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Bemisia tabaci, sweetpotato whitefly, in Florida (HOMOPTERA:ALEYRODIDAE:ALEYRODINAE)[1]

Avas B. Hamon[2] and Victor Salguero[3]

INTRODUCTION: ***Bemisia tabaci*** was first described as ***Aleurodes tabaci*** by Gennadius (1889) from ***Nicotiana*** sp., and was known from Florida as early as 19ØØ (Quaintance 19ØØ). It is variously referred to in the literature as tobacco whitefly, cotton whitefly, or as the Entomological Society of America approved common name, sweetpotato whitefly.

DESCRIPTION: ***Bemisia tabaci*** lays its eggs usually on the lower surface of the leaves. Each egg has a stalk which is attached to the leaf. The immature stages are commonly called larvae but some workers consider them to be more appropriately called nymphs because of the incomplete metamorphosis. Nymphal stages develop attached to the leaf surface (Lopez-Avila 1986).

The classification is based on the structure of the fourth nymphal instar, also called "pupal case" (Fig. 1). The structure of the pupal case can change depending on the physical leaf characteristics upon which it develops; spiny specimens on hairy leaves and glabrous specimens on glabrous leaves (Fig. 2) (Mound 1963).

Newly emerged adults are soft and whitish-yellow (semitransparent) but after one or two days the color changes to white, due to deposition of wax on the body and wings (Fig. 3). The body measures Ø.96 mm from vertex to tip of the genitalia in the female and Ø.82 mm in the male. The head is broad at the level of the antennae and narrow towards the mouth parts. The antennae are long, filiform and seven-segmented. The mouth parts are of the typical piercing and sucking type. The compound eyes are red (Lopez-Avila 1986).

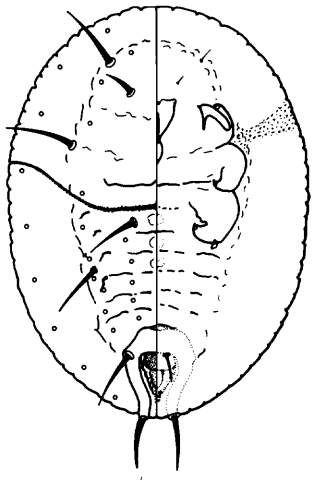

Fig. 1-3. ***Bemisia tabaci***. 1) "pupal case"-arrow. 2) line drawing of dorsum (left) and ventral (right) of pupal case from hairy leaf. 3) adult.

1/Contribution No. 647, Bureau of Entomology

2/Taxonomic Entomologist, Division of Plant Industry, P.O. Box 1269, Gainesville, FL 32602

3/Graduate Student, Department of Entomology and Nematology, Univ. of Florida.

ECONOMIC IMPORTANCE: ***Bemisia tabaci*** causes direct damage by piercing and sucking nutrients from the foliage and indirect damage as a vector of virus diseases (Lopez-Avila 1986). Recent damage in Florida has been direct damage to poinsettias, tomatoes, and gerbera daisies. ***Bemisia tabaci*** apparently has developed a resistance to the chemicals used for control such as permethrin (Pounce^{R}). Such resistance also has been reported in California (Prabhaker et al. 1985). Duffus and Flock (1982) have shown ***B. tabaci*** to be the vector of a complex of virus diseases of vegetables and field crops in California which caused losses of $1ØØ million in 1981. This whitefly is well known as a vector of virus diseases on several crops in various parts of the tropics (Mound 1963). Although ***B. tabaci*** is recognized as an important pest, there are little quantitative data on the damage it causes, or economic thresholds (Lopez-Avila 1986).

Poinsettia growers in Florida have experienced large numbers of adults flying about their plants and large numbers of nymphs and pupal cases on the underside of leaves. Because of resistance to chemicals controls have not been effective.

DISTRIBUTION: ***Bemisia tabaci*** is widespread throughout the tropics. In North America, it has been reported from Arizona, California, District of Columbia, Florida, Georgia, Maryland, Texas, and Mexico (Cock 1986).

HOSTS: The number of host plants is extensive; however, the plant families most often reported are Leguminosae, Compositae, Malvaceae, Solanaceae, Euphorbiaceae, Convolvulaceae, Cucurbitaceae, Labiatae, Verbenaceae, Cruciferae, Amaranthaceae, Rosaceae, and Moraceae (Greathead 1986). In Florida the most reported host has been poinsettia, ***Euphorbia pulcherrima*** Willd.

SURVEY AND DETECTION: Tap plants to disturb adults. Inspect the underside of leaves for pupal cases and nymphs. As with nearly all whiteflies, submit the pupal cases on the leaf for identification.

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