Animal	Pest Problem	Insecticide Formulation	Method and Rate	Restrictions/Remarks
BARNS, STABLES AND DAIRY BARNS (Not for human dwellings) See **Poultry** section for poultry houses.	**Adult Flies**	**Sprays and Fogs**		
		Rabon 50% WP (tetrachlorvinphos)	3 lb 50% WP in 7.5 gal water. Spray 1 gal/500-1,000 sq ft to wet all surfaces. Repeat every 3 or 4 weeks.	General Precautions for All Insecticides Are: 1. Apply where flies congregate; i.e., ceilings, light fixtures, walls, windows, etc. DO NOT apply within 1 week of applying whitewash. 2. DO NOT spray in milk houses. 3. DO NOT spray on milk utensils. 4. DO NOT contaminate feed or water supplies. Cover them when spraying. 5. Remove animals before spraying. 6. Keep out of reach of animals and children. 7. DO NOT mix a combination of compounds. 8. Wear protective clothing—jacket or coveralls, cap or hat, rubber gloves, and preferably a respirator. Wash protective clothing after using. Wash with soap and water after spraying.
		Ravap EC (23% tetrachlorvinphos and 5.3% dichlorvos)	1 gal Ravap EC/25 gal water. Allow 4 hours to dry before returning cows to barn. Apply 1 gal spray solution/1,000 sq ft.	
		Atroban 11% EC (permethrin)	1 pt/10 gal clean water. Apply 1 gal/750-1,000 sq ft. Provides up to 8 weeks of control.	
		Permethrin 3.2 EC, Tengard SFR (36.8% permethrin)	4 oz/12.5 gal water. Apply 1 gal/750 sq ft.	
		Pyranha Stock Guard Concentrate (10% permethrin and 10% piperonyl butoxide)	Mix 2 to 8 oz product per gallon of water. For severe infestations use the higher rate.	Apply as directed on label. Treat walls, ceilings, moldings, screens, door and window frames and similar resting places.
		Elector PSP (44.2% Spinosad)	Mix 2 oz product per 10 gallons of water to treat 5,000 -10,000 sqft,	Treat fly resting areas.
		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; spray at the rate of 1 qt per 8,000 cu ft or at 1 qt per 1,000 sq ft for a coarse surface spray. 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 organophos-phate application within 8 hours. If animals are present, ven-tilate treated area immediately following application. DO NOT contaminate water, feed or foodstuffs, milk or milking utensils.
		Onslaught microencapsulated insecticide (6.4% esfenvalerate)	Mix 0.5 oz product/gallon of water. Application rates is 0.5 oz product/1000 sqft.	Treat fly resting areas in sufficient water volume to treat 1000 sqft. Remove animals from area before treatment.
		Annihilator Polyzone (4.75% deltamethrin)	Mix and apply according to directions.	May be applied to walls, ceilings and other fly resting areas in unoccupied animal housing areas.
		Grenade ER, Oxyfly, Cyonara 9.7 (9.7% lambda-cyhalothrin)	Mix 0.2-0.4 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.
		Pyrethrins (synergized)	Use as directed on label.	Spray 1 gallon of diluted spray to treat 500-1,000 sq ft fly resting surfaces.
		Permectrin II (10% permethrin)	1 qt 10% permethrin/25 gal water. Use 1 gal/750 sq ft.	Other similar permethrin formulations are registered as surface sprays.
		GardStar 40% EC (permethrin)	4 oz/10 gal of water (surface spray).	1 gallon covers 1,000 sq ft. DO NOT use in milk rooms.
		Talstar P, Bifen I/T (7.9% bifenthrin)	Mix with water and apply 0.33-1.0 oz product per 1,000 sq ft.	Target areas where flies rest such as ceilings, trusses, rafters, supports, walls, windows and vegetation.

Animal	Pest Problem	Insecticide Formulation	Method and Rate	Restrictions/Remarks
BARNS, STABLES AND DAIRY BARNS (cont.) (Not for human dwellings) See **Poultry** section for poultry houses.	**Adult Flies** (cont.)	**Sprays and Fogs** (cont.)		
		Optashield CS (6% cyfluthrin)	Mix with water and apply 1.0 – 2.0 oz. product per 1,000 sqft.	Target areas where flies rest such as ceilings, trusses, rafters, supports, walls, windows and vegetation
		Optimate CS (5.9% gamma-cyhalothrin)	Mix 0.16 oz (5 mL)/gal of water.	Spray 1 gallon of diluted spray to treat 500-1,000 sq ft fly resting surfaces.
		Baits		
		QuickBayt 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, stables, animal barns and inaccessible areas of animal housing facilities, or mix 1.5 oz bait/1 oz water, mix thoroughly, let stand for 15 minutes and paint on non-dusty fly resting areas inaccessible to animals.	Use around the outside of dairies and other animal housing structures. 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 ONLY 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.
		QuickBayt Spot Spray (10% imidacloprid and 0.1% muscalure (z)-9-tricosene)	Mix 16 oz/gal of 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. Carefully read label directions. 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.
		Starbar Durastrike Fly Scatter Bait (0.5% dinotefuran and 0.04% (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.
		Starbar QuikStrike Fly Bait Spray (0.5% dinotefuran and 0.04% (z)-9-tricosene)	To spray on, mix 2 oz product with 16 oz of water to treat 250 sq ft. To paint on, mix 2 oz product with 3 oz water to treat 250 sq ft.	Apply to fly resting areas such as walls, fences, window sills, posts, etc., typically 4 feet above the floor surface. Do not apply to milking equipment.
		Starbar QuikStrike II Fly Abatement strip (1.0% dinotefuran)	Ready-to-hang strip.	Hang 1 strip for every 150-300 sq ft. Hang close to the ground or floor in areas inaccessible to animals, birds or children. Do not place in areas where strips will become wet.
		Starbar 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. Can be used in walkways of caged layer houses. 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.
		Gordon's Fly Bait (0.5% spinosad and 0.04% (z)-9-tricosene)	Scatter 12-16 oz of bait per 2,000 sq ft. 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 bait to contact food, feedstuffs, water, milk or milking utensils. DO NOT use where milk is processed or stored. When using in bait stations, hang stations in areas inaccessible to children, livestock and pets, bait stations or hang cards must be located at least 4 feet above the ground.
		Decimari Fly Bait (0.5% clothianidin and 0.5% pyriproxyfen)	Scatter 6.3 oz product per 1,000 sqft in areas inaccessible to children, pets and animals or use in bait station inaccessible to children, pets and animals.	Follow other label recommendations. May also be used as a paint-on application.

Animal	Pest Problem	Insecticide Formulation	Method and Rate	Restrictions/Remarks
BARNS, STABLES AND DAIRY BARNS (cont.) (Not for human dwellings) See **Poultry** section for poultry houses.	**Adult Flies** (cont.)	**Baits** (cont.) Starbar Cyanarox Insecticidal Bait, Zyrox Fly Granular Bait (0.5% cyantraniliprole)	Ready-to-use granular fly bait. Apply from 3.2-6.4 oz granular bait per 1,000 square feet. Depending upon application site, product can be scattered or placed in bait stations.	Do not place bait in areas accessible to food-producing animals or animals being grown for food. Do not place bait in areas accessible to children and pets. Bait stations must be used if bait is applied inside residential structures, commercial establishments, food processing plants, restaurants and animal housing units. Do not apply bait outdoors when rain is expected.
		Starbar Aviator Fly Bait aerosol (0.5% acetamiprid and.05% Z-9 tricosine)	Ready to use aerosol	Do not apply directly to animals, food, feed handling and feed storage areas. Keep treatments out of the reach of children, pets and other animals.
		Starbar QuikStrike Fly Abatement Strip (1% nithiazine)	Ready-to-use strip. Hang 1 strip/100-300 sq ft depending on fly population.	Hang in enclosed areas protected from rain. Keep out of reach of children and animals.
	Fly Maggots	Neporex 2 SG (2% cyromazine)	**Spray:** Mix 1 lb Neporex 2 SG per gallon of water. Apply as a coarse low-pressure spray on fly breeding sites with suitable spray equipment (hand-pressurized or power-operated sprayers). One gallon of finished solution will treat 200 sq ft. **Scatter:** Apply 1 lb Neporex 2 SG per 200 sq ft. Apply directly and evenly on fly breeding sites. Use dry scattering only in case of wet manure or liquid manure. Treat edges and spillage areas around feed and water troughs and where manure accumulates. The spray solutions may also be applied 3 days after manure removal and repeated after next manure removal or when fly larvae are found.	DO NOT apply directly to livestock or livestock feed. DO NOT feed treated manure to animals. Allow at least 1 day between last application and harvest. May be used with slatted floors to treat areas where manure and other refuse accumulate to create fly breeding sites.
		Dimilin 2L, Unforgiven, Cavalier 2L (22% diflubenzuron)	For spot treatments: Mix 7.5 oz product to 15 gallons of water. Apply one quart per 10 square feet area of fly breeding material infested with fly eggs and larvae.	
		Archer Insect Growth Regulator (1.3% pyriproxyfen)	Use 1 oz. product/1500 sqft in sufficient water volume to achieve thorough coverage.	Spray surfaces where flies rest and breed
		Tekko 10 (9.3% novoluron)	For spot treatments: Apply 3 oz Tekko 10 per 1,000 square feet of fly breeding material in sufficient volume to ensure coverage.	
	Fire Ants	Apply baits only on the perimeter of barns, stables and dairy barns.		
		Amdro Pro (hydramethylnon)	5 Tbsp/mound or 1.0-1.5 lb/acre if broadcast.	Mound treatment – uniformly distribute materials 3-4 feet around the mound **NOT** on top of mound.
		Extinguish Professional Fire Ant Bait (methoprene)	3-5 Tbsp/mound or 1.0-1.5 lb/acre if broadcast.	
		Extinguish Plus (methoprene and hydramethylnon)	3-5 Tbsp/mound or 1.0-1.5 lb/acre if broadcast.	
		Esteem Ant Bait (pyriproxyfen)	2-4 Tbsp/mound or 1.5-2.0 lb/acre if broadcast.	
		Clinch Ant Bait (abamectin)	5-7 Tbsp/mound or 1.0 lb/acre if broadcast.	

Animal	Pest Problem	Insecticide Formulation	Method and Rate	Restrictions/Remarks	Minimum Days From Last Application to Slaughter
BEEF CATTLE	**Cattle Grub** (Also controls lice, some reduction of horn flies.)	**Pour-Ons** Cydectin (moxidectin)	1 mL/22 lb body weight.	Pour along midline of back.	0 Do not use in calves to be processed for veal.
	Systemics for grub control should be applied before Oct. 15 in Arkansas. Treatment later than Oct. 15 may cause toxic reactions in cattle from dying grubs.	Ivermectin 0.5% pour-on (Ivomec), generics available	1 mL/22 lb body weight.	Pour along midline of back.	48
		Dectomax pour-on (doramectin)	1 mL/22 lb body weight.	Pour along midline of back.	45
		Ivomec Eprinex pour- on (eprinomectin)	1 mL/22 lb body weight.	Pour along midline of back.	0
	Proper timing of treatment is important. For most effective results, cattle should be treated as soon as possible after heel fly activity ceases. Heel fly activity ceases in Arkansas any time after Aug. 1.	**Injections** Ivermectin 1% injection, generics available	1 mL/110 lb body weight.	Subcutaneous injection.	48
		Dectomax injection (doramectin)	1 mL/110 lb body weight.	Subcutaneous injection.	35
		Cydectin injection (moxidectin)	1 mL/110 lb body weight.	Subcutaneous injection.	21
	Horn Flies, Lice (Aids in control of face flies.)	**Dust Bags** Co-Ral (Coumaphos) 1% livestock dust	Dust bag treatment; self-treatment. No mixing necessary.	DO NOT contaminate feed or water.	0
		permethrin (Permectrin Fly and Louse Dust and ProZap Insectrin Dust) 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.	0
		Python Dust (0.075% zeta-cypermethrin and 0.150% piperonyl butoxide)	Dust bag treatment; self-treatment. Ready-to-use dust.	DO NOT use Python Dust if currently using ear tags containing cypermethrin or zeta-cypermethrin.	0
			Several different dusts can be purchased and hand-sprinkled on cattle. Do not use these in dust bags unless the label indicates you can do so.		

