

STICKY COTTON APHID WORKING GROUP
J. F. Leser
Texas Agricultural Extension Service
Texas A&M University Research & Extension Center
Lubbock, TX

The Cotton Aphid Working Group was established as an ad hoc committee of the Sticky Cotton Action Team (SCAT) at the 1997 Beltwide Cotton Conferences held in Nashville, Tennessee. SCAT was established following earlier sticky cotton problems associated mainly with whitefly infestations in Texas, Arizona, and California. Management strategies were developed capitalizing on cultural control and recently, two new IGRs, Applaud and Knack. A national Cotton Aphid Working Group was created following recent problems with late aphid infestations in Texas in 1991, 1993 and 1995; and in California in 1995. These events spurred concern for further lint contamination problems. This concern was realized in the High Plains of Texas in 1995 when a late crop and aphid infestations produced plant and insect sugar contamination of lint resulting in significant problems at several mills. The West Texas Sticky Cotton Committee was conceived in 1996 in response to the 1995 sticky cotton problems to produce an awareness/education program through the International Textile Center, and supported by Cotton Incorporated.

The Cotton Aphid Working Group established the following goals: 1) delineate the problem, 2) review available research pertinent to the sticky cotton problem, 3) identify knowledge needs, 4) develop research plan, and 5) devise improved management strategies. The Group met on three occasions in 1997: a teleconference on April 16; a meeting in Parlier, California on April 29; and a second meeting in Lubbock, Texas on September 30. Membership of this Group included: Pete Goodell and Larry Godfrey from California; John Norman and Jeff Slosser from Texas; and advisors Bob Nichols and Pat O'Leary from Cotton Incorporated. Jim Leser served as chair.

Factors identified as contributing to late aphid infestations and associated sticky cotton included: excessive nitrogen levels late in the season, late planting date and late yield management practices, reduction of predators and parasites, pyrethroid use, ULV malathion use for boll weevil control, vegetative regrowth, late warm weather, and lack of late rain showers.

Issues identified as needing resolution included: 1) documenting hypothesis as to why aphids have become more of a problem, 2) determine factors which control honeydew excretion rates, 3) develop action threshold for insecticide intervention to prevent sticky cotton, 4) determine influence of plant variety on plant and insect

sugar problems, 5) determine influence of plant architecture on honeydew interception by open bolls, 6) develop rapid quantitative procedure to test for plant and insect sugars and stickiness at the field, module, bale and mill level, 7) establish relationship between amount of various types of sugar deposits and textile processing problems, 8) determine if regrowth can be controlled by chemicals such as Roundup, 9) preserve existing efficacious insecticides through resistance management strategies and promoting Furadan 4F registration, and 10) encourage rapid development and registration of new aphicide chemistry.

Currently funded research projects include: a study of the influence of late irrigation's and insecticide usage on the development of late season cotton aphid infestations (*Slosser*), a study of the effect of simulated rainfall (sprinkler irrigation) on the persistence of sticky lint (*Rummel*), investigation of the relationship between plant photoassimilate and late season outbreaks of cotton aphids (*Hendrix*), and a study of the relative impacts of aphid versus plant sugars on stickiness of cotton in textile processing (*Ethridge*).

Late season aphid infestations are not an annual, predictable occurrence. Even with late season aphid problems, lint contamination isn't a sure thing since rains can wash off sugar deposits caused by aphids. The real need is to develop a reliable, quantifiable, inexpensive, and readily accessible testing procedure that will identify those fields that will present a sugar contamination problem that will have impact at the textile mill. The development of cultural strategies to prevent the occurrence of late infestations will be the primary focus, but when these infestations do begin to develop, we must have insecticides that will rapidly intervene to prevent sticky cotton.