

When There's A Will, There's A Way

A recent study suggests that as long as the EPA doesn't act too quickly, Florida vegetable growers will fare better than most in the wake of FQPA.

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If Florida's vegetable growers are compelled to give up several high-risk organophosphates and carbamates during the next few years because of the Food Quality Protection Act (FQPA), Florida vegetable growers say they expect to be able to manage their insect pests alright — most of the time. This assumes, of course, that regulators don't pull too many insecticides from both families too quickly. If they do, a subsequent jump in the use of remaining chemicals could trigger a whole new set of pest problems.

That's the conclusion of growers surveyed by private crop consultant Charlie Mellinger, who recently surveyed Florida's FQPA readiness for the USDA. Mellinger argues that the preservation of a diversity of chemical tools is key to material rotation and thus a decrease in overall usage. Fortunately, federal food-residue data that Mellinger has seen makes him doubt that regulators will suddenly schedule any radical withdrawals for either chemical type. In order to manage resistance, the labels for them will just get more complicated and site-specific, he predicts.

Willing To Experiment

Mellinger, co-owner and director of technical services for the Jupiter-based Glades Crop Care, enjoys a good view of Florida's experience with alternatives to "hard" chemicals. His consulting firm works with about 100 separate fruit and vegetable growers across Florida and south

Georgia. In preparing the 186-page study, Mellinger and his staff interviewed growers working more than 10,000 acres. He reviewed their actual spray records, too.

"This is real," Mellinger says of his numbers.

The USDA survey, "Pest Management Solutions to Sustain High-Value Florida Vegetable Production," documents how some of the state's most intensively farmed production areas are relying more than ever on fewer and reduced-risk pesticide applications — along with more preventive practices — particularly in tomatoes and peppers.

This scale of success, however, doesn't mean the process involved is easy — or anywhere near complete. Working in the shadows of the massive Everglades restoration project, urban sprawl, and water management restrictions, "It is difficult" to add in additional scheduling for strategies like resistance management and preventive cultural controls, says Mellinger. "You really have to work at it."

The evidence outlined in the report suggests that some growers are doing better than others. Some could even be called model growers. "A lot are doing an excellent job" reducing their so-called "toxicity scores."

"We have an excellent story to tell in Florida," he says.

"Some growers just know how to do it and are in tune with what's going on out there" in their fields, observes University of Florida Biological Control Entomology Specialist Dr. Marjorie Hoy. Some of the more successful IPM growers she sees are better educated, willing to

experiment, and able to invest money into the effort. Then they have "watched, learned, and frequently adapted" their programs to what works best for them.

Not all crops and growers are "there" yet, she acknowledges. But, she adds, with the proposed imposition of the federal FQPA, "People are rethinking" their practices. In some cases, "Their economic thresholds are much too low, and they're realizing they can tolerate more damage" than they used to.

Proceed With Caution

The story Mellinger's survey tells is also one of opportunity. While steady progress has been made since the late 1980s toward "softer" production systems — thanks in part to new materials such as imidacloprid (Admire, Bayer), a new crop of "biopesticides" are showing promise in Florida field trials. And none too soon: The 1996 passage of FQPA has motivated many growers to find alternatives that work.

But Mellinger cautions that if the last-ditch chemical measures are taken off the market too quickly, such a rug-pulling act could throw south Florida's production into "serious jeopardy." They need at least five years to make the transition, the report states. Citing the experience with his own company's clients, Mellinger says growers are now using a "fraction" of the chemicals they used compared to just 10 years ago. But to get from here to there, growers had to take incremental steps.

Some growers had better success than others.

Insecticide	Manager A						Manager B					
	Fall 1994	Spring 1995	Fall 1995	Spring 1996	Fall 1996	Spring 1997	Fall 1997	Spring 1998	Fall 1998	Spring 1999	Fall 1999	Spring 2000
Acephate	1.2	0	0	0.54	0	0	0	0	0	0	0	0
<i>Avermectin</i>	0	0	0	0	0	0	0	0	0.005	0.001	0	0
<i>Azadirachtin</i>	0	0	0.7	0	0.1	0	0	0	0	0	0	0
<i>Bacillus thuringiensis</i>	3.28	1.1	1.2	1.08	0.91	0.71	3.9	4.33	3.55	3.37	5.68	3.71
<i>Cryolite</i>	0	0	0	0	0	0	0	0	0	0	0	1.04
<i>Cyfluthrin</i>	0	0	0	0	0	0.02	0	0	0	0	0	0
<i>Cyromazine</i>	0	0	0	0	0	0.23	0	0	0	0	0	0
<i>Endosulfan</i>	0.3	0	0	0	0	0	0	0	0	0	0	0
<i>Imidacloprid</i>	0.5	0.49	0.31	0.31	0.29	0.18	0.25	0.27	0.21	0.07	0.08	0.14
Methomyl	2.09	2.92	3.36	2.58	2.28	3.22	3.29	2.93	0	1.64	0	0
Oxamyl	0	0	0	0	0.36	0.26	0.8	0.94	1.06	0.91	0.78	0
<i>Spinosad</i>	0	0	0	0	0	0	0	0	0.03	0.02	0.14	0
<i>Tebufozide</i>	0	0	0	0	0	0	0	0	0	0	0.83	0.14

This pounds-per-acre comparison of insecticide use on bell peppers in the same field reveals that FQPA-surveyed products (in bold) are being applied less. The data also shows how managers tend to favor different materials — a key human element seldom documented in integrated pest management studies. (Source: PMAP Report, page 42)

Mellinger's data shows that "different managers often reach very different spray decisions when facing nearly identical pest complexes," even when given the same information and advice, which points to the role personal preference plays when making management decisions.

Some growers don't like taking risks, preferring to keep their systems "simple" — which often means they're willing to deal with the adverse affects of chemical-intensive systems, Mellinger writes. On the other hand, other growers are more than willing to experiment with novel — even unproved — approaches, even before problems or regulations compel them to make changes. Careful monitoring gives these growers the assurance they need because problems that crop up will become readily apparent.

The difference between the two types of growers is essentially a human one, and highlights the need for regulators to phase in any new restrictions, Mellinger argues.

The study's analysis tested the theory that a wide range of strategies makes an overall production system a more reliable one. Indeed, the data collected showed that the more "hard" chemicals growers sprayed, the more diversity they needed to

overcome insect pests' chemical resistance to them.

Beyond the favorable impact of preventive phytosanitary practices, the volumes of data showed that natural processes "carry a major burden" of pest suppression whenever chemical controls are reduced. This effect, Mellinger notes, needs to be studied because sometimes even chemical controls, applied when growers think they're necessary, may not be responsible at all for the changes they see when pests meet a given threshold.

The good news is that growers are gaining a better grip on preventive practices and other new tactics that rely far less on chemical sprays and more on natural controls and beneficial organisms.

To ensure that such production systems evolve, however, growers must be willing to innovate and use them to deal with explosions of potentially devastating crop pests — even in "sophisticated bio-intensive IPM" fields. In situations like these, Mellinger cautions, growers may still need access to products like the EBDCs, methomyl, and methamidophos to control populations under thresholds. After all, he points out, the less such materials are used, the more effective they can be.

South Florida's vegetable industry needs time to work out management systems that still allow the judicious use of higher-risk materials, Mellinger writes. Given this flexibility, growers can confidently work out and refine IPM-oriented production systems that will actually minimize their use.

The complete study includes an up-front summary and highlights growers' "evolution along the IPM continuum." Chapters can be downloaded from the Internet at: www.gladescropcare.com/PMAP_report.html.

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