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HORTICULTURE NEW ZEALAND

SOWING SEEDS OF SUCCESS

PAGE 37



FOOD SECURITY AND SUPPLY SPECIAL

26 BLUE PACIFIC TRADE

42 LOCAL SUPPLY IN SUPERMARKETS

47 IPM RESULTS ON DEMO FARM

TECHNICAL



THE LATEST INNOVATIONS AND IMPROVEMENTS



BALLE BROS HOSTED AN
IPM DEMONSTRATION
THAT PUSHED THE
ENVELOPE



Photo courtesy of Plant & Food Research



HARVESTING CROPS WITH A LIGHTER TOUCH

Gina Jewell : A Lighter Touch programme



Participants with their certificates of attendance at the final spring lettuce IPM workshop, held at the Pukekohe demonstration farm. Photo courtesy of Plant & Food Research

Harvesting marketable lettuce and broccoli crops using integrated pest management (IPM) is a significant step forward in supporting growers to take a lighter touch approach to food production.

That's the view of Stuart Davis, Vegetables NZ's representative and chair of the A Lighter Touch (ALT) Industry Stakeholder Advisory Group. ALT is co-funded by industry and the Ministry for Primary Industries.

"The ALT programme is about helping growers move from agrichemical reliance to an agroecological approach to crop protection, using a mix of softer chemistry, biocontrols and changes to farming practice.

"For growers to make that change to their crop management, we need to demonstrate it's possible, and that's exactly what we've delivered at the Pukekohe demonstration farm."

The demonstration farm, hosted by Balle Brothers, is an ALT project with Vegetables NZ and Onions NZ. This growing season, the farm produced a marketable spring lettuce crop without any insecticide applications, followed by the successful harvest of a summer broccoli crop using 60 percent biological controls, and fewer spray applications than were applied to a comparable commercial crop.

"In addition to showing it can be done, we took growers and crop advisors with us on the IPM journey by sharing knowledge through hosting weekly IPM workshops," Stuart says.

With support from Plant & Food Research and consultant Olivia Prouse, Vegetables NZ ran ten weekly workshops following the management of the spring lettuce crop, followed by a second series of weekly workshops focused on the summer broccoli crop.

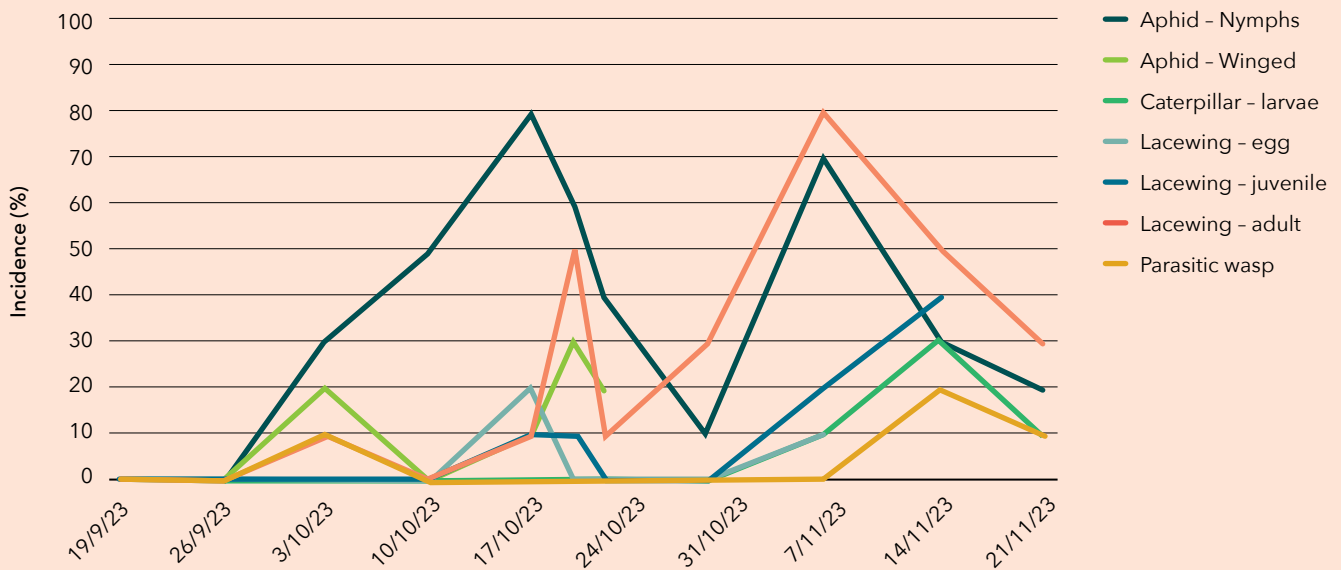
Vegetables NZ research, development and extension manager Daniel Sutton said each workshop was comprised of both a field and classroom session.

