

Insect Management for Legumes (Beans, Peas)¹

Jawwad A. Qureshi, Dakshina Seal, and Susan E. Webb²

Many different insects attack leguminous vegetables. Aphids damage terminals, whiteflies feed on sap and transmit bean golden mosaic virus, and caterpillars, like bean leafroller, and beetles feed on leaves. Flower thrips feed in blossoms and stink bugs, corn earworm, and leaffooted bugs damage seeds and pods.

Snap beans are becoming an important crop for Florida. Southern peas (a bean) are typical in north Florida. Many other types of beans are grown on a small scale. Increasingly, newer pesticides are being registered for the entire crop group, including legumes such as pigeon pea, yardlong bean, sword bean, and crowder pea. Labels for individual insecticides should be consulted to see if they are labeled for all types of beans.

According to already published guidelines for snap beans (Perneznny et al. 2003), management practices should include scouting twice a week for insect pests in at least one location for every 2.5 acres. More sites should be chosen in small fields (less than 20 acres). A map of the field should be drawn so that pest counts can be connected to a particular section of the field for future reference.

A sample is a 3 ft section of row. Whiteflies can be estimated by turning over several leaves in the section and counting the number of adults. Terminals should be examined for the presence of aphids. A three-by-three-foot cloth is placed on the ground for other pests, and the bean

plants are shaken over it. Insects that fall on the cloth can be identified and counted. The growth stage of the plant and an estimate of defoliation should be recorded. Snap beans can tolerate up to 20% defoliation before pod set and 10% after pod set.

A systemic insecticide (a neonicotinoid) should be applied at planting to control aphids and whiteflies. Later in the season, when the effects of the systemic wear off, an insect growth regulator for whiteflies may be applied. Because it is the pod that is sold, damage to this part of the plant is the most serious concern. An insecticide appropriate for the pests present should be applied at pinpod. At least one more application may be needed before harvest.

For the organic grower, a number of OMRI-listed insecticides have been listed in the table (see the Notes column).

Reference

Perneznny, Ken, Gregg Nuessly, and William Stall. 2003. Integrated pest management for Florida snap beans. PPP37. Gainesville: University of Florida Institute of Food and Agricultural Sciences. 8 p. <https://edis.ifas.ufl.edu/pp117>.

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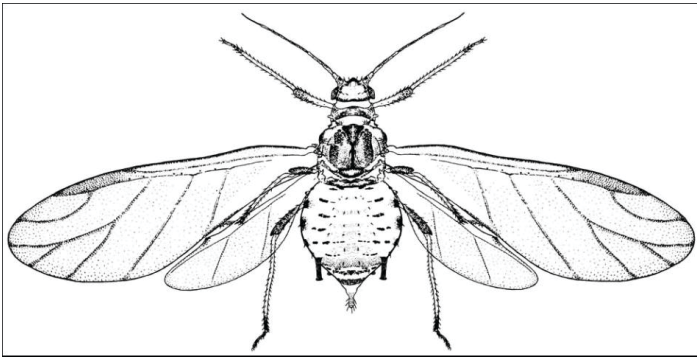


Figure 1. Cowpea aphid, *Aphis craccivora* Koch.
Credits: John L. Capinera, University of Florida

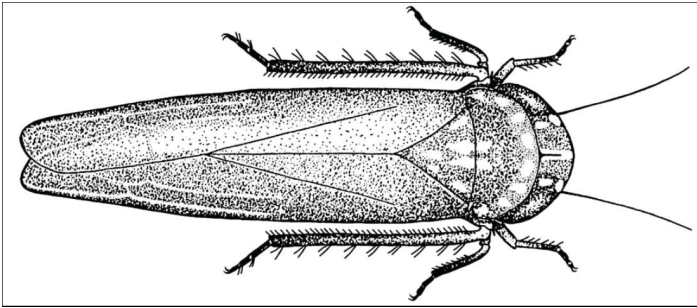


Figure 2. Potato leafhopper, *Empoasca fabae*.
Credits: John L. Capinera, University of Florida

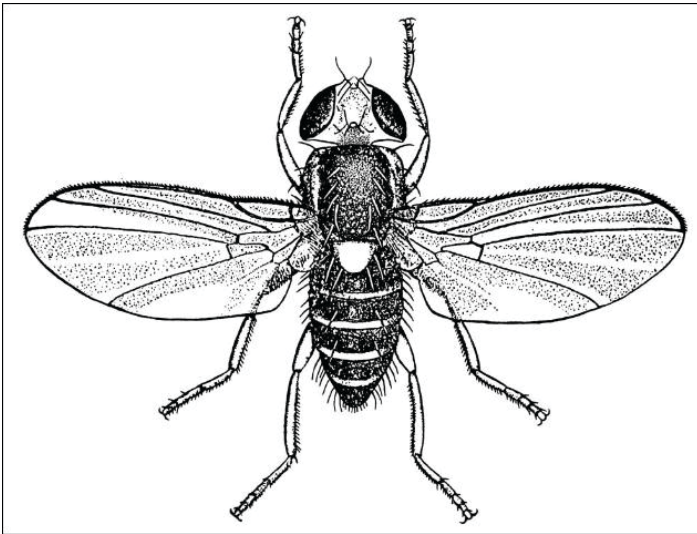


Figure 3. American serpentine leafminer, *Liriomyza trifolii* (Burgess).
Credits: John L. Capinera, University of Florida

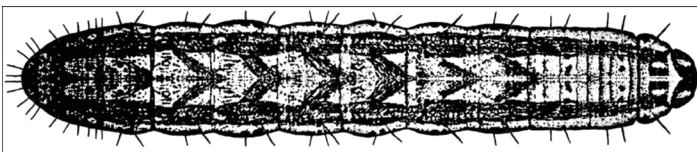


Figure 4. Granulate cutworm larva, *Feltia subterranea* (F.).
Credits: USDA

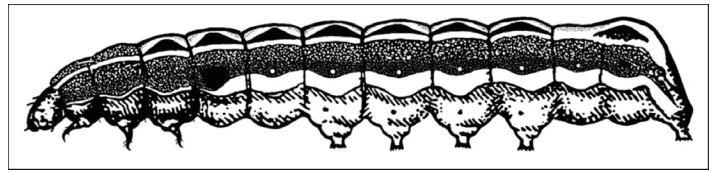


Figure 5. Southern armyworm larva, *Spodoptera eridania* (Cramer).
Credits: John L. Capinera, University of Florida

