

TABLE 2-68. INSECT CONTROL FOR TOMATO

Commodity	Insect	Insecticide, Mode of Action Code, and Formulation	Amount of Formulation Per Acre	Active Ingredient Per Acre	Minimum Interval (Days) Between Last Application and Harvest	Precautions and Remarks
TOMATO	Aphid, Flea beetle	acetamiprid, MOA 4A (Assail) 30 SG	2 to 4 oz	0.038 to 0.075 lb	7	Do not apply more than once every 7 days, and do not exceed 5 applications per season.
		dimethoate 4 EC, MOA 1B	0.5 to 1 pt	0.25 to 0.5 lb	7	Do not exceed rate with dimethoate as leaf injury may result.
		flonicamid, MOA 9C (Beleaf) 50 SG	2 to 2.8	0.062 to 0.089 lb	0	Will not control flea beetle.
		imidacloprid, MOA 4A (Admire Pro) 4.6 F (various) 2 F	7 fl oz	0.25 to 0.377 lb	21	For short-term protection at planting, Admire Pro may also be applied to transplants in the planthouse not more than 7 days before planting at the rate of 0.44 (4.6 F formulation) or 1 oz (2 F formulation) per 10,000 plants. In the field, Admire Pro may be applied as an in-furrow spray directed on or below seed, a narrow surface band followed by irrigation, as a transplant drench, or through drip irrigation system.
		(various) 1.6 F	3.75 fl oz	0.04 lb	0	Use 1.6 F formulation for foliar applications.
		pyrethrozine, MOA 9B (Fulfil) 50 WDG	2.75 oz	0.086 lb	0	For aphids only.
		spirotetramat, MOA 23 (Movento) 2SC	4 to 5 fl oz	0.06 to 0.08 lb	1	Do not exceed 10 fl oz per season. Requires surfactant.
		thiamethoxam, MOA 4A (Platinum) 2SC	5 to 11 oz	0.08 to 0.17 lb	30	Platinum may be applied to direct-seeded crops in-furrow seeding or transplant depth, post seeding or transplant as a drench, or through drip irrigation. Do not exceed 11 oz per acre per season of Platinum. Check label for plant-back restrictions for a number of crops.
	(Actara) 25 WDG	2 to 3 oz	0.03 to 0.047 lb	0	Actera is for foliar applications.	
	Armyworm	<i>Bacillus thuringiensis</i> (Crymax) WDG, MOA 11B2 (Dipel) 2X, MOA 11B2 (Xentari), MOA 11B1	0.5 to 1.5 lb 0.5 to 1 lb 0.5 to 1 lb	0.5 to 1.5 lb 0.5 to 1 lb 0.5 to 1 lb	0	Start applications when larvae are small, and continue at 5- to 7-day intervals during periods of infestation.
		emamectin benzoate, MOA 6 (Proclaim) 5 WDG	2.4 to 4.8 oz	0.0075 to 0.015 lb	7	Apply when larvae are first observed.
		flubendiamide, MOA 28 (Synapse) 24% WG	2 to 3 oz	0.03 to 0.045 lb	1	
		indoxacarb, MOA 22 (Avaunt) 30 DG	3.5 oz	0.065 lb	3	Do not apply more than 14 oz of Avaunt (0.26 lb a.i.) per acre per crop. The minimum interval between sprays is 5 days.
		methoxyfenozide, MOA 18 (Intrepid) 2 F	4 to 10 oz	0.063 to 0.156 lb	1	Use low rates for early-season applications to young or small plants and 6 to 10 oz for mid- and late-season applications.
novaluron (Rimon)		9-12 fl oz/A	0.058 to 0.076	1	Do not make more than 3 applications per season.	
chlorantraniliprole, MOA 28 (Coragen) 1.67 SC		3.5 to 5 fl oz	0.045 to 0.065 lb	1	Foliar or drip chemigation. Drip chemigation must be applied uniformly to the root zone. See label for instructions.	
spinetoram, MOA 5 (Radiant) 1 SC		5 to 10 oz	0.04 to 0.08 lb	1		
Colorado potato beetle	acetamiprid, MOA 4A (Assail) 30 SG	1.5 to 2.5 oz	0.028 to 0.047 lb	7		
	endosulfan, MOA 2A (Thionex) 3 EC (Thionex) 50 WP	1 qt 2 lb	0.75 lb 1 lb	1	On foliage as needed.	
	imidacloprid, MOA 4A (Admire Pro) 4.6 F (various) 2 F	7 fl oz	0.25 lb	21	Use Admire Pro for soil or transplant drench treatment and 1.6 F formulation for foliar applications.	
	(various) 1.6 F	3.75 fl oz	0.04 lb	0		
	chlorantraniliprole, MOA 28 (Coragen) 1.67 SC	3.5 to 5 fl oz	0.045 to 0.065 lb	1	Foliar or drip chemigation. Drip chemigation must be applied uniformly to the root zone. See label for instructions.	
	spinetoram, MOA 5 (Radiant) 1 SC	5 to 10 oz	0.04 to 0.08 lb	1		

