SURVIVAL OF *DIAPREPES ABBREVIATUS*[1] LARVAE ON SELECTED NATIVE AND ORNAMENTAL FLORIDA PLANTS

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ABSTRACT

Of 65 ornamental nursery and 6 native plant species examined during 1976-7 at Plymouth, FL, only 9 species of nursery plants and 1 native plant species other than citrus and sugarcane appeared suitable for the development of larvae of *Diaprepes abbreviatus* (L.). Transport of infested ornamental plants could convey the weevil within and outside of the regulated area in south and central Florida. Native host species could contribute to local weevil populations in Florida.

Diaprepes abbreviatus (L.) is an important agricultural pest in the West Indies, where it attacks a wide variety of economically important plant species (Martorell 1976). This weevil was first observed attacking citrus in central Florida in 1964; presently it is found in ca. 2000 ha of citrus in that general area. The present study was done in 1976-7 to identify tropical and subtropical plant species growing in Florida that would support the development of the larvae. The test species included ornamental nursery plants produced in Florida for distribution throughout North America and native plant species found adjacent to citrus groves that could be a source of incipient local weevil populations.

MATERIALS AND METHODS

All ornamental tropical foliage and landscape plants were held in 15-cm-diam pots in a medium of 1 part peat and 1 part sand (v/v); potted plants were maintained on raised benches under shade or in a fiberglass-covered screenhouse. There was a minimum of 10 plants/species examined during 1976-7 at Plymouth, FL. Each species was exposed to neonate larvae (September-October) reared from the eggs of field-collected adults at a rate of 100 larvae/pot. In general, from 10 to 50 larvae were placed in a pot on a given day, and additional larvae were introduced over a period of 2 weeks or more. Three months after introduction of larvae, the plants were removed from the pots; the soil was examined for larvae, and the roots were examined for feeding damage. Citrus rootstocks grown in Florida, rough lemon (*Citrus limon* (L.) Burm. f.), sour orange (*C. aurantium* (L.)), Carrizo citrange (*C. sinensis* (L.) Osb. X *Poncirus trifoliata* Raf.), Milam rough lemon (*C. limon* (hybr. ?)), and Cleopatra mandarin (*C. reticulata* Blanco), that are not resistant to damage by *D. abbreviatus* (Norman et al. 1974) were included as a check for each group of plants.

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The following native plants were challenged with more than 10,000 neonate larvae/plant during September-October 1976 in the field: Common persimmon, *Diospyros virginiana* L.; Chinaberry, *Melia azedarach* L.; chokecherry, *Prunus virginiana* L.; laurel oak, *Quercus imbricaria* Michx.; live oak, *Q. virginiana* Mill.; and smooth sumac, *Rhus glabra* L. All larvae were placed adjacent to the main stem. There were 10 plants/species. Plants were removed from the soil and examined for feeding damage 3 months after the last larval introduction. Although *D. abbreviatus* has a 1-year life cycle, 3 months would be sufficient time for larval development and root damage. No attempt was made to recover larvae. Also, neonate larvae were placed on 6-year-old grapefruit, *Citrus paradisi* Macf., grafted on rootstock of sour orange for checks; the results are reported as part of another study (Schroeder and Sutton 1977).

Results and Discussion

The ornamental potted-plant species challenged with neonate larvae were divided into 2 groups: those with >1% larvae recovered and those with <1% larvae recovered (Table 1). The plants classified as hosts, i.e., >1% larvae recovered, were dead or in a state of decline when examined. If there were adequate plant material available, these hosts would probably be suitable for development of *D. abbreviatus* to the adult stage. Conversely, the few larvae recovered from poor hosts were small; poor hosts probably would not support development to the adult stage. Consequently, infested species listed as hosts could be transported outside of the regulated area; the probability of transporting *D. abbreviatus* as larvae on poor or nonhost plant species would be less.

TABLE 1. Scientific and common names of ornamental plant species challenged with neonate *Diaprepes abbreviatus* larvae (100/plant) and percentage larvae recovered after 3 months.

Scientific name	Common name	% Larvae recovered
Plants that support larval development (>1% larvae recovered)		
Aloe barbadensis Mill.	Aloe	5.4
Ardisia crenata Sims	Coralberry	11.8
Citrus sp.	Citrus	19.2
Codiaeum variegatum var. *pictum* (Lodd.) Müll. Arg.	Croton	1.2
Dizygotheca elegantissima (Hort. ex. Vietch) R. Vig. & Guill.	False-aralia	1.1
Hoya carnosa (L.f.) R. Br.	Waxplant	1.2
Juniperus conferta Parl.	Shore juniper	2.4
Juniperus virginiana L.	Red cedar	2.5
Liriope sp.	Lilyturf	1.5
Maranta leuconeura E. Morr.	Prayerplant	9.4
Saccharum officinarum L.	Sugarcane	15.3