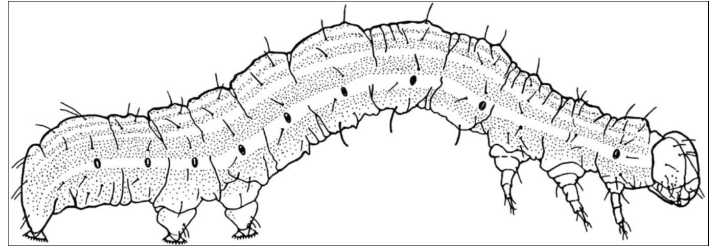


Figure 6. Cabbage looper larva.
Credits: John L. Capinera, University of Florida

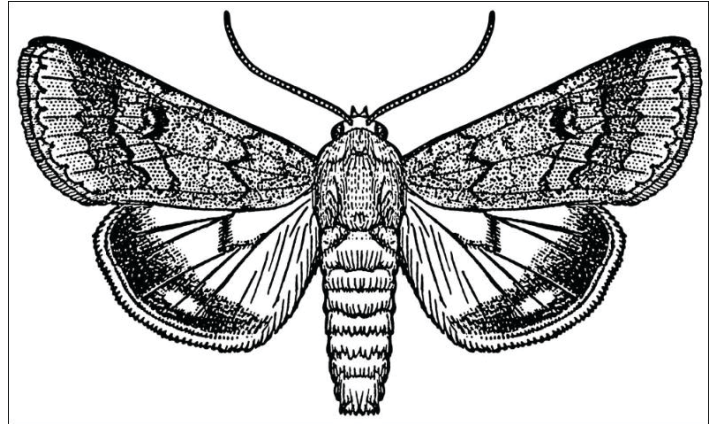


Figure 7. Corn earworm adult, *Helicoverpa zea* (Boddie).
Credits: John L. Capinera, University of Florida

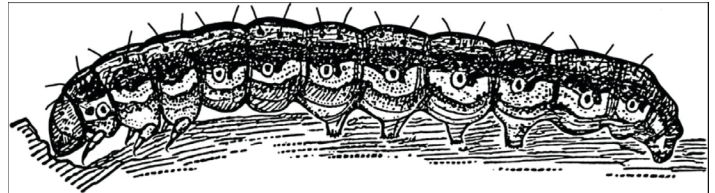


Figure 8. Corn earworm larva, *Helicoverpa zea* (Boddie).
Credits: USDA

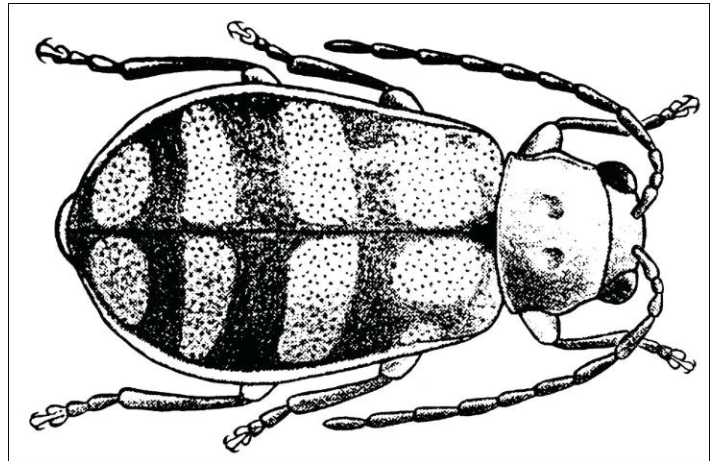


Figure 9. Banded cucumber beetle, *Diabrotica balteata* LeConte.
Credits: John L. Capinera, University of Florida

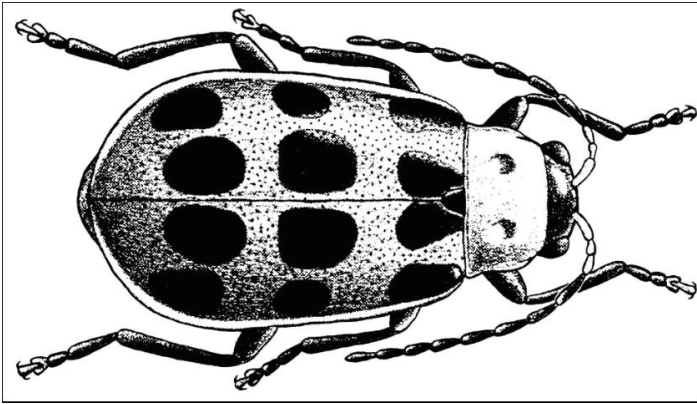


Figure 10. Spotted cucumber beetle, *D. undecimpunctata howardi* Barber.

Credits: John L. Capinera, University of Florida

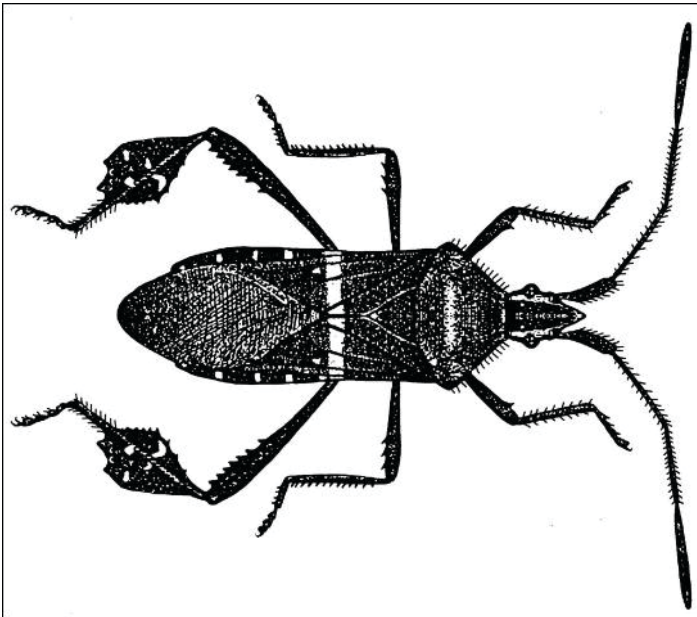


Figure 11. Leaffooted bug, *Leptoglossus phyllopus* (L.).

