

A TECHNIQUE FOR COLLECTING ADULT *NEOCHETINA EICHHORNIAE* WARNER (COLEOPTERA: CURCULIONIDAE) FOR WATERHYACINTH CONTROL¹ — (Note). *Neochetina eichhorniae* Warner was imported in 1972 to combat the weed, waterhyacinth, *Eichhornia crassipes* (Mart.) Solms (B. D. Perkins, 1973. Proc. 26 Annu. Meet. S. Weed Sci. Soc. Abstr. 368). Established field sites have been useful sources of weevils for distribution to other sites. Removing the weevils from the waterhyacinth plants, however, is a slow process, even though field populations exceed 200 adult weevils/m² in some Fort Lauderdale sites. A collector must break the petioles and separate them to find adult weevils, which hide at the petiole base, and there is no way of knowing before examination whether a plant has a large adult population or none. A good collector using this system averages ca. 100 weevils/hr. Methods tried but found ineffective for improving collecting efficiency include light traps, sweep nets, a vacuum-type insect sampler, and laboratory extraction using a Berlese funnel. An effective collecting technique was found while handpicking weevils in the field over a 2-day period. Plants examined the first day were checked the second day and found to have more weevils than undisturbed plants. To determine whether breaking plants in the first examination had increased their attractiveness, adult weevils were removed from each of 20 plants in a heavily-infested field site and counted. These plants were then broken and the petioles bent and separated. Ten plants had their central fresh petiole broken at the base and removed, and 10 had the central petioles broken at the base and left in place. The next day the same plants were examined, and the numbers of adults recorded. Another 20 undisturbed plants were examined as controls. In addition, since the first 2 days were sunny, a study was conducted during the next 2 days, which were overcast. The results were as follows:

TABLE 1. SUMMARY OF SOME MORPHOLOGICAL CHANGES IN FOUR LARVAL INSTARS OF *NEUROCORDULIA XANTHOSOMA*. RANGE OF VALUES IN PARENTHESES.

Weather condition	Weevils/ undisturbed plant ^{a, b}	Weevils/ undisturbed plant ^a	Weevils/ broken plant ^a
Sunny	5.0 ± 1.1	4.8 ± 0.9	39.3 ± 4.2
Overcast	4.0 ± 0.7	3.1 ± 0.9	43.1 ± 4.1

a Avg. + s.e.; b these plants were the same undisturbed plants examined and broken during first day examination when all weevils were removed.

The difference was highly significant (P 0.001) between the numbers collected from undisturbed and from broken plants.

No significant difference was found between numbers of weevils collected from undisturbed or broken plants under different weather conditions or from undisturbed plants on consecutive days. Moreover, plants with petiole broken and removed and plants with petiole broken but left in place had more weevils than the controls. A maximum of 88 adults was collected on a disturbed plant during sunny weather and 98 during overcast weather. Perhaps an attractive aroma was released by breaking the waterhyacinth. This may explain why a field plant has often been found to bear several adult insects while many adjacent plants have had none; feeding by a single insect could release the chemical which attracts other weevils.

Trap plants can be prepared in the field 1 day before collection by twisting and breaking the central petioles. B. David Perkins, USDA, ARS, Florida Area, SRAO; M. M. Lovarco, Univ. Fla. Agri. Res. Cen.; and Willey C. Durden, USDA, ARS, Fort Lauderdale, Florida 33314.

¹Cooperative research of the Agricultural Research Service, USDA, Fla. Dep. of Natural Resources, Fla. Agr. Exp. Sta., U.S. Army Corps of Engineers, and Central and So. Fla. Flood Control District.