

Insect Management in Soybeans – 2018

*David Owens, Extension Entomologist Specialist and Bill Cissel, Extension IPM Agent University of Delaware
(adapted from VA Pest Management Guide, section written by D. Ames Herbert Jr, retired Extension Entomologist)*

NOTE: The label is the law. Be sure to read the label before making any pesticide applications and observe all label restrictions including but not limited to days from last application to harvest.

OLF= Other-labeled formulations

Bean Leaf Beetle, Mexican Bean Beetle and Green Cloverworm

Insecticides Labeled for Control of Bean Leaf Beetle, Mexican Bean Beetle, and Green Cloverworm				
Insecticide (Formulation)	Amount active ingredient per acre	Amount product per acre	Time limits: days before harvest (grain/seed only)	Remarks
acephate (Acephate 97 UP) or OLF	0.73 to 0.97 lb.	0.75 to 1.0 lb.	14	GENERAL USE
beta-cyfluthrin (Baythroid XL)	0.013 to 0.022 lb.	1.6 to 2.8 fl. oz.	21	RESTRICTED USE
bifenthrin (Sniper 2EC) or OLF	0.033 to 0.10 lb.	2.1 to 6.4 fl. oz.	18	RESTRICTED USE
cyfluthrin (Tombstone) or OLF	0.025 to 0.044	1.6 to 2.8 fl. oz.	45	RESTRICTED USE
esfenvalerate (Asana XL)	0.03 to 0.05 lb.	5.8 to 9.6 fl. oz.	21	RESTRICTED USE
lambda-cyhalothrin+ chlorantraniliprole (Besiege)	0.016 +0.033lb. to 0.026 + 0.052 lb.	5.0 to 8.0 fl. oz.	30	RESTRICTED USE
lambda-cyhalothrin (Warrior II [2.08]) or OLF	0.015 to 0.025 lb.	0.96 to 1.60 fl. oz.	30	RESTRICTED USE
methomyl (Lannate LV)	0.225 to 0.3 lb.	0.75 to 1.0 pt.	14	RESTRICTED USE
zeta-cypermethrin (Mustang Maxx)	0.0175 to 0.025 lb.	2.8 to 4.0 fl. oz.	21	RESTRICTED USE
Insecticides Labeled for Green Cloverworm Only				
chlorantraniliprole (Coragen 1.67 SC)	0.045 to 0.098 lb.	3.5 to 7.5 fl. oz.	1	GENERAL USE
indoxacarb (Steward EC)	0.045 to 0.11 lb.	4.6 to 11.3 fl. oz.	21	GENERAL USE
methoxyfenozide (Intrepid 2F)	0.06 to 0.12 lb.	4.0 to 8.0 fl. oz.	14	GENERAL USE
spinetoram (Radiant SC)	0.016 to 0.031 lb.	2.0 to 4.0 fl. oz.	28	GENERAL USE
spinosad (Blackhawk)	0.025 to 0.05 lb.	1.1 to 2.2 oz.	28	GENERAL USE

Thrips

Thrips rarely require treatment; however, early season injury to drought-stressed plants may occasionally reduce yields. Both nymphs and adults feed on the undersides of the leaves, causing small, silvery streaks and whitish or yellowish discoloration. Treatment may be required when injury appears on drought-stressed plants and more than eight thrips per leaflet are found.

Foliar Insecticides Labeled for Control of Thrips				
Insecticide (Formulation)	Amount active ingredient per acre	Amount product per acre	Time limits: days before harvest (grain/seed only)	Remarks
acephate (Acephate 97 UP) or OLF	0.24 to 0.49 lb.	0.25 to 0.5 lb.	14	GENERAL USE
beta-cyfluthrin (Baythroid XL)	0.007 to 0.013 lb.	0.8 to 1.6 fl. oz.	21	RESTRICTED USE
bifenthrin (Sniper 2EC) or OLF	0.033 to 0.10 lb.	2.1 to 6.4 fl. oz.	18	RESTRICTED USE
cyfluthrin (Tombstone) or OLF	0.013 to 0.025	0.8 to 1.6 fl. oz.	45	RESTRICTED USE
lambda-cyhalothrin (Warrior II [2.08]) or OLF	0.015 to 0.025 lb.	0.96 to 1.60 fl. oz.	30	RESTRICTED USE
methomyl (Lannate LV)	0.225 to 0.3 lb.	0.75 to 1.0 pt.	14	RESTRICTED USE
lambda-cyhalothrin+ thiamethoxam (Endigo ZC)	0.024 + 0.032 to 0.028 + 0.037	3.5 to 4.0 fl. oz.	30	RESTRICTED USE. 
zeta-cypermethrin (Mustang Maxx)	0.02 to 0.025 lb.	3.2 to 4.0 fl. oz.	21	RESTRICTED USE