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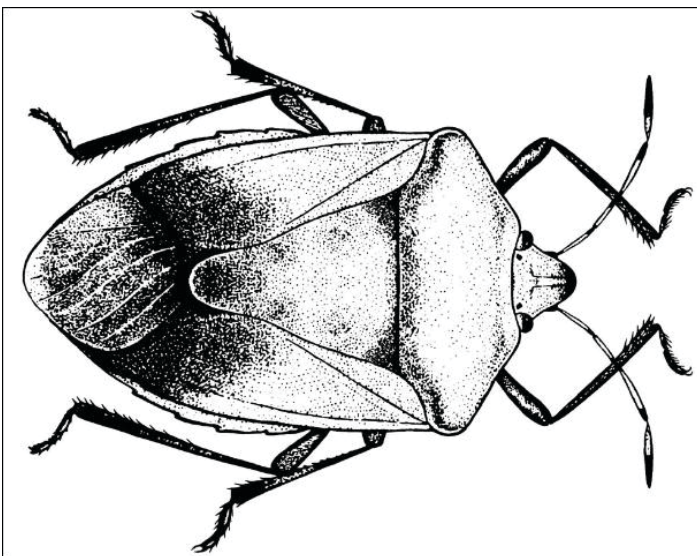


Figure 12. Southern green stink bug, *Nezara viridula* (L.)

Credits: John L. Capinera, University of Florida

Table 1. Insecticides approved for managing insect pests of beans and peas.

Insects	MOA Code ¹	Trade Name Active Ingredient	Rate Product/ acre	Maximum rate/acre per season	REI hours	Days to Harvest	Remarks
Labels change frequently. Be sure to read a current product label before applying any chemical. Also refer to Table 18.2 for biopesticide and other alternative products labeled for disease management.							
Aphids	1A	*Lannate LV, *SP (methomyl)	LV: 0.75–3 pt SP: 0.25–1.0 lb	10 applications only	48	See label: varies with rate and crop use	Poison. Highly toxic to fish, aquatic invertebrates, and mammals.
	1B	*Dibrom 8E (naled)	1–1.5 pt	4.5 pt	48	1	Ground application only, not for cowpeas and field peas intended for livestock feed. Toxic to fish and wildlife. Poison. Corrosive.
	1B	Dimethoate 4EC (dimethoate)	0.5–1 pt	2.0 pts/year	48	0-mechanical harvesting	Do not feed treated vines. Do not use on field peas. Highly toxic to bees. See label.
	1B	Malathion 8F (malathion)	1.0 pt	2 applications only	12	3	Green and dried peas only. Do not graze or feed forage to livestock. Highly toxic to bees, fish and invertebrates.
	1B	Orthene 97 (acephate)	0.25–1.0 lb	2.0 lb a.i.	24	14—dry, succulent 1—lima beans, succulent form	Do not use on green beans (string, wax, snap). Do not feed treated vines or seed to livestock. Toxic to birds and bees. See label.
	3A	*Asana XL (esfenvalerate)	5.8–9.6 fl oz	0.2 lb a.i. 4 applications at highest rate	12	3—snap 21—dry beans and peas	Do not feed or graze livestock on treated vines. Toxic to fish & aquatic invertebrates. Do not apply if bees are visiting treated areas.
	3A	*Brigade 2 EC (bifenthrin)	1.6–6.4 fl oz	12.8 fl oz succulent 19.2 fl oz dry	12	3—succulent; 14—dry	Toxic to bees and fish.
	3A	Pyganic 5.0 (pyrethrins)	0.26–18 fl oz/ 1000 cu ft	no limit	12	0	OMRI-listed ² . Treat when insects first appear.
	4A	Admire Pro (imidacloprid)	Soil: 7–10.5 fl oz; Foliar: 1.2 fl oz	Soil: 10.5 fl oz Foliar: 3.6 fl oz	12	21—soil 7—foliar	Do not apply to both soil and foliage. Do not use other 4A insecticides if imidacloprid is used. Bee hazard.
	4A	Assail 30SG (acetamiprid)	2.5–5.3 oz	16 oz	12	7	Edible podded legumes, succulent shelled peas and beans. Toxic to birds, and aquatic invertebrates.
	4D	Sivanto 200SL (flupyradifurone)	7.0–14 fl oz	28.0 fl oz/year	4	7	Minimum interval between applications: 10 days. Toxic to aquatic invertebrates
	23	Movento (spirotetramat)	4–5 fl oz	10.0 fl oz	24	1—succulent 7—dry	Toxic to aquatic invertebrates and honey bee larvae.
	--	BotaniGard ES (<i>Beauveria bassiana</i>)	0.5–2 qt/100 gal	no limit	4	0	May be used in greenhouses. Contact dealer if an adjuvant must be used. Not compatible in tank mix with fungicides. May be pathogenic to bees.
	--	Grandevo (Chromo bacterium subtsugae strain PRAA4-1)	1–3 lb		4	0	OMRI-listed ² . Succulent or dried. Do not apply if bees are visiting treatment area.