Animal	Pest Problem	Insecticide Formulation	Method and Rate	Restrictions/Remarks	Minimum Days From Last Application to Slaughter
BEEF CATTLE (cont.)	**Horn Flies, Lice** (cont.) (Aids in control of face flies.)	**Backrubbers**			
		Permectrin II, Martin's Permethrin, Permethrin, Insectrin, Prozap X, Permethrin 10 (10% permethrin)	Backrubber treatment. Add 1 qt to 20 gal oil. Apply 1 gal solution/20 ft cable to saturate backrubber.	Backrubbers help prevent lice infestations. Install cable in gates, doorways, loafing areas, etc., at first sign of pest. DO NOT use motor oil. Use only No. 2 oil or diesel oil. (Mineral oils are a little less irritating than fuel oils.)	0
		Pyranha Stock Guard Concentrate (10% permethrin and 10% piperonyl butoxide)	Dilute 8 oz in 5 gallons of oil.		0
		Co-Ral Fly and Tick Spray (6.15% coumaphos)	Use 9 3/4 oz/gal of fuel oil. Apply 1 gal solution per 20 ft cable to saturate backrubber.		0
		Ravap EC (23% tetrachlorvinphos and 5.3% dichlorvos)	Backrubber treatment. Use 1 qt of Ravap in 7 gal of No. 2 diesel oil. Apply 1 gal of mixed solution/20 ft cable to saturate backrubber.		0
		Prolate/Lintox HD (11.75% phosmet)	Use 1 pt/6.25 gal of fuel oil. Apply solution to backrubber.	DO NOT treat sick, stressed or convalescent animals or animals less than 3 months of age. Phosmet is a cholinesterase inhibitor. Consult veterinarian at first sign of adverse reaction.	3
	Horn Flies, Face Flies, Biting and Sucking Lice	**Pour-Ons**			
		CyLence (1% cyfluthrin)	Ready to use in dispenser.	Use 4-12 mL depending on weight of animal. See label.	0
		Brute (10% permethrin)	Ready to use in dispenser.	Also aids in control of other flies.	0
		Boss (5% permethrin)	Ready to use.	Pour correct dose on back and down the face.	0
		Permethrin 1% pour-on	Ready to use.	Pour correct dose on back and down the face.	0
		Synergized Permethrin Pour-on (permethrin and piperonyl butoxide), Permectrin CDS, Martin's Fly Ban Synergized Pour-on, Ultra Boss, Synergized DeLice, Permectrin S, Cattle Armor Revenge Synergized fly and lice pour-on and generic pour-ons	Ready to use.	Pour correct dose on back and down the face.	0
		Ultra Saber, Exile Ultra, Embargo Ultra and Cyonara Plus Pour-ons (1% lambda-cyhalothrin and 5% piperonyl butoxide)	Ready to use.	Pour correct dose down the backline at rates specified on label. DO NOT APPLY TO FACE OF CATTLE.	0
		StandGuard Pour-on (0.05% gamma-cyhalothrin)	Ready to use.	Pour correct dose down the backline at rates specified on label. DO NOT APPLY TO FACE OF CATTLE.	0
		Clean-Up II pour-on, Gardatis pour-on (3% diflubenzuron and 5% permethrin)	Apply 3 mL/100 lb of body weight along backline and down face. DO NOT apply more than 30 mL to any animal.		0

Animal	Pest Problem	Insecticide Formulation	Method and Rate	Restrictions/Remarks	Minimum Days From Last Application to Slaughter
BEEF CATTLE (cont.)	**Horn Flies, Face Flies, Biting and Sucking Lice** (cont.)	**Pour-Ons** JustiFly 5-5 Pour-on (5% diflubenzuron and 5% piperonyl butoxide)	Apply 3 mL/100 lb of body weight along backline and down face. DO NOT apply more than 30 mL to any animal.		
		Saber, Exile and Cyonara Lambda Pour-ons (1% lambda-cyhalothrin)	Apply 10 mL to animals less than 600 lb or 15 mL to animals over 600 lb. Pour along the backline of the animal.	DO NOT apply more than 4 times within a 6-month period. DO NOT apply more often than every two weeks. Not recommended for veal calves. DO NOT apply to dry or lactating dairy cows. DO NOT apply to the face of beef cattle or calves.	0
		Endectocides Ivomec Eprinex pour-on (eprinomectin)	1 mL/22 lb body weight.	Endectocides (ivermectin, moxidectin and doramectin) are used as part of an integrated control program for internal and external parasite management. For optimal horn fly control over an extended period, use other methods and chemistries. Pour along midline of back from withers to tailhead. Provides 7 days of persistent activity against horn flies.	0
		Cydectin (0.5% moxidectin)	1 mL/22 lb body weight.	Apply along the topline of the back from withers to tailhead; not labeled to control face flies. Provides 7 days of persistent activity against horn flies.	0
		Dectomax Pour-on (0.5% doramectin)	1 mL/22 lb body weight.	Apply along the topline of the back from withers to tailhead; not labeled to control face flies. DO NOT use on calves to be processed for veal. Provides 7 days of persistent activity against horn flies.	45
		Remote Delivery Capsule AIM-L VetCaps (1.5% lambda-cyhalothrin and 7.5% piperonyl butoxide), one vetcap contains 10 mL product)	Apply only 1 VetCap per animal to the upper two-thirds of the body between the front shoulder and 6 inches ahead of the tail with an AIM-L VetGun. Application should be made no closer than 15 feet and no further than 30 feet from the animal.	Use only on cattle weighing 600 pounds or more. DO NOT repeat treatment more often than once every 2 weeks or more often than 4 times within any 6-month period. DO NOT expose VetCaps to humidity above 50% or temperatures above 70°F for any extended period. DO NOT apply to any animal in or within 10 feet of any body of water.	0
		AIM-A VetCaps (3.15% abamectin)		Rotate the use of AIM-L and AIM-A VetCaps.	
	Horn Flies, Face Flies	**Oral Larvicides** Rabon Oral Larvicide (tetrachlorvinphos)	Read label directions carefully. Use salt block or pre-mixed mineral as directed on the label.	Start feeding early in spring before flies appear. Oral larvicides pass through the digestive system and kill fly larvae in manure. For horn, face, stable and house fly control.	0
		Altosid IGR. Alliance IGR Cattle Concentrate, Ragland IGR Fly CURB, Vitalix #5 IGR Fly Tub, Mineralix Fly Tub with IGR, Ignite IGR Mineral, Purina Wind & Rainstorm Hi MAG 4 CP ALTOSID (S-methoprene)	Read label directions carefully.	For horn fly control. Several formulation are available.	0

Animal	Pest Problem	Insecticide Formulation	Method and Rate	Restrictions/Remarks	Minimum Days From Last Application to Slaughter
BEEF CATTLE (cont.)	**Horn Flies, Face Flies** (cont.)	**Oral Larvicides (cont.)** ClariFly, TermiFly, JustiFly Larvicide 0.67% premix or Justify feedthrough – 3% (diflubenzuron)	Read label directions carefully.	For house, stable, horn and face fly control. Several other formulations of feed-through diflubenzuron are available.	0
		BOLUS Altosid IGR XRB (extended release bolus) (1.5% (s)-methoprene)	Administer ½ bolus for a 300-659 lb. BW cow, calf or bull. Adminsiter 1 bolus for an 660-1400 lb BW cow, calf or bull	Existing adult horn flies will not be affected. Controls horn fly larvae developing in manure for up to 6 ½ months.	
		Ear Tags and Ear Strips A number of brand names of insecticide-impregnated ear tags are available for purchase.	Use number of tags recommended on label. Alternating the use of pyrethroid, organophosphate and macrocyclic lactone ear tags will mini-mize resistance/ tolerance issues. Ear tags are primarily used to control horn flies and ear ticks; however, some ear tags will aid in controlling face flies.	If ear tags within the same insecticide class have been used for two or more consecutive years, substantial reduction in control effectiveness is possible. Use dusts, sprays or ear tags in a different insecticide class or alternative methods.	0
	Horn Flies, Lice	**Dips** Prolate/Lintox-HD (11.75% phosmet)	Follow label directions.	DO NOT treat sick, stressed or convalescent animals or animals less than 3 months of age. Phosmet is a cholinesterase inhibitor. Consult veterinarian at first sign of adverse reaction.	3
	(Aids in control of face flies.)	**Sprays** Co-Ral Fly and Tick Spray (6.15% coumaphos)	For horn flies and lice, use 5 oz/4 gal of water; for ticks, use 10 oz/4 gal of water.	One application of these sprays may be sufficient for lice. If live lice are present after 2 weeks, apply a second treatment.	0
		GardStar 40% EC, Tengard SFR (permethrin)	4 oz/2.5 gal of water. Low-pressure spray. 4 oz/25 gal of water. High-pressure spray.	Spray to point of runoff.	0
		Rabon (tetrachlorvinphos)	Mix as directed on label for specific pest. Use between 1/2 and 1 gal of spray per animal. Spray face to aid in face fly control.		0
		Permectrin II 10% EC, Martin's Permethrin, Permethrin, Prozap Insectrin X, Permethrin 10 (10% permethrin)	Use 1 qt in 100-200 gal water. Re-treat after 3 to 5 weeks. Spray to runoff or fog using 1 gal spray mix per head.		0
		Atroban (permethrin)	1 pt 11% EC/50 gal water for horn fly; 1 pt/25 gal for lice. Use 1 qt spray per head for horn fly and 2 qt spray for lice.		0
		Synergized Delice (1% permethrin and 1% piperonyl butoxide)	Ready to Use Pour-on. Use as directed.		0
		Pyranha Stock Guard Concentrate (10% permethrin and 10% piperonyl butoxide)	Mix 4 to 8 teaspoons per gallon of water. Thoroughly wet animal's hair.	For severe infestations use the 8 oz/gallon rate.	0
		Ravap EC (23% tetrachlorvinphos and 5.3% dichlorvos)	Use 1 pt Ravap/10 gal water for horn flies and lice or 1 pt/6 gal water for ticks; then use 1/2-1 gal of spray mixture per animal.		0

Animal	Pest Problem	Insecticide Formulation	Method and Rate	Restrictions/Remarks	Minimum Days From Last Application to Slaughter
BEEF CATTLE (cont.)	**Ticks**	**TICKS** – Several tick species attach to cattle including lone star ticks, Asian longhorned ticks, American dog ticks, Gulf Coast ticks and blacklegged ticks. Ticks can attach to multiple areas of cattle such as; in and on ears, on the neck, on the belly, under the tail down through the belly, on the brisket, between the legs and areas of leg attachment. When using convention insecticides, thorough body coverage is recommended.			
		Dusts Python Dust (0.075% zeta cypermethrin)	Ready to use	Apply with dust bag or shaker.	0
		Sprays Permectrin II 10% EC and others (10% permethrin)	For high pressure sprayer, mix 8 oz, in 50 gallons of water. Apply 2 quarts to 1 gallon of finished spray per animal. Spray to thoroughly cover the animal. For low pressure sprayer (garden or hand sprayer), mix 8 oz. in 3 gallons of water. Spray each animal with up to 8 ounces.		0
		Co-Ral Tick and Fly Spray (6.15% coumaphos)	Mix 4 quarts of product per 50 gallons of water. Operate spray equipment so as to thoroughly penetrate the hair coat.	Do not apply to sick, convalescent or stressed livestock or to animals less than 3 months old. Co-Ral is a cholinesterase inhibitor. Do not use this product on animals simultaneously or within a few days before or after treatment or exposure to cholinesterase-inhibiting drugs or pesticides. Atropine sulfate by injection is antidotal. Consult veterinarian at the first sign of adverse reaction.	0
		Ravap EC (23.0% tetrachlorvinphos and 5.3% dichlorvos) RESTRICTED USE	Mix 1 gallon of product in 200 gallons water. Use between ½ to 1 gallon of diluted spray solution per animal depending on size and hair coat.	Do not treat more often than every 10 days. Do not apply to calves under six months of age. Brahman and Brahman-cross cattle should not be treated as they may show hypersensitivity to organophosphate pesticides. Do not apply in combination with other dermal organo-phosphate pesticides (e.g. trichlorofon).	0
		Prolate/Lintox-HD (11.75% phosmet)	Mix 1 qt. product in 25 gallons water and stir thoroughly. Apply fresh mixture as a coarse spray, taking care to wet skin, not just hair. Do not apply to point of runoff. Do not allow spray to drift.	Prolate is a cholinesterase inhibitor. Do not use this product on animals simultaneously or within a few days before or after treatment with or exposure to cholinesterase inhibiting drugs, pesticides, or chemicals. Atropine is antidotal. Consult veterinarian at first sign of adverse reaction. Do not treat sick, convalescent, stressed, or animals less than 3 months old.	3
		Ear Tags Although ears tags are useful in controlling ear ticks, some will aid in the control of other tick species. Refer to Insecticide Ear Tag 2026 on page 38 for ear tags that aid in the control of ticks.	Follow recommendation on the label concerning application.	Follow the minimum calf age requirement.	0
		Pour-on Synergized permethrin Pour on (permethrin and piperonyl butoxide) Ex. Permectrin CDS, Martin's Synergized pour-on Ultra Boss and others. Some endectocide pour-ons and injectable parasiticide labeled to control internal parasites, lice, cattle grubs, horn flies and mites may reduce tick burdens on cattle but do not list ticks on the label.	Ready to use.	Follow specific directions for the product.	0

