



## Effect of Diflubenzuron on Larvae of *Diaprepes abbreviatus*

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*The Florida Entomologist*, Vol. 59, No. 4. (Dec., 1976), p. 434.

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*The Florida Entomologist* is currently published by Florida Entomological Society.

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**EFFECT OF DIFLUBENZURON ON LARVAE OF *DIAPREPES ABBREVIATUS*.**—(Note): Recent research indicates that exposure to diflubenzuron (Thompson-Hayward TH-6040; *N*-[[ (4-chlorophenyl)amino]carbonyl]-2,6-difluorobenzamide), an insect growth regulator, can reduce the reproductive potential of the "sugarcane rootstalk borer weevil," *Diaprepes abbreviatus* (L.), on citrus (Schroeder, W. J., J. B. Beavers, R. A. Sutton and A. G. Selhime, 1976. Ovicidal effect of Thompson-Hayward TH-6040 in *Diaprepes abbreviatus* on citrus in Florida. J. Econ. Ent. (in press)). We were therefore interested in determining the effect of diflubenzuron on these larvae in soil. Four methods were used to expose 2-month-old larvae reared on artificial diet to the IGR (Beavers, J. B. 1976. Artificial diet for *Diaprepes abbreviatus*. Ann Ent. Soc. Am. (in press)).

In test 1, larvae were introduced into the soil of 18 young citrus trees planted individually in 1-gal containers (3 larvae/plant). Then 9 of the containers were dipped in diflubenzuron (8-oz AI/100 gal water), and 9 were dipped in water until saturation (controls). After 7 days, the larvae were recovered and held on artificial diet for observation. In test 2, larvae were dipped in an acetone solution containing 1, 10, or 100 ppm diflubenzuron or in acetone only (control) for 10 sec (25 larvae/treatment) and then replaced on diet. In test 3, 25 larvae were held in a container of 25%WP for 5 min and replaced on diet. In test 4, diflubenzuron was incorporated into larval diet at rates of 0, 0.1, 1.0, 10, 100, 500, or 1000 ppm, and 25 larvae were exposed on each modified diet. One month after all exposures, mortality was recorded, and surviving larvae were moved to fresh untreated diet. Thereafter, mortality was recorded and larvae were transferred monthly for 4 months.

Only incorporation of diflubenzuron into the diet produced a corrected accumulated mortality of more than 50% after 4 months, indication that ingestion of the material by the larvae is necessary. Mortality was 56.5, 73.9, 65.2, and 65.2% at doses of 10, 100, 500 and 1000 ppm, respectively. Affected larvae became dark brown or black and were unable to free the abdominal segments from the exuviae (Fig. 1) during molting. J. B. Beavers, W. J. Schroeder and A. G. Selhime, U. S. Horticultural Research Laboratory, Agricultural Research Service, USDA, Orlando, FL 32803.

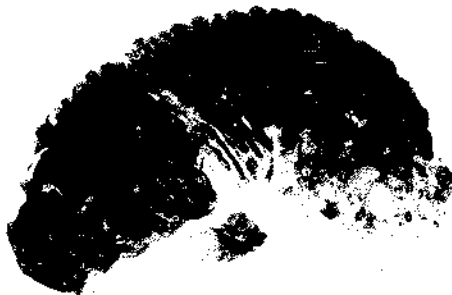


Fig. 1.—Effect of diflubenzuron on larvae of *D. abbreviatus*.

<sup>1</sup>Coleoptera: Curculionidae.

<sup>2</sup>This paper reports the results of research only. Mention of a pesticide in this paper does not constitute a recommendation for use by the USDA nor does it imply registration under FIFRA as amended.