Insects	MOA Code ¹	Trade Name Active Ingredient	Rate Product/ acre	Maximum rate/acre per season	REI hours	Days to Harvest	Remarks
Armyworm, corn earworm, lesser cornstalk borer, loopers, cutworm, caterpillar, grubs, root maggots, wireworms	--	M-Pede 49% EC Soap, insecticidal	0.25–4.0% v/v	7–10 day interval	12	0	OMRI-listed ² . Use with a companion insecticide.
	--	Sun Spray 98.8%, JMS Stylet-Oil, Saf-T- Side, others (oil, insecticidal)	3–6 qt/100 gal (JMS); 1–2 gal/100 gal (others)	no limit	4	0	OMRI-listed ² . Toxic to fish.
	un	Aza-Direct (azadirachtin)	1–2 pt	3.5 pt	4	0	OMRI-listed ² . Anti-feedant, repellent, insect growth regulator. Toxic to fish.
	un	Neemix 4.5 (azadirachtin)	4–16 fl oz	20 gm a.i.	12	0	OMRI-listed ² . Insect Growth Regulator and feeding repellent. Does not kill adult insects.
	un	Trilogy (extract of neem oil)	1.0–2.0% v/v		4	0	OMRI-listed ² . Apply morning or evening to reduce potential for leaf burn. Toxic to bees exposed to direct treatment.
	1A	*Lannate LV, *SP (methomyl)	LV: 0.75–3 pt SP: 0.25–1.0 lb	10 applications only	48	See label: varies with rate and crop use	Poison. Highly toxic to fish, aquatic invertebrates and mammals.
	1A	Sevin 4 F (carbaryl)	4F: 0.5–1.5 qt	4 applications/year	12	13—fresh beans & peas, 14—grazing or forage, 21—dried beans, seed, or hay	Use on succulent shelled peas and beans prohibited. Highly toxic to bees and aquatic invertebrates.
	1B	*Diazinon 50W, AG500 (diazinon)	50W: 4–8 lbAG500: 2–4 qt	one application/year	72	broadcast at planting	Succulent beans and peas only. Soil application only. Poison. Toxic to bees, birds, fish and wildlife.
	1B	*Dibrom 8E (naled)	1–1.5 pt	4.5 pt	48	1	Ground application only, not for cowpeas and field peas intended for livestock forage. Toxic to fish and wildlife. Danger. Corrosive.
	1B	Orthene 97 (acephate)	0.25–1.0 lb	2.0 lb a.i.	24	14—dry or succulent 1—lima beans, succulent form	Do not use on green beans (string, wax, snap). Do not feed treated vines or seed to livestock. Toxic to birds and bees. See label.
	3A	*Asana XL (esfenvalerate)	5.8–9.6 fl oz	0.2 lb a.i. 4 applications at highest rate	12	3—snap 21—dry beans & peas	Do not feed or graze livestock on treated vines. Toxic to fish & aquatic invertebrates. Do not apply if bees are visiting treated areas.
	3A	*Baythroid XL (beta-cyfluthrin)	0.8–3.2 fl oz—dry beans & peas; 0.8–2.1 fl oz— southern pea	6.4 fl oz—dry beans & peas 10.5 fl oz—southern peas	12	7—dry beans & peas; 3—southern pea	Not for use on succulent beans or peas. Do not feed treated vines or hay to livestock. Toxic to fish & aquatic invertebrates.
	3A	*Brigade 2EC (bifenthrin)	1.6–6.4 fl oz	12.8 fl oz succulent 19.2 fl oz dry	12	3—succulent; 14—dry	Toxic to bees and fish.
	3A	*Capture LFR (bifenthrin)	3.4–6.8 fl oz	0.1 lb a.i. at plant 0.2 lb a.i. peas 0.3 lb a.i. beans	12		

Insects	MOA Code ¹	Trade Name Active Ingredient	Rate Product/ acre	Maximum rate/acre per season	REI hours	Days to Harvest	Remarks
	3A	*Declare Insecticide (gamma-cyhalothrin)	0.77–1.54 fl oz	0.06 lb a.i. or 0.38 pt	24	7—edible podded and succulent shelled, 21—dry beans and peas.	Do not exceed allowed amounts including use of other products containing bifenthrin applied at plant or foliar. Toxic to aquatic organisms and bees.
	3A	*Mustang (zeta-cypermethrin)	1.28–4.0 oz	24 oz	12	1—succulent; 21—dried shelled peas or beans	For control before larvae bore into the plant stalk or pods. Do not graze livestock in treated areas or harvest vines for forage or hay. Extremely toxic to fish, bees and wildlife.
	3A	Pyganic 5.0 (pyrethrins)	0.26–18 fl oz/1000 cu ft	no limit	12	0	Can also be applied at planting for control of cutworms, white grubs and wireworms (see label). Extremely toxic to bees, fish and aquatic invertebrates.
	3A	*Warrior II (lambda-cyhalothrin)	0.96–1.92 fl oz	7.68 fl oz	24	7—edible podded and succulent shelled; 21—dried, shelled	OMRI-listed ² . Treat when insects first appear.
	5	Entrust SC (spinosad)	3–6 fl oz	12 fl oz	4	28	Toxic to aquatic organisms and wildlife. Do not graze livestock in treated areas.
	5	Radiant SC (spinetoram)	3–8 fl oz	succulent—39 fl oz/acre/year soybean—14 fl oz/year	4	3—succulent; 28—dry	OMRI-listed ² . Do not feed forage or hay to dairy or meat cattle.
	11A	Javelin WG (<i>Bacillus thuringiensis</i> subspecies <i>kurstaki</i>)	0.12–1.50 lb		4	0	Time applications to small larvae.
	11A	Xentari DF (<i>Bacillus thuringiensis</i> subspecies <i>aizawai</i>)	0.5–2.0 lb		4	0	Treat when larvae are young. Thorough coverage is essential. OMRI-listed ² .
	15	Rimon 0.83EC (novaluron)	6–12 fl oz	36.0 fl oz	12	1	Treat when larvae are young. Thorough coverage is essential. May be used in the greenhouse. Can be used in organic production.
	18	Intrepid 2F (methoxyfenozide)	4–16 fl oz	64.0 fl oz/year	4	7	Rimon disrupts molting and has no effect on adult insects. Toxic to aquatic invertebrates, do not spray when bees are visiting treated area.
	22	Avaunt (indoxacarb)	3.5 oz	14.0 oz	12	7	Southern pea (dry) varieties only. Highly toxic to mammals, birds, fish and aquatic invertebrates
	28	Belt SC (flubendiamide)	2–3 fl oz	6 fl oz	12	1—edible podded and succulent shelled; 14—dry; 3—forage	Toxic to aquatic invertebrates

