Commodity Specific Definitions for IPM in Fruit Crops in New Jersey
Peaches and Nectarines - Crop Year 2000

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Background

Integrated Pest Management programs (IPM) represent a multidisciplinary approach to crop management. All available techniques are used to manage pest populations below economically damaging levels and to optimize plant health and crop quality. An integrated approach relies on a solid monitoring foundation. In order to be fully functional, monitoring results must be put into action and result in applied management practices. The resulting practices can be classified into different types, with specific practices for each crop grouped under each practice type. A fully integrated program will consist of the following types of practices:

Type Classification

IPM fruit programs are based on:

1) Cultural and irrigation practices.
2) Soil and nutrient management.
3) Proper pesticide application and record keeping.
4) Insect/Arthropod pest management.
5) Disease pest management.
6) Weather and crop monitoring.
7) Vertebrate pest management.
8) Weed and ground cover management.
9) Biologically intensive pest reduction strategies.
10) Education

Point Values

Not all practices have the same economic impact, influence fruit quality, or the levels of pesticides and fertilizers used. In other words, some practices have more impact than others in a commercial program. In addition, some growers may wish to certify their fruit as having been produced under IPM practices. Therefore point values have been assigned to address these issues. Growers may not wish to or be able to follow all practices, but a majority of practices should be followed if the production method is to be defined as an IPM program. Where there is no point value assigned, the practice is considered mandatory.

Practices

Cultural and Irrigation Practices

- *Annual pruning is done to provide for optimal cropping as well as adequate spray penetration and air circulation.*
- Pruning is done during the early spring months to reduce tree stress. **10 pts**
- All prunings are removed or destroyed. **5 pts**
- Old fruit mummies and dead wood are removed providing for proper orchard sanitation. **5 pts**
- Significant new irrigation consists of drip or micro-sprinkler systems. **10 pts**
- Trees are planted on ridges if area is favorable for phytopthora root rot. **10 pts**

Soil and Nutrient Management Practices

- Soil pH is annually or biannually monitored. **10 pts**
- A complete leaf tissue analysis is done annually. **10 pts**
- All lime, soil applied fertilizers and foliar nutrients are applied according to leaf tissue analyses and soil pH results. **10 pts**
- Nitrogen fertilizer is applied in split applications. **5 pts**

Pesticide Application and Record Keeping

- *Only registered pesticides are used, and at no more than label rates. Application records are maintained.*
- Pesticides applied based on scouting results and/or pest phenology models. **20 pts**
- The orchard airblast sprayer(s) is calibrated at the start of every growing season, and either recalibrated or the spray pattern checked again at mid-season. **20 pts**
- Tree-row volume has been calculated for various size trees in different blocks, and pesticides are applied according to TRV calculations where possible. **10 pts**
- Alternate row middle spraying is used with appropriate materials whenever possible, along with reduced pesticide rates. **10 pts**
- Pesticide materials are selected that are least toxic to beneficial arthropods. **10 pts**
- A resistance management plan is used for sterol inhibiting fungicides and other brown rot materials, all insecticides but especially for OP tolerant strains of oriental fruit moth and tufted apple budmoth, and miticides for European red mite. **10 pts**

Insect/Arthropod Pest Management

Monitoring

- *All major insect and mite pests are scouted in a scientifically valid manner.*
- Records are maintained of all scouting results and used for all insecticide and/or miticide applications. **20 pts**
- Monitored arthropods include: Oriental fruit moth, plum curculio, tarnished plant bug, several species of stink bugs and other true bugs, Japanese beetle, green June beetle, western flower thrips and flower thrips, tufted apple budmoth, San Jose scale,

green peach aphid, European red mite, lesser peachtree borer and peachtree borer. Where applicable other monitored arthropods would include: black peach aphid, twospotted spider mite, peach silver mite, white peach scale, terrapin scale, European fruit lecanium, and cicadas. **10 pts**