Animal	Pest Problem	Insecticide Formulation	Method and Rate	Restrictions/Remarks	Minimum Days From Last Application to Slaughter
BEEF CATTLE (cont.)	**Lice, Internal Parasites** (cont.)	**Injectables** Ivomec injection (1% ivermectin)	1 mL/110 lb body weight. Follow label directions.	Subcutaneous injection. For sucking lice.	35
		Cydectin injection (moxidectin)	1 mL/110 lb body weight.	Subcutaneous injection. For sucking lice.	21
		Dectomax injection (doramectin)	1mL/110 lb body weight.	Subcutaneous injection. For sucking lice.	35
		Pour-Ons Ivomec, Ivermectin, Bimectin (0.5% ivermectin)	1 mL/22 lb body weight.	Apply along the topline of the back from withers to tailhead.	45
		Cydectin pour-on (moxidectin)	1 mL/22 lb body weight.	Apply along topline of the back from withers to tailhead.	0
		Dectomax pour-on (0.5% doramectin)	1 mL/22 lb body weight.	Apply along topline of the back from withers to tailhead. DO NOT use on calves to be processed for veal.	45
		Ivomec Eprinex pour-on (eprinomectin)	1 mL/22 lb body weight.	Pour along midline of back from withers to tailhead. Provides 7 days of persistent activity against horn flies.	0
	Ear Ticks	Catron IV (permethrin)	Use as directed on label.	For spinose ear ticks spray directly into animal's ear. For Gulf coast ticks spray onto the outer surface of the animal's ear.	0
		Insecticide-impregnated ear tags	Use as directed on label.	Many ear tag brands will control spinose and Gulf Coast ticks; some will aid in control of lone star ticks.	
	Screwworms, fleece worms, wool maggots and other blow fly maggots	Catron IV (permethrin)	Ready to use. Spray wounds thoroughly.	The new world screwworm (primary screwworm) has not been identified in the U.S. but has been identified in Mexico. Because it its proximity to the southern U.S., the U.S. FDA conditionally approved Dectomax-CA1 injectable solutions for prevention and treatment of the new world screwworm if its range expands into the U.S.	0
	Mites, scabies (Psoroptic, Chorioptic, Sarcoptic)	**Sprays** Prolate/Lintox (11.7% phosmet)	Mix 1 gt in 25-50 gallons of water.	Apply as a coarse spray to runoff. Do not re-treat for 7 days. Do not treat non-lactating dairy cattle within 28 days of freshening. If freshening should occur within the 28 day period after treatment, that milk must not be used as human food. For Sarcoptic mange.	3
		Pour-Ons Dectomax Pour-on (0.5% doramectin)	Ready to use.	Apply 1ml/22 lbs body weight. Not for use in female dairy cattle 20 months of age or older. Do not use in calves to be processed for veal.	45

Animal	Pest Problem	Insecticide Formulation	Method and Rate	Restrictions/Remarks	Minimum Days From Last Application to Slaughter
BEEF CATTLE (cont.)	**Mites, scabies** (cont.) (Psoroptic, Chorioptic, Sarcoptic)	**Pour-Ons** (cont.) Ivomec Eprinex Pour-on for Beef Cattle (5 ml eprinomectin per mL)	Ready to use	Apply 1 ml/22lbs body weight. When used according to label directions, neither a pre-slaughter drug withdrawal period nor a milk discard time is required, therefore, meat and milk from cattle treated with IVOMEC EPRINEX (eprinomectin) Pour-On may be used for human consumption at any time following treatment. Do not use in calves intended for veal or unapproved animal species as severe adverse reaction, including fatalities in dogs, may result.	0
		Cydectin Pour-on (5 mg moxidectin/mL)	Ready to use	Apply 1ml/22lbs body weight. When used according to label directions, neither a pre-slaughter drug withdrawal period nor a milk discard time are required. Meat and milk from cattle treated with CYDECTIN (moxidectin) Pour-On may be used for human consumption at any time following treatment. A withdrawal period has not been established for this product in preruminating calves. Do not use in calves to be processed for veal.	0
		Ivomec Pour-on (5 mL/ivermectin/mL)	Ready to use.	Apply 1 ml/22lbs body weight. Because a withdrawal time for milk has not been established, non-lactating dairy cows must not be treated within two months of calving.	49
		Injectable Ivomec 1% injection (1% ivermetin)	Ready to use sterile solution.	Inject 1 ml/110 lbs body weight subcutaneously. Do not treat cattle within 35 days of slaughter. Because a withdrawal time in milk has not been established, do not use in female dairy cattle of breeding age. A withdrawal period has not been established for this product in pre-ruminating calves. Do not use in calves to be processed for veal.	35
		Cydectin Injectable Solution (10mg moxidectin/mL)	Ready to use sterile solution.	Inject 1 ml/110 lbs body weight subcutaneously. Cattle must not be slaughtered for human consumption within 21 days of treatment. This drug product is not approved for use in female dairy cattle 20 months of age or older, including dry dairy cows. Use in these cattle may cause drug residues in milk and/or in calves born to these cows. A withdrawal period has not been established for preruminating calves. Do not use in calves to be processed for veal.	21
		Dectomax Injectable Solution (1% doramectin)	Ready to use sterile solution.	Inject 1 ml/110 lbs body weight subcutaneously. Do not slaughter for human consumption within 35 days of treatment. Not for use in female dairy cattle 20 months of age or older. A withdrawal period has not been established for this product in preruminating calves. Do not use in calves to be processed for veal.	35

INSECTICIDE EAR TAGS 2026

Organophosphate Tags		
Trade Name	**Market Source**	**Active Ingredient**
Corathon (AB)	Elanco	coumaphos (2) + diazinon (2)
Dominator (C)	Merck	pirimiphos-methyl (2)
Optimizer (AC)	Y-Tex Corporation	diazinon (2)
Patriot (AC)	Elanco	diazinon (2)
MAX40 (AC)	Y-Tex Corporation	diazinon (2)

Synthetic Pyrethroid Tags		
Trade Name	**Market Source**	**Active Ingredient**
Cylence Ultra (5) (AB)	Elanco	beta-cyfluthrin (1) + piperonyl butoxide (4)
GardStar Plus (5) (AB)	Y-Tex Corporation	permethrin (1)
Python Ear Tag (5) (AB)	Y-Tex Corporation	zeta-cypermethrin (1), piperonyl butoxide (4)
Python Magnum (5) (C)	Y-Tex Corporation	zeta-cypermethrin (1) + piperonyl butoxide (4)
Saber Extra (B)	Merck	lambda-cyhalothrin (1) + piperonyl butoxide 4)

Macrocyclic Lactone Tags		
Trade Name	**Market Source**	**Active Ingredient**
XP 820 Ear Tag (5) (AC)	Y-Tex Corporation	abamection (3) + piperonyl butoxide (4)

Insecticide Combination Ear Tags		
Trade Name	**Market Source**	**Active Ingredient**
Tri-Zap (5) (AB)	Y-Tex Corporation	Zeta-cypermethrin (1) + abamectin (3) + piperonyl butoxide (4)
Double Barrel VP (B)	Merck	Lambda-cyhalothrin (1) and pirimiphos-methyl (2)

1 = synthetic pyrethroid, 2 = organophosphate, 3 = macrocyclic lactone, 4 = synergist, 5 = labeled for use on lactating dairy cattle
Carefully read label concerning the number of tags to apply (1 or 2 per animal) and any precautions concerning calves and lactating dairy cattle.

A = Aids in control of ticks, B = Controls face flies, C = Aids in control of face flies. All insecticide ear tags control insecticide susceptible horn flies.

Animal	Pest Problem	Insecticide Formulation	Method and Rate	Restrictions/Remarks
DAIRY CATTLE, Lactating	**Cattle Grub**	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 the topline from withers to the 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).
	Horn Flies (Flies around the face)	**Sprinkle-On Dusts and Dust Bags**		
		C-Ral 1% livestock dust	1-2 oz/head.	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.
		Co-Ral 1% D (coumaphos)	Follow label directions.	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.
		Permectrin Fly and Louse Dust, Prozap Insectrin Dust 0.25% (permethrin)	Follow label directions.	
		Python Dust (0.075% zeta-cypermethrin and 0.150% piperonyl butoxide)	Follow label directions.	DO NOT use Python Dust if currently using ear tags containing zeta-cypermethrin or cypermethrin. Apply into the hair over the head, ears, neck, shoulders, back and tailhead. Use shaker can, mechanical duster or dusting glove.
	Horn Flies, Stable Flies and **Flies around the face**	**Mist Sprays**		
		Permectrin II 10% EC and several 10% generics (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 organo-phosphate 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.	
		Animal Sprays		
		Permectrin II and generics (10% permethrin)	Follow label directions for low- or high-pressure spray applications or mixing with oil for spot applications.	
		Ravap EC (23% tetrachlorvinphos and 5.3% dichlorvos)	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 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.

Animal	Pest Problem	Insecticide Formulation	Method and Rate	Restrictions/Remarks
DAIRY CATTLE, Lactating (cont.)	**Horn Flies, Stable Flies** and **Flies around the face**	**Oral Larvicides** 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.
		ClariFly Larvicide 0.67% premix or Justifly feedthrough – 3%	Read label directions carefully.	Must be used on a program basis. For control of house, stable, horn and face flies. Several other formulations are available.
		Altosid IGR. Alliance IGR Cattle Concentrate, Ragland IGR Fly CURB, Vitalix #5 IGR Fly Tub, Mineralix Fly Tub with IGR, Ignite IGR Mineral, Purina Wind & Rainstorm Hi MAG 4 CP ALTOSID (S-methoprene)	Read label directions carefully. Methoprene is used as a mineral or feed additive.	Methoprene must be used on a program basis for horn fly control. Several other S-methoprene formulations are available.
		BOLUS Altosid IGR XRB (extended release bolus) (1.5% (s)-methoprene)	Administer ½ bolus for a 300-659 lb. BW cow, calf or bull. Adminsiter 1 bolus for an 660-1400 lb BW cow, calf or bull	Existing adult horn flies will not be affected. Controls horn fly larvae developing in manure for up to 6 ½ months.
	Horn Flies, Flies around the face (Aids in control of lice and ticks.)	**Ear Tags** 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, Python Magnum, and CyLence. Ear tags are primarily used to control horn flies and ear ticks; however, some ear tags will aid in controlling face flies.	If ear tags within the same insecticide class have been used for two or more consecutive years, substantial reduction in control effectiveness is possible. Use dusts, sprays or ear tags in a different insecticide class or alternative methods.
		Backrubbers Co-Ral Fly and Tick Spray (6.15% coumaphos)	Use 9 3/4 oz per gal 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. Re-treat back-rubbers weekly. DO NOT treat calves under 6 months old.
		Permectrin II, Martin's Permethrin, Permethrin, Insectrin, Prozap X	1/2 pt/5 gal of oil.	
		Pyranha Stock Guard Concentrate (10% permethrin and 10% piperonyl butoxide)	Dilute 8 oz in 5 gallons of oil.	
		Ravap EC (23% tetrachlorvinphos and 5.3% dichlorvos)	5 oz/1 gal of oil.	
		GardStar 40% EC, Tengard SFR (permethrin)	4 oz/10 gal of oil.	Self-use treatment.
		Dusts Python Dust (0.075% zeta-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 zeta-cypermethrin.
		Co-Ral (coumaphos) 1% livestock dust	Dust bag treatment; self-treatment. No mixing necessary.	DO NOT contaminate feed or water.
		Permectrin Fly and Louse Dust, Prozap Insectrin Dust (0.25% permethrin)	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.

Animal	Pest Problem	Insecticide Formulation	Method and Rate	Restrictions/Remarks
DAIRY CATTLE, Lactating (cont.)	**Horn Flies, Face Flies, Biting** and **Sucking Lice**	**Pour-Ons**		
		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)		
		Permectrin 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, Permectrin CDS, Cattle Armor Pour-ons (permethrin and piperonyl butoxide)	Pour correct dose on back and down the face.	Comes in ready-to-use dispenser.
		Clean-Up II, Gardatis pour-on (3% piperonyl butoxide and 5% permethrin)	Apply 3 mL/100 lb body weight along backline and down face. DO NOT apply more than 30 mL to any animal.	Ready to use.
		Justifly 5-5 Pour-on (5% piperonyl butoxide and 5% permethrin	Apply 3 mL/100 lb body weight along backline and down face. DO NOT apply more than 30 mL to any animal.	Ready to use.
		Synergized Delice (1% permethrin and 1% piperonyl butoxide)	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 the topline from withers to tailhead. Provides 7 days of persistent activity against horn flies. Not labeled for face fly control.
	Ticks	**TICKS** – Several tick species attach to cattle including lone star ticks, Asian longhorned ticks, American dog ticks, Gulf Coast ticks and blacklegged ticks. Ticks can attach to multiple areas of cattle such as; in and on ears, on the neck, on the belly, under the tail down through the belly, on the brisket, between the legs and areas of leg attachment. When using convention insecticides, thorough body coverage is recommended.		
		Dusts	Ready to use	Apply with dust bag or shaker.
		Python Dust (0.075% zeta cypermethrin)		
		Sprays		
		Permectrin II 10% EC and others (10% permethrin)	For high pressure sprayer, mix 8 oz, in 50 gallons of water. Apply 2 quarts to 1 gallon of finished spray per animal. Spray to thoroughly cover the animal. For low pressure sprayer (garden or hand sprayer), mix 8 oz. in 3 gallons of water. Spray each animal with up to 8 ounces.	
		Ravap EC (23.0% tetrachlorvinphos and 5.3% dichlorvos) RESTRICTED USE	Mix 1 gallon of product in 200 gallons water. Use between ½ to 1 gallon of diluted spray solution per animal depending on size and hair coat.	Do not treat more often than every 10 days. Do not apply to calves under six months of age. Care should be taken that the spray does not come in direct contact with the lactating dairy cow's 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.

