

Soybean IPM Elements

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The primary purpose of this document is to list current Ohio Integrated Pest Management (IPM) practices or tactics for a specific crop, with the understanding that this list is not exhaustive and is intended to be modified over time. The second intent of this IPM Element is to be used as an evaluation instrument for growers applying to conservation programs such as the Environmental Quality Incentives Program. This document is intended to help growers identify areas in their current crop production operation 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 need to complete this checklist every year of their contract, and must acquire 60% of the total points to qualify for the basic IPM scenario, and at least 80% of the points to qualify for the enhanced IPM scenario, to remain contract compliant and eligible for future payments.

Major Pests of Ohio Soybean - Primary concerns are weeds, diseases, & insects

Insects / Pests	Diseases	Weeds
Slugs	Phomopsis seed decay	Annual grasses
Bean leaf beetle	Pythium seed rot	Annual broadleaf weeds
Two-spotted spider mite	Phytophthora damping off & seedling blight	Perennial weeds
Mexican bean beetle	Rhizoctonia seed and seedling blight	Herbicide resistant biotypes
Green cloverworm	Phytophthora root & stem rot	
Soybean aphid	Sclerotinia stem rot	
	Brown stem rot	
	Diaporthe stem canker	
	Frogeye leaf spot	
	Brown spot	
	Bean Pod Mottle Virus	
	Soybean Mosaic Virus	
	Sudden death syndrome	
	Soybean cyst nematode	

Educational IPM Considerations

Check activities currently performed on your farm and add their associated points for a section total.

Activity	Points	IPM Score			
		Baseline	1 st Yr	2 nd Yr	3 rd Yr
Join local or state grower associations that handle this commodity, e.g. Ohio Soybean Association	5				
Attend winter or summer educational meetings and field days annually to keep current on pest management recommendations	10				
Producer accesses general and discipline websites e.g. http://corn.osu.edu , http://entomology.osu.edu/ag/ , http://agcrops.osu.edu/ , or http://www.oardc.ohio-state.edu/ohiofieldcropdisease/soybeans/soybeans1.htm for current pest information.	5				
Producer receives or accesses the Crop Observation and Reporting Network (C.O.R.N.) newsletter weekly during the growing season. http://agcrops.osu.edu/	10				
Producer possesses recent copy of the OSU Extension Agronomy Guide – bulletin 472	10				
Producer possesses recent copy of OSU Extension Weed Control Guide – bulletin 789	10				
Producer possesses recent copy of OSU Extension Corn, Soybean, Wheat, and Alfalfa field guide – bulletin 827	10				
Tri-State Fertilizer Recommendations for Corn, Soybean, Wheat, and Alfalfa, bulletin E-2567	10				
Producer possesses a recent copy of Profitable Soybean Disease Management in Ohio bulletin 895	10				
Research alternative markets that encourage less pesticide use, e.g. organic, eco label, IPM label, etc.)	5				
Your section total is	85 pts.	pts.	pts.	pts.	pts.

Pesticides and Record Keeping

Check activities currently performed on your farm and add their associated points for a section total.

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 low drift 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. http://www.nysipm.cornell.edu/publications/eiq/	10				
Among pesticides of comparable efficacy, use the one with the lowest Environmental Impact Quotient.	10				
Your section total is	75 pts.	pts.	pts.	pts.	pts.

Pre-plant IPM Considerations

Check activities currently performed on your farm and add their associated points for a section total.

Activity	Points	IPM Score			
		Baseline	1 st Yr	2 nd Yr	3 rd Yr
Soil test fields for nutrient analysis and pH levels every 2 years.	15				
For lime, use Tri State Fertility guide for recommendations and apply according to soil test results and realistic yield goal of the crop to maintain pH between 6.5 and 7.0.	10				
For general soil fertility, use Tri State Fertility guide (bulletin E-2567) for recommendations and apply according to soil test results and realistic yield goal of the crop.	10				
Conserve organic matter by using no-tillage or minimum tillage.	10				
Do not plant soybeans continuously; rotate soybean with corn, small grains, or alfalfa.	15				
Rotate away from soybean for at least three years to manage high populations of soybean cyst nematode.	10				
Use soybean cyst nematode resistance varieties in fields with soybean cyst nematodes at low populations in conjunction with a crop rotation sequence designed to reduce nematode populations.	15				
Scout no-till fields for slug eggs and small juvenile slugs; treat if threshold is exceeded.	10				
Select varieties with a combination of Rps genes and partial resistance for Phytophthora root rot.	15				
Select varieties resistance to Sclerotinia stem rot, Sudden death syndrome and frogeye leaf spot for fields with a history of these diseases.	15				
Improve soil drainage in fields by adding tile or other drainage measures.	15				
Herbicide programs and rates are selected on a field-by-field basis, based on tillage, soil factors, and knowledge about weed species composition and severity.	15				
Use cultural practices such as narrow rows or delayed planting to minimize weed populations and maximize competitiveness of the crop.	15				
Rotate herbicide site of action in-season and annually to minimize the risk of developing herbicide-resistant weed populations.	15				
Your section total is	185	pts.	pts.	pts.	pts.

