

Sweet Corn IPM Element

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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 Ohio Sweet corn - Primary concerns are insects, diseases, weeds

Insects	Diseases	Weeds
Corn earworm	Damping Off	Annual grasses
European corn borer	Northern corn leaf blight	Annual broadleaf weeds
Fall armyworm	Southern corn leaf blight	Perennial weeds
Common armyworm	Smut	Yellow nutsedge
Western bean cutworm	Stewart's Wilt	Triazine resistant biotypes
Corn rootworms	Maize Dwarf Mosaic Virus (MDMV)	Quack grass
Corn flea beetle	Maize Chlorotic Dwarf Virus (MCDV)	Canada thistle
Corn leaf aphid	Rust	Field bind weed
Cutworms		
Stalk borer		
Japanese beetles		
Sap & Picnic beetles		

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 st Yr	2 nd Yr	3 rd 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 st Yr	2 nd Yr	3 rd 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 st Yr	2 nd Yr	3 rd Yr
Soil test annually; amend soil with fertilizer or compost according to guidelines and yield of crop. (Nutrient Management – 590)	15				
Adjust mineral soil pH to 6.0-6.8.	15				
Apply 100 % P and K according to soil test.	10				
Split apply N, pre plant and side dress.	15				
Adjust N application to account for any N given by cover crop, compost or other sources of organic nitrogen.	10				
Conserve organic matter by using no-tillage or minimum tillage to plant. (No-Till – 329)	10				
Select seed with a fungicidal treatment to protect against seedling diseases.	10				
Select hybrids well adapted to your growing area and time of planting, i.e., cool season vigor.	15				
Select hybrids that discourage bird damage (tight husks, husks extended above ear tip, narrow angle of ear on stalk).	10				
Allow planting distance between potentially hybridizing su, Se, and Sh2's; 700 ft. isolation zone, 14 day maturity separation, 8-10 border rows.	10				
Select disease tolerant hybrids or transgenic hybrids (Bt) for insect or herbicide resistance.	10				
Use plastic mulch (clear or black), especially for early plantings.	10				
Use corn flea beetle model to predict potential severity of Stewart's wilt.	5				
Modify hybrid selection to include moderate or high resistance traits if Stewart's wilt prediction is moderate or severe.	15				
Use stale seedbed (fallow seedbed) technique to control weeds	10				
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.	15				
Apply pre-plant herbicides to control seedling broad leaf weeds and annual grasses.	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 st Yr	2 nd Yr	3 rd Yr
Do not plant in last year's cornfield. (Conservation Crop Rotation – 328)	10				
In area is known to be infested with the variant Western corn rootworm, use a soil insecticide or seed treatment at planting if yellow sticky traps in that field last year were found above threshold for Western corn rootworms.	10				
If planting must be done in last year's cornfield and the population of rootworms, wireworms, or white grubs in the soil is unknown, use a soil insecticide or insecticide seed treatment to protect the stand.	5				
Use recommended seed or soil treatments for insect control (corn flea beetle, seedcorn maggot, etc.) in high risk situations.	10				
Apply pre-emerge herbicide if pre-plant was not applied.	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 st Yr	2 nd Yr	3 rd Yr
Control Johnson grass; it's known to harbor Maize Dwarf Mosaic virus which can be vectored to sweet corn by aphids.	15				
Use cultivation to control weeds.	10				
Use post emerge herbicides to control weeds.	10				
Update field weed maps, use to make treatment decisions next season.	15				
Remove weeds that are not common or are new to the field in order to prevent seed production.	15				
If a systemic insecticide or seed treatment is not used at planting, then scout seedling corn (up to 7-leaf stage) at least twice per week for corn flea beetle; treat if thresholds published in the Ohio Vegetable Production Guide (Bulletin 672) are exceeded.	15				
Scout whorl stage corn for European corn borer and/or fall armyworm and common armyworm infestation; when over threshold according to guidelines in Ohio Vegetable Production Guide (Bulletin 672), use granular insecticides to lessen the impact on natural enemies.	15				
Scout sweet corn in tassel stage for corn leaf aphid; treat if more than 50% of stand infested with at least 50 aphids per tassel, and predators (lady beetles and insidious flower bugs) are not abundant.	10				
Set up pheromone trap by mid-May for European corn borer (ECB) moths; check trap twice per week to count number of target moths; change lure every 2 weeks. Treat according to guidelines in OHIO VEGETABLE PRODUCTION GUIDE (BULLETIN 672).	15				
Before the earliest planting starts silking, set up pheromone trap for corn earworm (CEW) moths; check trap twice per week to count number of target moths and record highest daily temperature; change lure every 2 weeks. Treat according to guidelines in OHIO VEGETABLE PRODUCTION GUIDE (BULLETIN 672).	15				
If no corn earworm moths are caught in traps, then determine need for treat silking corn by catch of European corn borer moths in pheromone trap: treat silking corn every 5 days if 7 or more European corn borer moths are trapped per week.	10				

Scout silking corn for silk-clipping beetles only if corn is not already being treated on a regular schedule for CEW or ECB; treat during early silking if there are > 5 corn rootworm beetles or > 2 Japanese beetles per plant.	10				
Once silks have browned, move corn earworm pheromone traps to sweet corn plantings in fresh silk stage.	10				
Use a pheromone trap to detect Western bean cutworm moths, initiate scouting when moths are caught; treat if over 8% of plants have egg masses or small larvae.	10				
Use selective insecticides where possible, e.g. B.t. for ECB and Fall armyworm.	10				
Near harvest, select pesticides with the shortest pre-harvest intervals	10				
Use bird scare devices (balloons, noise makers, etc.) to protect corn ears from black birds.	10				
Use electric fencing or other means to deter raccoon feeding damage	10				
Use high fencing or other means to deter deer feeding damage.	10				

Your section total is _____ pts.

Harvest IPM Considerations

Management	Activity	Points
	None described	0

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 st Yr	2 nd Yr	3 rd Yr
Plant a cover crop as soon as harvest is complete. (Cover Crops – 340)	15				
Plow down residue as soon as possible after harvest to reduce weed residue, fungal inoculum, and insect overwintering 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				
Update field weed maps, use to make treatment decisions next season.	15				
Control fall germinating annuals and perennials to eliminate potential cutworm egg laying sites, and prevent further spread and seed production.	15				

Your section total is _____ pts. Total points for Element is 700.

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 _____