MONITORING POPULATION DYNAMICS OF APHIDS ACROSS THE COTTON BELT

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Abstract

Cotton leafroll dwarf virus (CLRDV; Luteoviridae: *Polerovirus* spp.), an emerging aphid-transmitted virus of cotton, has been reported in Alabama (Avelar et al. 2019), North Carolina (Thiessen et al. 2020), South Carolina (Wang et al. 2020), Georgia (Tabassum et al. 2019), Mississippi (Aboughanem-Sabanadzovic et al. 2019), Kansas (Ali and Mokhtari 2020), Texas (Alabi et al. 2020), Louisiana (Price et al. 2020) and Florida (Iriarte et al. 2020). Eight aphid species are reported to colonize cotton in the US (Stoetzel et al. 1996), including the cotton aphid, *Aphis gossypii* Glover, the cowpea aphid, *A. craccivora* Koch, the green peach aphid, *M. persicae* (Sulzer), the rice root aphid, *Rhopalosiphum rufiabdominale* (Sasaki), the black bean aphid, *Aphis fabae* Scopoli, the potato aphid, *Macrosiphum euphorbiae* (Thomas), the bean root aphid *Smynthurodes betae* Westwood, and the corn root aphid, *Protaphis middletonii* (Thomas). All of these species are known to transmit at least one plant virus, but *Aphis gossypii* is the only species reported to transmit CLRDV to cotton (Cauquil and Vaissayre, 1971, Michelotto and Busoli 2007, Galbieri et al. 2010, Heilsnis et al. 2020, McLaughlin et al. 2020). In 2020 flights of aphids were monitored around cotton fields throughout the growing season in Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Tennessee and Texas using yellow pan traps. Weekly aphid trapping conducted throughout the cotton growing season revealed variation in the total number of aphids captured and timing of dispersal events among the trapping locations.

Identification of aphids in these samples is in progress and will determine the relative proportion of these cotton infesting species through time at each location. A better understanding of aphid dispersal patterns will provide information needed to identify potential vectors of CLRDV and the timing of aphid flights that may be responsible for virus spread during the cotton cropping season in the US.

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