Early Season Production System for Soybeans: Influence on Bean Leaf Beetle (Coleoptera: Chrysomelidae) and Bean Pod Mottle Disease in Mississippi

Ronald C. Stephenson and Henry N. Pitre


ABSTRACT  The influence of an early season production system (ESPS) on the population of bean leaf beetle (BLB), Cerotoma trifurcata (Forster) (Coleoptera: Chrysomelidae), adults and associated incidence of bean pod mottle (BPM) disease in soybeans was investigated in Mississippi. Early season production systems consist of planting maturity groups III or IV soybeans in mid-March to mid-April in the mid-South of the United States. Treatments in this study included early-planted and late-planted maturity group IV and maturity group V soybeans. Populations of adult BLB, a vector of bean pod mottle virus, were greater in ESPS in 2001, but no difference between planting dates was recorded in 2000. Incidence of BPM was greater in early-planted soybeans in 2000. The greater number of BLB adults in the early-planted soybeans did not result in a greater incidence of BPM disease in the ESPS in 2001. Yields in all treatments were significantly different with the greatest yield in the early-planted, maturity group V soybeans in 2000. In 2001, the greatest yield was obtained from late-planted, maturity group IV soybeans. The results presented herein suggest that to further evaluate relationships between bean leaf beetle vector populations and incidence of bean pod mottle disease in comparisons of conventional soybean production systems with ESPS, experiments should consider a wider range of soybean maturity groups and larger experimental plots to more effectively evaluate differences among soybean varieties and minimize beetle dispersal and spread of bean pod mottle disease.

KEY WORDS  Soybeans, planting date, bean leaf beetle, bean pod mottle disease

For many years, soybean planting in the mid-South of the United States has involved planting maturity groups V through VIII in mid- to late May (Board 1996). This system resulted in low and static yields (Heatherly 1999). The low yields were primarily due to the effects of drought and high temperature common in this region from August through September (Heatherly 1999). This period of high environmental stress often occurs during the critical, seed-set stage of plant development in these soybean maturity groups and can result in diminished yield. A relatively recent crop production recommendation includes early planting of early maturity groups of soybeans and is referred to as the early season production system (ESPS)