

Vegetable Insecticide Recommendations from DuPont



Count on **DuPont™ Coragen®**, **Avaunt®**, **Asana® XL** and **Lannate® SP** insecticides and **Vydate® L** insecticide/nematicide to provide reliable and consistent control for key pests in vegetables. DuPont insecticides, when used in spray programs, provide you season-long control of economically important pests in vegetables.

Key Benefits of DuPont™ Coragen® insecticide:

- Breakthrough mode of action (Group 28 insecticide)
- Based on its excellent environmental profile, use of Coragen® on lettuce and tomatoes is classified by the EPA as Reduced Risk
- Long-lasting residual control
- No mite or aphid flaring
- Exceptional and lasting control of key lepidopteran pests such as beet armyworm, cabbage looper, diamondback moth and corn earworm with suppression of leafminer and whitefly nymph
- Excellent crop protection — insects stop feeding in minutes
- Unique application flexibility
 - ❖ Foliar applications give control through ingestion with contact, including ovicidal (in some species) and ovi-larvicidal activity
 - ❖ Drip chemigation applications give systemic control of Lepidoptera and other pest species
- Minimal impact on beneficials at labeled rates, excellent fit with IPM programs
- No label signal word
- No bee statement
- Excellent tank stability under a wide range of spray tank pH conditions (pH 1-9)

Key Benefits of DuPont™ Asana® XL insecticide:

- Proven and consistent control (Group 3 insecticide)
- In-season applications provide excellent contact and residual control of cabbage looper and corn earworm
- Proprietary formulation provides additional UV stability and added rainfastness
- Flexibility in application timing
- Excellent pest control alone and in combination
- Excellent tank stability under a wide range of spray tank pH conditions (pH 5-9)

Key Benefits of

DuPont™ Avaunt® insecticide:

- Group 22 insecticide, excellent rotational partner with Coragen®
- Long-lasting residual control
- Exceptional and lasting control of beet armyworm, cabbage looper, diamondback moth and corn earworm
- Excellent crop protection — insects stop feeding in 0-4 hours
- Works through ingestion and contact activity
- Provides suppression of adult (moth) stages. Adult (moth) activity is seen from direct spray contact as well as consumption of resuspended dried residues from spray or dew
- Excellent tank stability under a wide range of spray tank pH conditions (pH 5-9)

Key Benefits of DuPont™ Lannate® SP insecticide:

- Quick knockdown, Lannate® SP is lightning fast (Group 1A insecticide)
- Proven and consistent control
- Low impact to bees and predatory mites once spray is dried
- Broad pest spectrum, including thrips, aphid, beet armyworm, corn earworm, cabbage/alfalfa loopers and variegated cutworm
- Excellent tank-mix partner
- Excellent tank stability under a wide range of spray tank pH conditions (pH 8 or less)

Key Benefits of DuPont™ Vydate® L insecticide/nematicide:

- Flexible application methods, including ground, air, shank and chemigation (Group 1A insecticide)
- Systemic plant protection
- Leafminer,* aphid and thrips control and suppression of nematode and whitefly
- Easy on beneficial insects when applied to soil or through drip chemigation
- Excellent tank-mix partner
- Excellent spray tank stability, buffer to pH 5-7

* Suppression only for peppers and tomatoes



Growers can include DuPont™ Coragen®, Avaunt®, Asana® XL and Lannate® SP insecticides and Vydate® L insecticide/nematicide for control of key insects in vegetables. Contact your local DuPont crop protection retailer, PCA or DuPont representative for a recommended program for vegetables grown in your area.

**DuPont™ Coragen®, Avaunt®, Asana® XL, Lannate® SP and Vydate® L
Vegetable Insecticide Crop Timing and Pest Recommendations:**

