

Making Aphid Damage "A Thing of the Past"

Utilizing beneficial insects in your pest control doesn't have to be an all-or-nothing venture, according to Paul Jepson of Oregon State University's Integrated Plant Protection Center. Jepson said growers around the world are reaping benefits from predatory insects after only incremental adjustments to their pest control programs.

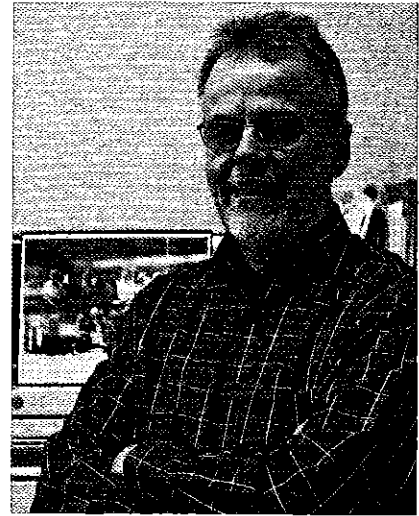
"Small adjustments can have massive effects," Jepson said June 17 at the Pacific Northwest Christmas Tree Association Summer Meeting in Salem. "It is not stopping sprays. It is using less toxic insecticides in a more judicious way so natural enemies can work for you.

"You learn about the system, you make small adjustments and severe pest pressures decline," he said.

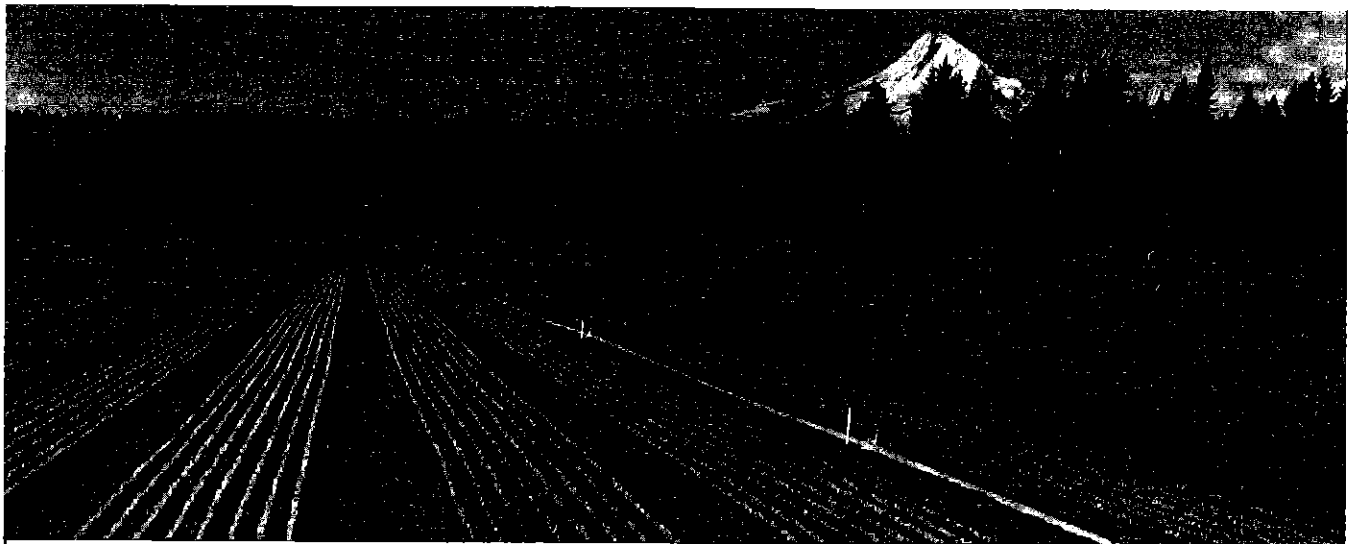
Jepson outlined several keys to building up predatory insect populations, including using fewer broad spectrum pesticides, providing habitat and resources for natural enemies and monitoring.

"The trick with aphids is get them early and know where the hot spots are on your farm," he said. "If you know where they are entering your fields and where they develop best and manage those areas, the rest of the farm seems to do fine."

Replacing nozzles is an important step in an integrated pest management program, he said, as is calibrating sprayers. "If you are hitting the tree, not the ground, and you are not overshooting or hitting the field boundary, you are



Paul Jepson, Director, IPPC & Professor, Dept. Environmental and Molecular Toxicology, Oregon State University.




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preserving natural enemies," he said.

Also, timing sprays for when natural enemies are less active and applying fewer sprays per season can help preserve natural enemies.

In addition to residing in refuges like flower strips and beetle banks, natural enemies also reside in wooded areas adjacent to many Christmas tree production fields. Simply avoiding treating field borders and allowing the natural enemies to enter fields can lead to a significant reduction in pest pressure, he said.

Jepson cited an example of a grower in Eastern Oregon who sprayed field edges with more expensive selective pesticides and used less expensive broad-spectrum pesticides in the middle of fields.

"They have shown that this works," he said. "They have a spread sheet that shows if they spray one-fiftieth of their farms with more expensive pesticides and the rest of the farm with the cheaper ones that kill the natural enemies, they

are getting some of the same benefits that they would have got from treating the whole farm with the more expensive pesticide."

Often, he said, if a grower sees evidence of a pest flare up after using a pesticide, it is because the pesticide caused the flare up by killing the natural enemies. "So keep a record of that," he said. "You may decide not to use that chemical again."

Jepson also advised growers to consider more than treatment costs and efficacy when analyzing whether to spray and what compound to use, but to consider also the impacts on natural enemies. He also urged growers to encourage regulators to register less toxic pesticides for use in Christmas trees.

"The range of chemicals available in Christmas trees are rather toxic to natural enemies and we need to try and push the regulatory system and research in a direction that results in some sprays available that are less toxic to natural

enemies," he said. "Then you get that double benefit."

Another important fact to consider is that it can take nearly a month for predatory beetle populations to return to the middle of even a small field to start feeding on aphids again after a toxic spray. Other bugs, such as lady bugs, lacewings and parasitic wasps return more rapidly to a field after it has been sprayed, primarily because they disperse further than predatory ground beetles.

Converting a system from reliance on broad spectrum pesticides to greater reliance on beneficial insects can take up to five years, but if done incrementally, it doesn't have to be economically destructive, he said.

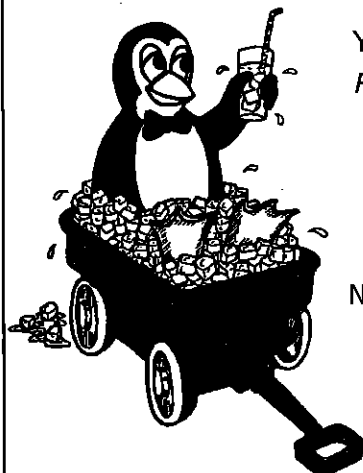
"Using more online forecasting tools to check the weather and adjusting timing based on that, and increasing the time spent scouting and using less chlorpyrifos and using other aphicides at lower frequency can provide significant benefits," he said. "We can make severe aphid damage a thing of the past by using slightly fewer broad-spectrum applications and when using sprays, use them better," he said.

"And monitor for outbreaks when weather conditions warrant," he said. "If you treat aphids at an early stage in the outbreak, you are much more likely to get effective management and you don't need to treat the whole farm or every field, but just treat the hot spots where the numbers are going up.

"Observe and record more and start early," he said, "because you can detect aphid infestations quite early once you start looking for them and that early monitoring leads to a single spray with a selective compound in the hotspot. That will prevent aphid damage from spreading to the whole farm." ▲

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