

# Cucumbers (Pickles and Slicers) IPM Element

Revised March, 2012

Edited by Jim Jasinski

Contributing Authors: Celeste Welty (Entomology);  
Bob Precheur, Mark Bennett, Doug Doohan (Horticulture & Crop Science);  
Sally Miller (Plant Pathology), Jim Jasinski (Extension)

The purpose of this document is to consolidate current Ohio information on Integrated Pest Management (IPM) in the form of general working practices or tactics for a specific crop. The second intent is to use this checklist as an evaluation instrument for growers applying to conservation programs such as Environmental Quality Incentives Program (EQIP). This document is intended to help growers identify areas in their production system that possess strong IPM qualities and also point out areas for improvement.

Growers should review the seven sections of this document and indicate which practices they **currently use** on this crop in their operation. There is a point value associated with every IPM practice; the higher the number, the greater the relative importance of the practice. After going through the list, add the associated values for each section to get the **Baseline IPM Score**. Growers will complete this evaluation every year of their contract, and maintain at least 60% of the total points available each year of the contract to be considered in compliance and eligible for a payment.

## **Major Pests of Cucumbers - Primary concerns are diseases, insects, and weeds**

<b>Diseases</b>	<b>Insects</b>	<b>Weeds</b>
Damping off	Striped cucumber beetle	Annual grasses
Angular leaf spot	Spotted cucumber beetle	Annual broadleaf
Anthrachnose	Western corn rootworm beetle	Perennial weeds
<i>Alternaria</i> leaf spot, scab	Seedcorn maggot	
Gummy stem blight	Aphids	
Downy mildew	Thrips	
Powdery mildew	Spider mites	
Belly rot ( <i>Rhizoctonia</i> )	Leafhoppers	
Cottony leak ( <i>Pythium</i> )	Cutworms	
Viruses: Cucumber Mosaic Virus (CMV)	Pickleworm	
Bacterial wilt		
Nematodes		

### Educational IPM Considerations

Place a check mark in the right hand column for activities currently used or expected to adopt on your farm.

Activity	Points	IPM Score			
		Baseline	1 <sup>st</sup> Yr	2 <sup>nd</sup> Yr	3 <sup>rd</sup> Yr
Join local or state grower associations that handle this commodity.	5				
Attend winter or summer educational meetings or field days annually to keep current on pest management recommendations.	10				
Access University based vegetable information websites for research based information	5				
Obtain the latest Ohio Vegetable Production Guide (Bulletin 672) and other commodity specific reports / production guides.	10				
Subscribe to "free" VegNet newsletter for updates on disease, insect, and weed development, plus management options during the growing season.	10				
Research alternative markets that encourage less pesticide use either through specific use reduction requirements (organic, eco-, IPM labels) or simply by permitting more insect feeding, etc.	5				

**Your section total is \_\_\_\_\_ pts.**

### Pesticides and Record Keeping

Place a check mark in the right hand column for activities currently used or expected to adopt on your farm.

Activity	Points	IPM Score			
		Baseline	1 <sup>st</sup> Yr	2 <sup>nd</sup> Yr	3 <sup>rd</sup> Yr
Calibrate insecticide and fungicide sprayer at least once a year.	10				
Calibrate herbicide sprayer at least once a year.	10				
Use drift control nozzles for pesticide applications	10				
Maintain accurate and organized spray records.	15				
Maintain accurate records of planting dates, field locations, varieties, and fertilizer applications.	10				
Analyze spray records to determine Environmental Impact Quotient.	10				
Among pesticides of comparable efficacy, use the one with the lowest Environmental Impact Quotient.	10				

**Your section total is \_\_\_\_\_ pts.**

## Pre-plant IPM Considerations

Place a check mark in the right hand column for activities currently used or expected to adopt on your farm.

Activity	Points	IPM Score			
		Baseline	1 <sup>st</sup> Yr	2 <sup>nd</sup> Yr	3 <sup>rd</sup> Yr
Soil test annually; amend soil with fertilizer or compost according to guidelines and yield of crop. ( <b>Nutrient Management – 590</b> )	15				
Adjust mineral soil pH to 6.5-6.8.	10				
Apply 100 % of P and K broadcast according to soil test.	10				
Adjust N application to account for any N given by cover crop, compost or other sources of organic nitrogen.	10				
Apply 40 - 50% N pre-plant. Split the rest between band placement at planting and side dress before plants start to vine out.	15				
Select a well-drained site, high organic soil.	15				
Use rye strips for wind protection and earlier warming on light-textured soils.	15				
Use fields rotated 3 years away from other cucurbit crops to minimize disease, in particular. ( <b>Conservation Crop Rotation – 328</b> )	15				
Avoid fields treated with a triazine herbicide the previous year.	15				
Direct seed into no-till or zone-till fields. ( <b>No-Till – 329</b> )	15				
Incorporate organic matter three weeks prior to planting to avoid seedcorn maggot.	15				
Buy seed treated with fungicide, especially if planting into wet, cool, and highly organic soils.	10				
Select hybrids well adapted for the growing area with good tolerance or resistance to powdery mildew and virus diseases, such as cucumber mosaic virus.	15				
Practice weed seed exclusion tactics such as high pressure washing machinery shared between farms.	15				
Buy certified seed and weed free soil mixtures; determine weed seed content of all seed and do not plant seed contaminated with weed seed not known to occur on your farm.	15				
Use site free of perennials such as quack grass, Johnson grass, Yellow nutsedge, or Canada thistle if possible.	15				

