

## ANIMAL INSECT CONTROL

Animal	Pest Problem	Insecticide Formulation	Method and Rate	Restrictions/Remarks
<b>DAIRY CATTLE, Lactating</b>	<b>Cattle Grub</b>	Ivomec Eprinex Pour-on (eprinomectin)	Pour 1 mL/22 lb body weight along backline.	Do not treat after Oct. 15 to avoid toxic reactions in cattle unless cattle were treated for grubs at end of heel fly season. Apply along the topline from withers to tailhead. To avoid undesirable host-parasite reactions, cattle should be treated as soon as possible after heel fly season (between Aug. 1 and Oct. 15).
		Cydectin (0.5% moxidectin)	1 mL/22 lb body weight.	
	<b>Horn Flies</b> (Flies around the face)	<b>Sprinkle-On Dusts and Dust Bags</b>		Apply at first sign of pest. Dust only after milking. Rub dust lightly into hair on poll, neck, back and upper sides. Repeat Co-Ral dust application as necessary.  Do not apply more than once every 7 days.  Apply into the hair over the head, ears, neck, shoulders, back and tailhead. Use shaker can, mechanical duster or dusting glove.  Install bags across gate or door where cows leave milking parlor. Do not hang bags over feed, mineral or water troughs. No restrictions when used as recommended.  Do not use Python Dust if currently using ear tags containing ζ-cypermethrin or cypermethrin.
		Coumaphos 1% livestock dust, Co-Ral 1% shaker can (coumaphos)	1-2 oz/head.	
		ProZap Dust'R or Rabon 3% Dust (tetrachlorvinphos)	1-2 T/head.	
		Python Dust (0.075% ζ-cypermethrin and 0.15% piperonyl butoxide)	Up to 2 oz per animal.	
		Co-Ral 1% D (coumaphos)	Follow label directions.	
		ProZap Dust'R or Rabon 3% Dust (tetrachlorvinphos)	Follow label directions.	
		Ectiban, Insectrin or Permethrin 0.25% D (permethrin)	Follow label directions.	
		Python Dust (0.075% ζ-cypermethrin and 0.150% piperonyl butoxide)	Follow label directions.	
<b>Horn Flies, Stable Flies and Flies around the face</b>		<b>Mist Sprays</b>		
		pyrethrins 0.3% OS	Ready to use.	
		Permethrin II 10% EC (permethrin)	Use 1 qt in 100-200 gal water applied as mist; use 1 gal of mixture per head.	
		Atroban, Expar 11% EC (permethrin)	1 pt/25 gal water.	
		Vapona Concentrate Insecticide (R) (40.2% dichlorvos)	Mix 5 oz/2 gal water to make a 1% dilution. Apply 1-2 oz of the dilution per animal as a fine mist spray (such as an exit sprayer). May be used daily. Do not apply in combination with any other dermal organophosphate insecticides (trichlofon). Do not treat Brahman or Brahman crossbred cattle due to hypersensitivity to organophosphates. Do not apply to calves under 6 months of age.	

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DAIRY CATTLE, Lactating	Horn Flies, Stable Flies and Flies around the face (cont.)	<b>Animal Sprays</b> Ectiban 5.7% EC (permethrin)	1 qt/25 gal water.	
		Permethrin II and generics (10% permethrin) Ravap EC (23% tetrachlorvinphos and 5.3% dichlorvos)	Follow label directions for low or high pressure spray applications or mixing with oil for spot applications. Mix 2 oz Ravap per 3 gal of water. Direct spray to cover thoroughly with up to 1/2 gal of the dilution per animal.	Care should be taken so the spray does not come in contact with the lactating cows' teats unless they are washed with an approved cleansing solution and dried before milking. Apply the spray at least 20 minutes prior to milking or after milking has been completed.
	<b>Horn Flies, Flies around the face</b>  (Aids in control of lice and ticks.)	<b>Ear Tags</b> Several brand names of insecticide-impregnated ear tags are available for purchase.	Use as directed on label. Make sure it states for use on dairy animals. Ear tags registered for use on lactating dairy cattle include Gold Star Plus, Python Magnum, Zeta Gard and Cylence Ultra.	If ear tags in same class have been used in the same herd for two or more consecutive years, reduced effectiveness may be observed. Revert to use of dusts, sprays or ear tags in a different insecticide class or alternative methods.
