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SNAP BEAN (PROCESSING) IPM FIELD GUIDE

Pre-planting Decisions

1. Use a combination of cultural practices to reduce problems from seed corn maggot.
    - Plow down cover crops 3 - 4 weeks before planting.
    - Completely bury cover crops or previous crop residues to reduce adult fly attraction to rotting organic matter.
    - Reduce use of heavy manure applications and let manure age before incorporation.
    - Use a set of drag chains behind the planter during seeding to reduce the moisture gradient.
2. Use a soil applied seed treatment if a combination of factors favoring seed corn maggot exists.
3. Obtain access to weather station information for white mold forecasts.
4. Rotate fields with non legume crops and plow under crop residue to avoid root rot.
5. Select varieties with rust resistance.
6. Races 1,3,5, and 9 of the soybean cyst nematode are present in soybeans in Delaware. If rotating snap beans with soybeans, obtain soil sample for analysis for presence of nematodes prior to planting. **(292)***
7. Use the information obtained from scouting weeds the previous year to select recommended control strategies for those weeds.
8. Match preplant incorporated and preemergence herbicide rates to soil type (obtained by mechanical analysis) and percent organic matter in each field. **(292)**

Emergence to Third Trifoliate

PEST	Damaging/ Monitored Stage	SAMPLING Method	SAMPLING Frequency	THRESHOLD	NOTES
Seed Corn Maggot	Larval	Examine 10 seeds in various locations for feeding injury. Determine severity of infestation. Record % stand reduction, average plant population. **OR** visually scout 100 foot samples and determine % stand.	a week after planting or at plant emergence	Rescue efforts ineffective. 50% stand reduction usually indicates need to replant.	Seedcorn maggot feeding seldom results in detectable above-ground symptoms. If it is necessary to replant, incorporate insecticide prior to planting.
Thrips **(34, 948)**	All	Collect 5 leaves in each of 10 locations throughout field. Count number of thrips per leaflet.	weekly from plant emergence through bloom	$\geq$ 6 thrips/leaflet. If plants are drought stressed or other insects are present, reduce threshold by 1/3 to 1/2.	**Sampling:** Leaflets should be selected from the middle and top half of non-consecutive plants.

Emergence to Third Trifoliate, continued

PEST	Damaging Stage	Monitored Stage	SAMPLING Method	SAMPLING Frequency	THRESHOLD	NOTES
Spider Mites (140)	all	all	Examine 10 leaves in 5 - 10 locations. Begin at field edges; look for white stippling near base of leaf. Count number of mites/leaf.	Weekly, begin in early July during hot dry seasons.	When white stippling is first noticed & ≥ 20 mites/leaflet.	Rainfall & high humidity help to reduce mite development & survival. Rain does not suppress heavy populations under high temperatures.
Mexican Bean Beetle **Bean Leaf Beetle** (2, 140, 799)	adult larval	adult larval egg	Scout field margins next to overwintering sites. Record % stand reduction, estimate % defoliation, count # beetles/plant	Weekly	Before first trifoliate: ≥ 6 beetles/ row foot + ≤ 75% stand reduction. First to third trifoliate: ≥ 2 beetles/plant + 20% defoliation	

Prebloom Stage: Third Trifoliate to Pre-Bud

PEST	Damaging Stage	Monitored Stage	SAMPLING Method	SAMPLING Frequency	THRESHOLD	NOTES
Potato Leafhopper (PLH) (2, 799)	all	all	10 sweeps in 10 random locations. Count # of PLH adults & nymphs. Calculate avg. # PLH per sweep.	Weekly	≥ 5 leafhoppers per sweep	**Sampling:** Use standard 15 in. diameter sweep net.
Mexican Bean Beetle (2, 799)	adult larval	adult larval egg	Estimate % defoliation on 5 plants in 5 - 10 locations. Determine predominant life stage	Weekly	≥ 20% defoliation	**Treatment:** delay treatment if predominant life stages are eggs or pupae.
Bean Aphid (799)	all	all	Sample 5 terminals in 5 -10 locations. Count # terminals with ≥ 5 aphids per terminal	Weekly	≥ 50% of terminals with ≥ 5 aphids per terminal and aphids are found throughout the field.	Aphids are generally found on the lower leaf surfaces and terminal buds.
Green Cloverworm (799)	larval	larval	10 sweeps in 10 locations. Count # larvae per sweep	Weekly	≥ 20% defoliation + ≥ 15 larvae per sweep	Use a standard 15 inch sweep net.
European Corn Borer (ECB) (2, 113, 351, 948)	larval	adult larval	Sample 5 plants in 5 - 10 locations for presence of small larvae. Blacklight trap (BLT) catches ≥ 20 moths/night	Scouting: 2x/week BLT: 3x/week	Pre-bud stage: trap catches of ≥ 20 moths/night. **OR** Presence of small larvae boring into stems.	Treatment should be applied at pre-bud stage when threshold reached.

Disease	Sampling	Frequency	Threshold	Notes
White Mold	Check soil moisture during rainy periods. Place a rain gauge in the field, use a portable tensiometer & correct forms for forecasting.	Begin 26 - 28 days after planting. 2x per week until post-	**Prior to Bloom:** ≥ 6-10 days of wet soil conditions. **Forecasting:** See white	White mold is generally only a problem in PA where close row spacing may create favorable environmental conditions. **Treatment:** apply when 70-80% of plants

(2, 7)	Forecasting valid for fields up to 30 acres.	bloom	mold chart. **(8)**	have ≥ 1 open blossom. **(292)**

Bud Stage to Harvest

PEST	Damaging Stage	Monitored Stage	SAMPLING Method	SAMPLING Frequency	THRESHOLD	NOTES
European Corn Borer (ECB) **(2, 113, 351, 948)**	larval	adult larval	Blacklight trap (BLT) within one mile radius of field.	3x per week	**Bud & early bloom stages**: ≥ 5 ECB moths/night in BLT **OR** if moths are readily apparent in field. **Thresholds for pin stage:** ECB Moths/5 days — Spray Interval < 10 — no spray 11 - 25 — 7 days 26 - 50 — 6 days 51- 75 — 5 days 76 – 250 — 4 days 250+ — 3 days	Most critical stage for control is bud and early bloom. If threshold is reached, apply first spray at bud, second spray at early pin. See thresholds for pin stage to determine if a third spray is required.
Corn Ear-worm (CEW) **(94, 948)**	larval	adult larval	BLT, pheromone traps & field observations for moths. Drop cloth for larvae.	2-3x per week	BLT catches ≥ 20/night and most corn in the area is mature.	**Treatment:** 3-7 day interval dependent upon ECB activity & temperature.

Disease	Sampling	Threshold	Notes
White Mold **(2, 7)**	Watch for development of white mold, especially in narrow row plantings.	Moist soil for 6 - 10 days before bloom.	**Treatment:** Apply first treatment when 70-80% of plants have one or more blossoms open. A second treatment is needed in 5-6 days if soil remains wet & blossoms are still present. Generally a problem only in PA where close row spacing may create favorable environmental conditions. **(292)**

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