Insects	MOA Code ¹	Trade Name Active Ingredient	Rate Product/ acre	Maximum rate/acre per season	REI hours	Days to Harvest	Remarks
Cucumber beetle, bean leaf beetle, Mexican bean beetle, Cowpea curculio	28	Coragen (chlorant raniliprole with rynaxypyr)	3.5–7.5 fl oz	15.4 fl oz or 0.2 lb a.i. of chlorantraniliprole products per acre per year.	4	1	Foliar application only. Toxic to aquatic organisms.
	--	BotaniGard ES (<i>Beauveria bassiana</i>)	0.5–2 qt/100 gal		4	0	May be used in greenhouses. Contact dealer if an adjuvant must be used. Not compatible in tank mix with fungicides. May be pathogenic to bees.
	un	Aza-Direct (azadirachtin)	1–3.5 pt		4	0	OMRI-listed ² . Anti-feedant, repellent, insect growth regulator. Toxic to fish and aquatic invertebrates.
	1A	*Lannate LV, *SP (methomyl)	LV: 0.75–3 pt SP: 0.25–1.0 lb	10 applications only	48	See label: varies with rate and crop use	Poison. Highly toxic to fish, aquatic invertebrates and mammals.
	1A	Sevin 80S, 4F (carbaryl)	4F: 0.5–1.5 qt		12	13—fresh beans & peas, 14—grazing or forage, 21—dried beans, seed, or hay	Repeat, as needed, up to 4 times. Applications should be at least 7 days apart. Highly toxic to bees.
	1B	Orthene 97 (acephate)	0.25–1.0 lb	2.0 lb a.i.	24	14—dry or succulent 1—lima beans, succulent form	Do not use on green beans (string, wax, snap). Do not feed treated vines or seed to livestock. Toxic to birds and bees. See label.
	1B	Dimethoate 4EC (dimethoate)	0.5–1 pt	2.0 pts/year	48	0: mechanical harvesting	Do not feed treated vines. Do not use on field peas. Highly toxic to bees. See label.
	1B	*Thimet 20G (phorate)	4.5–7.0 oz/1000 ft row. No more than 7.6 lb a.i./acre	one application	40	60	Poison. Label pending in FL. Do not graze livestock on treated forage. No direct contact with seed. At plant only.
	3A	*Baythroid XL (beta-cyfluthrin)	0.8–3.2 fl oz—dry beans & peas; 0.8–2.1 fl oz— southern pea	6.4 fl oz—dry beans & peas 10.5 fl oz—southern peas	12	7—dry beans & peas; 3—southern pea	Not for use on succulent beans or peas. Do not feed treated vines or hay to livestock. Toxic to fish & aquatic invertebrates.
	3A	*Brigade 2EC (bifenthrin)	1.6–6.4 fl oz	12.8 fl oz succulent 19.2 fl oz dry	12	3—succulent; 14—dry	Toxic to bees and fish.
	3A	*Declare Insecticide (gamma- cyhalothrin)	0.77–1.54 fl oz	0.38 pt	24	7—edible podded and succulent shelled, 21— dry beans and peas.	For control before larvae bore into the plant stalk or pods. Do not graze livestock in treated areas or harvest vines for forage or hay. Toxic to bees, fish and wildlife.
	3A	*Mustang (zeta- cypermethrin)	1.28–4.0 oz	24 oz	12	1—succulent; 21—dried shelled peas or beans	Can also be applied at planting for control of cutworms, white grubs and wireworms (see label). Extremely toxic to bees, fish and aquatic invertebrates.
	3A	Pyganic 5.0 (pyrethrins)	0.26–18 fl oz/1000 cu ft	no limit	12	0	OMRI-listed ² . Treat when insects first appear.

Insects	MOA Code ¹	Trade Name Active Ingredient	Rate Product/ acre	Maximum rate/acre per season	REI hours	Days to Harvest	Remarks
	3A	*Warrior II (lambda- cyhalothrin)	0.96–1.92	7.68 fl oz	24	7—edible podded and succulent shelled; 21— dried, shelled	Toxic to aquatic organisms and wildlife. Do not graze livestock in treated areas.
	4A	Assail 30SG (acetamiprid)	2.5–5.3 oz	3 applications	12	7	Edible podded legumes and succulent shelled peas and beans. Toxic to birds, bees and fish.
	15	Rimon 0.83EC (novaluron)	6–12 fl oz	36.0 fl oz	12	1	Rimon disrupts molting and has no effect on adult insects. Toxic to aquatic invertebrates, do not spray when bees are visiting treated area.
	un	Aza-Direct (azadirachtin)	1–3.5 pt		4	0	OMRI-listed ² . Anti-feedant, repellent, insect growth regulator. Toxic to fish and aquatic invertebrates.
Fire ants	un	Neemix 4.5 (azadirachtin)	4–16 fl oz	20 gm a.i.	12	0	OMRI-listed ² . Insect Growth Regulator and feeding repellent. Does not kill adult insects.
	7A	Extinguish ((S)-methoprene)	1–1.5 lb broadcast	as needed	4	0	Insect Growth Regulator. Colonies will be reduced after three weeks and eliminated after 8 to 10 weeks.
	7C	Esteem Ant Bait (pyriproxyfen)	1.5–2.0 lb	0.134 lb a.i.	12	1	Do not feed treated vines. Highly toxic to bees.
	1B	Dimethoate 4EC (dimethoate)	0.5–1 pt		48	0: mechanical harvesting	Do not feed or graze livestock on treated vines. Toxic to bees & fish.
Grasshoppers	3A	*Asana XL (esfenvalerate)	5.8–9.6 fl oz	0.2 lb a.i./acre. 4 applications at highest rate	12	3—snap 21—dry beans and peas	Do not feed or graze livestock on treated vines. Toxic to bees & fish.
	3A	*Baythroid XL (beta-cyfluthrin)	0.8–3.2 fl oz—dry beans & peas; 0.8–2.1 fl oz— southern pea	6.4 fl oz—dry beans & peas 10.5 fl oz—southern peas	12	7—dry beans & peas; 3— southern pea	Not for use on succulent beans or peas. Do not feed treated vines or hay to livestock. Toxic to fish & aquatic invertebrates.
	3A	*Brigade 2EC (bifenthrin)	1.6–6.4 fl oz	12.8 fl oz succulent 19.2 fl oz dry	12	3—succulent; 14—dry	Toxic to bees and fish.
	3A	*Declare Insecticide (gamma- cyhalothrin)	0.77–1.54 fl oz	0.06 lb a.i. or 0.38 pt	24	7—edible podded and succulent shelled, 21— dry beans and peas.	For control before larvae bore into the plant stalk or pods. Do not graze livestock in treated areas or harvest vines for forage or hay. Extremely toxic to fish, bees and wildlife
	3A	*Mustang (zeta- cypermethrin)	1.28–4.0 oz	24 oz	12	1—succulent; 21—dried shelled peas or beans	Can also be applied at planting for control of cutworms, white grubs and wireworms (see label). Extremely toxic to bees, fish and aquatic invertebrates.
	3A	*Warrior II (lambda -cyhalothrin)	0.96–1.92 fl oz	7.68 fl oz	24	7—edible podded and succulent shelled, 21— dried, shelled	Toxic to aquatic organisms and wildlife. Do not graze livestock in treated areas.
	--	BotaniGard ES (<i>Beauveria bassiana</i>)	0.5–2 qt/100 gal	no limit	4	0	May be used in greenhouses. Contact dealer if an adjuvant must be used. Not compatible in tank mix with fungicides. May be pathogenic to bees.

