

Developing Baits for the Control of Yellowjackets in California

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Three species of western yellowjackets belonging to the *Vespula vulgaris* subgroup of the genus scavenge for human foods. Hence, they are major pest species, detrimentally interacting with humans wherever they co-exist. Yellowjackets are attracted to places where meats and sugared beverages are served outdoors. In outdoor areas such as picnic grounds, campgrounds, zoos, theme parks, school playgrounds, and pavilions, they reduce land use as visitors either minimize their stay or avoid the facility altogether. Thousands of humans and pets are stung by yellowjackets every year. Hypersensitivity is estimated around 1-5% in the general population. Considering the thousands of daily visitors to theme parks, schools, and attractions, the likelihood of several hundred hypersensitive people exposed every day to threatening stings routinely exists.

Control measures have primarily focused on the use of insecticides as sprays, dust or baits to control yellowjackets. Reduction of food resources and chemical treatments of trash containers has reduced populations of pestiferous yellowjackets in parks. Our studies in southern California in 2004 showed that intensive trapping had only a minor effect the numbers of foraging worker wasps trapped throughout the summer. Nest treatments are often not practical because of the distance that workers will forage and the terrain where nests are located. Baiting has been proposed as the most reasonable approach to control yellowjackets, however no toxicants have been registered. The most commonly used bait for yellowjacket control in recent times has been microencapsulated diazinon (KnoxOut™) mixed in fruit juices, but it is no longer registered for use.

The primary objective of this study is to develop baiting control strategies for pest species of yellowjackets that can be implemented in urban areas. With the cancellation of encapsulated diazinon there is no registered bait for controlling yellowjackets. To achieve this objective the project has been subdivided as follows:

1. to determine which pest species are involved,
2. to evaluate attractants and develop monitoring techniques to determine numbers of foragers of the important species in the affected area and the effectiveness of baiting programs,
3. to determine the palatability of bait matrices and the suitability of insecticides such as acetamiprid, imidacloprid, fipronil, and thiamethoxam in baits, and
4. to conduct field baiting studies and develop a pest management program involving monitoring and baiting for county park personnel and professional pest control operators.

Pest control professionals that would like to participate in the study are encouraged to contact us at michael.rust@ucr.edu.