		<b>Backrubbers</b> Co-Ral ELI (11.6% coumaphos EC) or Co-Ral Fly and Tick Spray (6.15% coumaphos)	Use 9 3/4 oz per gallon of fuel oil.	Use only diesel oil or No. 2 fuel oil to dilute concentrates. Use 1 gal of oil solution per 20 ft of backrubber. Retreat backrubbers weekly. Do not treat calves under 6 months old.
		Permethrin II, Martin's permethrin, Durvet permethrin, Insectrin, Prozap X, Permethrin 10 (permethrin)	1/2 pt/5 gal oil.	
		Ravap EC (23% tetrachlorvinphos and 5.3% dichlorvos)	5 oz/1 gal oil.	
		GardStar 40% EC, Tengard SFR (permethrin)	4 oz/10 gal oil.	Self-use treatment.
		<b>Dusts</b> Python Dust (0.075% ζ-cypermethrin and 0.15% piperonyl butoxide)	Up to 2 oz per animal.	Apply into hair over the head, ears, neck, shoulders, back and tailhead. Use shaker can, mechanical duster or dusting glove. Python Dust is labeled for use in self-treatment dust bags. Do not use Python Dust if currently using ear tags containing cypermethrin or ζ-cypermethrin.
		coumaphos 1% livestock dust	Dust bag treatment; self-treatment. No mixing necessary.	Do not contaminate feed or water.
		Permethrin (Permethrin, Prozap, Insectrin) 0.25% D	Dust bag treatment; self-treatment. No mixing necessary.	Dust bags have shown an indication of good lice control when left in place during winter months. Install in gates, doorways, loafing areas, etc.
		ProZap Dust'R or Rabon 3% Dust (tetrachlorvinphos)	Dust bag treatment; self-treatment. No mixing necessary.	Dust bags have shown an indication of good lice control when left in place during winter months. Install in gates, doorways, loafing areas, etc.

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DAIRY CATTLE, Lactating	Horn Flies, Stable Flies and Flies around the face	<b>Oral Larvicides</b> Rabon oral larvicide (7.76% and 97.3% tetrachlorvinphos formulations)	Use salt block or pre-mixed mineral as directed on label. Look for specific instructions on label.	Start feeding early in the spring before flies begin to appear. Continue feeding throughout the summer and into the fall until cold weather restricts fly activity.
		Altosid IGR (methoprene)	Methoprene is used as a mineral or feed additive.	Methoprene must be used on a program basis for horn fly control.
		ClariFly Larvicide (0.67% diflubenzuron)	Read label directions carefully.	Must be used on a program basis. For house, stable, horn and face fly control.
	Horn Flies, Face Flies, Biting and Sucking Lice	<b>Pour-Ons</b> Cylence (1% cyfluthrin)	Ready to use in dispenser.	Use 4-12 mL per animal. See label for dosage. Use on both lactating and non-lactating animals.
		Brute (10% permethrin)	Ready to use in dispenser.	Aids in control of other flies.
		Boss (5% permethrin)		
		Permethrin CDS, Martin's Fly Ban Pour-on (permethrin and piperonyl, butoxide)	Pour correct dose on back and down the face.	Comes in ready-to-use dispenser.
		Ultra Boss and Synergized Delice Pour-ons (permethrin and piperonyl, butoxide)	Pour correct dose on back and down the face.	Comes in ready-to-use dispenser.
		Clean-Up Pour-on (5.0% diflubenzuron and 5.0% permethrin)	Apply 2.0 mL/100 lb body weight along backline and down face. Do not apply more than 30 mL to any animal.	Ready to use.
		Atroban 1% Delice, Permethrin 1% Pour-on (permethrin)	Follow label directions. Ready-to-use pour-on.	Do not exceed 5 fluid oz/animal.
	Cydectin (0.5% moxidectin)	1 mL/22 lb body weight.	Apply along topline from withers to tailhead. Provides 7 days of persistent activity against horn flies. Not labeled for face fly control.	
Lice and Ticks	<b>Sprays and Dusts</b> Co-Ral ELI (11.6% coumaphos)	For lice, use 1.25 oz/4 gal of water.	Complete wetting to runoff.	
	Co-Ral Fly and Tick Spray (6.15% coumaphos)	For lice, use 2.5 oz/4 gal of water.	Complete wetting to runoff.	
	Atroban, Expar 11% EC (permethrin)	1 pt/25 gal water. Use 2 qt of spray per animal.	Spray only after milking.	