Potato Leafhopper

Leafhoppers attack soybeans during late June through July but rarely reach population levels that affect yields. Use a sweep net to take ten sweeps in each of ten locations in the field and count the number of leafhoppers. As a general guideline, a treatment may be needed when injury appears and infestations exceed four leafhoppers per sweep in stressed beans or eight leafhoppers per sweep in normal growing fields.

Insecticides Labeled for Control of Leafhoppers				
Insecticide (Formulation)	Amount active ingredient per acre	Amount product per acre	Time limits: days before harvest (grain/seed only)	Remarks
acephate (Acephate 97 UP) or OLF	0.49 to 0.97 lb.	0.5 to 1.0 lb.	14	GENERAL USE
beta-cyfluthrin (Baythroid XL) or OLF	0.007 to 0.013 lb.	0.8 to 1.6 fl. oz.	21	RESTRICTED USE
bifenthrin (Sniper 2EC) or OLF	0.033 to 0.10 lb.	2.1 to 6.4 fl. oz.	18	RESTRICTED USE
cyfluthrin (Tombstone)	0.013 to 0.025	0.8 to 1.6 fl. oz.	45	RESTRICTED USE
esfenvalerate (Asana XL)	0.015 to 0.03 lb.	2.9 to 5.8 fl. oz.	21	RESTRICTED USE
lambda-cyhalothrin (Warrior II [2.08])	0.015 to 0.025 lb.	0.96 to 1.60 fl. oz.	30	RESTRICTED USE
lambda-cyhalothrin + thiamethoxam (Endigo ZC)	0.024 + 0.032 to 0.028 + 0.037	3.5 to 4.0 fl. oz.	30	RESTRICTED USE 
zeta-cypermethrin (Mustang Maxx)	0.0175 to 0.025 lb.	2.8 to 4.0 fl. oz.	21	RESTRICTED USE

Spider Mites

Mite outbreaks usually are associated with hot, dry weather, which accelerates reproduction and development. During periods of high humidity and field moisture, a fungal disease can reduce populations but high temperatures can nullify these effects.

Check weekly for mites, starting in early July through August, especially during a hot, dry season. Concentrate on the field borders and look for the early signs of white stippling at the bases of the leaves. Determine the extent of the infestation and assess the level of injury by examining 20 to 30 plants in the infested area. If isolated spots of mite activity are confined to the perimeter of the field, spot-treatment using ground equipment is recommended to prevent further spread of mites into the field. If the infestation is distributed throughout the interior of the field, treatment of the entire field is suggested if live mites are numerous and more than 50 percent of the plants show stippling, yellowing, or defoliation over more than one-third of the leaves. If rains come, mite development and survival will decrease but may not drop to economic levels if heavy populations are developing under high temperatures.

Insecticides Labeled For Mite Control				
Insecticide (Formulation)	Amount active ingredient per acre	Amount product per acre	Time limits: days before harvest	Remarks
abamectin (Agri-Mek 0.7 SC)	0.0096 to 0.019	1.75 to 3.5 fl. oz.	28	RESTRICTED USE <i>NOTE – only labeled formulation- see label for adjuvant requirement to avoid illegal residues</i>
bifenthrin (Sniper 2EC) or OLF	0.08 to 0.1 lb.	5.12 to 6.4 fl. oz.	18	RESTRICTED USE
etoxazole (Zeal 2.88 SC)	0.045 to 0.135 lb.	2.0 to 6.0 fl. oz.	Do Not Apply after R-5 stage R5 = Beginning seed - seed is 1/8 inch long in the pod at one of the four uppermost nodes on the main stem	RESTRICTED USE <i>NOTE – only labeled formulation</i>
zeta-cypermethrin + bifenthrin (Hero)	0.10 lb.	10.3 fl. oz.	21	RESTRICTED USE

Corn Earworm

1. Sampling: Outbreaks often follow a midsummer drought, which causes the corn to ripen earlier and become less attractive to the moths. Female moths prefer to lay eggs in open-canopied, late-blooming soybean fields. Drought conditions also delay soybean maturity and prevent normal canopy growth, so peak moth activity is more coincidental with blooming of open-canopied fields.

