

IPM Worksheet: Apple

Version: 3/30/09

Soil Nutrient Management and Cultural Practices

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| 1. Trees are pruned during dormancy so that spray penetration and air circulation are adequate. | 10 | |
| 2. Summer pruning is done on densely-foliated, vigorous trees and/or gibberellin biosynthesis inhibitor (such as paclobutrazol or prohexadione-Ca) is applied. | 15 | |
| 3. Prunings are removed or destroyed such that no residue is present after one year. | 5 | |
| 4. A complete leaf tissue analysis is performed in the current year. | 10 | |
| 5. Fertilizer amendments are applied according to previous year's leaf tissue analysis. | 10 | |
| 6. Orchard renovation (4% of the orchard or greater) includes size-controlling rootstocks in the new plantings. | 10 | |

Total practice points for Soil Nutrient Management and Cultural Practices	0
Total possible points for Soil Nutrient Management and Cultural Practices	60

Pesticide Application and Recordkeeping

*Only pesticides approved and registered for apple in the state are used. Records of pesticide applications are maintained, including date, field and block, target pest, crop stage pesticide name and EPA number, formulation, rate and number of acres treated. Pesticide drift is minimized. Re-entry and pre-harvest intervals are adhered to. **Win-PST analysis is conducted for all pesticides considered for use on the farm.***

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| 1. Only pesticides with a LOW or VERY LOW environmental hazard (Win-PST) are used all major pests (includes insects, diseases and weeds). | 20 | |
| OR | | |
| Only pesticides with a LOW or VERY LOW environmental hazard (Win-PST) are used for at least one major pest. | 10 | |
| 2. Orchard sprayer, including hoses, nozzles and pumps, is inspected at least once per season and replaced as needed. Equipment is calibrated at the start of the season and the procedure is recorded. | 10 | |
| 3. Herbicide sprayer is calibrated at the start of the season. Procedure is recorded. | 10 | |
| 4. Calibration of orchard sprayer is checked at least once during the season and equipment is recalibrated as needed. | 10 | |
| 5. The grower has calculated tree-row volume for each block and applications conform to tree-row volume calculations. | 10 | |

Total practice points for Pesticides Application and Records
 Total possible points for Pesticides Application and Records

0

 60

Insect Management

Major insect pests: *American plum borer, aphids, apple maggot, apple rust mite, codling moth, Comstock mealybug, cutworms, dogwood borer, European apple sawfly, European corn borer, lesser appleworm, mullein plant bug, Oriental fruit moth, oystershell scale, plum curculio, potato leafhopper, rosy apple aphid, San Jose scale, sparganothis fruitworm, spotted tentiform leafminer, tarnished plant bug, twospotted spider mite, variegated leafroller, white apple leafhopper.*

Monitoring

Monitoring should be carried out in a scientifically valid manner. Records should be kept of all monitoring information collected.

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| 1. Tarnished plant bug adults are monitored by white visual traps or visual inspection of buds. | 10 | |
| 2. European appley sawfly is monitored by white visual traps. | 5 | |
| 3. Fruit clusters are examined pre-bloom for pug moth and winter moth. | 5 | |
| 4. Fruit is monitored for plum curculio injury (to time border sprays following initial cover spray). | 20 | |
| 5. Foliage is sampled for mites and mte predators. | 10 | |
| 6. Apple maggot is monitored by red sphere traps. | 20 | |
| 7. Leafminers are monitored by red visual traps or foliar monitoring of first generation mines. | 10 | |
| 8. Terminal foliage is monitored for aphids and aphid predators. | 10 | |
| 9. Monitoring for leafhoppers (fruit clusters for whiteapple LH and rose LH; terminal growth for potato LH) is conducted | 10 | |
| 10. <i>Bark of trunk and limbs is monitored for San Jose scale, winter moth, woolly apple aphid or borers, where appropriate.</i> | 10 | |
| 11. <i>Fruit and foliage are monitored for codling moth, fruitworm and leafroller larvae or injury, where appropriate.</i> | 5 | |
| 12. <i>Where pear thrips have been noted previously, they are monitored using yellow sticky traps or weekly bud counts.</i> | 5 | |

Total practice points for Insect Monitoring
 Total possible points for Insect Monitoring

0

 100

Suppression

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| 1. Application of insecticides corresponds to pest threshold ranges specified in state apple IPM publications. | 25 | |
| 2. One application of dormant oil is applied. | 10 | |
| 3. A second application of dormant oil is applied. | 15 | |
| 4. A border-row application is used in lieu of one or more whole-orchard sprays against plum curculio (border sprays generally follow a cover spray). | 10 | |
| 5. Biological control by naturally occurring predators is used for control of aphids. | 10 | |

6.	Mite suppression.	
	a. Mite control materials are used on a rotating basis for resistance management.	10 _____
	b. Summer oil is used in part as a substitute for other acaricides used to suppress mites in early season.	10 _____
	OR	
	c. Biological control by naturally occurring predators is used for control of mites: no miticide is applied.	20 _____
7.	Synthetic pyrethroids are not applied as they are likely to induce outbreaks of mites and woolly aphids.	20 _____
8.	A border-row spray is used in lieu of one or more whole-orchard sprays against apple maggot.	10 _____
9.	At least one insecticide or miticide application is made by alternate row spraying.	10 _____
10.	<i>Where appropriate, application of pesticides for mites, aphids or apple maggot are reduced by one-half of the labeled rate, as defined in the New England Apple Pest Management Guide.</i>	10 _____
11.	<i>Orchard is surrounded by odor-baited red sphere traps at a rate of 1 trap per 15 ft in lieu of pesticide application against apple maggot. Bonus practice</i>	30 _____
12.	<i>12. All abandoned apple trees within 100 yards of the orchard border are removed to prevent codling moth immigration. Bonus practice</i>	15 _____
13.	<i>13. Efforts are made to establish the mite predator, T. pyri. Bonus practice</i>	15 _____
	<i>Total practice points for Insect Suppression</i>	<u>0</u>
	<i>Total possible points for Insect Suppression</i>	130

Disease Management

Summer pruning of densely foliated, vigorous trees has significant potential for lowering summer disease severity.