Animal	Pest Problem	Insecticide Formulation	Method and Rate	Restrictions/Remarks
DAIRY CATTLE, Lactating (cont.)	**Ticks** (cont.)	**Ear tags** Although ears tags are useful in controlling ear ticks, some will aid in the control of other tick species. Refer to Insecticide Ear Tag 2026 on page 38 for ear tags that aid in the control of ticks.	Follow recommendation on the label concerning application.	Follow the minimum calf age requirement. Not all tags are approved for lactating dairy cattle.
		Pour-on Synergized permethrin Pour on (permethrin and piperonyl butoxide) Ex. Permectrin CDS, Martin's Synergized pour-on Ultra Boss and others.	Ready to use.	Follow specific directions for the product.
		Some endectocide pour-ons and injectable parasiticide labeled to control internal parasites, lice, cattle grubs, horn flies and mites may reduce tick burdens on cattle but do not list ticks on the label.		
	Lice	**Sprays and Dusts** Co-Ral Fly and Tick Spray (6.15% coumaphos)	For lice, use 2.5 oz/4 gal of water.	Complete wetting to runoff.
		Atroban (permethrin)	1 pt/25 gal water. Use 2 qt of spray per animal.	Spray only after milking.
		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.
		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.
		Pyranha Stock Guard Concentrate (10% permethrin and 10% piperonyl butoxide)	Mix 2 to 8 oz product per gallon of water. For severe infestations use the higher rate.	Wet hair thoroughly. Spray lactating dairy cows only after milking has been completed.
		Python Dust (0.075% zeta-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.

Animal	Pest Problem	Insecticide Formulation	Method and Rate	Restrictions/Remarks
DAIRY CATTLE Non-lactating (Dry Cows and Heifers Only)	**Cattle Grubs** Late summer or fall treatments (July through Oct. 15 prior to freshening)	**Pour-Ons**		
		Ivomec Eprinex pour-on (eprinomectin)	1 mL/22 lb body weight.	Pour along midline of back. 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 pour-on (0.5% moxidectin)	1 mL/22 lb body weight.	Apply along topline from withers to the 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).
		Injectables Ivermectin, Ivomec, Noromectin and other generics (1% ivermectin)	1% ready to use. 1.0 mL/110 lb body weight.	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). Also controls sucking lice. **DO NOT use in female dairy cattle of breeding age.**
		Cydectin injectable (1% moxidectin)	1% ready to use. 1.0 mL/110 lb body weight.	Use subcutaneous injection only. Cattle must not be slaughtered for human consumption within 21 days of treatment. **Not for use in female dairy cattle 20 months of age or older (including dry dairy cows), veal calves and calves less than 8 weeks of age.**
	Lice	**Pour-Ons** Synergized Delice (1% permethrin and 1% piperonyl butoxide)	0.5 fl oz/100 lb body weight.	0 days. DO NOT exceed 5 fl oz/animal. These pour-ons can also be used on lactating dairy cattle.
		Synergized DeLice, Synergized Permethrin, Permectrin S, Cattle Armor (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 pt Synergized DeLice to 1 gal mineral oil or diesel fuel) for use in a backrubber.
		Permectrin 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.
		Clean-Up II pour-on (3% piperonyl butoxide and 5% permethrin)	Apply 3 mL/100 lb body weight along backline and down face. DO NOT apply more than 30 mL to any animal.	
		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 the end of heel fly season.
		Cydectin (0.5% moxidectin)	1 mL/22 lb body weight.	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).
	Mites, scabies (Psoroptic, Chorioptic, Sarcoptic)	**Sprays** Prolate/Lintox (11.7% phosmet)	Mix 1 gt in 25-50 gallons of water.	Apply as a coarse spray to runoff. Do not re-treat for 7 days. Do not treat non-lactating dairy cattle within 28 days of freshening. If freshening should occur within the 28 day period after treatment, that milk must not be used as human food. For Sarcoptic mange.

Animal	Pest Problem	Insecticide Formulation	Method and Rate	Restrictions/Remarks
DAIRY CATTLE Non-lactating (cont.) (Dry Cows and Heifers Only)	**Mites, scabies** (cont.) (Psoroptic, Chorioptic, Sarcoptic)	**Pour-Ons** Dectomax Pour-on (0.5% doramectin)	Ready to use.	Apply 1ml/22 lbs body weight. Not for use in female dairy cattle 20 months of age or older. Do not use in calves to be processed for veal.
		Ivomec Eprinex Pour-on for Beef Cattle (5 ml eprinomectin per mL)	Ready to use	Apply 1 ml/22lbs body weight. When used according to label directions, neither a pre-slaughter drug withdrawal period nor a milk discard time is required, therefore, meat and milk from cattle treated with IVOMEC EPRINEX (eprinomectin) Pour-On may be used for human consumption at any time following treatment. Do not use in calves intended for veal or unapproved animal species as severe adverse reaction, including fatalities in dogs, may result.
		Cydectin Pour-on (5 mg moxidectin/mL)	Ready to use	Apply 1ml/22lbs body weight. When used according to label directions, neither a pre-slaughter drug withdrawal period nor a milk discard time are required. Meat and milk from cattle treated with CYDECTIN (moxidectin) Pour-On may be used for human consumption at any time following treatment. A withdrawal period has not been established for this product in preruminating calves. Do not use in calves to be processed for veal.
		Ivomec Pour-on (5 mL/ivermectin/mL)	Ready to use.	Apply 1 ml/22lbs body weight. Because a withdrawal time for milk has not been established, non-lactating dairy cows must not be treated within two months of calving.
		Injectable Ivomec 1% injection (1% ivermetin)	Ready to use sterile solution.	Inject 1 ml/110 lbs body weight subcutaneously. Do not treat cattle within 35 days of slaughter. **Because a withdrawal time in milk has not been established, do not use in female dairy cattle of breeding age.** A withdrawal period has not been established for this product in pre-ruminating calves. Do not use in calves to be processed for veal.
		Cydectin Injectable Solution (10mg moxidectin/mL)	Ready to use sterile solution.	Inject 1 ml/110 lbs body weight subcutaneously. Cattle must not be slaughtered for human consumption within 21 days of treatment. This drug product is not approved for use in female dairy cattle 20 months of age or older, including dry dairy cows. Use in these cattle may cause drug residues in milk and/or in calves born to these cows. A withdrawal period has not been established for preruminating calves. Do not use in calves to be processed for veal.
		Dectomax Injectable Solution (1% doramectin)	Ready to use sterile solution.	Inject 1 ml/110 lbs body weight subcutaneously. Do not slaughter for human consumption within 35 days of treatment. Not for use in female dairy cattle 20 months of age or older. A withdrawal period has not been established for this product in preruminating calves. Do not use in calves to be processed for veal.
	Horn Flies	**Ear Tags and Ear Strips** Several brand names of insecticide-impregnated ear tags are available for purchase.	Use as directed on label. Ear tags are primarily used to control horn flies and ear ticks; however, some ear tags will aid in controlling face flies.	If ear tags within the same insecticide class have been used for two or more consecutive years, substantial reduction in control effectiveness is possible. Use dusts, sprays or ear tags in a different insecticide class or alternative methods.
	Horn Flies, Stable Flies, and **Flies Around the Face**	**Sprays, Dusts and Backrubbers**	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 instructions on the label before using any insecticide labeled for beef cattle.	

Animal	Pest Problem	Insecticide Formulation	Method and Rate	Restrictions/Remarks
DAIRY CATTLE, DAIRY BARNS	**House Flies** and **Flies around the premises**	**Sanitation, Biological Control and Integrated Pest Management (IPM)**	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. **Parasite and/or insecticide use are not a substitute for a good sanitation program.**
		Sticky Ribbons/Tapes	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.
		Baits QuickBayt 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 **ONLY** 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.
		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.
		Starbar Aviator Fly Bait aerosol (0.5% acetamiprid and 0.05% Z-9 tricosine)	Ready to use aerosol.	Do not apply directly to animals, food, feed handling and feed storage areas. Keep treatments out of the reach of children, pets and other animals.
		Starbar QuikStrike Fly Bait (0.5% dinotefuran and 0.04% (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 ft from ground level. Scatter baits and bait stations must only be used in areas inaccessible to animals, pets or children.
		Starbar QuikStrike Fly Bait Spray (0.5% dinotefuran and 0.04% (z)-9-tricosene)	To spray on, mix 2 oz product with 16 oz of water to treat 250 sq ft. To paint on, mix 2 oz product with 3 oz of water to treat 250 sq ft.	Apply to fly resting areas such as walls, fences, window sills, posts, etc., typically 4 feet above the floor surface. DO NOT apply to milking equipment.
		Starbar Golden Malrin Fly Bait (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 ft from ground level. Scatter baits and bait stations must only be used in areas inaccessible to animals, pets or children.
		Decimari Fly Bait (0.5% clothianidin and 0.5% pyriproxyfen)	Scatter 6.3 oz product per 1,000 sqft in areas inaccessible to children, pets and animals or use in bait station inaccessible to children, pets and animals.	Follow other label recommendations. May also be used as a paint-on application.

Animal	Pest Problem	Insecticide Formulation	Method and Rate	Restrictions/Remarks
DAIRY CATTLE, DAIRY BARNS (cont.)	**House Flies** and **Flies around the premises** (cont.)	**Baits**		
		Gordon's Fly Bait (0.5% spinosad and 0.04% (z)-9-tricosene)	Scatter 12-16 oz/2,000 sq ft. 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 Bait to contact food, feedstuffs, water, milk or milking utensils. DO NOT use where milk is processed or stored. When using in bait stations, hang stations in areas inaccessible to children, livestock and pets. Bait stations or hang cards must be located at least 4 ft above the ground.
		Starbar Cyanarox Insecticidal Bait, Zyrox Fly Granular Bait (0.5% cyantraniliprole)	Ready-to-use granular fly bait. Apply from 3.2-6.4 oz granular bait/1,000 square feet. Depending upon application site, product can be scattered or placed in bait stations.	DO NOT place bait in areas accessible to food-producing animals or animals being grown for food. DO NOT place bait in areas accessible to children and pets. Bait stations must be used if bait is applied inside residential structures, commercial establishments, food processing plants, restaurants and animal housing units. DO NOT apply bait outdoors when raining.
		Sprays		
		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.)
		Pyranha Stock Guard Concentrate (10% permethrin and 10% piperonyl butoxide)	Mix 2 to 8 oz product per gallon of water. For severe infestations use the higher rate.	Apply as directed on label. Treat walls, ceilings, moldings, screens, door and window frames and similar resting places.
		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.
		Elector PSP (44.2% Spinosad)	Mix 2 oz product per 10 gallons of water to treat 5,000 -10,000 sq ft.	Treat fly resting areas.
		Onslaught microencapsulated insecticide (6.4% esfenvalerate)	Mix 0.5 oz product/gallon of water. Application rates is 0.5 oz product/1000 sq ft.	Treat fly resting areas in sufficient water volume to treat 1000 sq ft. Remove animals from area before treatment.
		Suspend PolyZone (4.75% deltamethrin)	Mix with water and spray with low pressure (less than 50 psi). Apply 0.25 – 1.5 oz. product per 1,000 square feet.	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% lambda-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.

Animal	Pest Problem	Insecticide Formulation	Method and Rate	Restrictions/Remarks
DAIRY CATTLE, DAIRY BARNS (cont.)	**House Flies** and **Flies around the premises** (cont.)	**Sprays**		
		Atroban 11% EC (permethrin)	1 pt/10 gal water. Apply 1 gal/750-1,000 sq ft of surface.	Apply as directed on label.
		Talstar, Bifenthrin I/T 7.9F, Optashield CS (7.9% bifenthrin)	Mix with water and apply 0.33 to 1.0 oz product per 1,000 sq ft.	Target areas where flies rest such as ceilings, trusses, rafters, supports, walls, windows and vegetation.
		Optimate CS 5.9 (5.9% gamma-cyhalothrin	Mix 0.16 oz (5 mL)/gal of water.	Spray 1 gal of diluted spray to treat 500-1,000 sq ft fly resting surfaces.
DAIRY CATTLE, MILK ROOMS Check label of any product before using in milk room.	**Adult Flies**	**Sprays**		
		Pyrethrins (synergized)	Use as directed on label.	
		Tempo 20WP (cyfluthrin)	10-20 grams per 1,000 sq ft.	Use adequate water for coverage.
		Baits		
		QuickBayt Fly Bait (0.5% imidacloprid and 0.1% muscalure (z)-9-tricosene)	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 **ONLY** 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.
		Starbar Cyanarox Insecticidal Bait, Zyrox Fly Granular Bait (0.5% cyantraniliprole)	Ready-to-use granular fly bait. Apply from 3.2-6.4 oz granular bait/1,000 square feet. Depending upon application site, product can be scattered or placed in bait stations. **When applied inside, product must be placed in commercial bait stations.**	Bait stations must be used if bait is applied inside residential structures, commercial establishments, food processing plants, restaurants and animal housing units. Do not place bait in areas accessible to food-producing animals or animals being grown for food. Do not place bait in areas accessible to children and pets. Do not apply bait outdoors when raining.
		Decimari Fly Bait (0.5% clothianidin and 0.5% pyriproxyfen)	Scatter 6.3 oz product per 1,000 sqft in areas inaccessible to children, pets and animals or use in bait station inaccessible to children, pets and animals.	Follow other label recommendations. May also be used as a paint-on application.
PREMISES	**Fleas (premises)**	Often, animal treatment alone does not completely control severe flea infestations. Sanitation (removal of pet bedding, etc.) and insecticide application of the infested areas with an adulticide and an insect growth regulator mixture may be necessary.		
		Adulticides		
		Permethin concentrates (several formulations available): Martin's permethrin 10, Permectrin II, Tengard SFR Cypermethrin concentrates (Martin's Viper Insecticide Concentrate and others) Bifenthrin Bug Blaster Bifenthrin 2.4 and others **(Outdoor USE only)**	Mix according to label directions. Can be mixed with an insect growth regulator such as Nylar or Precor – listed below.	Can be mixed with an insect growth regulator. Apply only as directed on the label. **Outdoors:** When treating outdoors, concentrate in areas where fleas are present. Presence of fleas in the yard can be confirmed by walking the area while wearing white socks pulled to the knees; fleas will be easily seen against the white backbround of the socks. It is not usually necessary to treat the entire yard. Fleas normally occur in areas where pets rest, sleep, and run such as doghouse and kennel areas, under decks, along fences and next to the foundation. **Indoors:** Use only products labeled for indoor use and apply only as directed on the label. Pets and humans should not be in the house during treatment and should not return until the spray has dried or as directed on the label. Apply where pets spend the most time. Treat pet bedding, rugs, area under pet bedding, under furniture and in cracks and crevices. Hardwood floors seldom require treatment, but the area should be vacuumed thoroughly.