Sampling for corn earworm should be done on a weekly basis from mid-August through September using a sweep net. Each sample should consist of 15 net sweeps with a 15-inch diameter sweep net done continuously one after the other. Each sweep consists of swinging the net in one direction through the foliage so that the top of the net passes 2 or 3 inches below the tops of plants. Fifteen consecutive sweeps are done from one side to the other while walking down a middle row. Swing the net with enough force to dislodge insects into the net. If some leaves are not broken off and in the net after the sample, the sampler is not using enough force. After each sample, stop and count how many earworms are in the net. Thresholds are based on the number of earworms per sample.

2. Decision Making: As a general guideline, thresholds are presented at the end of this chapter. Visit the website <http://soybeans.ces.ncsu.edu/thresholds/> for access to the new threshold calculator.

Insecticides Labeled for Corn Earworm Control				
Insecticide (Formulation)	Amount active ingredient per acre	Amount product per acre	Time limits: days before harvest	Remarks
beta-cyfluthrin (Baythroid XL)	0.022 lb.	2.8 fl. oz.	21	RESTRICTED USE
bifenthrin (Sniper 2EC) or OLF	0.10 lb.	6.4 fl. oz.	18	RESTRICTED USE
chlorantraniliprole (Corgen 1.67 SC)	0.045 to 0.098 lb.	3.5 to 7.5 fl. oz.	1	GENERAL USE
esfenvalerate (Asana XL)	0.035 lb.	9.6 fl. oz.	21	RESTRICTED USE
indoxacarb (Steward EC)	0.045 to 0.11 lb.	4.6 to 11.3 fl. oz.	21	GENERAL USE
lambda-cyhalothrin + chlorantraniliprole (Besiege)	0.016 + 0.033 lb. to 0.026 + 0.052 lb.	5.0 to 8.0 fl. oz.	30	RESTRICTED USE
lambda-cyhalothrin (Warrior II [2.08]) or OLF	0.03 lb.	1.92 fl. oz.	30	RESTRICTED USE
spinetoram (Radiant SC)	0.016 to 0.031 lb.	2.0 to 4.0 fl. oz.	28	GENERAL USE
spinosad (Blackhawk)	0.038 to 0.05 lb.	1.7 to 2.2 oz.	28	GENERAL USE
zeta-cypermethrin (Mustang Maxx)	0.025 lb.	4.0 fl. oz.	21	RESTRICTED USE

Grasshopper

Insecticides Labeled for Control of Grasshoppers				
Insecticide (Formulation)	Amount active ingredient per acre	Amount product per acre	Time limits: days before harvest (grain/seed only)	Remarks
acephate (Acephate 97 UP) or OLF	0.24 to 0.49 lb.	0.25 to 0.5 lb.	14	GENERAL USE
beta-cyfluthrin (Baythroid XL)	0.016 to 0.022 lb.	2.0 to 2.8 fl. oz.	21	RESTRICTED USE
beta-cyfluthrin + imidacloprid (Leverage 360)	0.02 + 0.04 lb.	2.8 fl. oz.	21	RESTRICTED USE 
bifenthrin (Sniper 2EC) or OLF	0.033 to 0.10 lb.	2.1 to 6.4 fl. oz.	18	RESTRICTED USE
dimethoate (Dimethoate 400) or OLF	0.5 lb.	1.0 pt.	21	RESTRICTED USE
cyfluthrin (Tombstone) or OLF	0.031 to 0.044	2.0 to 2.8 fl. oz.	45	RESTRICTED USE
esfenvalerate (Asana XL)	0.03 to 0.05 lb.	5.8 to 9.6 fl. oz.	21	RESTRICTED USE
lambda-cyhalothrin (Warrior II [2.08]) or OLF	0.025 to 0.03 lb.	1.60 to 1.92 fl. oz.	30	RESTRICTED USE
lambda-cyhalothrin + thiamethoxam (Endigo ZC)	0.031 + 0.041 lb.	4.5 fl. oz.	30	RESTRICTED USE 
zeta-cypermethrin (Mustang Maxx)	0.02 to 0.025 lb.	3.2 to 4.0 fl. oz.	21	RESTRICTED USE