Insects	MOA Code ¹	Trade Name Active Ingredient	Rate Product/ acre	Maximum rate/acre per season	REI hours	Days to Harvest	Remarks
Leafhopper	1A	*Lannate LV, *SP (methomyl)	LV: 0.75–3 pt SP: 0.25–1.0 lb	10 applications only	48	See label; varies with rate and crop use	Poison. Highly toxic to fish, aquatic invertebrates and mammals.
	1B	*Dibrom 8E (naled)	1–1.5 pt	4.5 pt/acre	48	1	Ground application only, not for cowpeas and field peas intended for livestock feed. Toxic to fish and wildlife. Poison. Corrosive.
	1B	Dimethoate 4EC (dimethoate)	0.5–1 pt	2.0 pts/year	48	0: mechanical harvesting	Do not feed treated vines. Do not use on field peas. Highly toxic to bees. See label.
	3A	*Brigade 2EC (bifenthrin)	1.6–6.4 fl oz	12.8 fl oz succulent 19.2 fl oz dry	12	3—succulent; 14—dry	Toxic to bees and fish.
	3A	*Mustang (zeta-cypermethrin)	1.28–4.0 oz	24 oz	12	1—succulent; 21—dried shelled peas or beans	Can also be applied at planting for control of cutworms, white grubs and wireworms (see label). Extremely toxic to bees, fish and aquatic invertebrates.
	3A	*Warrior II (lambda-cyhalothrin)	0.96–1.92 fl oz	7.68 fl oz	24	7—edible podded and succulent shelled, 21—dried, shelled	Toxic to aquatic organisms and wildlife. Do not graze livestock in treated area.
	3A	Pyganic 5.0 (pyrethrins)	0.26–18 fl oz/1000 cu ft	no limit	12	0	OMRI-listed ² . Treat when insects first appear.
	4A	Admire Pro (imidacloprid)	Soil: 7–10.5 fl oz; Foliar: 1.2 fl oz	Soil: 10.5 fl oz Foliar: 3.6 fl oz	12	21—soil 7—foliar	Do not apply to both soil and foliage. Do not use other 4A insecticides if imidacloprid is used. Bee hazard.
	4A	Assail 30SG (acetamiprid)	2.5–5.3 oz	16 oz	12	7	Edible podded legumes and succulent shelled peas and beans. Toxic to birds, and aquatic invertebrates.
	4D	Sivanto 200SL (flupyradifurone)	7–14 fl oz	28.0 fl oz/year	4	7	Minimum interval between applications: 10 days. Toxic to aquatic invertebrates
	16	Courier 40SC (buprofezin)	9.0–13.6 fl oz	27.2 fl oz	12	14	For succulent beans only. Allow 14 days between applications.
	--	BotaniGard ES (<i>Beauveria bassiana</i>)	0.5–2 qt/100 gal	no limit	4	0	May be used in greenhouses. Contact dealer for recommendations if an adjuvant must be used. Not compatible in tank mix with fungicides. May be pathogenic to bees.
	--	M-Pede 49% EC (soap, insecticidal)	0.25–4.0 % v/v	7-10 day intervals	4	0	OMRI-listed ² . Use with a companion insecticide.
	--	Sun Spray 98.8%, JMS Stylet-Oil, Saf-T-Side, others (oil, insecticidal)	3–6 qt/100 gal (JMS); 1–2 gal/100 gal (others)		4	0	OMRI-listed ² . Toxic to fish.
Liriomyza leafminers	un	Aza-Direct (azadirachtin)	1–3.5 pt		4	0	OMRI-listed ² . Anti-feedant, repellent, insect growth regulator. Toxic to fish and aquatic invertebrates.
	5	Entrust SC (spinosad)	3–6 fl oz	12 fl oz	4	28 days	OMRI-listed ² . Do not feed forage or hay to dairy or meat cattle.

Insects	MOA Code ¹	Trade Name Active Ingredient	Rate Product/ acre	Maximum rate/acre per season	REI hours	Days to Harvest	Remarks
Lygus bug, stink bug, kudzu bug, plant bug	5	Radiant SC (spinetoram)	3–8 fl oz	succulent—39 fl oz/ acre/year soybean—14 fl oz/year	4	3—succulent; 28—dry	Time applications to small larvae.
	6	*Agri-Mek SC (abamectin)	1.75–3.5 fl oz	3.5 oz	12	7	Dry beans only. Must be mixed with a non-ionic activator type wetting, spreading and/or penetrating adjuvant. Do not use binder or sticker type adjuvants. Toxic to fish and wildlife.
	17	Trigard (cyromazine)	2.66 oz	0.75 lb a.i.	12	7	Not for use on soybeans or peas.
	28	Coragen (rynaxypyr)	3.5–7.5 fl oz	15.4 fl oz or 0.2 lb a.i. of chlorantra niliprole products per acre per year.	4	1	Foliar application only. Toxic to aquatic organisms.
	--	Sun Spray 98.8%, JMS Stylet-Oil, Saf-T-Side, others (oil, insecticidal)	3–6 qt/100 gal (JMS); 1–2 gal/100 gal (others)	no limit	4	0	Organic Stylet-Oil and Saf-T-Side are OMRI-listed ² . Toxic to fish.
	un	Neemix 4.5 (azadirachtin)	4–16 fl oz		12	0	Acts as IGR and feeding repellent. Does not kill adult insects. OMRI-listed ² .
	1A	*Lannate LV, *SP (methomyl)	LV: 0.75–3 pt SP: 0.25–1.0 lb	10 applications only	48	See label; varies with rate and crop use	Poison. Highly toxic to fish, aquatic invertebrates and mammals.
	1A	Sevin 80S, 4F (carbaryl)	4F: 0.5–1.5 qt	4 applications /year	12	13—fresh beans & peas, 14—grazing or forage, 21—dried beans, seed, or hay	Use on succulent shelled peas and beans prohibited. Highly toxic to bees and aquatic invertebrates.
	1B	*Dibrom 8E (naled)	1–1.5 pt		48	1	Ground application only. Do not use on cowpeas and field peas for livestock feeding.
	1B	Dimethoate 4EC (dimethoate)	0.5–1 pt	2.0 pts/year	48	0: mechanical harvesting	Do not feed treated vines. Do not use on field peas. Highly toxic to bees. See label.
	3A	*Baythroid XL (beta-cyfluthrin)	0.8–3.2 fl oz—dry beans & peas; 0.8–2.1 fl oz— southern pea	6.4 fl oz—dry beans & peas 10.5 fl oz—southern peas	12	7—dry beans & peas; 3— southern pea	Not for use on succulent beans or peas. Do not feed treated vines or hay to livestock. Toxic to fish & aquatic invertebrates.
	3A	*Brigade 2EC (bifenthrin)	1.6–6.4 fl oz	12.8 fl oz succulent 19.2 fl oz dry	12	3—succulent; 14—dry	Toxic to bees and fish.
	3A	*Declare Insecticide (gamma- cyhalothrin)	0.77–1.54 fl oz	0.06 lb a.i. or 0.38 pt	24	7—edible podded and succulent shelled, 21— dry beans and peas.	For control before larvae bore into the plant stalk or pods. Do not graze livestock in treated areas or harvest vines for forage or hay. Extremely toxic to fish, bees and wildlife.
	3A	*Mustang (zeta- cypermethrin)	1.28–4.0 oz	24 oz	12	1—succulent; 21—dried shelled peas or beans	Can also be applied at planting for control of cutworms, white grubs and wireworms (see label). Extremely toxic to bees, fish and aquatic invertebrates.

