The Cabbage Root Aphid

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THE CABBAGE ROOT APHID

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The cabbage root aphid, *Pemphigus populitransversus* Riley\(^1\) was found in destructive numbers in practically all cabbage fields in the Lower Rio Grande Valley of Texas during the winter months of 1951-52. The activity of this insect has been observed since 1947 in stunting a few plants, but never causing enough damage to consider it a pest. The 1951-52 cabbage crop was grown under severe drought conditions, which was accentuated by the lack of irrigation water from the Rio Grande River. The cabbage root aphid was first noticed in fields which were suffering from a lack of irrigation water.

Hull (1929) called this aphid the turnip root louse and stated that this aphid increased or exaggerated the injury caused by the turnip aphid, *Rhopalosiphum pseudobrassicae* (Davis), to turnips. He stated that the cottonwood tree was the summer host of the turnip root louse. Gillette and Bragg (1915) listed *Populus* as the winter host and stated that the alternate host is unknown. It is significant to record that on March 25, 1952, which is usually the end of the cabbage season, a farmer collected a large number of the winged forms of *populitransversus*, from the base of a cottonwood tree at Harlingen, Texas.

Cabbage root aphids were first found in large numbers, 25 or more per square inch of soil surface, when the heads of cabbage were at least 2 inches in diameter. These aphids were found feeding on the secondary and adventitious roots to a depth of 8 inches in rather dry soil. After the adventitious roots and secondary roots had been destroyed, the aphids were found feeding on the tap root. With the destruction of the secondary and adventitious roots, the plants became stunted and yellowish in color. Heavy root aphid infested plants, in a well watered field, could be detected on a hot dry day by the fact that severely infested plants would have a wilted appearance, as if suffering from a lack of water. Such severely infested plants seldom produced a marketable head even when sufficient water was applied during the remainder of the growing season.

In the Lower Rio Grande Valley, cabbage fields are tilled in such a manner as to have raised beds about 36 inches apart. These beds are from 8 to 12 inches high with the cabbage planted on top. In irrigating the fields, the water is diverted in the depression between the beds at such a rate that the water is almost as high as the beds. It was observed that such irrigations washed out a great number of cabbage root aphids. Furthermore, during the irrigation process the cabbage root aphids were seen migrating to the surface of the soil, on top of the plant bed, apparently in order to escape the water. Two or three days after an irrigation and while the soil was still saturated with water, aphids were still found on the surface of soil, usually under dead leaves or other organic matter lying on the soil surface. Numerous digging observations indicated that the aphids migrated to depths of 3 to 5 inches only when the soil had become fairly dry. The few cabbage fields which were irrigated at 7 to 10 day intervals produced good yields of cabbage in spite of root aphid infestations. However, irrigations were of little value in one field when the water applications were started after a severe infestation had already been established. Hawley (1925) stated that the sugar-beet root aphid, *Pemphigus betae* Doane, can be controlled by practicing early and frequent irrigations. He further stated that the sugar-beet root aphid

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\(^1\)Identified by L. M. Russell, Bureau of Entomology and Plant Quarantine, U. S. D. A.

The cabbage root aphid, *Pemphigus populitransversus* Riley, was found in destructive numbers on the roots of cabbage during the extremely dry growing season of 1951-52. The injury was most severe in those fields suffering from

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1Identified by C. W. Sabrosky, Bureau of Entomology & Plant Quarantine, U. S. D. A.
lack of water. Cabbage which was irrigated at regular intervals did not show much injury from the cabbage root aphid.

A predator, *Thaumatomyia apache* Sabr., was found feeding on the cabbage root aphid. This predator was more abundant in well irrigated fields than in those suffering from a lack of water.

Insecticides such as parathion, metacide, gamma benzene hexachloride, and TEPP failed to control the cabbage root aphid when applied in the irrigation water.

**LITERATURE CITED**


Hawley, I. M. 1925. The more important insect injurious to the sugar-beet in Utah. Utah Agri. Expt. Sta. Circ. 54.