Crop	Pest	Product Recommendations
 <p>Head and Leaf Lettuce</p>	Beet armyworm, cabbage looper, corn earworm, leafminer (larvae)	<p>Coragen® at 3.5-5.0 fl oz/A for all Lepidoptera, 5-7.5 fl oz/A for leafminer and whitefly nymph suppression. For drip chemigation application, tape placement is critical for insect control.</p> <p>Strong residual control. Target emergence, head formation and harvest.</p> <p>1 day PHI, 4 hour REI</p>
	Thrips, beet armyworm, cabbage looper, corn earworm, aphids	<p>Lannate® SP at ½-1.0 lb/A (use higher rate for larger pests)</p> <p>Quick knockdown of many pests Excellent control of thrips Great tank-mix partner</p> <p>7 day PHI for ¼-½ lb/A, 10 day PHI for over ½ lb/A, 48 hour REI</p>
	Beet armyworm, cabbage looper, corn earworm	<p>Avaunt® at 3.5-6.0 oz/A</p> <p>Excellent on cabbage looper (3.5 oz/A). Target thinning through harvest.</p> <p>3 day PHI, 12 hour REI</p>
 <p>Head Lettuce Only</p>	Cabbage looper, corn earworm, beet armyworm (aids in control)	<p>Asana® XL at 4.8-9.6 fl oz/A</p> <p>Great tank-mix partner with added residual.</p> <p>7 day PHI, 12 hour REI</p>
 <p>Broccoli, Cabbage and Cauliflower</p>	Diamondback moth, beet armyworm, cabbage looper, corn earworm, imported cabbageworm	<p>Coragen® at 3.5-5 fl oz/A for Lepidoptera</p> <p>Longest residual worm product, excellent on diamondback moth. The addition of methylated seed oil can improve translaminar activity.</p> <p>1 day PHI, 4 hour REI</p>
	Diamondback moth, beet armyworm, cabbage looper, imported cabbageworm	<p>Avaunt® at 3.5 oz/A</p> <p>Excellent on cabbage looper and diamondback moth.</p> <p>3 day PHI, 12 hour REI</p>
	Diamondback moth, fall armyworm (cabbage only), cabbage looper, imported cabbageworm	<p>Lannate® SP at ½-1.0 lb/A (use higher rate for larger pests)</p> <p>Quick knockdown, great tank-mix partner.</p> <p>3 day PHI, 48 hour REI (Cabbage 1 day PHI)</p>
	Cabbage looper, grasshoppers, flea beetles, beet armyworm (aids in control)	<p>Asana® XL at 5.8-9.6 fl oz/A</p> <p>Great tank-mix partner with added residual control.</p> <p>3 day PHI, 12 hour REI</p>
 <p>Celery</p>	Beet armyworm, cabbage looper, corn earworm, leafminer (larvae)	<p>Coragen® at 3.5-5.0 fl oz/A for all Lepidoptera, 5-7.5 fl oz/A for leafminer and whitefly nymph suppression. For drip chemigation application, tape placement is critical for insect control.</p> <p>Strong residual control. Target planting to harvest.</p> <p>1 day PHI, 4 hour REI</p>
	Beet armyworm, loopers, variegated cutworm, aster leafhopper	<p>Lannate® SP at ½ to 1.0 lb/A (use higher rate for larger pests and loopers)</p> <p>Quick knockdown of many pests Broad-spectrum insect control Great tank-mix partner</p> <p>7 day PHI, 48 hour REI</p>
	Beet armyworm, cabbage looper	<p>Avaunt® at 3.5 oz/A</p> <p>3 day PHI, 12 hour REI</p>
	Serpentine leafminers (except <i>L. trifolii</i>), root knot and stubby root knot nematode	<p>Vydate® L at 2-4 pt/A as a foliar spray or band application as described by the label for serpentine leafminer control</p> <p>4 pt/A as a band treatment, soil injection or drip irrigation application for nematodes as described by the label and 2(ee) Recommendation¹</p>

¹ This Vydate® L recommendation is made as permitted under FIFRA Section 2(ee) for application through drip irrigation systems to provide suppression of root knot and stubby root nematodes in celery in the state of California. This recommendation has not been submitted to or approved by the EPA. The 2(ee) expiration date is 12/31/2010.

