot than non Bt fields. Conventional tillage fields had higher square shed rates at 3rd square, more weevil damaged squares per row foot, more heliothine eggs, larvae and worm damage than non-conventional tillage fields. Information on timing and intensity of crop and insect management events allowed Wildy Farms to optimize production and more efficiently manage insects and the timing of cotton crop set. Adoption of higher level management systems, like COTMAN and routine crop management record keeping, would benefit other growers and stimulate efficient use of new cotton varieties and farming technologies.