

NRCS Conservation Practice Standard: Code 595 ~ Pest Management

IPM Worksheet: Cucumbers

Version 6/2/08

Soil and Nutrient Management and Cultural Practices

Cultural practices are of value in management of nutrients, weeds, diseases, or insects. The goal of a sound fertility program is to supply adequate nutrients with optimum timing for maximum economical crop yield, while avoiding excesses that can degrade water quality or adversely affect crop or soil quality.

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| 1. | Crop rotation is practiced to reduce incidence of weeds, diseases and insects: | |
| | a. Field has not been planted to cucurbits, tomato, eggplant or peppers for more than three years | 15 _____ |
| | OR | |
| | b. Field has not been planted to cucurbits, tomato, eggplant or peppers for the two of the three previous years | 10 _____ |
| | OR | |
| | c. Field has not been planted to cucurbits, tomato, eggplant or peppers for one year | 5 _____ |
| 2. | Fields have been evaluated with an appropriate soil test for nutrient status and pH for the current year. | 10 _____ |
| 3. | Organic matter status has been tested within three years | 10 _____ |
| 4. | Fertilizer is applied in accordance with current soil test results and expected uptake of nutrients and expected crop yield, giving credit for nitrogen supplied by organic matter, compost, manure and cover crops. Expected nutrient uptake is determined from the New England Vegetable Management Guide. | 15 _____ |
| 5. | Nitrogen fertilizer is applied by split application. Some is applied at planting, and some as a side dress, if needed. | 10 _____ |
| 6. | A pre-sidedress nitrate test is taken to determine if a side dress is needed, and the amount of nitrogen fertilizer used is based on test results and state specified threshold for winter squash and pumpkin. | 10 _____ |
| 7. | This year's crop was preceded by a winter cover crop. | 10 _____ |
| 8. | <i>If the cover crop was a legume or legume/grass mix, its nitrogen contribution is calculated and fertilizer for this year's crop is adjusted accordingly.</i> | 5 _____ |
| 9. | <i>If compost or manure is applied, its nitrogen contribution is calculated, and fertilizer application reduced accordingly.</i> | 5 _____ |
| 10. | Raised beds are used to improve soil drainage and prevent diseases that depend on high soil moisture. | 10 _____ |
| 11. | Low areas of the field are not planted, or are planted to crops that are not susceptible to <i>Phytophthora capsici</i> (which includes cucurbits, eggplant, pepper, tomato). | 10 _____ |
| 12. | Soil drainage is maintained or improved through subsoiling. | 10 _____ |
| 13. | Irrigation systems are designed and maintained to avoid standing water in any areas of the field (through fixing leaks, establishing drainage trenches, etc). | 10 _____ |
| 14. | Soil surface around plants is covered to reduce splashing of soil pathogens onto leaves (cover may include plastic or organic mulch or cover crop residue). | 10 _____ |
| 15. | Transplants are used to increase earliness, yield, and early season insect resistance and crop competitiveness with weeds. | 10 _____ |

Total practice points for Soil and Nutrient Management and Cultural Practices

Total possible points for Soil and Nutrient Management and Cultural Practices

140

Pesticides Application and Records

Only pesticides approved and registered in the state for the crop 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 for 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. | Pesticides with a LOW or VERY LOW environmental hazard (Win-PST) are used for one or more key pests | 20 | _____ |
| 3. | Spray equipment, 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 | _____ |
| 4. | Calibration is checked at least once during the season and equipment is recalibrated as needed. | 5 | _____ |
| 5. | Records are maintained of planting dates and stage of crop of treated fields. | 15 | _____ |
| 6. | Water-sensitive spray cards have been used to test the coverage of upper and lower leaf surfaces and fruit in this crop within the past five years, using current pesticide application equipment. | 10 | _____ |

Total practice points for Pesticides Application and Records

Total possible points for Pesticides Application and Records

80

Disease Management

Disease management includes many cultural practices. See previous section on nutrient and soil management and cultural practices. Preventative fungicides are generally not recommended unless the field has a history of disease or weather conditions are particularly favorable for disease development. Written records are kept indicating the results of monitoring, disease forecasting, and disease identification. Diseases: alternaria, angular leaf spot, anthracnose, bacterial leafspot, damping off, downy mildew, fusarium crown and fruit rot, gummy stem blight (black rot), phytophthora, powdery mildew, septoria leaf spot, ulucladium, viruses, white mold.