Major diseases: *apple rusts, apple scab, bitter rot, black rot, blister spot, blossom end rot, crown & collar rot (Phytophthora), fire blight, nematodes, powdery mildew, sooty blotch & flyspeck, senescent breakdown, storage rots, white rot.*

1.	<i>First fungicide spray is delayed an appropriate time according to ascospore development and from previous year's ascospore density and scab incidence. Bonus Practice</i>	15 _____
2.	For each of the following scab management approaches, the appropriate number of fungicide applications per season may vary between 2 and 6 per year, depending on conditions.	
	a. Unless visible infections develop, fungicides for scab management are applied only until the end of primary scab season (as defined by ascospore maturity and release) or two weeks after the last infection.	15 _____
	OR	
	b. A combination of tree phenology, ascospore maturity and Mill's infection periods are used to guide fungicide application decisions.	10 _____

3. Trees are monitored for cedar apple rust.	5	_____
4. <i>Where cedar apple rust is a problem, red cedar and juniper within 100 yds surrounding orchard are removed.</i>	5	_____
5. <i>Litter chopping or urea treatment is practiced so as to reduce scab. Bonus Practice</i>	5	_____
6. <i>Treatments for fire blight follow blight forecast in Healthy Fruit (UMass Pest Alert) or other recognized fire blight program (e.g. Maryblight or Cougarblyte). Bonus practice</i>	5	_____
7. <i>Calcium chloride is applied at the standard rate in a tank mix with a reduced rate of a summer fungicide (calcium chloride has a negative effect on flyspeck development). Bonus Practice</i>	5	_____
8. <i>Experimental block of disease-resistant trees is planted. Bonus Practice</i>	10	_____
9. <i>New plantings are located at least 25 yards away from wooded or shrubby borders, or borders are cleared so they are no closer than 25 yards from existing trees. Bonus Practice</i>	5	_____
<i>Total practice points for Disease Management</i>		<u>0</u>
<i>Total possible points for Disease Management</i>		20

Weed Management

Major weeds: *annual broadleaves, annual grasses, nutsedge, perennial broadleaves, perennial grasses, woody perennials.*

1 A weed survey is conducted at least once per season with weed problems noted on field maps.	10	_____
2 Herbicide rate, selectin and spot applications are based on the results of the weed survey.	10	_____
3 Herbicides of the same class are not applied in succeeding years in order to avoid herbicide resistance development	10	_____
4 Herbicides are banded only in the crop row and a seeded ground cover is used in the row.	10	_____
5 Weeds in and around fields, alleys and roadways are prevented from going to seed.	5	_____
<i>Total practice points for Weed Management</i>		<u>0</u>
<i>Total possible points for Weed Management</i>		45

Vertebrate Management

Major vertebrate pests: *birds, cottontail rabbit, meadow vole, pine vole, porcupine, white-tailed deer.*

1 Where deer pressure is high, soap or appropriate fencing is used.	5	_____
2 A monitoring program for rodents is conducted to determine the need for rodenticides.	10	_____
3 <i>Where rodenticides are applied, bait stations, rather than broadcast treatments, are used.</i>	5	_____
4 <i>Appropriately positioned scare-eye balloons are used to reduce bird pressure, where appropriate. Bonus.</i>	5	_____

<i>Total practice points for Vertebrate Management</i>	0
<i>Total possible points for Vertebrate Management</i>	<hr style="border: 1px solid black;"/> 15

Weather and Crop Monitoring

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| 1. Grower monitors high and low daily temperatures, and leaf wetness (modified hygrothermograph or equivalent). Records are kept on a daily basis. | 15 | <hr style="border: 1px solid black;"/> |
| 2. Records of the stage of tree development are maintained on a weekly basis. | 5 | <hr style="border: 1px solid black;"/> |

<i>Total practice points for Weather and Crop Monitoring</i>	0
<i>Total possible points for Weather and Crop Monitoring</i>	<hr style="border: 1px solid black;"/> 20

Education

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| 1. Manager attends one or more UMass Extension IPM workshops during the current year. | 5 | <hr style="border: 1px solid black;"/> |
| 2. Manager possesses current New England Apple Pest Management Guide. | 5 | <hr style="border: 1px solid black;"/> |
| 3. 3. Manager subscribes to UMass Extension newsletter, Healthy Fruit and March Message. | 5 | <hr style="border: 1px solid black;"/> |
| 4. <i>Farm contracts with nationally certified professional crop consultant. Bonus practice.</i> | 10 | <hr style="border: 1px solid black;"/> |

<i>Total practice points for Education</i>	0
<i>Total possible points for Education</i>	<hr style="border: 1px solid black;"/> 15

POINT SUMMARY

TOTAL POINTS	0
TOTAL POSSIBLE POINTS	<hr style="border: 1px solid black;"/> 465
Percentage	<hr style="border: 1px solid black;"/> 0%