



By Steve Werblow

Predator's paradise

Breeding predators and prey yields powerful biocontrol

Nobody takes better care of mealybugs than Bill Grant. He raises their favorite variety of potato, keeps them free from competition, and makes sure they're comfortable in a dark room. Then he unleashes millions of lady beetles and the killing begins.

Grant is the production manager for Associates Insectary in Santa Paula, Calif., a grower-owned cooperative in its ninth decade in the business of rearing beneficial insects to protect the beautiful citrus and avocado orchards of Ventura County.

Associates' vintage rearing buildings are teeming with a rogues gallery of predators and parasites: mealybug-eating lady beetles, predatory mites and snails, and tiny parasitic wasps. Then there's prey. Grant and his team calm neighbors by raising easily-controlled species chosen to behave (and taste) like their pestiferous cousins.

Uncommon knowledge. President Brett Chandler points out that there's virtually no literature on rearing most beneficials or prey, and there are few experts to ask. When Associates started in 1928, he notes, southern Cali-

fornia alone boasted 25 commercial insectaries. Today, the whole state has just four. So although pest populations seem to explode on the farm, it's tricky to grow insects on purpose.

For instance, Grant has to know the history of the host crops the insectary buys. (After all, systemic insecticides used in growing the spuds or squash could kill the team's insects.)

Victor Perez needs to know just how many scale "crawlers" to sprinkle onto each banana squash to achieve the pest density that inspires *Aphytis melinus* to lay its eggs. Alonso Perez needs to be a top scout to gather mite eggs off of bean leaves at the ideal time.

In short, insect rearing is all about skilled people. "It's like being a chef," says Chandler. "A machine just can't duplicate what a good chef can do."

Good business. The Associates team serves roughly 170 grower-members on 8,500 acres of crops, scouting orchards, releasing beneficials on a quarterly basis (or more often if need-

►**Above:** Creepy lighting draws scale "crawlers" off of their banana squash habitat so Victor Perez can collect them and begin a new cycle to raise scale-killing wasps. ►**Right:** Brett Chandler, president of Associates Insectary, coordinates pest control advisors, sprayers, and beneficials.

ed), and spraying oil or insecticides as conditions warrant. It's classic integrated pest management, coordinated by in-house advisors trained to stay well ahead of pest populations.

Fewer sprays. Membership fees range from \$50 to \$80 per acre, based on crop, tree size, and density. A revolving fund—basically, seven-year, no-interest loans from members—provides a financial foundation.

It's a sound investment. "Our growers do two sprays per year where they do five sprays in the Central Valley for these crops," Chandler says. He points out that IPM has helped members reduce Lorsban applications by 90%.

"We figure they're getting \$2 in services for every dollar spent," he says.

►**Top:** An Australian lady beetle, *Cryptolaemus montrouzieri*, feasts on a mealybug reared in the insectary on potato sprouts. ►**Above left:** These decollate snails chase down brown garden snails, which can wreak havoc in orchards. ►**Above:** *Aphytis melinus* wasps aren't much larger than a grain of sand. Associates Insectary raises 600 to 700 million each year to control red scale.

Ironically, Associates' success, and its 80-year history, have lead many members to forget that it's a standard-bearer for sustainable farming, says grower Chris Sayer of Saticoy, Calif., who serves on the Associates board.

"It's almost comical the degree to which it's not viewed that way," he says. "It's just what we do—it's a common-sense approach. But we have a lot of urban neighbors, and there's a lot of concern about our farming practices. Anything we can do without resorting to chemical means really helps, and it lets us show our neighbors that sustainability is part of our plan, not just a trendy thing to say." ■