

Beetle's night life under black light

The silvery blue glow of certain beetles under ultraviolet light can indicate to grape growers when and where their vineyards need treatment with insecticide. Grape bud beetles, which hide during the day and feed at night, can destroy a crop by eating the center of each bud as it opens. Because they are not strong fliers, the beetles tend to stay on one or a few vines, so their distribution is spotty even



CALIFORNIA AGRICULTURE, Univ. of Calif. /Photos by Max Badgley

within a single vineyard. The pest, *Glyptotscelis squamulata* Crotch, is found primarily in California's Coachella Valley, the area around Palm Springs.

Grape bud beetles are difficult to detect with a flashlight at night because they blend in with the colors of the vines (top photo). But Vernon M. Stern and Judy A. Johnson of the University of California at Riverside report in the May-June CALIFORNIA AGRICULTURE that by shining ultraviolet light a scientist or grower can count grape bud beetles on a vine in a few seconds (bottom photo). "It's much easier than counts with traps," Stern says. He uses this method to study the beetle's movements in the vineyard.

Stern has tested other beetles, but so far has found none that glows in ultraviolet light, although quite a few spiders and preying mantis egg masses glow. However, Stern says he is confident that some other beetles will be found to have this characteristic.

—J. A. Miller

Hercules A: Rings around a radio galaxy

Feigelson & Dreher



Radio galaxies frequently have the appearance of a central source flanked by jets or lobes of material that look as if they have come out of the central source. (Some show only the central source.) The lobes may be continuous, lumpy or kinky. This one, Hercules A, shows a combination of those forms plus a unique feature, the rings with bright edges on the right side.

This is the first radio image of Hercules A made by a printing technique that treats radio waves as if they were light. John W. Dreher of the Massachusetts Institute of Technology and Eric D. Feigelson of The Pennsylvania State University in University Park obtained it using the Very Large Array radio telescopes near Socorro, N.M. Each of the rings is larger than the whole Milky Way galaxy in which we reside. Astrophysicists usually assume that the central source is some kind of engine that pumps material out. Whether the flow is smooth, kinked, bumpy or these smoke-ring like things depends on the nature of the galaxy's surroundings, and so study of the details of these shapes may give information on the nature and distribution of intergalactic matter.

Contraceptive roachbuster offers hope

Cockroaches were here 300 million years before we were, and they may well survive us. But while we share the planet, the fight is on, and a newly approved chemical that deforms their wings, perverts their behavior and renders them sterile should give them pause.

The contraceptive compound is hydroprene (tradenname Gencor), a synthetic chemical classified as an insect growth regulator (IGR) that was invented a decade ago, shelved and then recently rediscovered.

Just how hydroprene acts isn't clear, says Ronald S. Brakke, Vice President of Zoecon Industries in Dallas, the product's manufacturer, but that it acts is certain: A single spraying of a 100-unit Florida apartment complex cut the roach count by 95 percent in eight months. And in studies done in sealed kitchens, "we've got 100 percent effectiveness," says Richard Patterson of the United States Department of Agriculture's Agricultural Research Service in Gainesville, Fla. Patterson helped perform the apartment complex blitz.

Hydroprene doesn't kill roaches, but it might as well. When German roach nymphs are exposed to the chemical, they mature through the usual six or so stages to adulthood, but things go awry during that process. The adult's wings, which males normally use to fan pheromones, are badly malformed. Affected males can't figure what to do with females, and instead "stand around in a circle and wave [their antennae] at one another," notes Patterson. Sprayed

females will mate with untreated males, but are barren. Used alone, hydroprene will decimate a roach population in a matter of months, but the job is quicker when the chemical is mixed with conventional insecticides that have an immediate, if temporary, effect. Hydroprene has been tried on a variety of other roach species and ravages them as well.

Unlike many pesticides, hydroprene should be resistant to resistance, says Brakke. The compound has a chemical structure similar to a hormone that governs roach development; "since it's a mimic of a naturally occurring IGR, I doubt cockroaches will develop [immunity] to the product as rapidly as they have against many pesticides," he says.

Hydroprene wreaks havoc on roaches, but "it's very, very safe," Patterson asserts. Animal tests have shown that some chemicals currently used to control roaches are 300 to 1,000 times more toxic than hydroprene, and methoprene, a closely related anti-flea and mosquito compound, is approved by the World Health Organization for use in drinking water, Brakke told SCIENCE NEWS.

Zoecon received approval last month from the Environmental Protection Agency to market their hydroprene product, and a fogger should be available to professional exterminators this fall. Over-the-counter sales should begin in early 1985, Brakke says.

Who's next? "There's always the housefly," Brakke observes.

—G. Morse