

Aphid Parasites Established

natural enemies of spotted alfalfa aphid brought from Middle East expected to be established throughout the state in 1958

Kenneth S. Hagen, James K. Holloway, F. E. Skinner, and G. L. Finney

Three imported species of wasps—*Praon palitans* Muesebeck, *Trioxys utilis* Muesebeck and *Aphelinus semiflavus* Howard—parasites of the spotted alfalfa aphid, are abundant in southern California and are becoming established in northern California.

Surveys made in the fall of 1957 indicate that *Praon* is found in most central valley counties from Tehama south, *Aphelinus* from Yolo County south, and *Trioxys* has been recovered as far north as Yolo County.

Both *Praon* and *Aphelinus* are well established from Stanislaus County south

and are present in the Salinas Valley. *Trioxys* is still rather localized at several release points in the San Joaquin and Sacramento valleys.

During 1956 about 900,000 of the three parasitic wasps were reared in the insectary and released in experimental plots in northern California. Surveys made in the spring of 1957 indicated that *Aphelinus* had become established in eight release fields located in the San Joaquin and Salinas valleys. In the spring survey, *Praon* and *Trioxys* were not found. However, from the number of *Praon* found later in the summer at

several release sites in the central valley, it was evident that the small releases of 1956 were successful in establishing the species.

The method of disseminating the parasites from insectary-reared material was modified in the spring of 1957 to insure further takes over wider areas. Massive colonizations were made by collecting the wasps directly from the fields wherever the parasites were abundant. The majority of the parasites were obtained from Kern County by means of a large mechanical collector mounted on a truck.

The number of machine-collected wasps was estimated at 6,645,000. These, plus 234,000 insectary-reared parasites were liberated during 1957 in selected alfalfa experimental plots scattered strategically in the San Joaquin, Sacramento, and Salinas valleys. Subsequent recoveries of at least one species were made in nearly every location where the parasites had been released.

Dispersal

The parasite *Praon palitans* is the most widespread species, because—in addition to their own dispersion—they can be carried in flight by parasitized winged aphids. During the late summer of 1957, *Praon* appeared commonly in alfalfa fields from Stanislaus County south. To the north its distribution was spotty, but by the summer of 1958 it is expected to be present in all alfalfa producing areas.

The *Praon* parasitized aphid is rather conspicuous, for it usually migrates to the upper surface of the alfalfa leaf. At this site the mature parasite larva eats its way out through the under surface of the aphid and spins a silken tent under the aphid from which the wasp finally emerges.

Trioxys utilis is still restricted pretty much to the vicinity of the release areas although one recovery has been made about a mile from the original release site in Stanislaus County. The parasitized aphid is grayish-tan when it has become mummified and is usually found on the under surface of alfalfa leaves. This parasite does not form an external cocoon but emerges directly from the aphid mummy.

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Distribution by counties of the imported parasites of the spotted alfalfa aphid in northern California on October 15, 1957.