**DuPont™ Coragen®, Avaunt®, Asana® XL, Lannate® SP and Vydate® L
Vegetable Insecticide Crop Timing and Pest Recommendations:**

Crop	Pest	Product Recommendations
	Beet armyworm, tomato fruitworm, tomato pinworm, western yellowstriped armyworm, hornworms, cabbage looper	<p>Avaunt® at 3.5 oz/A (2.5-3.5 oz/A for hornworms and cabbage looper) Excellent for cabbage looper and tomato fruitworm, strong residual.</p> <p>3 day PHI, 12 hour REI</p>
	Beet armyworm, tomato fruitworm, tomato pinworm, western yellowstriped armyworm, hornworms, cabbage looper, leafminers (larvae), silverleaf whiteflies (nymphs)	<p>Coragen® at 3.5-5 oz/A for all Lepidoptera, 5-7.5 fl oz/A for leafminer and whitefly nymph suppression</p> <p>The addition of methylated seed oil-type adjuvants to foliar applications helps with leafminer control/suppression and whitefly nymph suppression.²</p> <p>Tape placement is critical for insect control. For drip applications apply prior to the infestation to allow plants to take up the insecticide. Coragen® does not move into fruit from drip applications and will not control pest feeding directly on the fruit.</p> <p>Unsurpassed residual worm control via foliar and/or drip application.</p> <p>1 day PHI, 4 hour REI</p>
	<p>Tomatoes: Beet armyworm, loopers, fall armyworm, aphids, tomato pinworm, tomato fruitworm, hornworms, variegated cutworm</p> <p>Peppers: Beet armyworm, loopers, fall armyworm, green peach aphid, variegated cutworm</p>	<p>Lannate® SP at ½-1.0 lb/A (use higher rate for larger pests) Quick knockdown, great tank-mix partner, especially with Asana® XL for tomato pinworm control.</p> <p>3 day PHI, 48 hour REI peppers (tomato 1 day PHI, 48 hour REI)</p>
	<p>Tomatoes: Beet armyworm (aids in control), cutworm, flea beetles, grasshoppers, potato aphid, tomato fruitworm, tomato pinworm, western yellow-striped armyworm, whitefly, hornworms</p> <p>Peppers: Beet armyworm, corn earworm, flea beetles, loopers, pepper weevil (aids in control)</p>	<p>Asana® XL at 5.8-9.6 fl oz/A</p> <p>Great tank-mix partner with Lannate® SP and other insecticides registered for control of tomato pinworm.</p> <p>7 day PHI, 12 hour REI peppers (tomato 1 day PHI, 12 hour REI)</p>
	Root knot (except Javanese), sting, ring (peppers only), stubby root and stunt nematodes, aphids, leafminer (suppression), silverleaf whitefly — use on tomato only (suppression)	<p>Vydate® L at 2.0-4.0 pt/A foliar, tomatoes 2-8 pt/A drip chemigation³ and 3-5 pt/A injection shank³</p> <p>In peppers, use 2-4 pt/A via drip chemigation to control green peach aphid, thrips and suppression of leafminer (<i>Liriomyza</i> species).</p> <p>Note: Vydate® L by drip chemigation will not control pepper weevil.</p> <p>Drip irrigation for listed nematode supplemental control.</p> <p>See label for specific chemigation use directions and restrictions.</p> <p>7 day PHI, 48 hour REI peppers (tomato 3 day PHI, 48 hour REI)</p>
	Beet armyworm, cabbage looper, corn earworm, leafminer (larvae)	<p>Coragen® at 3.5-5.0 fl oz/A for all Lepidoptera, 5-7.5 fl oz/A for leafminer and whitefly nymph suppression. For drip chemigation application, tape placement is critical for insect control.</p> <p>Strong residual control. Target emergence to harvest.</p> <p>1 day PHI, 4 hour REI</p>
	Cabbage looper, beet armyworm	<p>Avaunt® at 3.5 oz/A</p> <p>Excellent control of cabbage looper</p> <p>3 day PHI, 12 hour REI</p>
	Beet armyworm, cabbage looper, variegated cutworm	<p>Lannate® SP at ½ to 1.0 lb/A (use higher rate for larger pests)</p> <p>Quick knockdown of many pests</p> <p>Excellent broad-spectrum insect control</p> <p>Great tank-mix partner</p> <p>7 day PHI, 48 hour REI</p>

² Do not use an adjuvant with applications of Coragen® to chili pepper or pimento.

³ 2-8 pt/A drip chemigation and 3-5 pt/A injection shank applications are for nematodes only.

