Consultants are concerned about the cost of codling moth control in the future.

Washington apple growers are phasing out the use of Guthion (azinphos-methyl), in accordance with U.S. Environmental Protection Agency regulations, and adopting new strategies and technologies, including safer chemistries. The Pest Management Transition Project was funded through the Washington State legislature to help Washington apple growers overcome barriers to adoption of new pest control technologies through a comprehensive program of education, training, and assessment.

The mission of the PMTP is to facilitate tree fruit productivity alongside increased environmental and worker health. As part of these efforts, the PMTP is surveying tree fruit industry stakeholders to understand barriers to adoption of new pest management strategies and how best to deliver successful integrated pest management programs within the industry.

Consultant survey
The first PMTP survey, conducted in the summer of 2008, asked Washington State pest management consultants about their recommendations and perspectives from the 2007 growing season. Because consultants recommend pest management practices to most of the state’s growers, they are key stakeholders for guiding the industry’s adoption of new IPM technologies. The survey was sent to 70 consultants. Forty (57%) returned completed questionnaires by mail or Internet.

In aggregate, respondents made pest management recommendations on close to 80,000 acres of apples, or just under half of the bearing apple acres in the state. On average, each consultant provided recommendations on 1,950 acres of apples, of which about 10 percent were managed organically and 5 percent were in transition to organic certification.

Pests of concern
Codling moth was identified as the pest that caused the most damage or resulted in the most pest management recommendations, followed by woolly apple aphid, rosy apple aphid, thrips, campylommia, and spider mites (see table “Guthion phaseout”). Most consultants (67%) indicated that codling moth was a pest of concern every year, and 94 percent worried that it could cause 6 percent or more crop loss if not controlled in a given year.

Guthion phaseout
The U.S. Environmental Protection Agency phaseout schedule for Guthion (azinphos-methyl) concludes in 2012.

<table>
<thead>
<tr>
<th>Year</th>
<th>Maximum active ingredient per acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>4 lb</td>
</tr>
<tr>
<td>2008-2009</td>
<td>3 lb</td>
</tr>
<tr>
<td>2010</td>
<td>2 lb</td>
</tr>
<tr>
<td>2011-2012</td>
<td>1.5 lb</td>
</tr>
</tbody>
</table>

SOURCE: Washington State University

**Recommendations**
In recommending organophosphorus insecticides for codling moth, most consultants (92.5%) recommended Guthion as part of their spray program, and over half recommended Imidan (phosmet). Compared with their historical use of these products, one-third of consultants had increased, one-third had decreased, and one-third had decreased their use.

**Organophosphorus insecticides for codling moth**
- **Guthion** (azinphos-methyl)
  - 2007 4 lb
  - 2008-2009 3 lb
  - 2010 2 lb
  - 2011-2012 1.5 lb

**Other organophosphorus insecticides**
- Imidan (phosmet)
  - 2007 2 lb
  - 2010 1.5 lb

**Organic insecticides for codling moth**
- Neem oil
  - 2007 2 lb
  - 2010 1.5 lb

**Biopesticides for codling moth**
- Bacillus thuringiensis var. kurstaki (Btk)
  - 2007 2 lb
  - 2010 1.5 lb

**Insecticides for woolly apple aphid**
- Imidacloprid
  - 2007 2 lb
  - 2010 1.5 lb

**Insecticides for thrips**
- Acephate
  - 2007 2 lb
  - 2010 1.5 lb

**Insecticides for campylommia**
- Diazinon
  - 2007 2 lb
  - 2010 1.5 lb

**Insecticides for spider mites**
- Spinosad
  - 2007 2 lb
  - 2010 1.5 lb
and one-third had maintained their recommendations of OP insecticides constant over the previous three years.

Consultants also recommended a variety of OP alternative products for managing codling moth (see chart “The worst pest”). The most common in 2007 were pheromones, Assail (acetamiprid), horticultural mineral oil, granulosis virus, Entrust (spinosad), Rimon (novaluron), and Intrepid (methoxyfenozide). Consultants also reported recommending or using other IPM practices, especially field monitoring for damage, pheromone traps, degree-day models, and resistance management strategies.

While most consultants continued to recommend OP insecticides, most also expressed confidence in their use of OP alternatives. Thus, the apple industry is at a key point in the transition from the use of Guthion to the use of alternative tactics in IPM programs. A proposed follow-up consultant survey in 2009 will allow the industry to compare how the recommendations by consultants and their comfort with these insecticides and practices change over time.

Confident

While increasingly confident with the use of new insecticides, consultants nevertheless estimated that codling moth damage had remained constant (47.5%) or increased (40%) compared to the previous three years, and 95 percent indicated that the cost of codling moth control had increased. Consultants felt that researchers had developed good information on alternatives to Guthion, but that both the costs and control of codling moth would be a challenge after the Guthion phaseout was complete.

The consultants identified other professional consultants, the WSU Decision Aid System, WSU researchers, and conferences/seminars as the most reliable sources of information for helping them make pest management recommendations to their clientele. Not all consultants knew the last year that Guthion could be used (2012) or all the details of the phaseout schedule (see chart “Pesticides recommended”). Most (75%) indicated that they would be interested in more training on the use of Guthion alternatives to manage pests.
Following up

The PMTP is following up on these initial assessments with a grower survey and, funding permitting, a second consultant survey in 2009. This information will serve as a base for analyses of IPM adoption over time. It will also provide insight on how to guide future PMTP meetings and broader outreach efforts to facilitate and support the use of IPM throughout the tree fruit industry.

Apple growers, managers, and consultants who are interested in additional training and resources for adopting OP-alternative technologies, or in participating more fully in the PMTP as members of an Implementation Unit (IU) grower/consultant group should call the WSU Tree Fruit Research & Extension Center at (509) 663-8181 or visit the PMTP Web site for more information (http://pmtp.wsu.edu). The link entitled “How to Get Involved” will allow Web users to sign up for an implementation unit or receive newsletters and updates. Interested parties can also ask for more information about the Pest Management Transition Project.

For further details on the results of this survey (including additional tables, graphs, and results for leafroller), visit http://pmtp.wsu.edu and click on the “Assessment and Documentation” and then “Survey Results” links.

WORDS about agriculture

acarpous

(ay-KAIR-pus), adjective
Not producing fruit; sterile. From Greek akarpos, from a- (not) + karpos (fruit). Ultimately from the Indo-European root kerp- (to gather or harvest) which is also the source of harvest, excerpt, carpet, and scarce.

For more, visit www.wordsmith.org.