Tree Fruit Scout Training

2024 Opportunities

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NYS IPM Program

Winter Fruit Conferences
Feb. 2024
History of IPM in 60 seconds

**2500 B.C.**
Sumerians used sulfur compounds to kill pests

**1700s**
Chinese use natural enemies to control pests

**1930s**
Tobacco, herbs and arsenic used to control pests

**1950s**
Understanding of insect phenology based on temperature

**1962**
"Silent Spring" by Rachel Carson

**1970s**
Imperial expansion and pest introductions

**1980s**
DDT Introduced (old compound synthetized in 1873) – Saved lives from body lice/typhus

**1990s-2000s**
EPA established
USDA creates nationwide IPM programs
Increase IPM Research – Genetic engineering
Host Plant Resistance
GMOs – Increase adoption of biocontrol - emphasis on softer pesticides – Digital IPM technologies – Building Ecological Resilience.

**Increased pesticide registration – "The Green Revolution"**

- EPA established
- USDA creates nationwide IPM programs
- DDT cancelled
IPM Approach to Orchard Management

IPM Approach:

• A science-based approach to managing pests sustainably (insects, diseases, wildlife, weeds)

• Uses an array of complementary methods

https://www.northeastipm.org/schools/the-steps-of-ipm/#step1
History of orchard IPM in NY

• 1972 – IPM being used in NY Orchards
  • Reduced Risk Pesticide Programs
  • Farm advisors and per-acre fees for weekly scouting and recommendations

• 1981 – computer-based system

• 1982 – private IPM cooperative formed

• 1985 – telephone survey:
  IPM being used on NY Apple Acreage
  • 8% – Full IPM program
  • 73% - Partial IPM program

Fig. 1. Harvey Reissig (r) instructs a grower, Ralph Brown of Waterport, NY, how to sample first generation spotted tentiform leafminer eggs.
Pest management is tied to phenology

**Phenological stages in apple**

- Dormant
- Green Tip
- $\frac{1}{2}''$ Green
- Tight Cluster
- Pink
- Bloom
- Petal Fall
- Fruit Sizing
- Harvest

**Growth Stages in Fruit Trees**
[link](https://ecommons.cornell.edu/server/api/core/bitstreams/317dc529-3265-4f8c-87a2-473c2e3e790b/content#:~:text=Growth%20Stages%3A%20%281%29%20dormant,York%20growers%20at%20this%20season)
Pest management is tied to phenology

Table 7.1.4. Degree-day accumulations (from Jan. 1) corresponding to selected fruit phenology and arthropod pest events.

<table>
<thead>
<tr>
<th>Pest/Phenology Event</th>
<th>DD Base 43°F</th>
<th>DD Base 50°F</th>
<th>Approx. Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mean</td>
<td>std dev</td>
<td>mean</td>
</tr>
<tr>
<td>STLM Traps set out</td>
<td>1-April</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pear psylla – egg laying</td>
<td>84</td>
<td>44</td>
<td>33</td>
</tr>
<tr>
<td>Redbanded leafroller – 1st catch</td>
<td>145</td>
<td>32</td>
<td>62</td>
</tr>
<tr>
<td>Rosy apple aphid – 1st nymph present</td>
<td>189</td>
<td>55</td>
<td>86</td>
</tr>
<tr>
<td>STLM – 1st adult catch</td>
<td>166</td>
<td>49</td>
<td>73</td>
</tr>
<tr>
<td>STLM – 1st egg observed</td>
<td>208</td>
<td>65</td>
<td>94</td>
</tr>
<tr>
<td>Tight cluster (McIntosh)</td>
<td>232</td>
<td>26</td>
<td>108</td>
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<tr>
<td>Tarnished plant bug – 1st observed</td>
<td>222</td>
<td>105</td>
<td>105</td>
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<tr>
<td>OBLR – 1st overwintered larvae observed</td>
<td>236</td>
<td>78</td>
<td>112</td>
</tr>
<tr>
<td>European red mite – egg hatch observed</td>
<td>284</td>
<td>53</td>
<td>134</td>
</tr>
<tr>
<td>STLM Egg Sample</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>OFM Traps set out</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Pink (McIntosh)</td>
<td>291</td>
<td>25</td>
<td>140</td>
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<tr>
<td>Oriental fruit moth – 1st adult catch</td>
<td>273</td>
<td>51</td>
<td>129</td>
</tr>
<tr>
<td>STLM – 1st flight peak</td>
<td>338</td>
<td>70</td>
<td>168</td>
</tr>
<tr>
<td>OBLR Overwintered Gen. Sample</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CM Traps set out</td>
<td></td>
<td></td>
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<tr>
<td>Full bloom (McIntosh)</td>
<td>380</td>
<td>36</td>
<td>194</td>
</tr>
<tr>
<td>Lesser appleworm – 1st catch</td>
<td>420</td>
<td>144</td>
<td>217</td>
</tr>
<tr>
<td>American plum borer – 1st catch</td>
<td>457</td>
<td>64</td>
<td>240</td>
</tr>
<tr>
<td>Oriental fruit moth – 1st flight peak</td>
<td>432</td>
<td>102</td>
<td>225</td>
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<tr>
<td>Codling moth – 1st adult catch</td>
<td>481</td>
<td>85</td>
<td>254</td>
</tr>
<tr>
<td>San Jose scale – 1st adult catch</td>
<td>526</td>
<td>88</td>
<td>279</td>
</tr>
</tbody>
</table>

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1972: Simplified Monitoring Program

Goals:

1. Teach growers and consultants to use simple, formalized, sampling procedures & action thresholds, to evaluate need for treatment
2. When necessary to treat, select least destructive management
3. Minimize the amount of time spent monitoring
4. Teach relatively untrained participants quickly

In 2024: We have the same goals

5. Stay on top of new information & strategies, and train new people in industry
BF224: Tree Fruit Scouting

Training for tree fruit growers, orchard employees, other industry professionals, and interested students on the biology, identification, and monitoring of major economically significant orchard pests.

Wednesdays 6:30-8:00 PM, Feb. 28 – Mar. 27

• Week 1 (2/28): IPM Fundamentals + Tools
• Week 2 (3/6): Insects: Part 1
• Week 3 (3/13): Insects: Part 2
• Week 4 (3/20): Diseases
2024 Apple Scouting Cohorts

NOW RECRUITING!

- Pre-/Post-bloom trainings regionally
- Weekly monitoring and data sharing

Cohort Training

Data Collection

Reporting Information

NOW RECRUITING!
Thank you!

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Cornell AgriTech
New York State Agricultural Experiment Station
Please complete the 2024 IPM Tactics Survey:

http://tinyurl.com/4bhma4jh