Research Note

SOME HOST PLANTS OF LEAFHOPPER, (EMPOASCA SPP. (HOMOPTERA: CICADELLIDAE) FOUND ON PIGEON PEA (CAJANUS CAJAN L.) FIELDS[1]

The genus *Empoasca* contains a number of leafhoppers of economic importance in the United States[2,3] and in Puerto Rico[4,5] as pests of certain important crops. Species belonging to this genus cause economic losses of staple forage crops such as alfalfa, clover, cowpeas and soybeans. More than 10 species of *Empoasca* injure cotton and are listed as serious or major pests of this important crop in various countries. Some species have been reported as vectors of plant diseases, and others are suspected as potential vectors of certain virus diseases in various parts of the world. A knowledge of the distribution and host plants of *Empoasca* is therefore of inestimable value for controlling such diseases.

Several species of *Empoasca* attack bean and pigeon pea in Puerto Rico. Farmers have expressed concern over possible damage by these insects to beans and pigeon pea fields during heavy population seasons (late spring and summer). Wolcott (1936) listed hosts as *Sesbania grandiflora*, beet, carrot, cowpea, para grass, melon, morning glory, potato, tobacco and tomato. It has also been reported on *Carica papaya*[6], beans, sweetpotato and morning glory.[7] Cruz discussed the effect of the insect on beans and pigeon peas[8,9,10]. Martorell[12] listed the hosts of *Empoasca* spp. in Puerto Rico.

Three species of *Empoasca* have been associated with pigeon peas, cowpeas and beans in Puerto Rico: *E. kraemeri*, *E. hastosa* and *E. Millsi*[11]. This information on the identification and distribution of the host plants of these economically important in-

[1]Manuscript submitted to Editorial Board 17 February 1988.

[2]Poos, F. W. and N. H. Wheeler, 1943. Studies on host plants of the leafhoppers of the genus *Empoasca*. USDA Tech. Bul. 850.

[3]_____, 1949. Some additional host plants of three species of leafhoppers of the genus *Empoasca*· *Proc. Entomol. Soc. Wash.* 51:35-8.

[4]Wolcott, G. N., 1948. The insects of Puerto Rico. *J. Agric. Univ. P. R.* 32:125-28.

[5]Caldwell, J. S. and L. F. Martorell, 1950. Review of the Auchenorynchos Homoptera of Puerto Rico. *J. Agric. Univ. P. R.* 34:116-32.

[6]Oman, P. W., 1937. New Eupterigine leafhopper from Puerto Rico (Homoptera: Cicadellidae). *J. Agric. Univ. P. R.* 21:567-72.

[7]Caldwell, J. S., 1947. The synonomy of *Empoasca fabalis* Delong. *J. Agric. Univ. P. R.* 31:226.

[8]Cruz, C., 1975. Chemical control of the leafhopper, *Empoasca fabae* (Harris) on snap beans. *J. Agric. Univ. P. R.* 59:82-4.

[9]_____ 1978. Resistencia del frijol, *Phaseolus vulgaris*, a *Empoasca* spp. en Puerto Rico. Resúmenes analíticos sobre frijol *(Phaseolus vulgaris* L.) pp. 7 3:233.

[10]_____, 1979. Thiodan y Lannate registrados para controlar los insectos del gandur. Esta. Exp. Agric. Univ. P. R. Adelantos Científicos 89.

[11]Kramer, J. P., Systematic Entomology Laboratory, Beltsville, Md.

[12]Martorell, L. F.,1976. Annotated food plant catalog of the insects of Puerto Rico. Agric. Exp. Stn. Univ. P. R.

sects is of direct aid in devising and applying measures for their control to meet the current demand for increased production of food, fiber and oil.

The observation and leafhopper collection was conducted at the Agricultural Experiment Substation, Isabela, P.R. The field selected has been planted consecutively to pigeon peas for many years. Ten varieties or lines of pigeon peas were planted in four replicates of two treatments in a split block design to increase leafhopper populations.

Observations and field collections of plant hosts were made at 15-day intervals from July to November 1980. Host plant materials were placed between pieces of paper to be dried for later identification by the author.

Ten species that served as host plants of the genus *Empoasca* were identified. These were pigeon peas [*Cajanus cajan* (L). Millsp.] beans (*Phaseolus vulgaris* L.), *Amaranthus spinosus* Mart, *Chamaescyce hyssopifolia* (l.) Millsp. Small, *Solanum americanum* Miller var. *nodiflorum* (Jacq.) Edm., *Luffa aegyptiaca* Miller, *Momordica charantia* L., *Leonotis nepetifolia* (L.), *Ipomoea tiliacea* (Willd.) Choisy and *Panicum purpurascens*. It should be emphasized that grass weeds were less preferred by *Empoasca* species than broadleaf weeds. This observation suggests that population of *Empoasca* are low where grass abounds, whereas *Empoasca* species prefer broadleaf weeds. The low preference of *Empoasca* for grass weeds as host may be due to morphological differences, to repellents or some other chemical stimuli from the grasses. Further studies must be conducted to determine the role of the principal weeds in pigeon pea fields as hosts for *Empoasca* and their potentials as biological components of some pest management program.

Osvaldo Cotte
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