Beet Armyworm (BAW), Fall Armyworm (FAW), and Yellow Striped Armyworm (YSW)

Insecticides Labeled for FAW and YSW Control				
Insecticide (Formulation)	Amount active ingredient per acre	Amount product per acre	Time limits: days before harvest	Remarks
acephate (Acephate UP 97) or OLF	0.73 to 0.97 lb.	0.75 to 1.0 lb.	14	GENERAL USE FAW and YSW only
beta-cyfluthrin (Baythroid XL)	0.013 to 0.022 lb.	1.6 to 2.8 fl. oz.	21	RESTRICTED USE <i>first and second instar only</i>
bifenthrin (Sniper 2EC) or OLF	0.033 to 0.10 lb.	2.1 to 6.4 fl. oz.	18	RESTRICTED USE
lambda-cyhalothrin (Warrior II [2.08]) or OLF	0.03 lb.	1.92 fl. oz.	30	RESTRICTED USE
Insecticides Labeled for BAW, FAW and YSW Control				
chlorantraniliprole (Corgen 1.67 SC)	0.045 to 0.098 lb.	3.5 to 7.5 fl. oz.	1	GENERAL USE BAW and FAW only
indoxacarb (Steward EC)	0.045 to 0.11 lb.	4.6 to 11.3 fl. oz.	21	GENERAL USE
lambda-cyhalothrin + chlorantraniliprole (Besiege)	0.033 + 0.065 lb.	10.0 fl. oz.	30	RESTRICTED USE
methoxyfenozide (Intrepid 2F)	0.06 to 0.12 lb.	4.0 to 8.0 fl. oz.	14	GENERAL USE
spinetoram (Radiant SC)	0.016 to 0.031 lb.	2.0 to 4.0 fl. oz.	28	GENERAL USE BAW AND FAW ONLY
spinosad (Blackhawk)	0.038 to 0.05 lb.	1.7 to 2.2 oz.	28	GENERAL USE

Stink Bugs

Insecticides Labeled for Stink Bugs				
Insecticide (Formulation)	Amount active ingredient per acre	Amount product per acre	Time limits: days before harvest	Remarks
acephate (Acephate UP 97)	0.49 to 0.97 lb.	0.5 to 1.0 lb.	14	GENERAL USE
beta-cyfluthrin (Baythroid XL)	0.022 lb.	2.8 fl. oz.	21	RESTRICTED USE
beta-cyfluthrin + imidacloprid (Leverage 360)	0.02 + 0.04 lb.	2.8 fl. oz.	21	RESTRICTED USE 
bifenthrin (Sniper 2EC)	0.10 lb.	6.4 fl. oz.	18	RESTRICTED USE
clothianidin (Belay)	0.05 to 0.1.0 lb.	3.0 to 6.0 fl. oz.	21	GENERAL USE 
lambda-cyhalothrin (Warrior II [2.08]) or OLF	0.03 lb.	1.92 fl. oz.	30	RESTRICTED USE
lambda-cyhalothrin + thiamethoxam (Endigo ZC)	0.031 + 0.041 lb.	4.5 fl. oz.	30	RESTRICTED USE 
zeta-cypermethrin (Mustang Maxx)	0.025 lb.	4.0 fl. oz.	21	RESTRICTED USE

Soybean Looper

Insecticides Labeled for Soybean Looper				
chlorantraniliprole (Corgen 1.67 SC)	0.045 to 0.098 lb.	3.5 to 7.5 fl. oz.	1	GENERAL USE
indoxacarb (Steward EC)	0.055 to 0.11 lb.	5.6 to 11.3 fl. oz.	21	GENERAL USE
lambda-cyhalothrin + chlorantraniliprole (Besiege)	0.033 + 0.065 lb.	10.0 fl. oz.	30	RESTRICTED USE
methoxyfenozide (Intrepid 2F)	0.06 to 0.12 lb.	4.0 to 8.0 fl. oz.	14	GENERAL USE
spinetoram (Radiant SC)	0.016 to 0.031 lb.	2.0 to 4.0 fl. oz.	28	GENERAL USE
spinosad (Blackhawk)	0.038 to 0.05 lb.	1.7 to 2.2 oz.	28	GENERAL USE