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| 1. | Cultivars which have resistance to one or more diseases are selected. | 10 | _____ |
| 2. | Certified disease-free seed is used. | 10 | _____ |
| 3. | Bacterial wilt is prevented by keeping cucumber beetles under threshold, especially during the seed to 5-leaf stage | 10 | _____ |
| 4. | Crop residues are incorporated deeply. are incorporated deeply soon after harvest by plowing or deep disking | 10 | _____ |
| 5. | Fields are monitored weekly by examining 50 mature leaves at representative sites throughout the field (10 per site) and observing crown, fruit and stems. | 10 | _____ |
| 6. | A spray program for powdery mildew is implemented only if monitoring shows one leaf in 50 is infected, or when first observed in the field. | 10 | _____ |
| 7. | Diseases are accurately identified by the farmer, consultant or diagnostic laboratory. | 10 | _____ |
| 8. | A resistance management program is used to prevent or delay powdery mildew resistance to fungicides. Practices include using any given class of systemic fungicide no more than once per season, alternating classes of fungicides, and always adding a contact fungicide when applying a systemic fungicide | 10 | _____ |

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| 9. | Fungicides and bactericide are applied only when the application will be followed by a drying period of at least two hours. | 5 | _____ |
| 10. | Precautions are taken to avoid spreading pathogens, such as working the crop only when plants are dry, working areas of infection last, and, when disease is present, hosing down cultivation equipment between fields. | 5 | _____ |
| 11. | A spray program for downy mildew is implemented if regional disease forecasting predicts moderate to high risk or when first observed in the field or in New England. | 10 | _____ |

Total practice points for Disease Management
Total possible points for Disease Management

100

Insect Management

Written records of monitoring and the thresholds used as a basis of decision-making are maintained. Major pests: striped cucumber beetle, spotted cucumber beetle, aphids. Minor pests: squash bug, western corn rootworm, seed maggot, cutworms, spider mites.

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| 1. | From plant emergence to five-leaf stage, cucumber beetles are monitored at least weekly by examining 25 plants per field for beetles and damage. Results are recorded. | 10 | _____ |
| 2. | Foliar insecticides are applied to main crop for cucumber beetle, only when thresholds specified in state IPM publications are exceeded. | 10 | _____ |
| 3. | <i>If systemic insecticides are used at planting for cucumber beetle, they are applied at the lowest label rates for the crop and pest.</i> | 10 | _____ |
| 4. | <i>If transplants are used, insecticides for cucumber beetle are applied to transplants in the trays before planting in order to reduce total insecticide application rate.</i> | 10 | _____ |
| 5. | <i>If repellents are used for cucumber beetle, they are applied prior to infestation and damage.</i> | 10 | _____ |
| 6. | A perimeter trap crop is used to concentrate cucumber beetles in the crop border, and insecticide applications are made to the border crop at planting or at first sign of beetles. The perimeter crop is selected, planted and maintained as specified in state extension publications. | 15 | _____ |
| 7. | From fifth leaf to harvest, aphids are monitored weekly by direct observation of 10 mature leaves from 5 representative sites (50 leaves) of the field. | 10 | _____ |
| 8. | Insecticides are applied for aphid control only if 20 percent of leaves have ten or more aphids per leaf. | 10 | _____ |
| 9. | Squash bugs are monitored on 25 plants per field from emergence through the fifth leaf state, or on 50 leaves at 5 sites throughout the field (10 leaves per site) from 6th leaf through maturity. | 10 | _____ |
| 10. | Insecticides are applied for squash bug only if density exceeds state specified thresholds based on monitoring, and are timed to control nymphs. | 5 | _____ |
| 11. | Insecticides for squash bugs are selected and timed to minimize risk to pollinators. | 5 | _____ |

Total practice points for Insect Management
Total possible points for Insect Management

75

Weed Management

Weeds include annual broadleaves, annual grasses, perennial broadleaves and perennial grasses.

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| 1. | This year's fields were scouted for weeds last year at mid- to late season. Weeds present were identified, and field locations recorded. This information was used in the current weed management program. | 10 | _____ |
| 2. | Weed management includes one of the following: | | |

a. Herbicide use is replaced with non-chemical management practices such as mechanical cultivation, hand-hoeing, application of organic mulches.	25	_____
OR		
b. Seeds are planted no-till or strip-till into a cover crop which is killed, if needed, with a contact herbicide. Residual herbicide may be applied as needed. Sethoxydim (Poast) can be used for postemergence grass control.	15	_____
OR		
Stale seedbed technique is used. Refer to the <i>New England Vegetable Management Guide</i> .	15	_____
OR		
d. Plastic mulch is used. Herbicides are only used between the mulch so that less than 50% of the area is treated.	15	_____
OR		
e. Use of one application of residual herbicide followed by cultivation and hoeing.	15	_____
3. Weeds in fields, alleys and roadways are prevented from going to seed.	10	_____
4. Fields are scouted in midseason for weeds. Location and species of uncontrolled weeds are mapped and the information is used in planning for next year.	10	_____
5. Outbreaks of new or problem weed species are controlled, using chemical or non-chemical means, to prevent spreading or seed production.	10	_____
6. <i>A trial plot is maintained to test a different weed management technique. The methods and results are recorded. Bonus.</i>	10	_____
<i>Total practice points for Weed Management</i>		_____
<i>Total possible points for Weed Management</i>		65

Education

1. Manager has a current copy of the <i>New England Vegetable Management Guide</i> .	5	_____
2. Manager attends one or more state/regional/national Extension vegetable training session during the current year.	5	_____
3. Manager subscribes to the UMass Extension Vegetable Notes & IPM Message.	5	_____
<i>Total practice points for Education</i>		_____
<i>Total possible points for Education</i>		15

POINT SUMMARY

TOTAL POINTS	_____
TOTAL POSSIBLE POINTS	475
Percentage	%