Silverleaf Whitefly

Bemisia tabaci, biotype B (=*Bemisia argentifolii* Bellows and Perring)
L. R. Teuber, L.K. Gibbs, K.L. Taggard, C. G. Summers

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PLANT CULTURE

Greenhouse
No reliable controlled environment or seedling evaluation has been developed.

FIELD ESTABLISHMENT

Location: Evaluation is conducted in areas where the Silverleaf Whitefly is a serious pest (University of California evaluations are conducted at the Desert Research and Extension Center, El Centro, CA). Direct seed (late March or early April) and thin to single plant spacing. When plants are approximately 16 weeks old they are
clipped back (late July).

Plot design: Plots are planted as single rows 0.6 to 1.0 m apart with plants spaced 30 cm within the row, approximately 50 plants / plot in a randomized complete block design with four replicates. Each plot is flanked on both sides by a susceptible cultivar (we use CUF 101; see Data Analysis).

Culture: Maintain vigorous growth, keep nursery as weed free as possible. No insecticides are used.

MANAGEMENT

Clipping: Plots are clipped to correspond to the development of the silverleaf whitefly population. In the Imperial Valley, CA whitefly populations usually begin to increase rapidly between the middle and end of July (Fig. 1). Plots are rated with 28 days of regrowth. To achieve proper whitefly populations at the time of evaluation, clipping normally occurs approximately the third week of July and the third week of August.

Whitefly population: Whitefly numbers are monitored by placing yellow sticky traps in the field on a weekly basis (3 to 5 traps per replicate) and determining the average whitefly density in a 2 x 4 cm. area on each side of the trap. Average whitefly density should be approximately 150 to 200 at the time of the first rating and 300 to 350 at the time of the second rating.

RATING:
Twenty-eight days after clipping, all individual plants in a plot are evaluated for whitefly infestation based on both number of immature whiteflies and amount of stickiness on the stem and leaves (Table 1). The score for immature whiteflies is assigned on the basis of observations from a single randomly chosen stem. Stickiness is assigned on the basis of the feel of the entire plant. Plots are rated twice approximately twenty-eight days apart.

Table 1. Description of scoring classes for evaluating silverleaf whitefly infestation parameters on alfalfa.		
Scoring Class[1]	**Immature numbers[1]**	**Stickiness level[2]**
	-- no./ cm2 --	-- score --
1	0	None
2	<1	Barely discernible
3	<50	Readily discernible
4	<100	Copious
5	>100	Saturated
[1]See Figure 2 for scoring classes. [2]See Figure 3 for scoring classes		

An index of whitefly resistance for each plant is produced from the unweighted average of the number of immature whiteflies and stickiness for both scoring dates: ((stickiness date-1 + stickiness date-2) + (no. of nymphs date-1 + no. of nymphs date-2))/4). Plot means are used for data analysis.
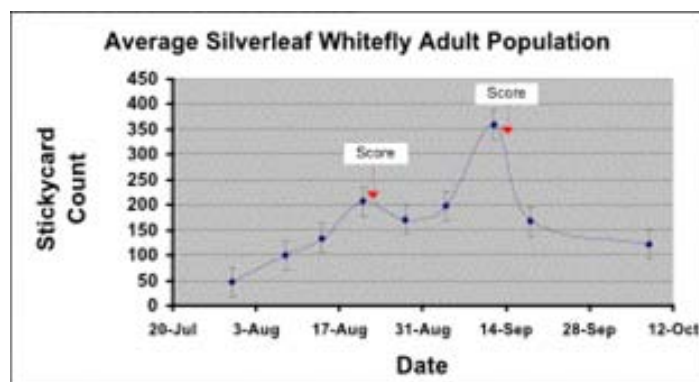

Figure 1. Average silverleaf whitefly population in alfalfa at DREC and approximate scoring dates.

DATA ANALYSIS
Data for each of the parameters and the index are analyzed by analysis of covariance. The covariate is the average of the two flanking check rows for each plot.
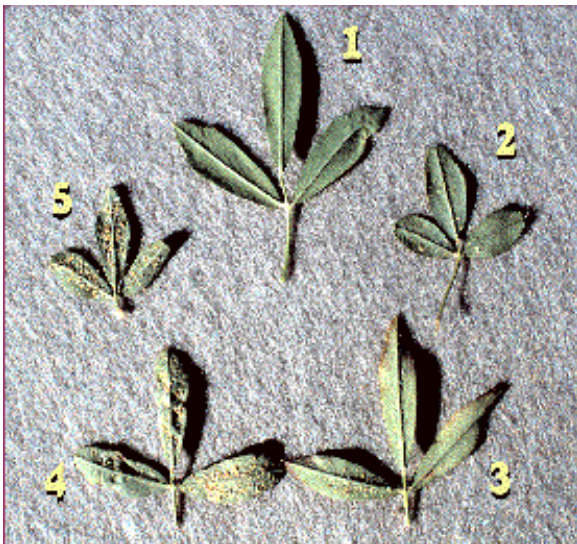
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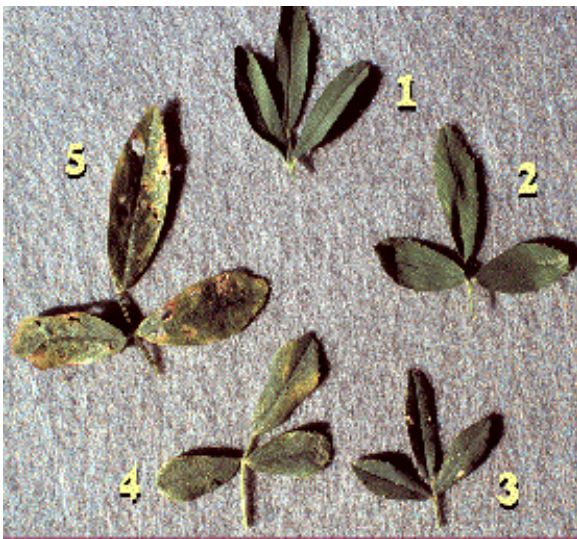
Figure 2. Scoring classes for number of immature whiteflies.

Figure 3. Scoring classes for amount of stickiness.

DISTRIBUTION AND SEVERITY OF SILVERLEAF WHITEFLY
Bemisia argentifolii **Bellows and Perring**
Frequent damage Occasional damage

REFERENCES

Bellows, T.S. Jr., T.M. Perring, R.J. Gill and D.H. Headrick. 1994. Description of a species of Bemisia (Homoptera: Aleyrodidae). Ann. Entomol. Soc. Am. 87(2):195-206.

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SCIENTISTS WITH EXPERTISE

Larry R. Teuber
Agronomy and Range Science
University of California
One Shields Ave.
Davis, CA 95616
(530) 752-2461
lrteuber@ucdavis.edu

Charlie G. Summers
Department of Entomology
University of California
One Shields Ave.
Davis, CA 95616
(559) 646-6564
chasum@uckac.edu