At-planting IPM Considerations

Check activities currently performed on your farm and add their associated points for a section total.

Activity	Points	IPM Score			
		Baseline	1 st Yr	2 nd Yr	3 rd Yr
For fields not planted to soybeans in the past 3 years, add a Rhizobium inoculant at planting for added plant vigor.	10				
For fields with a history of replant issues, poor stand establishment, or no-till, choose fungicide seed treatments with a combination of active ingredients.	10				
Reduce weed spread by steam cleaning or power washing tillage, planting, and spraying equipment between fields.	10				
Your section total is	30 pts.	pts.	pts.	pts.	pts.

In-season IPM Considerations

Check activities currently performed on your farm and add their associated points for a section total.

Activity	Points	IPM Score			
		Baseline	1 st Yr	2 nd Yr	3 rd Yr
Monitor fields several times during the early season for bean leaf beetle activity; treat if damage exceeds the threshold.	10				
Scout no-till fields after emergence for slug damage; treat if the threshold is exceeded.	10				
Monitor fields during the R2-R6 stages for soybean aphid; treat if aphid numbers or damage exceeds the threshold.	10				
Monitor soybean canopy for general defoliators (Japanese beetle, green green cloverworm, etc.) during the season; treat if damage exceeds the threshold.	10				
Scout late planted fields for pod feeding by bean leaf beetle; treat if damage exceeds the threshold	15				
Place yellow sticky traps in soybean fields and monitor weekly to determine if Western corn rootworm beetle numbers are high enough to justify soil insecticide treatment the following year in corn.	10				
Control alternate weed hosts such as Purple dead nettle, Henbit, etc., in fields to reduce soybean cyst nematode populations.	15				
Scout fields planted to susceptible varieties at flowering for frog-eye leaf spot and Sclerotinia apothecia; treat with a fungicide if present.	10				
Scout fields beginning 3-4 weeks after planting to guide post herbicide application timing and selection.	15				
Scout field after herbicide application to determine percent control.	5				
Spot herbicide treatments are based on available economic thresholds or concentrated weed competition in localized areas.	10				
Control new or problem weeds in alleyways, ditch banks, fencerows, roadways, and adjoining non-crop land by chemical or non-chemical means to prevent them from going to seed.	15				
Your section total is	135 pts.	pts.	pts.	pts.	pts.

Harvest IPM Considerations

Check activities currently performed on your farm and add their associated points for a section total.

Activity	Points	IPM Score			
		Baseline	1 st Yr	2 nd Yr	3 rd Yr
Harvest pod damaged fields first to avoid moldy seed caused by Phomopsis.	15				
Your section total is	15 pts.	pts.	pts.	pts.	pts.

Post-Harvest IPM Considerations

Check activities currently performed on your farm and add their associated points for a section total.

Activity	Points	IPM Score			
		Baseline	1 st Yr	2 nd Yr	3 rd Yr
Lightly bury soybean residue to reduce the amount of disease organisms surviving in the field when foliar disease levels are high.	15				
Maintain cool and dry grain storage conditions (13-14%) to prevent storage molds from developing.	15				
Sample fields at least every 5 years for soybean cyst nematode to monitor population levels.	15				
Evaluate and identify successful practices, incorporate them into next years crop.	10				
Update field weed maps during harvest to make treatment decisions next season.	15				
Scout fields in late October / early November to determine if winter annual or perennial weed populations warrant herbicide control for next spring's planting, which also reduces black cutworm populations.	15				
Monitor stored grain monthly for insects using insect probe traps.	10				
Your section total is	95 pts.	pts.	pts.	pts.	pts.

Total Points Possible for Soybean IPM Element = 620

60% of Points = 375

80% of Points = 500

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 _____