Rutgers Cooperative Extension
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SOYBEAN IPM FIELD GUIDE

Year Prior to Planting Soybeans

If soil texture has never been analyzed or if there has been a change in cropping patterns or significant erosion, obtain a soil sample as instructed below the year prior to planting soybeans.

PROCEDURE	HOW TO SAMPLE	USE OF THIS INFORMATION	ADDITIONAL NOTES
Analysis of Soil Texture, Organic Matter, and pH	Using a county soil map, identify the different soils in the field. Take a sample from each area where soil types differ. Submit to lab for mechanical analysis of texture and analysis of Cation Exchange Capacity (CEC), organic matter (OM), and pH.	With this information an integrated weed management program can be designed using cultural and/or chemical controls for each soil type in a field. Soil type and pH differences within a field affect rate of application, carryover and other interactions.	Mechanical analysis generally only needs to be done once unless there is significant erosion or changes in cropping patterns. CEC and pH should be analyzed annually. Organic matter analysis should be done every 5 - 10 years.

Scout once prior to harvest to determine weed potential for next season's soybeans.

Weeds	Sampling	Threshold	Notes
Zero Tolerance Weeds: Horsenettle, Groundcherry, Yellow Nutsedge, Canada Thistle, Common Milkweed, Hemp Dogbane, Bindweed spp., Jerusalem Artichoke, Nightshade, Common Cocklebur, Bur Cucumber, Johnsongrass, Bermudagrass (277, 1326)*	Scout field in a zigzag pattern. Sample 10 random locations 1 square yard in size or 10 ft. of row, whichever pattern best suits existing conditions. Map the location of these weeds.	presence	Select control measures to eradicate these perennials for the next cropping season. See "Postharvest Perennial Weed Control" for treatment options. **(292)** Common cocklebur is very competitive.
Summer Annuals, Jimsonweed **(277, 1326)**	Scout as outlined above for the presence of existing weeds. Potential weed problems are best identified by a non treated weedy check. Identify the weeds, and count # of each species. Note whether specific weeds are scattered throughout the field or predominate in one area of the field.	**Nightshades:** presence **Others: <u>Number of weeds per 10 ft. of row or 1 sq. yd</u>**. < 1 weed = very light 1-4 weed = light 4-10 weeds = medium 10-100 weeds = heavy > 100 weeds = very heavy	Untreated check provides most reliable information for planning the weed control strategy for the coming season.

Production Year

Pre-Planting Decisions:

1. Use locally adapted, disease resistant varieties. **(91)**
2. Fertilize and lime according to soil test recommendations. **(1584)**
3. Sample poorly growing areas of field and submit to laboratory for detection of nematodes before planting next crop. **(384)**
4. Practice 2 year rotation using resistant varieties and non-host crops to control soybean cyst nematode. **(91, 954, 959)**
5. Use seed treatment to control damping off and seedcorn maggot. **(91)**

Cotyledon to First True Leaf

PEST	Damaging/ Monitored Stage	SAMPLING Method	SAMPLING Frequency	THRESHOLD	NOTES
Seedcorn Maggot **(183)**	larval	Measure out 1/1000 of an acre in linear feet. Count the number of plants in that distance in 5 locations.	Once, at the time of the first true leaves.	7" rows plant population of 180,000 - 200,000 plants/acre	Compare stand count with intended plant density. If close, do not replant. If isolated areas are sparsely populated, consider seeding just those areas. **(967, 968, 336)**

Within first four weeks after planting:

PEST	SAMPLING Method	SAMPLING Frequency	THRESHOLD	NOTES
Annual Weeds **Zero Tolerance Weeds (ZTW):** **Horsenettle, Groundcherry** **Yellow Nutsedge, Canada Thistle,** **Common Milkweed,** **Hemp Dogbane, Bindweed spp.,** **Jerusalem Artichoke,** **Nightshade, Common Cocklebur,** **Bur Cucumber, Johnsongrass,** **Bermudagrass** **(277, 1326)**	Sample five 1 square yard areas in field. Count number of weeds. Record plant species. Map perennial weeds & zero tolerance weeds.	once during this period	1 annual weed/square yard ZTW: 1/4 weed/square yard.	Scout for zero tolerance weeds, especially cocklebur and Johnsongrass. **(1582)**
All Weeds	Sample in the same manner as outlined above.	One week after controls have been instituted from previous scouting.	1 annual weed per square yard 1/4 ZTW per square yard	The purpose of this scouting is to evaluate how well the weed control strategies worked. If above tolerance weed populations still exist, controls will be required.

First True Leaf - Bloom

PEST	Damaging Stage	SAMPLING Method	SAMPLING Frequency	THRESHOLD	NOTES
Various insect defoliators **(183, 1583)**	larvae of caterpillars adults & immatures of beetles & grasshoppers	Sample 5 areas of the field. Evaluate for % defoliation using defoliation chart. **(185)**	Weekly for the first 4 - 5 weeks; then every other week.	first true leaves - bloom: 35% bloom - pod set: 20% pod fill 35% pod fill - maturity 35+% **(884)**	common defoliators: Mexican bean beetle, Japanese beetle, grasshoppers, green cloverworm, skipper larvae, white woolly bear caterpillar

Bloom to Pod Fill

PEST	Damaging/ Monitored Stage	SAMPLING Method	SAMPLING Frequency	THRESHOLD	NOTES
Spider Mites **(183)**	adult & nymph	Start in early July, scouting field borders first. Sample 5 areas of the field. Examine base of leaf for sandblasted appearance or white stippling	Once every 2 weeks unless near threshold; then more frequent visits required.	20 - 30 live mites + 50% of plants exhibit > 1.5 rated damage. Spot treat isolated areas/field edges with heavy infestations. **(938)**	Rate leaves as follows: 0 = no injury 1 = light, white stippling around base of veins; < 1/3 of area affected 2 = stippling over 1/3 - 2/3 of leaf area; feeding patches join at base. 3 = stippling ≥ 2/3 of leaf area; dense feeding patches, leaves green 4 = yellowing on < 50% of leaf area; margins brown, blanched & shriveled. **(938)**

***Bolded numbers in parenthesis indicate sources of additional information found in the Mid-Atlantic IPM Database by this special reference number.**

Scouting procedures, thresholds, and crop management recommendations have been compiled from a number of sources and may not be valid for all areas within the Mid-Atlantic Region. They are meant to be used as guidelines. As such, they should be validated on small acreages before relying on them. No guarantee of their validity, success, or failure to perform in the field is implied or expressed. Consult your local Cooperative Extension Agent for additional information or assistance.