TABLE 2-

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TOMATO (continued)	Colorado potato beetle (continued)	thiamethoxam, MOA 4A (Platinum) 2SC	5 to 11 oz	0.08 to 0.17 lb	30	Platinum may be applied to direct-seeded crops in-furrow seeding or transplant depth, post seeding or transplant as a drench, or through drip irrigation. Do not exceed 11 oz per acre per season of Platinum. Check label for plant-back restrictions for a number of crops.		
		(Actara) 25 WDG	2 to 3 oz	0.03 to 0.046 lb	0	Actara is for foliar applications.		
Cabbage looper, Hornworm, Tomato fruitworm, Pinworm		Bacillus thuringiensis (Dipel) DF, MOA 11B2 (Crymax) WDG, MOA 11B2	0.5 to 1 lb 0.5 to 1.5 lb	0.5 to 1 lb 0.5 to 1.5 lb	0			
		bifenthrin, MOA 3 (various) 2 EC	2.6 to 6.4 fl oz	0.04 to 0.1 lb	1			
		beta-cyfluthrin, MOA 3 (Baythroid) XL	1.6 to 2.8 fl oz	0.125 to 0.022 lb	0	Do not exceed 16.8 fl oz per acre per season.		
		emamectin benzoate, MOA 6 (Proclaim) 5 WDG	2.4 to 4.8 oz	0.0075 to 0.015 lb	7			
		esfenvalerate, MOA 3 (Asana XL) 0.66 EC	4.8 to 9.6 oz	0.03 to 0.05 lb	1			
		fenpropathrin, MOA 3 (Danitol) 2.4 EC	10.667 fl oz	0.2 lb	3	Use a spray volume of 25 to 120 gal per acre. Do not exceed 2.667 pt (42.667 fl oz) per acre per season.		
		flubendiamide, MOA 28 (Synapse) 24% WG	2 to 3 oz	0.03 to 0.045 lb	1			
		gamma-cyhalothrin, MOA 3 (Proaxis) 0.5 EC	2.56 to 3.84 fl oz	0.01 to 0.015 lb	5			
		indoxacarb, MOA 22 (Avaunt) 30 WDG	2.5 to 3.5 oz	0.045 to 0.065 lb	3	Do not apply more than 14 oz of Avaunt (0.25 lb a.i.) per acre per crop. The minimum interval between sprays is 5 days.		
		lambda-cyhalothrin, MOA 3 (Warrior) 1 EC	2.56 to 3.84 oz	0.02 to 0.03 lb	5	Do not exceed 2.68 pt per acre per season. Do not use on cherry tomatoes.		
		methomyl, MOA 1A (Lannate) 2.4 LV	1.5 to 3 pt	0.45 to 0.9 lb	1	Methomyl may induce leafminer infestation.		
		methoxyfenozide, MOA 18 (Intrepid) 2 F	4 to 10 oz	0.063 to 0.156 lb	1	Use low rates for early-season applications to young or small plants and 6 to 10 oz for mid- and late-season applications. Intrepid provides suppression of pinworm only.		
		novaluron (Rimon)	9-12 fl oz/A	0.058 to 0.078	1	Do not make more than 3 applications per season.		
		chlorantraniliprole, MOA 28 (Coragen) 1.67 SC	3.5 to 5 fl oz	0.045 to 0.065 lb	1	Foliar or drip chemigation. Drip chemigation must be applied uniformly to the root zone. See label for instructions.		
		spinetoram, MOA 5 (Radiant) 1 SC	5 to 10 oz	0.04 to 0.08 lb	1			
		zeta-cypermethrin, MOA 3 (Mustang MAX) 0.8 EC	2.24 to 4.0 oz	0.014 to 0.025 lb	1			
		Cutworm		beta-cyfluthrin, MOA 3 (Baythroid) XL	1.6 to 2.8 fl oz	0.125 to 0.022 lb	0	Do not exceed 16.8 fl oz per acre per season.
				esfenvalerate, MOA 3 (Asana XL) 0.66 EC	4.8 to 9.6 oz	0.03 to 0.05 lb	1	
gamma-cyhalothrin, MOA 3 (Proaxis) 0.5 EC	2.56 to 3.84 fl oz			0.01 to 0.015 lb	5			
lambda-cyhalothrin, MOA 3 (Warrior) 1 EC	2.56 to 3.84 oz			0.02 to 0.03 lb	5	Do not exceed 2.68 pt per acre per season. Do not use on cherry tomatoes.		
zeta-cypermethrin, MOA 3 (Mustang MAX) 0.8 EC	3.2 to 4.0 oz			0.02 to 0.025 lb	1			
Leafminer		abamectin, MOA 6 (Agri-mek) 0.15 EC	8 to 16 fl oz	0.009 to 0.0018	7	Do not exceed 48 fl oz per acre per season, or more than two sequential applications.		
		cryomazine, MOA 17 (Trigard) 75 WP	2.66 oz	0.125 lb	0	See label for plant-back restrictions.		
		spheteram, MOA 5 (Radiant) 1 SC	6 to 8 fl oz	0.09 to 0.125 lb	1	Do not exceed 29 fl oz per acre per season.		

