

Cabbage IPM Elements

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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 Cabbage - Primary concerns are diseases, insects, and weeds

Diseases	Insects	Weeds
Damping off	Cutworms	Annual grasses
Nematodes	Cabbage maggot	Annual broadleaf weeds
Club root	Flea beetles	Perennial weeds
Black rot	Imported cabbageworm	
Black leg	Cabbage looper	
Downy mildew	Diamondback moth	
<i>Alternaria</i> leaf spot	Onion thrips	
	Aphids	
	Harlequin bug	

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				
Apply adequate Boron according to the soil test to avoid hollow heart.	15				
Conserve organic matter by using no-tillage or minimum tillage to plant. (No-till 329)	10				
Select well drained mineral soil field.	15				
If variety chosen is susceptible to thrips, do not plant cabbage next to wheat field, which is where thrips over winter.	10				
Use heat / hot water treated seed to control black rot.	15				
Use transplants to increase crop competitiveness with weeds.	15				
Use fungicide treated seed to protect against Pythium.	15				
Select hybrids well adapted for your growing area with good disease tolerance or resistance and tolerance to Onion thrips.	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	15				

crop on which a broad spectrum herbicide was used.					
Apply pre-plant herbicides to control seedling broad leaf weeds and annual grasses if necessary.	10				
Use stale seed bed technique.	15				
Select properly rotated site at least 2-3 years away from other cole crops. (Conservation Crop Rotation – 328)	10				
Use drip tape and mulch. (Micro irrigation – 441)	10				
Transplant crop at time when cabbage maggot flies (adults) not active, as determined by flowering of indicator plants, as detailed in the Ohio Vegetable Production Guide (Bulletin 672). For direct seeded crops, seed at a time that will minimize exposure of seedlings to active cabbage maggot flies.	15				

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
Apply pre-emerge herbicides to control seedling broadleaf weeds and annual grasses if satisfactory control was not achieved.	10				
Apply insecticide for control of cabbage maggot only if seedlings will be exposed to a period of maggot fly activity.	10				
Use row covers to eliminate early season insect feeding on seedlings.	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
Use cultivation to control weeds.	10				
Use post emergence broadcast 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 that are not common or are new to the field, physically remove them in order to prevent seed production.	15				
Scout fields for key diseases, pests, and beneficial insects at least once per week	15				
Treat according to thresholds given in cabbage management chart in OH Vegetable Production Guide.	15				
Use only selective insecticides that suppress pests but allow natural enemies to survive (i.e. only those rated as least disruptive to natural enemies in chart in OH Vegetable Production Guide).	15				
For each spray application, choose products(s) most effective for the pest complex present.	15				

Your section total is _____pts.

Harvest IPM Considerations

Management	Activity	Points
	None described	

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
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 weeds after harvest to prevent further spread and seed production	15				
Plant cover crops after harvest. (Cover Crops – 340)	15				

Your section total is _____ pts. Total points for Element is 625.

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 _____