Soybean Aphid

Insecticides Labeled for Soybean Aphids				
Insecticide (Formulation)	Amount active ingredient per acre	Amount product per acre	Time limits: days before harvest	Remarks
acephate (Acephate UP 97) or OLF	0.73 to 0.97 lb.	0.75 to 1.0 lb.	14	GENERAL USE
beta-cyfluthrin (Baythroid XL)	0.016 to .022 lb.	2.0 to 2.8 fl. oz.	21	RESTRICTED USE
esfenvalerate (Asana XL)	0.03 to 0.05 lb.	5.8 to 9.6 fl. oz.	21	RESTRICTED USE
lambda-cyhalothrin (Warrior II [2.08]) or OLF	0.015 to 0.025 lb.	0.96 to 1.6 fl. oz.	30	RESTRICTED USE
lambda-cyhalothrin + thiamethoxam (Endigo ZC)	0.024 + 0.032 to 0.028 + 0.037	3.5 to 4.0 fl. oz.	30	RESTRICTED USE 
zeta-cypermethrin (Mustang Maxx)	0.0175 to 0.025 lb.	2.8 to 4.0 fl. oz.	21	RESTRICTED USE

Insect Thresholds

Corn Earworm Thresholds in Soybeans¹

Sampling Tool	Row Width	Rows Sampled	Threshold - # CEW /15
Sweep Net	7"	5	2.5
	14"	3	2.4
	21"	2	3.1
	36"	1	3.1

NOTE - If other defoliating pests are present when pod damage is first evident, then adjustments should be made in the treatment thresholds for earworms. For example, if green cloverworms are actively feeding and have already caused 15 percent defoliation, then insecticide treatment would be justified at lower earworm infestations, about one-half the normal threshold. However, treatment may not be necessary if the majority of worms are infected with the fungus disease. This white to greenish-white fungus can have a significant impact on earworm populations. **Access the web** (www.ces.ncsu.edu/wp-content/uploads/2017/08/CEW-calculator-v0.006.html) **to calculate thresholds based on your estimated cost of control (product cost plus application**

cost) and today's bushel value.

Other Soybean Insect Pest Thresholds

Pest species	# per row-foot		# per 15 sweeps		Other comments
	Row Spacing		Row Spacing		
	7"-21"	above 21"	7"-21"	above 21"	
Full-season plantings					
Mexican bean beetle	4	6	24	36	Pre- Bloom: 30 % defoliation Pod-Fill : 15% defoliation Fully Developed Seeds: 35% defoliation
Spider mite	Damage occurring and live mites present				.
Other defoliators ¹					Pre- Bloom: 30 % defoliation Pod-Fill : 15% defoliation Fully Developed Seeds: 35% defoliation
Double-crop plantings with poor growth					
Mexican bean beetle	2	4	12	24	Pre-Bloom: 20% defoliation – Pod-Fill: 10% defoliation Fully Developed Seeds: 15% defoliation seeds.
Spider mite	Damage occurring and live mites present				
Other defoliators ¹					Pre-Bloom: 20% defoliation – Pod-Fill: 10% defoliation Fully Developed Seeds: 15% defoliation seeds
¹ Other defoliators include any combinations of green cloverworm, bean leaf beetle, blister beetle, Japanese beetle, soybean looper, yellowstriped armyworm, grasshoppers, or fall armyworm.					

Revised Stink Bug Thresholds for Soybean (all stink bug species combined): Apply from R3-4 to R7, double after R7

Row spacing	# per row foot		# per 15 sweeps	
	7-21" rows	Above 21"	7-21" rows	Above 21"
Soybeans for Grain	1-2	1-2	5	5
Soybeans for Seed	0.5	0.5	2.5	2.5

Soybean aphid: The current economic threshold for aphids is an average of 250 aphids per plant, on two consecutive field visits spaced about 5-7 days apart. This is because aphid populations can “crash” quickly due to heavy pressure by natural enemies like lady beetles, parasitic wasps, and fungal diseases. When scouting, choose a “Z” or “W” shaped pattern to cover the entire field and sample at least 30 plants per field by examining the entire plant, including stems and upper and lower leaf surfaces. Use the aphid/plant average for determining the need for treatment. The threshold applies to soybeans through the R5 growth stage (3 mm long seed in the pod at one of the four uppermost nodes on the main stem), after which time plants can tolerate 1,000+ aphids per plant.