Plants that do not support larval development (<1% larvae recovered)

Scientific name	Common name	Scientific name	Common name
Aechmea fasciata (Lindl.) Bak.	Urnplant	*Hemerocallis fulva* (L.) L.	Day lily
Aglaonema commutatum Schott	Silver evergreen	**Hibiscus* sp.	Hibiscus
Aphelandra squarrosa Nees 'Dania'	Zebra plant	*Howeia forsterana* (C. Moore & F. J. Muell.) Becc.	Kentia palm
**Araucaria heterophylla* (Salisb.) Franco	Norfolk Island pine	*Iris* sp.	Iris
Asparagus densiflorus (Kunth) Jessop 'Sprengeri'	Sprengeri fern	*Ixora* sp.	Ixora
Begonia rex Putz.	Rex begonia	*Ligustrum lucidum* Ait.	Privet
**Brassaia actinophylla* Endl.	Schefflera	*Maranta leuconeura* var. *erythroneura* Bunt.	Redveined prayer-plant
Calathea lancifolia Boom	Calathea	*Monstera deliciosa* Liebm.	Split-leaf philodendron
**Chamaedorea elegans* Mart.	Parlor Palm		
Chrysalidocarpus lutescens H. Wendl.	Areca palm	*Nephrolepis exaltata* (L.) Schott	Swordfern
Cissus rhombifolia Vahl	Grape ivy	**Peperomia obtusifolia* (L.) A. Dietr.	Baby rubber-plant
Cordyline terminalis (L.) Kunth	Ti plant	*Philodendron scandens* subsp. *oxycardium* (Schott) Bunt.	Heart-leaf philodendron
Cordyline terminalis L.) Kunth 'Tricolor'	Tricolor Madagascar dragon-tree	*Philodendron selloum* K. Koch.	Selloum
Crassula argentea Thunb.	Jade plant	*Pilea cadierei* Gagnep. & Guill.	Aluminum plant
Dieffenbachia X 'Exotica'	Exotic dumb-cane	*Pittosporum tobira* (Thunb.) Ait.	Japanese pitto-sporum
Dieffenbachia maculata (Lodd.) G. Don	Dumbcane	*Podocarpus macrophyllus* (Thunb.) D. Don	Japanese yew
Dracaena fragrans (L.) Ker-Gawl. 'Massangeana'	Cornplant	*Polyscias balfouriana* (Hort. ex Sander) L. H. Bailey 'Marginata'	Variegated Balfour aralia
Dracaena marginata Lam.	Madagascar dragon-tree	*Pteris ensiformis* Burm. f. 'Victoriae'	Silver-leaf fern
**Dracaena sanderiana* Hort. ex Sander ex. M.T. Mast.	Belgian evergreen	**Rhododendron indicum* (L.) Sweet	Azalea

TABLE 1. CONTINUED

Scientific name	Common name	Scientific name	Common name
Duranta repens L.	Golden-dewdrop	**Rosa* sp.	Rose
Epipremnum aureum (Linden & André) Bunt.	Pothos	*Rumohra adiantiformis* (G. Forst) Ching	Leatherleaf fern
Episcia cupreata (Hook.) Hanst.	Flame violet	*Saintpaulia ionantha* H. Wendl.	African violet
**Ficus benjamina* L.	Weeping-fig	*Sansevieria trifasciata* Prain 'Hahnii'	Birds-nest sansevieria
Ficus elastica Roxb. ex Hornem. 'Decora'	Broad-leaved Indian rubber-plant	**Schlumbergera bridgesii* (Lem.) Löfgr.	Christmas cactus
Fittonia verschaffeltii (Lem.) Coëm.	Nerve plant	*Spathiphyllum* X 'Mauna Loa'	Mauna Loa peace lily
Gardenia sp.	Gardenia	*Stromanthe amabilis* (Linden) E. Moor.	Stromanthe
Gynura procumbens (Lour.) Merrill	Purple-passion vine	*Syngonium podophyllum* Schott	Nephthytis
Hedera helix L.	English ivy	*Viburnum odoratissimum* Ker-Gawl.	Viburnum
		Yucca elephantipes Regel	Spineless yucca

*From 0.1 to 0.5% recovery of *Diaprepes* larvae for these species; for all other plants no larvae were recovered.

Of the native species challenged with neonate larvae, only common persimmon had root-feeding damage. The 2 species of oak that were tested are the most common tree species other than citrus found in the central Florida weevil area; they had no sign of root feeding.

Citrus rootstock is the primary host tree for *D. abbreviatus* larvae in central Florida. When grown near citrus, persimmon would probably contribute to the weevil population. None of the other tree species examined had larval-feeding damage and, therefore, would not contribute to a weevil infestation.

LITERATURE CITED

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