Animal	Pest Problem	Insecticide Formulation	Method and Rate	Restrictions/Remarks
PREMISES (cont.)	**Fleas (premises)** (cont.)	**Insect Growth Regulators**		
		NyGuard IGR Concentrate (10% (2-[1-methyl-2-(4-phenocyphenoxy) ethoxyl] pyridine) NyGuard EZ1 IGR Concentrate (1.3% (2-[1-methyl-2-(4-phenocyphenoxy) ethoxyl] pyridine) Archer Insect Growth Regulator (1.3% pyriproxyfen)	Mix according to label directions. Can be mixed with an adulticide such as those listed above.	Can be mixed with an adulticide. Apply only as directed on the label. **Outdoors:** When treating outdoors, concentrate in areas where fleas are present. Presence of fleas in the yard can be confirmed by walking the area while wearing white socks pulled to the knees; fleas will be easily seen against the white backbround of the socks. It is not usually necessary to treat the entire yard. Fleas normally occur in areas where pets rest, sleep, and run, such as doghouse and kennel areas, under decks, along fences and next to the foundation. **Indoors:** Use only products labeled for indoor use and apply only as directed on the label. Pets and humans should not be in the house during treatment and should not return until the spray has dried or as directed on the label. Apply where pets spend the most time. Treat pet bedding, rugs, area under pet bedding, under furniture and in cracks and crevices. Hardwood floors seldom require treatment, but the area should be vacuumed thoroughly.
		Ready-to-Use IGR and Adulticide Mixtures		
		(Precor Premise Plus, Vet-Kem, Premise spray (aerosol): (S)-methoprene, permethrin, phenothrin, N-octyl bicycloheptene dicarboximide, piperonyl butozide)	Ready-to-use aerosol.	Use only as directed on label. For use in the home, garage, kennel and commercial buildings. Cover aquariums before making applications. Pets and humans should not be in the house during treatment and should not return until the spray has dried or as directed on the label.
		NyGuard Plus Flea and Tick Spray (0.4% 3-Phenoxybenzyl d-cis and trans-2,2-dimethyl-3-(2-methylpropenyl) cyclopropanecarboxylate 1.6 % N-Octyl bicycloheptene dicarboximide and 1.0% pyriproxyfen)	Ready to use as directed.	Hold can 2 or 3 feet from surfaces to be treated. Turn container upside down and point valve toward surface to be sprayed. Be sure to apply uniformly using a sweeping motion to carpets, rugs, flooring, floors, drapes and all surfaces of upholstered furniture including under cushions.
		Prescription Treatment		
		PT Ultracide Pressurized Flea IGR and Adulticide (aerosol): pyriproxyfen, pyrethrins, N-octyl bicycloheptene dicarboximide, permethrin	Ready-to-use aerosol.	Use only as directed on label. For use in the home, garage, kennel and commercial buildings. Cover aquariums before making applications. Pets and humans should not be in the house during treatment and should not return until the spray has dried or as directed on the label.
		PT Alpine Flea Insecticide with IGR (aerosol): dinotefuran, pyriproxyfen, prallethrin	Ready-to-use aerosol.	
		Raid Flea Killer Plus Carpet and Room Spray (aerosol): pyrethrins, tetramethrin, piperonyl butoxide, N-octyl bicycloheptene dicarboximide, (S)-methoprene	Ready-to-use aerosol.	

ANIMAL INSECT CONTROL

Animal	Pest Problem	Insecticide Formulation	Method and Rate	Restrictions/Remarks
DOGS	**Fleas, Ticks**	**Dusts, Sprays, Spot-ons and Collars**		
		GardStar Garden and Poultry Dust and others (0.25% permethrin dust).	Ready to use. Use 1/2 oz on dogs 20 lb and under. Use 1 oz on dogs greater than 20 lb.	Can be used to dust dog bedding and dog house. DO NOT use on puppies under 12 weeks of age. Use only on dogs.
		Hartz Flea and Tick Powder for Dogs (3.3% tetrachlorvinphos)	Ready to use. Use 1/2 ounce on small dogs, 1 oz on medium-sized dogs and 1 1/4 oz on large dogs.	Can be used to dust dog bedding – read label directions. DO NOT use on puppies under 12 weeks of age. Use only on dogs.
		Preventic Tick Collar for Dogs (amitraz)	Ready-to-use collar. Follow label directions.	DO NOT use on puppies less than 12 weeks old. For ticks only.
		Seresto Dog Collar 4.5% flumethrin and 10% imidacloprid	Ready to use collar.	DO NOT USE on puppies less than 7 weeks old.
		Permectrin II 10% EC (permethrin)	1 oz in 3-5 gal water. Use 1 qt on big dogs; 1 pt on small dogs.	Aerosol pest sprays are also available for controlling fleas and ticks.
		Pyranha Stock Guard Concentrate (10% permethrin and 10% piperonyl butoxide)	Mix 2 to 8 oz product per gallon of water.	Pet sensitivities may occur after using a pesticide product. If you see signs of sensitivity bathe your pet with mild soap and rinse with large quantities of water. If signs continue, consult a veterinarian immediately. Do not treat puppies less than twelve weeks old.
		Frontline or Parastar spot-on (fipronil)	Follow label directions.	Also controls ticks. DO NOT use on puppies less than 8 weeks old.
		Frontline Plus or Martin's Preferred for Dogs (9.8% fipronil and 8.8% methoprene)	Follow label directions.	DO NOT use on puppies less than 8 weeks old.
		Certifect for Dogs (fipronil, (S)-methoprene, amitraz)	Ready-to-use spot-on.	DO NOT use on puppies less than 8 weeks old. For ticks, fleas and lice.
		K-9 Advantix II (8.8% imidacloprid ,44% permethrin and 0.44% pyriproxyfen)	Ready-to-use spot-on. Apply 3 or 4 spots to the skin along the backline between back of the shoulders and base of the tail.	Purchase the appropriate formulation for the weight and age of your dog. Also repels mosquitoes and biting flies.
		GardStar 40% EC, Tengard SFR One Shot (permethrin)	4 oz/20 gal water (dip).	Make sure all areas are soaked to skin. DO NOT rinse off.
		Oral Tablets		
		NexGard (afoxolaner)	Available through prescription only. Administer tablet every 30 days.	DO NOT use on puppies less than 8 weeks old.
		Bravecto (fluralaner)	Available through prescription only. One tablet will last for 12 weeks.	Use only on dogs over 4.4 pounds or six months of age.
		Simparica (sarolaner)	Available through prescription only. Administer tablet every 30 days.	Use only on dogs over 2.8 pounds or six months of age.
		Comfortis (spinosad)	Chewable tablet. Follow label directions.	Available by prescription from licensed veterinarians.
		Program Flea Control (lufenuron)	Oral.	Available by prescription only.
		Capstar tablet (nitenpyram)	Oral tablet.	Do not use on puppies less than 4 weeks old.
	Fleas	Flea collars containing Vapona, Rabon, Baygon, Propoxur and other chemicals (permethrin)	Use as directed on label. Some animals are sensitive to collars.	Fleas are killed quickly. Ticks are tough and are killed slowly. They will usually be dead in 1-5 days. When bathing dogs, remove collar until dog is dry. Replace collar when effectiveness diminishes. Specially formulated dips for dogs are available for purchase.

Animal	Pest Problem	Insecticide Formulation	Method and Rate	Restrictions/Remarks
DOGS (cont.)	**Fleas** (cont.)			
	Also controls ticks	Seresto Collar (flumethrin and imidacloprid)	Collar. Use as directed on label.	DO NOT use on puppies less than 7 weeks old.
	Also controls ticks	Hartz UltraGuard Plus Flea and Tick Collar for Dogs and Puppies (tetrachlorvinphos and (S)-methoprene)	Use as directed on label.	DO NOT use on puppies less than 6 weeks of age.
		Synergized pyrethrins soap	Wet pet thoroughly. Apply soap and work up good lather. Let stand 5-10 minutes to kill fleas. Rinse.	The lather of this soap cleans, grooms and deodorizes as it kills fleas.
		methoprene or Precor 1%	Follow mixing directions on label and combine with adulticide for best results.	Premise spray for control of fleas. DO NOT use on dogs.
		methoprene 0.075% + permethrin 0.5% Ortho Total Flea Control	Follow label directions.	Medicated shampoos and dips labeled for use on dogs will often help reduce flea and tick problems.
	Also controls ticks, mosquitoes, mites and lice	Vectra 3D (dinotefuran, pyriproxyfen and permethrin	Topical, Follow label directions.	Use the appropriate formulation based on the animal's weight.
		Frontline Plus (fipronil and(S)-methoprene)	Apply entire contents of the applicator in a single spot between the shoulder blades. Apply directly to the skin.	Do not use on dogs and puppies less than 8 weeks of age or weighing less than 5 pounds. Also control chewing lice and ticks.
		Frontline Gold (fipronil, (s)-methoprene, pyriproxyfen)	Ready-to-use spot-on. Apply 3 or 4 spots to the skin along the backline between back of the shoulders and base of the tail.	Purchase the appropriate formulation for the weight and age of your dog. Also kills lice.
		Advantage II Topical treatment (9.1% imidacloprid and 0.46% pyriproxyfen)	Ready-to-use spot-on. Apply 3 or 4 spots to the skin along the backline between back of the shoulders and base of the tail.	Purchase the appropriate formulation for the weight and age of your dog.
		Activyl for Dogs (indoxacarb)	Topical, follow label directions.	Use the appropriate formulation based on the animal's weight. Do not use on puppies under 8 weeks of age and weighing less than 4 lbs. Do NOT use on cats. Do not use on dogs (male or female) intended for breeding, pregnant or nursing.
	Ear Mites	Adams Pene-Mite, Eradimite and others (pyrethrins and piperonyl butoxide)	Ready-to-use drops.	DO NOT use on puppies less than 12 weeks of age.
		Ready-to-use permethrin or pyrethrin drops such as Mite-X and Ear-Rite		Apply as directed on label.
		Durvet Ear Mite Killer (pyrethrins, piperonyl butoxide, N-Octyl bicycloheptene dicarboximide and Di-n-propyl isocinchomeronate	Ready to use.	Do not apply more than once per day.
CATS	**Fleas**	Pyrethrin 1% D	Lightly work material into the hair down to the skin. Repeat once a month.	Apply as directed on label.
	Also controls ticks	Bravecto spot-on (fluralaner)	Available by prescription only. One application lasts 12 weeks.	Use only on cats weighing 2.6 pounds or greater. Do not use on cats less than 6 months of age.
	Also controls ticks	Adams Plus Flea and Tick Collar for Cats and Kittens (propoxur, (S)-methoprene)	Use as directed on label.	Do not use on kittens less than 12 weeks of age.