Insects	MOA Code ¹	Trade Name Active Ingredient	Rate Product/ acre	Maximum rate/acre per season	REI hours	Days to Harvest	Remarks
	3A	Pyganic 5.0 (pyrethrins)	1.0–18 oz	no limit	12	0	OMRI-listed ² . Treat when insects first appear.
	3A	*Warrior II (lambda-cyhalothrin)	0.96–1.92 fl oz	7.68 fl oz	24	7—edible podded & succulent shelled; 21—dried, shelled	Toxic to aquatic organisms and wildlife. Do not graze livestock in treated areas.
	15	Rimon 0.83EC (novaluron)	6–12 fl oz		12	1	See label for rates for specific pests. Do not apply more than 36 fl oz per acre per season. Do not apply more often than every 7 days. Rimon disrupts molting and has no effect on adult insects.
	--	BotaniGard ES (<i>Beauveria bassiana</i>)	0.5–2 qt/100 gal		4	0	May be used in greenhouses. Contact dealer if an adjuvant must be used. Not compatible in tank mix with fungicides. May be pathogenic to bees.
	--	M-Pede 49% EC (soap, insecticidal)	0.25–4.0 % v/v	7–10 day intervals	12	0	OMRI-listed ² . Use with a companion insecticide.
	un	Aza-Direct (azadirachtin)	1–2 pt (max 3.5 pt)		4	0	Anti-feedant, repellent, insect growth regulator. OMRI-listed ² . Toxic to fish.
Mites: two spotted, southern red	3A	*Brigade 2EC (bifenthrin)	1.6–6.4 fl oz	12.8 fl oz succulent 19.2 fl oz dry	12	3—succulent; 14—dry	Toxic to bees and fish.
	3A	Pyganic 5.0 (pyrethrins)	0.26–18 fl oz/ 1000 cu ft	no limit	12	0	OMRI-listed ² . Treat when insects first appear.
	6	*Agri-Mek SC (abamectin)	1.75–3.5 fl oz	3.5 oz	12	7	Dry beans only. Must be mixed with a non-ionic activator type wetting, spreading and/or penetrating adjuvant. Do not use binder or sticker type adjuvants. Toxic to fish and wildlife.
	20B	Kanemite 15SC (acequinocyl)	31 fl oz		12	7	Do not make more than two applications per year. Succulent beans, including succulent soybean vegetable, only.
	21A	Portal (fenpyroximate)	2.0 pt	4.0 pt	12	1	Snap bean only. Allow 14 days between applications. Highly toxic to fish and aquatic invertebrates.
	--	Grandevo (<i>Chromobacterium subtsugae</i> strain PRAA4-1)	1–3 lb		4	0	OMRI-listed ² . Succulent or dried. Do not apply if bees are visiting treatment area.
	--	M-Pede 49% EC (soap, insecticidal)	0.25–4.0% v/v	7–10 day intervals	12	0	OMRI-listed ² . Use with a companion insecticide.
	--	Sun Spray 98.8%, JMS Stylet-Oil, Saf-T-Side, others (oil, insecticidal)	3–6 qt/100 gal (JMS); 1–2 gal/100 gal (others)	no limit	4	0	OMRI-listed ² . Toxic to fish.
	un	Acramite-50WS (bifenazate)	1.0–1.5 lb		12	3	Succulent beans and peas and succulent shelled soybeans.