"In the field, those attending scouted the crop with expert guidance, identifying pests, diseases, beneficial insects, and recording their findings for later discussion."

The classroom sessions discussed the results from the field, management options, then decided next steps for the crop. Industry experts presented key information on pests and diseases such as aphids, caterpillars, *Sclerotinia* and downy mildew.

The classroom component could be attended online, so those not based in Pukekohe could also take part. Online participant Mike Arnold, LeaderBrand South Island general manager, attended remotely and highly rated the workshops.

IPM LETTUCE BLOCK - INSECTS



This graph shows the beneficial and pest population trends in the spring lettuce crop. Aphid populations started to climb on two occasions, but in both cases beneficial insects gained control making spray treatments unnecessary. The second higher spike of aphid populations was just before the cover crop was mulched. Beneficial insects moved from the cover crop into the lettuce, resolving the pest problem in the crop

"It was great to have the different experts involved. With their knowledge, they were able to bring practical application to the workshops. As a result, my colleagues and I feel well-equipped and more confident to continue advancing integrated pest management in our growing practices."

Mike's experience was mirrored by many others, with participants reporting an average 50 percent increase in IPM knowledge growth from start to finish.

Daniel says the feedback via a post-event survey had been very positive, with nine out of ten respondents rating the workshops highly in terms of satisfaction. "Even more encouragingly, 93 percent said they would look to implement IPM practices in the crops they were either growing, advising or working on."

Daniel says a key point of difference about these workshops was the continuous learning they enabled, unlike previous IPM workshops which were often one-off events, with little or no follow-up.

"With these workshops, we aimed to take participants through the growth of the crop, increasing their knowledge of pests, diseases and beneficial insects, and letting them see the impact of decisions on use of sprays, or not, on the crop and the insects present."

Daniel is first to admit in terms of the crop management at the demonstration farm they pushed the envelope, but says that is the point of a demonstration site, to show what is possible.

"With the broccoli crop, we only used synthetics towards the end to protect the broccoli heads, and to control just one pest - diamondback moth (DBM).

"We had growers saying they really didn't think we were going to get a harvestable crop with that approach, so it really was an awesome learning opportunity. Yes we took greater risks, but we still produced a commercial crop."

The farm is also the site of a biodiversity project designed to increase beneficial insect populations in order to help manage pest insects. The impact of the beneficial insects was illustrated powerfully with the spray-free spring lettuce crop.

"With the lettuce crop, we were at the point of needing to spray for aphids when we mulched a nearby cover crop. Suddenly, all of these beneficial insects that had been living in the cover crop took up residence in our lettuce crop and overnight, our aphid problem disappeared," Daniel says.

Balle Brothers crop manager Howe Young, who oversees the demonstration farm crops, freely admits he was totally surprised by the impact of the beneficials.

"I felt sure when the aphid numbers were reaching their peak we would need to spray, but we held off and next thing the aphid problem was gone. I never thought there were enough predators out there to do that."

Howe is now keen to plant another cover crop which will flower around the same time next season, in order to ensure there is sufficient food and shelter to maintain the beneficial insect populations at the farm.



Participants discuss the field findings and management options during a classroom session of the IPM workshops held at the Pukekohe demonstration farm. The classroom sessions also involved online participants. Photo courtesy of Plant & Food Research

Howe and Daniel both acknowledge that pest thresholds in the crops were significantly higher than growers would normally accept. But as Daniel says, it was the severity they were focused on, not the incidence of pests.

“We didn’t spray until three weeks out from harvest and once we started, we saw this nice decrease. By the time we did our last application, we had less than two diamondback moth caterpillars per plant at the key point of head formation.”

In using more biological products and fewer applications of synthetics, the IPM approach is also serving to prolong the life of the synthetic chemistry, with resistance being a very real issue growers are facing.

“DBM in particular is known to develop resistance pretty easily, so if we can demonstrate how to manage it differently, and not be reliant on repeated applications, that’s a real positive,” Daniel says.

From Howe’s point of view as a grower, the resistance management part of the story is central to why growers need to move away from agrichemical reliance towards an agroecological approach.

“I don’t think we’re going to save any money, but we’re going to be able to still produce marketable crops because we’re protecting our chemistry. It’s about keeping more tools in our toolbox for longer,” he says. ●

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