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<b>DAIRY CATTLE, Lactating</b>	<b>Lice and Ticks</b> (cont.)	<b>Sprays and Dusts</b> Taktic 12.5% EC (amitraz)	1 pt/50 gal water. Spray to runoff.	For lice, a second treatment 10-14 days later is recommended.
		Ravap EC (23% tetrachlorvinphos and 5.3% dichlorvos)	2 oz/3 gal water. 1 gal/200 gal water.	Use 1/2 gal of diluted spray per animal. Repeat as necessary.
		Ectiban 5.7% EC (permethrin)	1 qt/100 gal water for lice. 1 qt/25 gal water for ticks.	0 days. Repeat 14-21 days after first treatment.
		GardStar 40% EC, Tengard SFR (permethrin)	4 oz/25 gal water treats 50-100 head. High pressure spray.	1-2 qt of coarse spray per animal.
		Python Dust (0.075% ζ-cypermethrin and 0.15% piperonyl butoxide)	Up to 2 oz per animal.	Apply into the hair over the head, ears, neck, shoulders, back and tailhead. Use shaker can, mechanical duster or dusting glove. Python Dust is labeled for use in self-treatment dust bags.
		ProZap Dust'R or Rabon 3% Dust (tetrachlorvinphos)	2 oz per animal. Dust thoroughly.	Do not apply more than once every 7 days.
<b>DAIRY CATTLE Non-lactating</b> (Dry Cows and Heifers Only)	<b>Cattle Grubs</b> Late summer or fall treatments (July through Oct. 15 prior to freshening)	<b>Pour-Ons</b> Ivomec Eprinex Pour-on (eprinomectin)	Pour 1 mL/22 lb body weight along backline.	Do not treat after Oct. 15 to avoid toxic reactions in cattle unless cattle were treated for grubs at end of heel fly season.
		Cydectin (0.5% moxidectin)	1 mL/22 lb body weight.	Apply along topline from withers to tailhead. To avoid undesirable host-parasite reactions, cattle should be treated as soon as possible after heel fly season (between Aug. 1 and Oct. 15).
		<b>Injectables</b> Ivomec (ivermectin)	1% ready-to-use.	Use subcutaneous injection only. Allow 35 days from last application to slaughter. Not for intravenous or intramuscular use. No more than 10 mL of Ivomec should be used on animals over 1,100 lb (see label for specific instructions). <b>Do not use in female dairy cattle of breeding age.</b>
		<b>Lice</b>	<b>Pour-Ons</b> ATROBAN, Delice or Expar 1% (permethrin)	0.5 fl oz/100 lb body weight.
	Synergized Delice, synergized permethrin (1% permethrin and 1% piperonyl butoxide)	Pour 1/2 oz/100 lb body weight up to a maximum of 5 oz per animal. Pour correct dose down face and along back.	Can also be applied undiluted as a mist spray or diluted with mineral oil or diesel fuel (1 pint synergized Delice to 1 gallon mineral oil or diesel) for use in a backrubber.	
	Permethrin CDS, Martin's Fly Ban Pour-on (permethrin and piperonyl, butoxide)	Pour correct dose on back and down the face.	Comes in ready-to-use dispenser.	

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<b>DAIRY CATTLE Non-lactating</b> (Dry Cows and Heifers Only)	<b>Lice</b>	<b>Pour-Ons</b> Clean-up Pour-on (5.0% diflubenzuron and 5.0% permethrin)	Apply 2.0 mL/100 lb body weight along backline and down face. Do not apply more than 30 mL to any animal.	Do not treat after Oct. 15 to avoid toxic reactions in cattle unless cattle were treated for grubs at the end of heel fly season.  Apply along topline from withers to tailhead. To avoid undesirable host-parasite reactions, cattle should be treated as soon as possible after heel fly season (between Aug. 1 and Oct. 15).
		Ivomec Eprinex Pour-on (eprinomectin)	Pour 1 mL/22 lb body weight along backline.	
		Cydectin (0.5% moxidectin)	1 mL/22 lb body weight.	
	<b>Horn Flies</b>	<b>Ear Tags</b> Several brand names of insecticide-impregnated ear tags are available for purchase.	Use as directed on label.	If ear tags within the same insecticide class have been used for two or more consecutive years, substantial reduction in control effectiveness is possible. Revert to use of dusts, sprays or ear tags in a different insecticide class or alternative methods.