**DuPont™ Coragen®, Avaunt®, Asana® XL, Lannate® SP and Vydate® L
Vegetable Insecticide Crop Timing and Pest Recommendations:**

Crop	Pest	Product Recommendations
 <p>Cucurbit vegetables, including melons (cantaloupe, watermelon, honeydew, muskmelon) cucumber, pumpkin,⁴ summer/winter squash⁴</p>	<p>Beet armyworm, cabbage looper</p> <p>Leafminers (larvae), silverleaf whiteflies (nymphs)</p>	<p>Coragen® at 3.5-5.0 fl oz/A for listed Lepidoptera, (drip chemigation — 3.5-7.5 fl oz/A use during early season growth, see label for specific application timing and use directions)</p> <p>Applications through the drip will not protect fruit from direct feeding damage.</p> <p>Use 5.0-7.0 fl oz/A for leafminer (control of <i>Liriomyza</i> species except for suppression only of <i>L. huidabrensis</i> and <i>L. langei</i>), whitefly nymph suppression only⁵</p> <p>No adjuvant allowed (see label for some crop exceptions)</p> <p>1 day PHI, 4 hour REI</p>
	Cabbage looper, beet armyworm	<p>Avaunt® at 3.5-6.0 oz/A</p> <p>3 day PHI, 12 hour REI</p>
	<p>Root knot (except Javanese), lesion, ring, sting and stunt nematodes</p> <p>Leafminers (<i>Liriomyza</i> spp.), aphids, thrips</p> <p>Root knot (except Javanese) nematodes</p>	<p>Vydate® L rates for preplant and planting soil treatment: 1-2 gal/A as broadcast; for band treatment, use proportionately less</p> <p>Foliar treatment alone or as extension to preplant and planting treatment: 2.0-4.0 pt/A</p> <p>Supplemental control — Drip chemigation systems and soil injection systems: 2.0-4.0 pt/A of plant bed</p> <p>1 day PHI, 48 hour REI</p>
	Cabbage looper, beet armyworm, yellowstriped armyworm, granulate cutworm, flea beetles, cucumber beetles, melon aphid, fall armyworm, variegated cutworm ⁶	<p>Lannate® SP at ½-1.0 lb/A (use higher rate for larger pests)</p> <p>Good tank-mix partner</p> <p>Use ½ lb/A for variegated cutworm on cucumber and melons</p> <p>½ lb/A = 1 day PHI; over ½ lb/A = 3 day PHI, 48 hour REI</p>
	Cabbage looper, corn earworm, cucumber beetle (adults), cutworms (seedling spray), grasshoppers, leafhoppers, plant bugs (<i>Lygus</i> bugs, stink bugs), squash bug	<p>Asana® XL at 5.8-9.6 fl oz/A</p> <p>Good tank-mix partner</p> <p>3 days PHI, 12 hour REI</p>
	Onions (green and dry bulb)	<p>Beet armyworm</p> <p>Thrips, variegated cutworm, black cutworm</p>
 <p>Garlic and Onions (dry bulb only)</p>	<p>Stubby root, stem and bulb nematodes</p>	<p>Vydate® L at 4.0-8.0 pt/A as an in-furrow spray</p> <p>Postemergence: Use 4.0-8.0 pt/A in 20-40 GPA as a 1-2 inch band placed on soil surface at base of plants</p> <p>or</p> <p>4.0-8.0 pt/A as a soil shank injection application</p> <p>or</p> <p>4.0-8.0 pt/A via chemigation in pressurized sprinkler system</p>
Dry Bulb Onions ⁷	Onion thrips, western flower thrips	<p>2.0-4.0 pt/A by air or ground</p> <p>Add a wetting agent to improve coverage</p> <p>14 day PHI, 48 hour REI</p>

⁴ Pumpkin and winter squash are not on the Lannate® SP label.

⁵ Use in conjunction with an effective adult whitefly control program.

⁶ Variegated cutworm not listed for summer squash on the Lannate® SP label.

⁷ Reference 2(ee) recommendation for Vydate® L use on dry bulb onions to control onion thrips and western flower thrips in California.

See product labels for details on specific crop/pest combinations controlled or suppressed.

Asana® XL, Lannate® SP and Vydate® L are restricted-use pesticides.

This reference guide is not intended as a substitute for the product label for the product(s) referenced herein. Product labels for the above product(s) contain important precautions, directions for use and product warranty and liability limitations that must be read before using the product. Applicators must be in possession of the product label(s) at the time of application. Always read and follow all label directions and precautions for use when using any pesticide alone or in tank mix combinations.

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