ANIMAL INSECT CONTROL

Animal	Pest Problem	Insecticide Formulation	Method and Rate	Restrictions/Remarks
CATS (cont.)	**Fleas** (cont.)	Flea collars containing Vapona, Rabon, Baygon and other chemicals	Use as directed on label.	Fleas are killed quickly. Ticks are tough and are killed slowly. They will usually be dead in 1-5 days. New flea collars can sometimes cause severe skin irritation around the necks of dogs and cats. Should irritation occur, remove the collar and place it in a quart jar with a screw lid. Put the collar back on the pet after 2 or 3 days.
	Also controls ticks	Sentry PurrScriptions Dual Action Collar for Cats (phenothrin and propoxur)	Collar. Use as directed on label.	DO NOT use on kittens less than 12 weeks old.
	Also controls ticks	Seresto Collar (flumethrin and imidacloprid)	Collar. Use as directed on label.	DO NOT use on kittens less than 10 weeks old.
		Frontline, Sentry Fiproguard (fipronil)	Spray or spot-on.	
	Also controls ticks	Frontline Plus, Sentry Fiproguard Plus (fipronil and (S)-methoprene)	Available to use as a spot-on.	Apply as directed on label.
	Also controls ticks	Sergents Gold Squeeze-on for cats and kittens (etofenprox and pyriproxyfen)	Follow label directions.	DO NOT apply to kittens less than 12 weeks of age. DO NOT apply more often than every 3 weeks.
	Also controls ticks	Zodiac Spot-on for Cats and Kittens (S)-methoprene)	Follow label directions.	DO NOT apply to kittens less than 12 weeks of age.
	Also controls tick	Seresto Collar for cats (imidacloprid and flumethrin)	Follow label directions	Do not treat kittens less than 10 weeks old.
		Vectra for Cats and kittens (dinotefuran and pyriproxtfen)	Topical. Follow label directions.	Do not use on kittens less than 8 weeks of age.
		Cheristin (spinetoram)	Topical. Follow label directions.	Do not use on cats or kittens < 8 weeks of age and weighing < 1.8 lbs.
		Advantage II (imidacloprid and pyriproxyfen)	Follow label directions.	DO NOT use on kittens less than 8 weeks old.
		Capstar tablet (nitenpyram)	Oral tablet.	Do not use on kittens less than 4 weeks old.
		Activyl for Cats (indoxacarb)	Topical. Follow label directions.	Activyl Spot-On for Cats, containing 0.03 fl. oz (1.03 ml), is meant for larger cats over 9 lbs and 8 weeks old. Activyl Spot-On for Cats and Kittens has 0.02 fl. oz (0.51 ml) and should be given to small cats and kittens weighing between 2 and 9 lbs, but over 8 weeks old.
	Ear Mites	Malathion 5% aerosol spray can	Apply to the ears.	Repeat every 7 days as needed.
		Adams Ear Mite Treatment, Eradimite and others (pyrethrins and piperonyl butoxide)	Ready-to-use drops.	DO NOT use on kittens less than 12 weeks of age.
BIRDS, CANARIES AND PARAKEETS	**Mites**	Pyrethrins + Piperonyl butoxide	Remove birds and spray entire cage.	Apply as directed on label.
	Lice	Pyrethrins + Piperonyl butoxide	Spray bird directly—hold aerosol 18 inches from bird; spray one burst 2-3 seconds.	Apply no more than 3 times per week.
RABBITS	**Ear mites**	Adams Ear Mite Treatment, Eradimite and others (pytethrins and piperonyl butoxide)	Ready-to-use drops.	DO NOT use on rabbits less than 12 weeks of age.
	Ear mites, fur mites and rabbit bots (Cuterebra spp.)		More effective treatments are available from licensed veterinarians.	Consult your veterinarian for other effective treatment options.

ANIMAL INSECT CONTROL

Animal	Pest Problem	Insecticide Formulation	Method and Rate	Restrictions/Remarks
HORSES	**Bots**	Ivermectin (Zimecterin, Eqvalan, Equimectrin) 1.87% paste	Oral paste.	Treat horses after second killing frost.
		Quest Plus Equine Oral Gel (moxidectin/praziquantel)	Oral paste.	
		Equinox Dewormer (ivermectin/praziquantel)	Oral paste.	
		Quest Equine Oral Gel (moxidectin)	Oral paste.	
		Manual Controls	Sponge animal with warm water (120 degrees F) to initiate egg hatching.	Firmly sponge horse's forelegs, chest, neck and belly on cool days (below 60 degrees F) so that larva will hatch and die of exposure. Manual control may limit bot infestations but may NOT eliminate infestations.
	Lice, Ticks	Co-Ral Fly and Tick Spray (6.15% coumaphos)	For horn flies and lice, use 5 oz in 4 gal water. For ticks, use 10 oz in 4 gal water.	Follow label directions. DO NOT use on horses intended for slaughter. Co-Ral is a cholinesterase inhibitor. DO NOT treat sick, stressed or convalescent animals. DO NOT use on animals less than 3 months of age.
		Atroban 11% EC (permethrin)	Mix 1 pt in 25 gal water.	Use 2 qt spray per animal.
		Python Dust Livestock Insecticide (zeta-cypermethrin and piperonyl butoxide)	Apply 2 oz over the head, shoulders and back.	Do not appy more often than once in 3 days.
		Clean-Up II pour-on (3% diflubenzuron and 5% permethrin)	Apply 3 mL/100 lb body weight as a spray or wipe-on only. DO NOT apply more than 30 mL to any one animal.	
	Horn Flies Stable Flies Horse Flies Mosquitoes Black Flies Deer Flies Biting Gnats House Flies Face Flies	Atroban 11% EC (permethrin)	Mix 1 pt 11% EC with 25 gal water. Horn flies require only 1 pt 11% EC/50 gal water.	Use 2 qt finished spray per animal.
		Permectrin II and generics (10% permethrin)	**For high-pressure sprayers:** Mix 1 qt in 200 gal of water; 8 oz in 50 gal of water.	Spray to thoroughly cover entire animal. Apply from 1/2 to 1 gal of spray per head. For lice or mites, a second treatment is recommended 14-21 days later.
		Pyranha Stock Guard Concentrate (10% permethrin and 10% piperonyl butoxide)	Mix 2 to 8 oz product per gallon of water. For severe infestations use the higher rate.	Wet hair thoroughly.
			For hand or garden sprayers and low-pressure sprayers: Mix 8 oz in 3 gal of water; 2.5 oz (5 Tbsp) in 1 gal of water; or 20 mL (4 tsp) in 1 qt of water.	Spray each animal with up to 8 oz of mixed spray. For lice and mites, a second treatment is recommended 14-21 days later.
		Flysect, Equi-Spot, Fly Rid Plus, Bronco Equine Fly Spray (prallethrin, permethrin or pyrethrin)	Ready-to-use sprays and spot-ons.	Follow label directions.
		GardStar 40% EC, Tengard SFR (permethrin)	0.25 oz/1 pint of water. Low-pressure spray.	1-2 fl oz of spray per animal. Spot treat back, face, legs, tail and ears.
		Co-Ral Fly and Tick Spray (6.15% coumaphos)	For horn flies and lice, use 5 oz in 4 gal water. For ticks, use 10 oz in 4 gal water.	Follow label directions. DO NOT use on horses intended for slaughter. Co-Ral is a cholinesterase inhibitor. DO NOT treat sick, stressed or convalescent animals. DO NOT use on animals less than 3 months of age.
		Tri-Tec 14 (cypermethrin + pyrethrin)	Fly repellent and killer. Ready to use in dispenser.	Also kills ticks.
		Ecovet Fly Repellent (5% octanoic acid, 5% nonanoic acid, 5% decanoic acid	Ready to use fly repellent spray. Apply to hair coat using small sprayer or soft cloth.	Follow label directions.

Animal	Pest Problem	Insecticide Formulation	Method and Rate	Restrictions/Remarks
HORSES (cont.)	**Horn Flies** **Stable Flies** **Horse Flies** **Mosquitoes** **Black Flies** **Deer Flies** **Biting Gnats** **House Flies** **Face Flies** (cont.)	Absorbine Ultra Shield Sport Insecticide and Repellent (cypermethrin)	Ready to use. Spray or wipe application.	Avoid contact with eyes or mucous membranes.
		Absorbine Ultrashield ES Insecticide and repellent (piperonyl butoxide, permethrin and pyrethrins)	Ready to use. Spray or wipe application.	Avoid contact with eyes or mucous membranes.
		Equi-Spot Spot-on Fly Control and generics (permethrin)	Ready to use. Follow label directions.	
		Brute pour-on Insecticide for Cattle (10% permethrin)	Ready to use. Apply 3-6 mL per 200 lb body weight (do not exceed 30 mL). Approved for horses.	Apply as a whole body wipe with a cloth or insecticide application mitt. For horn flies, pour 3-6 mL per 200 lb body weight over the withers and down the back. DO NOT treat more often than once every 7 days. DO NOT treat foals under 12 weeks of age.
		Martin's Fly Ban Synergixed pour-on, Permectin CDS pour-on, (7.4% permethrin and 7.4% piperonyl butoxide)	Ready to use. Apply 8-16 mL as a pour-on spray or wipe.	Apply as a whole body wipe with a cloth or insecticide application mitt. For pour-on application, pour over the withers and down the back. For spray application, apply with a mist sprayer in undiluted form after riding or exercise.
		Python Dust (0.075% zeta-cypermethrin and 0.150% piperonyl butoxide)	Ready-to-use dust. Apply up to 2 oz per animal.	DO NOT apply more often than every 3 days. Also controls ticks.
		A number of wipe-on towels and roll-on products are available in ready-to-use formulations for horses. These products can be useful, particularly on equines that become restless or agitated when attempting to apply insecticide spray formulations or to treat sensitive areas of the animal.		
		Roll-Ons		
		Endure Roll-On for Horses (0.15% cypermethrin, 0.02% pyrethrins,1.63% piperonyl butoxide, 0.05% di-n-propyl isocinchomeronate and 4.85% butoxy polypropylene glycol)	Ready to use. Follow label directions.	DO NOT use on horses or foals intended for slaughter.
		Pyranha equine roll-on (permethrin, pyrethrins and piperonyl butoxide)	Ready to use. Follow label directions.	DO NOT use on animals less than 12 weeks of age. DO NOT use on dogs.
		Paste		
		War Paint Insecticide Paste (7% permethrin, 1% piperonyl butoxide)	Ready to use. Follow label directions. Applications can be directed to specific body areas to kill and repel specific fly species.	Do not apply to wet animals because the product does not adhere to wet surfaces.
		Swat Clear Fly Repellent, Swat Original Fly Repellent Ointment ().5% piperonyl butoxide, 0.2% pyrethrins and 1.0% Di-n-propyl isocinchomeronate)	Ready to use fly repellent ointment.	For use around sensitive areas and wounds.

Animal	Pest Problem	Insecticide Formulation	Method and Rate	Restrictions/Remarks
HORSE BARNS	**Flies**	**SANITATION, BIOLOGICAL CONTROL AND INTEGRATED PEST MANAGEMENT (IPM)**	Sanitation is critical to any fly control program in horse barns 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 are the first lines 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. **Parasite and/or insecticide use are not substitutes for a good sanitation program.**
		Bait Mixtures QuickBayt, Fly Bait (0.5% imidacloprid and 0.1% muscalure (z)-9-tricosene) Ready-to-Use Fly Bait	Ready-to-use fly bait. Scatter 6 oz of bait/1,000 sq ft around the outside of horse barns in areas inacces-sible to horses. Can also be mixed with water and painted on fly resting areas. See label directions.	Use only in fly bait stations inside horse stables. Place bait stations in areas inaccessible to animals.
		QuickBayt Spot Spray (10% imidacloprid and 0.1% muscalure (z)-9-tricosene)	Mix 16 oz/gal water.	For use in and around agriculture production facilities such 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.
		Golden Malrin (1.1% methomyl and 0.049% (z)-9-tricosene)	Ready to use. Scatter 4 oz/500 sq ft of area where flies congregate, rest or feed, or use bait in any commercial bait station.	Use as a scatter bait only around the outside of animal housing areas. Can be used in horse stables ONLY if used in bait stations. Bait stations must be hung at least 4 ft from ground level. Scatter baits and bait stations must only be used in areas inaccessible to animals, pets or children.
		Starbar QuikStrike Fly Scatter Bait (0.5% dinotefuran and 0.04% (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 ft from ground level. Scatter baits and bait stations must only be used in areas inaccessible to animals, pets or children.
		Starbar QuikStrike Fly Bait Spray (0.5% dinotefuran and 0.04% (z)-9-tricosene)	To spray on, mix 2 oz product with 16 oz of water to treat 250 sq ft. To paint on, mix 2 oz product with 3 oz of water to treat 250 sq ft.	Apply to fly resting areas such as walls, fences, window sills, posts, etc., typically 4 feet above the floor surface.
		Starbar Cyanarox Insecticidal Bait, Zyrox Fly Granular bait (0.5% cyantraniliprole)	Ready-to-use granular fly bait. Apply from 3.2-6.4 oz granular bait/1,000 sq ft. Depending upon application site, product can be scattered or placed in bait stations.	DO NOT place bait in areas accessible to food-producing animals or animals being grown for food. Do not place bait in areas accessible to children and pets. Bait stations must be used if bait is applied inside residential structures, commercial establishments, food processing plants, restaurants and animal housing units. Do not apply bait outdoors when raining.
		Decimari Fly Bait (0.5% clothianidin and 0.5% pyriproxyfen)	Scatter 6.3 oz product per 1,000 sqft in areas inaccessible to children, pets and animals or use in bait station inaccessible to children, pets and animals.	Follow other label recommendations. May also be used as a paint-on application.
		Nithiazine strip (QuikStrike)	Ready to use.	DO NOT use in areas accessible to animals.
		Starbar Aviator Fly Bait aerosol (0.5% acetamiprid and 0.05% Z-9 tricosine)	Ready to use.	Do not apply directly to animals, food, feed handling and feed storage areas. Keep treatments out of the reach of children, pets and other animals.
		Automatic Spray Systems Resmethrin, pyrethrin and piperonyl butoxide		Follow label directions.