	<b>Horn Flies, Stable Flies, and Flies Around the Face</b>	<b>Sprays, Dusts and Backrubbers</b>	Insecticides recommended for lactating dairy cattle can be used on non-lactating dairy cattle. Some insecticides recommended for use on beef cattle can be used on non-lactating dairy cattle. Be certain to follow the days to freshening guidelines and label before using any insecticide labeled for beef cattle.	
<b>DAIRY CATTLE, DAIRY BARNS</b>	<b>House Flies and Flies around the premises</b>	<b>Sanitation, Biological Control and Integrated Pest Management (IPM)</b>	Sanitation is critical to any fly control program in dairies and animal housing facilities. IPM includes sanitation, insecticides (baits, contact insecticides, etc.), surveillance (monitoring and/or trapping) and biological control (conserving natural enemies and/or releases). Use insecticides judiciously to minimize impact on natural enemies and to prevent or delay insecticide resistance. Use a combination of management methods.	Waste (spilled feed, wet feed, manure, bedding) removal and management is the first line of defense in any filth fly management program. Prompt removal and disposal (such as spreading on pastures) of waste will reduce filth fly breeding sites and break the house fly life cycle. Some producers have experienced reduced fly populations with weekly releases of parasitic wasps beginning in April or May. Releases should be made in dry areas out of traffic and in areas where flies reproduce. <b>Parasite and/or insecticide use are not a substitute for a good sanitation program.</b>
		<b>Sticky Ribbons/Tapes</b>	Sticky ribbons and tapes can be effective in managing small to moderate fly populations. Sticky ribbons are also useful in monitoring house fly populations when used weekly.	Sticky ribbons and tapes may require changing every week or two because they become coated with dust, covered with flies or dry out.
		<b>Baits</b> QuickBayt, Martin's Quick Draw and Bonanza fly bait (0.5% imidacloprid and 0.1% muscalure ((z)-9-tricosene)) Ready-to-Use Fly Bait	Scatter 6 oz of bait/1,000 sq ft around the outside of dairies and in inaccessible areas of animal housing, or mix 1.5 oz/1 oz of water, mix thoroughly, let stand for 15 minutes or until a paste consistency and paint on non-dusty fly resting areas inaccessible to animals.	Use around the outside of dairies and animal housing areas. Do not apply to milking equipment or allow bait to contact food or water. Can be used inside horse stables, broiler, turkey and caged layer houses, swine confinement buildings, dairy barns and milking parlors <b>ONLY</b> if used in bait stations. Bait stations must be placed at least 4 feet above ground level and in areas inaccessible to animals, pets or children.

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<b>DAIRY CATTLE, DAIRY BARNs</b>	<b>House Flies and Flies around the premises</b> (cont.)	<b>Baits</b> QuickBayt Disposable Fly Bait Strip (0.5% imidacloprid and 0.1% muscalure ((z)-9-tricosene))	Ready-to-use strip: Use 1 bait strip/250 sq ft.	Do not use in areas accessible to food-producing animals or allow to contact food or water. Do not apply directly to milking equipment.
		QuickBayt Spot Spray (10% imidacloprid and 0.1% muscalure ((z)-9-tricosene))	Mix 16 oz/gal water. Carefully read label directions.	For use in and around agriculture production facilities such as poultry houses, turkey and chicken houses, cattle, sheep and goat facilities, feedlots, dairy barns, swine confinement buildings, dog kennels and horse stables. Do not apply on surfaces accessible to children or pets. Do not apply where animals can ingest the bait. Do not apply to milking equipment at dairy facilities.
		Golden Malrin (1.1% methomyl and 0.049% (z)-9-tricosene)	Scatter 4 oz/500 sq ft of fly breeding area or use bait in any commercial bait station.	Use as a scatter bait only around the outside of animal housing areas. Bait stations must be hung at least 4 feet from ground level. Scatter baits and bait stations must only be used in areas inaccessible to animals, pets or children.
		Elector Bait (0.5% spinosad and 0.04% (z)-9-tricosene)	Scatter 12-16 oz per 2,000 sq ft. Elector Bait can also be used in bait stations or applied to hang boards/cards. Use 8-10 bait stations or hang boards/cards per 2,000 sq ft. See label for more detailed instructions on bait station and hang board/card use.	Do not allow Elector Bait to contact food, feedstuffs, water, milk or milking utensils. Do not use where milk is processed or stored. When using Elector in bait stations, hang stations in areas inaccessible to children, livestock and pets. Elector Bait stations or hang cards must be located at least 4 feet above the ground.