Use a combination of fall/spring tillage and fall/spring application of a broad spectrum herbicide to control established perennials or rotate with a herbicide resistant crop on which a broad spectrum herbicide was used.	15				
Apply pre-plant herbicides to control seedling broad leaf weeds and annual grasses if necessary.	10				
Use stale seed bed technique.	10				

**Your section total is \_\_\_\_\_pts.**

### **At-planting IPM Considerations**

Place a check mark in the right hand column for activities currently used or expected to adopt on your farm.

Activity	Points	IPM Score			
		Baseline	1 <sup>st</sup> Yr	2 <sup>nd</sup> Yr	3 <sup>rd</sup> Yr
Apply systemic insecticides to soil at planting or use insecticide treated seed for several weeks control of cucumber beetles.	15				
Use row covers to eliminate cucumber beetles from feeding on seedlings.	10				
Apply pre-emerge herbicides to control seedlings broad leaf weeds and annual grasses if necessary.	10				

**Your section total is \_\_\_\_\_pts.**

## In-season IPM Considerations

Place a check mark in the right hand column for activities currently used or expected to adopt on your farm.

Activity	Points	IPM Score			
		Baseline	1 <sup>st</sup> Yr	2 <sup>nd</sup> Yr	3 <sup>rd</sup> Yr
Scout twice per week for cucumber beetles at field edges during the seedling stages, especially if a systemic insecticide was not used at planting.	15				
Treat field with insecticide for cucumber beetle when below thresholds are exceeded: > 0.5 cucumber beetles at cotyledon or first leaf stage > 1.0 cucumber beetles from 2 <sup>nd</sup> – 4th leaf stage	10				
Protect honey bees by properly timing insecticide sprays for late evening first then early morning second; always before temperatures reach 65-70 F.	15				
Use EC over WP product formulations to protect honey bees.	15				
Move or cover hives prior to when insecticides will be sprayed.	15				
Select insecticides that are least toxic to honey bees.	15				
Control nearby weeds which may harbor virus potentially vectored to crop	10				
Use cultivation to control weeds before vines close.	10				
Use post emergence broadcast herbicide or directed or shielded applications of post emerge herbicides to control emerged perennial weeds, broad leaf weeds, or grasses.	10				
Update field weed maps, use to make treatment decisions next season.	15				
Watch for weeds not common to the field, physically remove them to prevent seed production.	15				
Scout for powdery mildew, key time around July 15th, if colonies found apply appropriate fungicide every 7 to 14 days.	10				
Clean equipment between fields.	10				
Remove and destroy cull piles.	15				

**Your section total is \_\_\_\_\_ pts.**

**Harvest IPM Considerations**

Activity	Points
No activities	

**Your section total is \_\_\_\_\_ pts.**

**Post-Harvest IPM Considerations**

Place a check mark in the right hand column for activities currently used or expected to adopt on your farm.

Activity	Points	IPM Score			
		Baseline	1 <sup>st</sup> Yr	2 <sup>nd</sup> Yr	3 <sup>rd</sup> Yr
Plow down residue as soon as possible after harvest to reduce weed residue, fungal inoculum, and insect over wintering locations.	15				
Evaluate new IPM practices used on the farm this year, even if used on limited acreage. Implement successful practices over greater acreage next season.	10				
Plant a cover crop as soon as harvest is complete. ( <b>Cover Crops – 340</b> )	15				
Update field weed maps, use to make treatment decisions next season.	15				
Control weeds after harvest to prevent further spread and seed production	15				

**Your section total is \_\_\_\_\_ pts. Total points for Element is 660.**

**Baseline IPM Score** (Add the scores of the previous 7 sections) \_\_\_\_\_

**End of Year 1 at least 60% of total IPM Element points** \_\_\_\_\_

**End of Year 2 at least 60% of total IPM Element points** \_\_\_\_\_

**End of Year 3 at least 60% of total IPM Element points** \_\_\_\_\_