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TOMATO (continued)	Spider mite	abamectin, MOA 6 (Agri-mek) 0.15 EC	8 to 16 fl oz	0.009 to 0.0018	7	Do not exceed 48 fl oz per acre per season, or more than two sequential applications.
		bifenazate, MOA 25 (Acramite) 50 WS	0.75 to 1.0 lb	0.375 to 0.5 lb	3	Do not make more than one application per season.
		fenpyroximate MOA 21 (Portal) 0.4EC	2 pts	0.1 lb	3	Do not make more than two applications per season.
		spiromesifen, MOA 23 (Oberon) 2 SG	7 to 8.5 fl oz	0.1 to 0.13 lb	7	Do not exceed 3 applications per season.
	Stink bug	bifenthrin, MOA 3 (various) 2 EC	2.6 to 6.4 fl oz	0.04 to 0.1 lb	1	
		endosulfan, MOA 2A (Thionex) 3 EC (Thionex) 50 WP	1 qt 2 lb	0.75 lb 1 lb	2	Do not exceed 6 applications or 3 lb a.i. per acre per year.
		fenpropathrin, MOA 3 (Danitol) 2.4 EC	10.667 fl oz	0.2 lb	3	Use a spray volume of 25 to 120 gal per acre. Do not exceed 2.667 pt (42.667 fl oz) per acre per season.
		gamma-cyhalothrin, MOA 3 (Proaxis) 0.5 EC	2.56 to 3.84 fl oz	0.01 to 0.015 lb	5	
		lambda-cyhalothrin, MOA 3 (Warrior)	2.56 to 3.84 oz	0.02 to 0.03 lb	5	
		thiamethoxam, MOA 4A (Actara) 25 WDG	3 to 5.5 oz	0.047 to 0.086 lb	0	Do not exceed 11 oz Actara per acre per season.
		zeta-cypermethrin, MOA 3 (Mustang MAX) 0.8 EC	3.2 to 4.0 oz	0.020 to 0.025 lb	1	
		Thrips	dimethoate 4 EC, MOA 1B	0.5 to 1 pt	0.25 to 0.5 lb	7
	dinotefuran, MOA 4A (Venom) 70 SG		1 to 4 oz (follar) 5 to 6 oz (soil)	0.045 to 0.179 lb 0.226 to 0.268 lb	1 21	See comments under Whitefly for application instructions and restrictions.
	methamidophos, MOA 1B (Monitor) 4 E		1.5 to 2 pt	0.75 to 1 lb	7	Check 24c label for state registration.
	methomyl, MOA 1A (Lannate) 2.4 LV		1.5 to 3 pt	0.45 to 0.9 lb	1	On foliage as needed.
	novaluron (Rimon)		9-12 fl oz/A	0.058 to 0.078	1	Do not make more than 3 applications per season.
	spinetoram, MOA 5 (Radiant) 1 SC		6 to 10 oz	0.047 to 0.08 lb	1	Will control thrips on foliage, not in flowers.
	Whitefly	acetamiprid, MOA 4A (Assail) 30 SG	2.5 to 4 oz	0.05 to 0.075 lb	7	Do not apply more than once every 7 days, and do not exceed 5 applications per season.
		buprofezin, MOA 16 (Courier) 40 SC	9 to 13.6 fl oz	0.25 to 0.38 lb	7	Use sufficient water to ensure good coverage. Do not apply more than twice per crop cycle, and allow 28 days between applications.
		dinotefuran, MOA 4A (Venom) 70 SG	1 to 4 oz (follar) 5 to 6 oz (soil)	0.045 to 0.179 lb 0.226 to 0.268 lb	1 21	Do not follow soil applications with applications of other neonicotinoid insecticides (Actara, Provado, or Venom). Use only one application method. Soil applications may be applied in a narrow band on the plant row in bedding operation, as a post-seeding or transplant drench, as a side-dress after planting and incorporated 1 or more in., or through a drip irrigation system. May also control stink bugs.
		imidacloprid, MOA 4A (Admire Pro) 4.6 F (various) 2 F	16 to 24 fl oz 7 to 10.5 fl oz	0.25 to 0.375 lb 0.25 to 0.375 lb	21	Do not follow soil applications with applications of other neonicotinoid insecticides (Actara, Provado, or Venom). Apply through a drip irrigation system or as a transplant drench with sufficient water to reach root zone. As a sidedress, apply 2 to 4 in. to the side of the row and incorporate 1 or more in. Residual activity will increase with increasing rates applied. Use higher rate for late-season or continuous infestations. Trickle irrigation applications will also control aphids and stinkbugs.
pyriproxyfen, MOA 7C (Knack) 0.86EC		8 to 10 oz	0.054 to 0.067 lb	14	Do not apply more than two applications per growing season, and do not make applications closer than 14 days.	
spiromesifen, MOA 23 (Oberon) 2 SC		7 to 8.5 fl oz	0.11 to 0.13 lb	1	Do not make more than 3 applications per season.	
spirotetramat, MOA 23 (Movento) 2SC		4 to 5 fl oz	0.06 to 0.08 lb	1	Do not exceed 10 fl oz per season. Requires surfactant.	