Animal	Pest Problem	Insecticide Formulation	Method and Rate	Restrictions/Remarks
HORSE BARNS (cont.)	**Flies** (cont.)	**Residual Sprays**		
		Rabon 50% WP (tetrachlorvinphos)	3 lb 50% WP in 7.5 gal water. Spray 1 gal/500-1,000 sq ft to wet all surfaces. Repeat every 3 or 4 weeks.	**General Precautions for All Insecticides Are:** 1. Apply where flies congregate; i.e., ceilings, light fixtures, walls, windows, etc. DO NOT apply within 1 week of applying whitewash. 2. DO NOT contaminate feed or water supplies. Cover them when spraying. 3. Remove animals before spraying. 4. Keep out of reach of animals and children. 5. DO NOT mix a combination of compounds. Wear protective clothing—jacket or coveralls, cap or hat, rubber gloves, and preferably a respirator. Wash protective clothing after using. Wash with soap and water after spraying.
		Ravap EC (23% tetrachlorvinphos and 5.3% dichlorvos)	1 gal Ravap EC/25 gal water. Allow 4 hours to dry before returning animals to barn. Apply 1 gal spray solution/ 1,000 sq ft.	
		Atroban 11% EC (permethrin)	1 pt/10 gal clean water. Apply 1 gal/750-1,000 sq ft. Provides up to 8 weeks of control.	
		Atroban 42.5% EC (permenthrin)	4 oz/10 gal water. Apply 1 gal/750-1,000 sq ft.	
		Permethrin 3.2 EC, Tengard SFR (36.8% permethrin)	4 oz/12.5 gal water. Apply 1 gal/750 sq ft.	
		Pyranha Stock Guard Concentrate (10% permethrin and 10% piperonyl butoxide)	Mix 2 to 8 oz product per gallon of water. For severe infestations use the higher rate.	Apply as directed on label. Treat walls, ceilings, moldings, screens, door and window frames and similar resting places.
		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; spray at the rate of 1 qt per 8,000 cu ft or at 1 qt per 1,000 sq ft for a coarse surface spray. 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.
		Elector PSP (44.2% Spinosad)	Mix 2 oz product per 10 gallons of water to treat 5,000 -10,000 sq ft.	Treat fly resting areas.
		Onslaught microencapsulated insecticide (6.4% esfenvalerate)	Mix 0.5 oz product/gallon of water. Application rates is 0.5 oz product/1000 sq ft.	Treat fly resting areas in sufficient water volume to treat 1000 sq ft. Remove animals from area before treatment.
		Suspend Polyzone (4.75% deltamethrin)	Mix with water and apply 0.25 to 1.5 onces per 1,000 square feet.	Wet surfaces where flies rest. DO NOT spray animals, humans, animal feed or water.
		Grenade ER, Cyonara 9.7 (9.7% lambda-cyhalothrin)	Mix 0.2-0.4 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.
		Permectrin II (10% permethrin)	1 qt 10% permethrin/25 gal water. Use 1 gal/750 sq ft.	Other similar permethrin formulations are registered as surface sprays.

Animal	Pest Problem	Insecticide Formulation	Method and Rate	Restrictions/Remarks
HORSE BARNS (cont.)	**Flies** (cont.)	**Residual Sprays** (cont.) GardStar 40% EC (permethrin)	4 oz/10 gal of water (surface spray).	1 gal covers 1,000 sq ft. DO NOT use in milk rooms.
		Talstar, Bifenthrin I/T 7.9F, Optashield CS (7.9% bifenthrin)	Mix with water and apply 0.33-1.0 oz product per 1,000 sq ft.	Target areas where flies rest such as ceilings, trusses, rafters, supports, walls, windows and vegetation.
	Fly Maggots (developing in manure and/or moist spilled feed)	Dimilin 2L, Unforgiven, Cavalier 2L (22% diflubenzuron)	For spot treatments: Mix 7.5 oz Dimilin SL to 15 gallons of water. Apply one quart per 10 square feet area of fly breeding material infested with fly eggs and larvae.	DO NOT apply directly to livestock or livestock feed. DO NOT feed treated manure to animals.
		Tekko 10 (9.3% novoluron)	For spot treatments: Apply 3 oz Tekko 10 per 1,000 square feet of fly breeding material in sufficient volume to ensure coverage.	
		Neporex 2 SG (2% cyromazine)	**Spray:** Mix 1 lb Neporex 2 SG per gal of water. Apply as a coarse low-pressure spray on fly breeding sites with suit able spray equipment (hand-pressurized or power-operated sprayers). One gal of finished solution will treat 200 sq ft. **Scatter:** Apply 1 lb Neporex 2 SG per 200 sq ft. Apply after cleaning underneath bedding on stall floors.	Read and follow labeled rates. DO NOT use on horses intended for slaughter. Prevents the development of house and stable fly larvae in treated manure.
		Archer Insect Growth Regulator (1.3% pyriproxyfen)	Use 1 oz. product/1500 sqft in sufficient water volume to achieve thorough coverage.	Spray surfaces where flies rest and breed.
		Feed-Through Farnam SimpliFly Feed-thru Fly Control (0.24% diflubenzuron)	FOR HOUSE AND STABLE FLIES ONLY. Feed daily to horses. Rate is dependent on weight of the horse.	Read and follow labeled rates. DO NOT use on horses intended for slaughter. Prevents the development of house and stable fly larvae in treated manure.
		Farnam Equitol II Feed-thru Fly Control (diflubenzuron)	Feed-through house fly control for horse barns and stables. Add specified amount of Equitrol to your horse's daily ration.	DO NOT use on horses intended for slaughter.
		Ragland Fly Block with Rabon oral larvicide, Stockade Rabon Fly Control Block (0.3% tetrachlorvinphos)	Follow label directions. Feed blocks at the rate of 0.88 oz per 100 lb of bodyweight per day.	**Not to be used on horses destined for slaughter. PRECAUTIONS FOR HORSE USE:** This product contains tetrachlorvinphos, a cholinesterase inhibitor. The most frequently reported clinical signs of cholinesterase inhibition in the horse are abdominal pain, lethargy, sweating, tearing and excessive salivation. If these signs are seen in horses, consult your veterinarian immediately. DO NOT use this product simultaneously or within a week before or after treatment with cholinesterase-inhibiting drugs, pesticides or chemicals. Consult a veterinarian before using this product on debilitated, aged, pregnant or nursing animals. This product has not been tested in breeding horses.
		Solitude IGR feed-through (2.12% cyromazine)	**Daily Dosage:** Using 1/2 oz scoop supplied with the product, mix one (1) scoop of Solitude IGR in the horse's ration **every day**. **Alternate Day Dosage:** Using 1/2 oz scoop supplied with the product, mix two (2) scoops of Solitude IGR in the horse's ration **every other day**.	**DO NOT USE ON HORSES INTENDED FOR SLAUGHTER. Follow precautions on label.**

ANIMAL INSECT CONTROL

Animal	Pest Problem	Insecticide Formulation	Method and Rate	Restrictions/Remarks
POULTRY	**Litter Treatments for Fleas, Lice and Mites** (including northern fowl mites)	**Sprays**		
		Rabon 50% WP (tetrachlorvinphos)	For floor management/roost paint, make 1% solution (1/2 lb Rabon 50% per 3 gal water). Spray finished solution into cracks and crevices at rate of 1 pt solution per 100 ft.	No withholding period from last application to slaughter. Read label directions carefully.
		Ravap EC (23% tetrachlorvinphos and 5.3% dichlorvos)	Mix 1 gal of Ravap in 50 gal water. Use 1-2 gal of finished spray per 1,000 sq ft. Spray evenly for penetration of litter surface. Spray walls, roosts, cracks, crevices and interiors thoroughly. Spray birds lightly. Mix EC with water as directed on label.	
		Dusts		
		Beetle Shield 6 (6% tetrachlorvinphos)	For roost paint, mix 1 lb of Rabon Beetle Shield with 1 pt of water to make a slurry (will treat 100 ft). For dust boxes, use 1 pound per 100 birds.	Check label. No waiting period between application and slaughter.
		Rabon 50% WP (tetrachlorvinphos)	Mix evenly throughout top layer of box using 2.5 oz per 50 birds.	No waiting period between application and slaughter.
	Litter Beetles (Darkling beetles, black bugs, lesser mealworms)	A litter beetle treatment/monitoring program should be maintained year-round to reduce litter beetle populations and damage caused by this pest. Frequent removal of litter and replacement with fresh shavings in poultry houses can help reduce beetle populations. Litter beetle populations at outbreak levels are difficult to control. Loss of insecticide susceptibility has been observed in some parts of the country; therefore, periodic rotation of insecticides from different insecticide classes should be considered. The life cycle from egg to an adult darkling beetle ranges from about 40 to 100 days, indicating that classes should be rotated every 2-3 flocks (in broiler production) depending upon growout duration.		
		Pyrethroid Insecticides		
		ZetaGard LBT (0.375% zeta-cypermethrin (2S), 0.750% piperonyl butoxide)	Apply from 25-50 lb per broiler or turkey growout house (see remarks to the right). Applications should be made with a drop-type dust/granular spreader in bands under feed lines and along walls. See product label for more details.	For use in chicken broiler houses and turkey growout houses. Do not apply with power duster equipment. Do not enter or allow others to enter until dusts have settled. The maximum use rate is 50 pounds of product per broiler or turkey growout house. The application can be split into two 25-pound applications, or one single 50-pound application, per flock. These applications can occur as one application at the 50-pound rate prior to the flock being placed in the broiler house, or as one application at the 25-pound rate prior to the flock being placed in the broiler house and a second 25-pound application occurring not later than three weeks prior to shipping the birds for slaughter. If one single application is made at the maximum rate of 50 pounds, slaughter cannot occur sooner than six weeks after application.
		Tempo 20 WP (cyfluthrin) 9.5-gram packet or 50-gram powerpack OR	Two 9.5-gram packets (19 grams) or two Tempo scoopfuls of 20 WP in a water-based spray per 1,000 sq ft. Four level teaspoonfuls also equals 9.5 grams.	DO NOT apply while birds are in house. DO NOT make application to feeding or watering equipment. When applications are made with existing manure and litter on the floor, allow that accumulation to dry enough to form a crust before applications are made.
		Tempo SC Ultra (11.8% beta-cyfluthrin)	Mix 15 mL per gallon of water. Apply as a general spray or to cracks and crevices.	DO NOT apply when birds are present. DO NOT contaminate feed, water or feeding and watering equipment with spray.
		Grenade ER, Cyonara 9.7 (9.7% lambda-cyhalothrin)	Mix 0.8 oz (24 mL) per gallon of water. Apply to walls and floors following cleanout.	Also helps in fly control if applied to fly resting areas. Apply only when birds are NOT present. DO NOT contaminate feed, water or feeding and watering equipment with spray.
		Optimate CS (5.9% gamma-cyhalothrin)	Mix according to label. Apply to walls and floor following cleanout or after growout.	Follow label directions. Apply only when birds are NOT present. DO NOT contaminate feed, water or feeding and watering equipment with spray.

Animal	Pest Problem	Insecticide Formulation	Method and Rate	Restrictions/Remarks
POULTRY (cont.)	**Litter Beetles** (cont.) (Darkling beetles, black bugs, lesser mealworms)	**Pyrethroid Insecticides** (cont.)		
		Onslaught microencapsulated insecticide (6.4% esfenvalerate)	Use 1.0 fl. oz. product in sufficient water volume to cover 1,000 sq. ft.	To control litter beetles (darkling, hide, and carrion beetles), apply ONSLAUGHT® Microencapsulated Insecticide to walls and floors at cleanout and before reintroduction of animals. Treat areas where beetles frequently occur, such as walls, supports, cages, cage framing, stalls, and around feeders. To reduce immigration of insects, make a perimeter treatment around the outside of building foundations. Apply in a uniform band 1-3 feet up the exterior foundation wall and 3-6 feet out from the foundation.
		Bifen I/T Insecticide/Termiticide, TalstarOne Multi-insecticide (7.9% bifenthrin)	Mix according to label. Apply to walls, floors and posts following cleanout or after growout.	Follow label directions. Apply only when birds are NOT present. DO NOT contaminate feed, water or feeding and watering equipment with spray.
		Organophosphate insecticides		
		Rabon 50% WP (tetrachlorvinphos)	Mix 2 lb of 50% WP in 25 gal of water.	Treat evenly and thoroughly using 3/4 oz/100 sq ft.
		Ravap EC (23% tetrachlorvinphos and 5.3% dichlorvos)	Mix as directed on label. Use as a residual spray.	Apply 1 gal of dilution/500-1,000 sq ft.
		Neonicotinoid insecticides		
		Credo SC, Midash Forte and others (42.8% imidacloprid)	Mix as directed on the label. Apply 3 fl oz Credo SC diluted in water per 1,000 sq ft.	Apply between flocks following de-caking/sanitation procedures. Apply a 3-foot band to litter under feed and/or water lines and a 3-foot band to litter adjacent to walls, including 1 foot up the wall above the foundation. Follow all other application directions on the label. Under severe infestations, Credo SC and specific generics may be applied to the whole house.
		Imidashot DF (270% imidacloprid)	Mix as directed on the label. Apply 0.14 lb. product diluted in water per 1,000 sq ft. Apply from 1/2 to 2 gal of finished spray per 1,000 sq ft.	Apply between flocks following de-caking/sanitation procedures. Apply a 3-foot band to litter under feed and/or water lines and a 3-foot band to litter adjacent to walls, including 1 foot up the wall above the foundation. Follow all other application directions on the label. Under severe infestations, Credo D may be applied to the whole house.
		Darlex (23.6% clothianidin)	Use 4 oz product per 1,000 sq ft. For example, mix 4 oz product with 1/2 to 2 gal of water to treat 1,000 sq ft of floor, litter or wall.	Apply between flocks following de-caking/sanitation procedures. Do not apply when birds are present. Addition of disinfectants to insecticide tank mix may affect insecticidal activity.
		Spinosyn insecticides		
		Elector PSP (44.2% spinosad)	Use 8 oz per 20,000 sq ft (use up to 16 oz for heavy infestations). Mix enough water to ensure coverage of treated area. Treat litter along feed and water lines, walls and support beams.	DO NOT apply premise treatment directly to poultry. Read and follow label precautions.
		Insect Growth Regulators		
		Tekko Pro, Archer Insect Growth Regulator (1.3% pyriproxyfen)	Use 1 oz/1,000 sq ft space in sufficient volume water to wet litter. General broadcast, spot, crack and crevice treatment.	FOR LARVAL CONTROL ONLY. Tekko Pro and Nylar are insect growth regulators that will alter the development of larval forms. Can be used in conjunction with an adulticide to provide immediate control of adults. For best results, apply following cleanout.Remove birds from immediate treatment area. DO NOT contaminate food or water.
		Combinations		
		Tobex Multi MoA Concentrate (4% lambda-cyhalothrin, 0.4% prallethrin, 1.3% pyriproxyfen and 6% piperonyl butoxide)	Apply 2 – 4 ounces of product per 1,000 sqft. In sufficient water volume to cover 1,000 sqft. Can be applied as a band application or whole house application when the infestation is severe.	Follow label directions. Apply only when birds are NOT present. DO NOT contaminate feed, water or feeding and watering equipment with spray. Contains an IGR, pyrethroids and a synergist.

