

Potato 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 Potatoes - Primary concerns are diseases, insects, & weeds

Diseases	Insects	Weeds
Seed piece decay	Colorado potato beetle	Annual grasses
Early blight	Potato leafhopper	Annual broadleaf weeds
Late blight	Aphids	Perennial weeds
<i>Botrytis</i> vine rot	Flea beetles	Yellow nutsedge
Scab	Cutworms	
<i>Fusarium</i> dry rot of tubers	European corn borer	
Mosaic, leaf roll, purple top viruses	Wireworms	
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 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 % of P and K according to soil test.	15				
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				
Install systematic tiling to provide adequate drainage or use deep rooted legumes in wet fields.	15				
Select fields that have been planted to crops other than tomato, egg plant, & pepper in the past 3 years. (Conservation Crop Rotation – 328)	15				
Locate potato fields 1/4 mile or further from previous year potato or tomato field if possible to delay Colorado Potato Beetle (CPB) infestation. (Conservation Crop Rotation – 328)	10				
Use no-till or zone-tillage to prepare planting area. (No-Till – 329)	10				
Select seed with a tolerance or resistance to the prominent viral, fungal, and bacterial diseases in your area.	15				
Buy certified seed treated with a fungicide.	15				
Deploy 1 wireworm trap per acre; if trap averages >2 wireworms per trap, use a soil insecticide at planting.	15				
Dig trench around field to control immigrating CPB adults.	15				
Maintain flamer and vacuum to remove adults or larvae from potato plants.	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	15				

contaminated with weed seed not known to occur on your farm.					
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 broadleaf weeds and annual grasses if necessary.	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
Apply pre-emerge herbicides to control seedlings broad leaves and annual grasses if necessary.	10				
Use systemic insecticides (Admire) for Colorado Potato Beetle (CPB) control	5				

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 TOMCAST or BLITECAST to time fungicide sprays for early blight, anthracnose, Septoria leaf blight, and late blight.	15				
Scout for late blight during periods of cool, wet weather. If visually detected, immediately disc surrounding area and apply an appropriate fungicide on a 7 to 10 day schedule until harvest.	15				
Scout potato field edges weekly for aggregation of CPB (trap crop concept).	15				
If threshold is exceeded, treat field edges using a selective insecticide. Thresholds listed in Ohio Vegetable Production Guide (Bulletin 672).	10				
If OHIO VEGETABLE PRODUCTION GUIDE (BULLETIN 672) threshold is exceeded, treat trap crop by flaming or other mechanical means (vacuum).	15				
Use CPB model to predict emergence of each generation, use to minimize scouting time and target sprays.	15				
Scout field for CPB; if OHIO VEGETABLE PRODUCTION GUIDE (BULLETIN 672) threshold is exceeded, treat with recommended insecticide. Use a different chemical class for each generation to avoid resistance (change chemical class after July 31).	15				
Scout for leafhopper and aphids on a weekly basis; apply controls if threshold is exceeded early to mid season, later season aphid outbreaks can be controlled biologically.	15				
Select insecticide using ratings in OHIO VEGETABLE PRODUCTION GUIDE (BULLETIN 672) to conserve natural enemies.	15				
Use cultivation to control weeds if possible.	10				
Control broadleaf weeds, annual and perennial grasses using broadcast or directed or shielded application of herbicide to control or suppress weeds between rows and after crop establishment.	10				
Remove weeds around field to reduce viruses vectored by insects to the crop.	15				
Watch for weeds that are not common or are new to the field, consider adopting a zero threshold for these weeds	15				

and physically remove them in order to prevent seed production.					
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Your section total is _____pts.

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
If Colorado Potato Beetle >0.5 adults/plant and foliage is still green, concentrate them by vine killing 100 rows, skipping 2-4 rows, etc.	15				
Flame or vacuum the beetles concentrated on the skip rows.	15				
Spray the concentrated beetles using a selective insecticide.	5				

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 st Yr	2 nd Yr	3 rd Yr
Avoid bruising or nicking harvested tubers that could predispose it to attack by pathogens.	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				
Use a post bloom sprout inhibitor.	15				
Plow down residue as soon as possible after harvest to reduce weed residue, fungal inoculum, and insect over wintering locations.	15				

Your section total is _____ pts. Total points in Element is 720.

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 _____