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Commodity	Insect	Insecticide, Mode of Action Code, and Formulation	Amount of Formulation Per Acre	Active Ingredient Per Acre	Minimum Interval (Days) Between Last Application and Harvest	Precautions and Remarks
TOMATO (continued)	Whitefly (continued)	thiamethoxam, MOA 4A (Platinum) 2SC (Actara)	5 to 11 oz	0.08 to 0.17 lb	30	Do not follow soil applications with applications of other neonicotinoid insecticides (Actara, Provado, or Venom). Platinum may be applied to direct-seeded crops in-furrow seeding or transplant depth, post seeding or transplant as a drench, or through drip irrigation. Do not exceed 11 oz per acre per season of Platinum. Check label for plant-back restrictions for a number of crops. Actara is for foliar applications.
			3 to 5.5 oz	0.047 to 0.086 lb	0	
	Wireworm	diazinon, MOA 1B (Diazinon) AG 500 or 50 WP	2 to 4 qt	2 to 4 lb	—	Broadcast before planting and incorporate. Wireworms may be a problem in fields previously in pasture, corn, or soybean.

■ **Table 2-69. Naturally Occurring Biological Control Organisms – Tomato**

Commodity	Insect	Naturally Occurring Biological Control Organisms
TOMATO	Aphid	Lady beetles, lacewings, midges, Aphidid wasps and stink bug predators.
	Blister Beetle	Lacewing, Ichneumonid wasp and BTT.
	Cabbage looper	Encyrtidae, Trichogramma wasps, lacewing, Pteromalidae, and BTK
	Hornworm	Trichogramma wasps
	Flea beetle	Braconids, and soil drench with parasitic nematodes.
	Leafminer	Eulophidae, lacewing and attract parasitic wasps.
	Mite	
	Spider mite	Lady beetle, predator mites, and lacewings
	Stink bug	Trichogramma wasps and Scelionidae
	Tomato fruitworm	Trichogramma wasps, Pteromalidae, Flower bug, lacewings, Aphidid wasps, and BTK
	Pinworm	Flower bug, lacewings, and predatory mites
	Whitefly	Lacewings and Encarsia formosa

■ **Table 2-70. Alternative Control Procedures – Tomato**

Commodity	Insect	Alternative Control Procedures
TOMATO	Aphid	Wash with strong spray of water, or spray with insecticidal soap, neem or insecticidal oil.
	Colorado potato beetle	Handpick or spray with insecticidal soap, neem pyrethrins, BTT or insecticidal oil. Use plastic lined trench as a trap or flammers.
	Cabbage looper	Handpick or spray with insecticidal soap, neem pyrethrins, BTK or insecticidal oil.
	Hornworm	Handpick, spray with BTK.
	Cutworm	Scatter bran mixed with BTK and molasses on bed surface or use protective collars.
	Flea beetle	Drench soil with parasitic nematodes. Spray with insecticidal soap, neem pyrethrins, or insecticidal oil.
	Leafminer	Handpick and destroy mined leaves and remove egg clusters. Spray plants with neem.
	Spider mite	Spray with insecticidal soap, or insecticidal oil.
	Tomato fruitworm	Handpick or spray with insecticidal soap, neem pyrethrins, BTK or insecticidal oil.
	Thrips	Spray with insecticidal soap, or insecticidal oil.
	Whitefly	Spray with insecticidal soap, pyrethrins, neem, or insecticidal oil.