- Beneficial arthropods should be monitored so that decisions can be made about natural biological control. These include aphid predators such as Syrphid flies, aphid midges, lacewings, and ladybird beetles. A number of mite predators are also present in peach orchards, and classical IPM programs make use of these naturally occurring predators. These include the small black lady beetle, *Stethorus punctum*; the predatory mite, *Amblyseius fallacis*; as well as other predatory mites in the family Phytoseiidae. Other mite predators include the yellow predatory mite, *Zetzellia mali*; the minute pirate bug, *Orius insidiosus*; the black hunter (a predatory thrips), *Leptothrips mali*; and several species of predatory Mirid bugs. **10 pts**

Actions

- Pesticide applications are based on action levels, or economic threshold levels when known, and/or pest phenology models. **10 pts**
- Early to mid season use of synthetic pyrethroids is avoided, because their use can lead to high mite populations. **10 pts**
- When sufficient levels of predators are present, the use of aphicides or miticides is reduced, allowing for biological control of aphids or mites. **5 pts**
- Border sprays are used in place of full cover sprays for plum curculio and catfacing insects if appropriate. **15 pts**

Disease Pest Management

Monitoring

- *All major disease pests are scouted in a scientifically valid manner.*
- Records are maintained of all scouting results and used for all fungicide or antibiotic applications. **20 pts**
- Monitored diseases include: brown rot blossom blight and brown rot fruit rot, bacterial spot, peach leaf curl, peach scab, rhizopus rot, and rusty spot. Trees may also be monitored for fusicoccum canker, cytospora canker, prunus stem pitting, phytopthora root rot, and several virus diseases. **10 pts**

Actions

- Fungicides and antibiotics are applied when spores or bacteria start to be released and during the fruit or tree's most susceptible times of infection. **10 pts**
- During the middle of the growing season under hot and dry conditions, fungicide use is reduced and/or sulfur is used as the primary fungicide material. **10 pts**
- Bacterial spot infection periods are modeled, and treatments applied accordingly.

Bonus - **10 pts**

Weather and Crop Monitoring

- Tree phenology is monitored and records maintained. **5 pts**
- A rain gauge is used and maintained on a regular basis. Records are kept on the accumulated amount of precipitation that occurs between fungicide sprays. **10 pts**

And one of the following:

- A max. – min. thermometer or other instrumentation is used to calculate daily degree day accumulations, used for modeling insect development. **10 pts**
  Or:
- Contracting with an agricultural weather service or consultant to collect weather data and model insect development. **10 pts**

Vertebrate Pest Management

- Rodent damage is monitored. **10 pts**
- If rodenticides are applied, they are used in bait stations in place of broadcast treatments. **5 pts**
- Use of soap or fencing for deer. **5 pts**

Weed and Ground Cover Management

- The herbicide sprayer is calibrated before the start of the growing season. **10 pts**
- Weeds are monitored in the tree row and in the aisles once or twice per year detailing weed density and species present. **10 pts**
- Spot treatment is used if needed. **10 pts**
- Herbicide rates are matched to soil type and organic matter. **10 pts**
- Herbicide materials and rates used according to weed monitoring results. **10 pts**
- Aisles are regularly mowed. **10 pts**
- Ground cover is managed to consist of grass aisles with no broad leaf weeds or legumes, thus reducing nematodes and catfacing insect populations. **20 pts**

Biologically Intensive Pest Reduction Strategies

- Removal of wild or abandoned peach and apple trees or other wild hosts located near the orchard to reduce oriental fruit moth populations. **10 pts**
- Use of mating disruption for oriental fruit moth, peachtree borer and lesser peachtree borer.
  - ✓ Oriental fruit moth - **Bonus** **30 pts**
  - ✓ Peachtree borer - **Bonus** **20 pts**
  - ✓ Lesser peachtree borer- **Bonus** **20 pts**

Education

- Attendance at cooperative extension fruit meetings. **10 pts**
- Attendance at commodity organization fruit meetings. **5 pts**
- Uses current copy of state commercial tree fruit production guide. **10 pts**
- Subscribes to state extension fruit newsletter. **10 pts**

Total points not including bonus points = 455. Bonus points = 80