Insects	MOA Code ¹	Trade Name Active Ingredient	Rate Product/ acre	Maximum rate/acre per season	REI hours	Days to Harvest	Remarks
Thrips	un	Aza-Direct (azadirachtin)	1–3.5 pt		4	0	OMRI-listed ² . Antifeedant, repellent, insect growth regulator. Toxic to fish and aquatic invertebrates.
	un	Trilogy (extract of neem oil)	1.0–2.0% v/v		4	0	OMRI-listed ² . Apply morning or evening to reduce potential for leaf burn. Toxic to bees exposed to direct treatment.
	3A	Pyganic 5.0 (pyrethrins)	0.26–18 fl oz/ 1000 cu ft	no limit	12	0	OMRI-listed ² . Treat when insects first appear.
	4A	Assail 30SG (acetamiprid)	2.5–5.3 oz	16 oz	12	7	Edible podded legumes and succulent shelled peas and beans. Limited to 3 applications per season. Toxic to birds, and aquatic invertebrates.
	5	Entrust SC (spinosad)	3–6 fl oz	12 fl oz	4		OMRI-listed ² . Do not feed forage or hay to dairy or meat cattle.
	5	Radiant SC (spinetoram)	3–8 fl oz	succulent—39 fl oz/ acre/year soybean—14 fl oz/year	4	3—succulent; 28—dry	Time applications to small larvae.
	15	Rimon 0.83EC (novaluron)	6–12 fl oz	36.0 fl oz	12	1	Rimon disrupts molting and has no effect on adult insects. Toxic to aquatic invertebrates. Do not spray when bees are visiting treated area.
	23	Movement (spirotetramat)	4–5 fl oz	10.0 fl oz	24	1: succulent 7: dry	Toxic to aquatic invertebrates and honey bee larvae.
	--	BotaniGard ES (<i>Beauveria bassiana</i>)	0.5–2 qt/100 gal	no limit	4	0	May be used in greenhouses. Contact dealer if an adjuvant must be used. Not compatible in tank mix with fungicides. May be pathogenic to bees.
	--	Grandevo (<i>Chromobacterium subtsugae</i> strain PRAA4-1)	1–3 lb		4	0	OMRI-listed ² . Succulent or dried. Do not apply if bees are visiting treatment area.
	--	M-Pede 49% EC (soap, insecticidal)	0.25–4.0% v/v	7-10 day intervals	12	0	OMRI-listed ² . Use with a companion insecticide.
	--	Sun Spray 98.8%, JMS Stylet-Oil, Saf-T- Side, others (oil, insecticidal)	3–6 qt/100 gal (JMS); 1–2 gal/100 gal (others)	no limit	4	0	OMRI-listed ² . Toxic to fish.
	un	Aza-Direct (azadirachtin)	1–3.5 pt		4	0	OMRI-listed ² . Anti-feedant, repellent, insect growth regulator. Toxic to fish and aquatic invertebrates.
	un	Trilogy (extract of neem oil)	0.5–2% V/V		4	0	Apply morning or evening to reduce potential for leaf burn. Toxic to bees exposed to direct treatment. OMRI-listed ² .

Insects	MOA Code ¹	Trade Name Active Ingredient	Rate Product/ acre	Maximum rate/acre per season	REI hours	Days to Harvest	Remarks
Whiteflies	3A	*Brigade 2EC (bifenthrin)	1.6–6.4 fl oz	12.8 fl oz succulent 19.2 fl oz dry	12	3—succulent; 14—dry	Toxic to bees and fish. Tank mix with 1B product for better control.
	3A	*Mustang (zeta-cypermethrin)	1.4–4.3 oz	0.3 lb a.i./ acre 12	12	1—succulent; 21—dried shelled peas or beans	Do not make applications less than 5 days apart. Not for soybeans. Do not apply more than 0.3 lb a.i./ acre per season. Can also be applied at planting for control of cutworms, white grubs and wireworms (see label). Tank mix with 1b Product of better control.
	3A	Pyganic 5.0 (pyrethrins)	0.26–18 fl oz/1000 cu ft	no limit	12	0	OMRI-listed ² . Treat when insects first appear.
	4A	Admire Pro (imidacloprid)	Soil: 7–10.5 fl oz; Foliar: 1.2 fl oz	Soil: 10.5 fl oz Foliar: 3.6 fl oz	12	21—soil 7—foliar	Do not apply to both soil and foliage. Do not use other 4A insecticides if imidacloprid is used. Bee hazard.
	4A	Assail 30SG (acetamiprid)	2.5–5.3 oz	3 applications	12	7	Edible podded legumes and succulent shelled peas and beans. Toxic to birds, bees and fish.
	4D	Sivanto 200SL (flupyradifurone)	7–14 fl oz	28.0 fl oz/year	4	7	Minimum interval between applications: 10 days. Toxic to aquatic invertebrates.
	7C	Knack IGR (pyriproxyfen)	8–10 fl oz		12	7	Do not make more than 2 applications per season.
	15	Rimon 0.83EC (novaluron)	6–12 fl oz	36.0 fl oz	12	1	Rimon disrupts molting and has no effect on adult insects. Toxic to aquatic invertebrates, do not spray when bees are visiting treated area.
	16	Courier 40SC (buprofezin)	9.0–13.6 fl oz	27.2 fl oz	12	14	For succulent beans only. Allow days between applications.
	23	Movento (spirotetramat)	4–5 fl oz	10.0 fl oz	24	1—succulent 7—dry	Toxic to aquatic invertebrates and honey bee larvae.
	--	BotaniGard ES (<i>Beauveria bassiana</i>)	0.5–2 qt/100 gal		4	0	May be used in greenhouses. Contact dealer if an adjuvant must be used. Not compatible in tank mix with fungicides. May be pathogenic to bees.
	--	Grandevo (<i>Chromobacterium subtsugae</i> strain PRAA4-1)	1–3 lb		4	0	OMRI-listed ² . Succulent or dried. Do not apply if bees are visiting treatment area.
	--	M-Pede 49% EC (soap, insecticidal)	0.25–4.0% v/v	7–10 day intervals	12	0	OMRI-listed ² . Use with a companion insecticide.
	--	Sun Spray 98.8%, JMS Stylet-Oil, Saf-T-Side, others (oil, insecticidal)	3–6 qt/100 gal (JMS); 1–2 gal/100 gal (others)	no limit	4	0	OMRI-listed ² . Toxic to fish.
	un	Neemix 4.5 (azadirachtin)	4–16 fl oz	20 gm a.i.	12	0	OMRI-listed ² . Insect Growth Regulator and feeding repellent. Does not kill adult insects.

Insects	MOA Code ¹	Trade Name Active Ingredient	Rate Product/ acre	Maximum rate/acre per season	REI hours	Days to Harvest	Remarks
	un	Trilogy (extract of neem oil)	1.0–2.0% v/v		4	0	OMRI-listed ² . Apply morning or evening to reduce potential for leaf burn. Toxic to bees exposed to direct treatment.
¹ Mode of Action (MOA) codes for plant pest insecticides from the Insecticide Resistance Action Committee (IRAC) Mode of Action Classification v. 9.4, March 2020. Number codes (1 through 28) are used to distinguish the main insecticide mode of action groups, with additional letters within each main group. All insecticides within the same group (with same number) indicate same active ingredient or similar mode of action. This information must be considered for the insecticide resistance management decisions. un = unknown, or a mode of action that has not been classified yet. ² Information provided in this table applies only to Florida. Be sure to read a current product label before applying any product. The use of brand names and any mention or listing of commercial products or services in the publication does not imply endorsement by the University of Florida Cooperative Extension Service nor discrimination against similar products or services not mentioned. OMRI listed: Listed by the Organic Materials Review Institute for use in organic production. * Restricted use insecticide.							