		Agita 1GB fly bait (1% thiamethoxam and 0.1% (z)-9-tricosene)	Ready-to-use fly bait. Use as directed on label.	Apply only in areas inaccessible to children, pets, domestic animals, wildlife or poultry. May be used in hanging or stationary bait stations not accessible to children, pets, livestock or poultry. Do not apply bait where animals can lick the product. Do not apply directly to livestock or livestock feed as illegal residues may occur.
		Agita 10 WG (10% thiamethoxam and 0.05% (z)-9-tricosene)	Spot spray fly bait. Mix 8 oz Agita 10 WG with 60 oz lukewarm water to treat 500 sq ft of surface area.	Apply only in areas inaccessible to children, pets, domestic animals, wildlife or poultry. Do not apply bait where animals can lick the product. Do not apply directly to livestock or livestock feed as illegal residues may occur.
		<b>Sprays</b> Ravap EC (23% tetrachlorvinphos and 5.3% dichlorvos)	12 Tbsp/gal water/500-1,000 sq ft.	Remove animals from barn before spraying. Allow at least 4 hours for spray to dry before allowing cows to return to the barn. Do not contaminate feed, water or milking utensils.
		Rabon 50% WP (tetrachlorvinphos)	4 lb per 25 gal applied/1 gal per 500 sq ft.	
		GardStar 40% EC, Tengard SFR (permethrin)	4 oz/10 gal water. Surface spray.	1 gal/750-1,000 sq ft. (Do not use in milk rooms.)

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<b>DAIRY CATTLE, DAIRY BARNS</b>	<b>House Flies and Flies around the premises</b>	<b>Sprays</b> Pounce 3.2 EC (permethrin)	4 oz/12.5 gal water. Apply 1 gal solution/750 sq ft.	Apply as directed on label.
		Vapona Concentrate Insecticide (R) (40.2% dichlorvos)	2 oz/1.5 gal water (0.5% dilution). 5 oz/2 gal water (1.0% dilution).	Apply 0.5% dilution as a space spray mist to open air space at the rate of 1 qt/8,000 cu ft or as a coarse surface spray to indoor surfaces at the rate of 1 qt/1,000 sq ft. For the 1.0% dilution, apply as above but only half the total volume of mixture. Do not use this product in areas where animals have received a direct organophosphate application within 8 hours. If animals are present, ventilate treated area immediately following application. Do not contaminate water, feed or foodstuffs, milk or milking utensils.
		Annihilator (0.02% deltamethrin)	Ready to use.	Wet surfaces where flies rest. Do not spray animals, humans, animal feed or water. Do not apply more than once per week.
		Grenade ER (9.7% λ-cyhalothrin)	Mix 0.2 to 0.4 oz/gal water to make a 0.015% to 0.03% dilution.	Apply dilution to horizontal and overhead surfaces where flies rest. Do not make applications in areas where animals are present. Allow to dry before reintroducing animals or birds. Do not contaminate animal food, feed or water during application.
		Atroban, Expar 11% EC (permethrin)	1 pt/10 gal water. Apply 1 gal/750-1,000 sq ft of surface.	Apply as directed on label.
<b>DAIRY CATTLE, MILK ROOMS</b> Check label of any product before using in milk room	<b>Adult Flies</b>	<b>Sprays</b> Pyrethrins (synergized)	Use as directed on label.	
		Tempo 20WP (cyfluthrin)	10-20 grams per 1,000 sq ft.	Use adequate water for coverage.
		<b>Baits</b> QuickBayt Disposable Fly Bait Strip (0.5% imidacloprid and 0.1% muscalure ((z)-9-tricosene))	Ready-to-use strip; use 1 bait strip/250 sq ft.	Do not use in areas accessible to food-producing animals or allow to contact food or water. Do not apply directly to milking equipment.
		QuickBayt, Martin's Quick Draw and Bonanza fly bait (0.5% imidacloprid and 0.1% muscalure ((z)-9-tricosene)) Ready-to-Use Fly Bait	1.5 oz/bait station/250 sq ft.	Can be used inside horse stables, broiler, turkey and caged layer houses, swine confinement buildings, dairy barns and milking parlors <b>ONLY</b> if used in bait stations. Bait stations must be placed at least 4 feet above ground level and in areas inaccessible to animals, children or pets.