ANIMAL INSECT CONTROL

Animal	Pest Problem	Insecticide Formulation	Method and Rate	Restrictions/Remarks
POULTRY CAGED LAYER TREATMENTS (directly on birds)	**External Parasites: Lice** and **Mites, including northern fowl mite**	**Sprays and Dusts**		
		Rabon 50% WP (tetrachlorvinphos)	8 lb of 50% WP/100 gal of water. 1 gal/100 birds. Apply directly to birds; spray vent and fluff areas from below. Repeat when necessary.	DO NOT repeat more often than every 14 days.
		Permethrin Fly and Louse Dust, Prozap Insectrin dust (0.25% permethrin)	Apply 1 lb/100 birds, direct dust to the vent area.	May be applied to floors, roosts and interior surfaces at a rate of 1 lb per 40 sqft to control northern fowl mites and lice.
		Ravap EC (23% tetrachlorvinphos and 5.3% dichlorvos)	Mix 1 gal Ravap/50 gal water. 1 gal of finished spray per 100 birds. Apply directly to birds. Spray vent and fluff areas from below. For chickens on litter, spray as above and apply 1-2 gal of dilution/1,000 sq ft of litter surface. Also spray walls, roosts, cracks and crevices.	DO NOT repeat more often than every 14 days. Spray birds lightly.
		Permectrin II 10% EC and generics (permethrin)	1 qt/50 gal water. Spray 1-2 oz/bird at vent area. Cover or remove feed and water.	Repeat at 7-10 weeks if necessary. 14 days between last application and slaughter.
		GardStar 40% EC, Tengard SFR (permethrin)	1-4 oz/3.75 gal water. Treats 1,500 birds.	Use high-pressure spray. 1 gal coarse spray per 100 birds. Pay particular attention to vent area.
		Atroban 11% EC (11% permethrin)	1 pt/25 gal water. Use 1 gal of finished spray per 100 birds.	One application should eliminate an infestation.For best results apply to vent area.
		Pyranha Stock Guard Concentrate (10% permethrin and 10% piperonyl butoxide)	Dilute 1.28 oz product per gallon of water.	Apply one gallon per 100 birds.
POULTRY HOUSES (for treatment of poultry facility)	**Bed Bugs, Fowl Ticks**	Bifen I/T Insecticide/ Termiticide, Talstar One Multi-insecticide (7.9% bifenthrin)	Mix according to label. Apply to cracks, crevices, walls, posts, nest boxes and mobile side curtains.	Follow label directions. DO NOT apply directly to birds. For occupied areas of poultry facility, apply to cracks and crevices ONLY. DO NOT contaminate feed, water or feeding and watering equipment with spray.
		Grenade ER, Cyonara 9.7 (9.7% lambda-cyhalothrin)	Mix according to label. Apply to cracks, crevices, walls, posts and cage frames.	Follow label directions. DO NOT apply in areas where birds are present. DO NOT contaminate feed, water or feeding and watering equipment with spray.
		Tempo 20 WP (cyfluthrin) 9.5-gram packet or 50-gram powerpack	Mix according to label. Apply to cracks and crevices.	Follow label directions. DO NOT apply when birds are present. DO NOT contaminate feed, water or feeding and watering equipment with spray.
		Tempo SC Ultra (11.8% beta-cyfluthrin)	Mix according to label. Apply to cracks and crevices.	Follow label directions. DO NOT apply when birds are present. DO NOT contaminate feed, water or feeding and watering equipment with spray.
		Pyranha Stock Guard Concentrate (10% permethrin and 10% piperonyl butoxide)	Dilute 1.28 oz product per gallon of water.	Spray crevices of roost poles, cracks in nests and walls where chicken mites and bed bugs hide.
		Ravap EC (23% tetrachlorvinphos and 5.3% dichlorvos)	Mix according to label. Apply to cracks and crevices.	Follow label directions.
		Rabon 50 WP	Mix according to label. Apply to cracks and crevices.	Follow label directions.
		Permethrin (various formulations)	Mix according to label. Apply to cracks and crevices.	Follow label restrictions and directions.

Animal	Pest Problem	Insecticide Formulation	Method and Rate	Restrictions/Remarks
POULTRY HOUSES (for treatment of poultry facility) (cont.)	**House Flies** and **Flies around the premises**	**Sanitation, Biological Control and Integrated Pest Management (IPM)**	Sanitation is critical to any fly control program in poultry 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 resis-tance. Use a combination of management methods.	Waste removal and management is the first line of defense in any filth fly management program. Waste management includes both removal and moisture control. Minimizing the amount of moisture in waste will reduce fly breeding poten-tial. Some producers have experienced reduced fly populations with releases of parasitic wasps. **Parasite and/or insecticide use are not substitutes for a good sanitation and moisture control program.**
	Fly Maggots (in droppings under caged layers)	**Larvicides and IGRs** Vapona Concentrate Insecticide (40.2% dichlorvos) or Prozap Vapona 400E (41.4% dichlorvos)	Mix 2 oz in 1.5 gal water. Apply 1-2 qt/100 sq ft of manure.	Larvicides used on accumulated droppings will give some control, but removal or controlling the moisture in the droppings is preferable. Keep spray away from birds. DO NOT contaminate feed, poultry litter or feed troughs. DO NOT apply to poultry or cages. Well-timed spot treatment of heavy maggot infestations should eliminate the need for “blanket” applications on a routine basis. Repeat applications as needed. Sanitation, such as cleanup of spilled feed outside poultry houses, should not be overlooked. KEEP MANURE DRY. STOP WATER DRIPS. MOW WEEDS NEXT TO HOUSE.
		Dimilin 2L, Cavalier 2L and Unforgiven (22% diflubenzuron)	For spot treatments: Mix 7.5 oz Dimilin SL to 15 gallons of water. Apply one quart per 10 square feet area of fly breeding material infested with fly eggs and larvae.	
		Tekko 10 (9.3% novoluron)	For spot treatments: Apply 3 oz Tekko 10 per 1,000 square feet of fly breeding material in sufficient volume to ensure coverage.	
		Neporex 2 SG (2% cyromazine)	Mix 1 lb Neporex 2 SG per gal of water. Apply as a coarse low-pressure spray on fly breeding sites with suitable spray equipment (hand-pressurized or power-operated sprayers). One gal of finished solution will treat 200 sq ft.	DO NOT apply directly to poultry or poultry feed. DO NOT feed treated manure to animals. Allow 1 day between last application and slaughter. DO NOT use Neporex 2 SG in conjunction with Larvadex-treated feed.
		Larvadex 1% premix (cyromazine)	Mix 1 lb of Larvadex 1% premix per ton of feed. Feed Larvadex continuously as directed for 4 to 6 weeks. Read label thoroughly before use.	**DO NOT feed Larvadex-treated feed to broiler poultry.** Larvadex-treated feed must be removed from layers at least 72 hours before slaughter.
		Rabon EC or WP (tetrachlorvinphos)	4 gal of 24.3% EC or 16 lb of 50% WP in 100 gal of water. Apply to droppings at rate of 1 gal/100 sq ft.	
		Ravap EC (23% tetrachlorvinphos and 5.3% dichlorvos)	Mix 1 gal Ravap EC in 25 gal water. Apply 1 gal of finished spray per 100 sq ft of manure.	
	Adult House Flies (and other premise flies)	**Baits (ready-to-use)** QuickBayt 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 poultry houses 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 non-dusty fly resting areas inaccessible to animals.	Use only around the outside of poultry houses. In caged layer houses, apply only on the outside and in walkways. Place bait in areas inaccessible to animals. DO NOT 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 ONLY if used in bait stations. Bait stations must be placed at least 4 ft above ground level and in areas inaccessible to animals, pets or children.

Animal	Pest Problem	Insecticide Formulation	Method and Rate	Restrictions/Remarks
POULTRY HOUSES (for treatment of poultry facility) (cont.)	**Adult House Flies** (and other premise flies) (cont.)	**Baits (ready to use)** QuickBayt Spot Spray (10% imidacloprid and 0.1% muscalure (z)-9-tricosene)	Mix 16 oz per gallon of water.	For use in and around poultry, turkey and chicken houses. DO NOT apply to surfaces accessible to children or pets. DO NOT apply where animals can ingest product.
		Golden Malrin (1.1% methomyl and 0.049% (z)-9-tricosene)	Ready to use. Scatter 4 oz per 500 sq ft of area where flies congregate, rest or feed or use bait in any commercial bait station.	Use as a scatter bait only around the outside of animal housing areas and poultry facilities. Can be used on walkways in caged layer houses. Bait stations must be hung at least 4 ft from ground level. Scatter baits and bait stations must only be used in areas inaccessible to animals, pets or children. When using baits, DO NOT contaminate equipment, feed or water. Keep baits out of reach of birds, pets or children.
		QuikStrike Fly Scatter Bait (0.5% dinotefuran and 0.04% (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 ft from ground level. Scatter baits and bait stations must only be used in areas inaccessible to animals, pets or children.
		QuikStrike Fly Bait Spray (0.5% dinotefuran and 0.04% (z)-9-tricosene)	To spray on, mix 2 oz product with 16 oz of water to treat 250 sq ft. To paint on, mix 2 oz product with 3 oz of water to treat 250 sq ft.	Apply to fly resting areas such as walls, fences, window sills, posts, etc., typically 4 feet above the floor surface.
		Elector Bait (0.5% spinosad and 0.04% (z)-9-tricosene)	Scatter 12-16 oz/2,000 sq ft. 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 Bait to contact food, feedstuffs or water. When using in bait stations, hang stations in areas inaccessible to children, livestock and pets. Bait stations or hang cards must be located at least 4 ft above the ground.
		Starbar Cyanarox Insecticidal Bait, Zyrox Fly Granular bait (0.5% cyantraniliprole)	Ready-to-use granular fly bait. Apply 3.2-6.4 oz granular bait/1,000 sq ft. Depending upon application site, product can be scattered or placed in bait stations.	DO NOT place bait in areas accessible to food-producing animals or animals being grown for food. DO NOT place bait in areas accessible to children and pets. Bait stations must be used if bait is applied inside residential structures, commercial establishments, food processing plants, restaurants and animal housing units. DO NOT apply bait outdoors when raining.
		Decimari Fly Bait (0.5% clothianidin and 0.5% pyriproxyfen)	Scatter 6.3 oz product per 1,000 sqft in areas inaccessible to children, pets and animals or use in bait station inaccessible to children, pets and animals.	Follow other label recommendations. May also be used as a paint-on application.
		QuikStrike (1% nithiazine) Fly Abatement Strip	Ready-to-use strip.	Hang 1 strip per 100-300 sq ft in enclosed area protected from rain. Observe safety restrictions.
		Starbar Aviator Fly Bait aerosol (0.5% acetamiprid and 0.05% Z-9 tricosine)	Ready to use	Do not apply directly to animals, food, feed handling and feed storage areas. Keep treatments out of the reach of children, pets and other animals
		Space Treatments Pyrethrins 0.3% to 5% plus Piperonyl Butoxide 1.5% to 25%	Ready-to-use oil sprays, aerosols, ULV concentrates and concentrates for dilution are available. Follow directions on label. Saturate the atmosphere with electric fogging gun for quick kill when adult flies are numerous.	Follow manufacturer's directions, ESPECIALLY FIRE HAZARD PRECAUTIONS. Can be used while birds are in houses.
		Vapona Concentrate Insecticide (40.2% dichlorvos and 3% related compounds equivalent to 43.2% Vapona)	Apply 1 pt of 1% spray/8,000 cu ft as mist or fog. To make a 1% solution, mix 1 gal concentrate to 50 gal water or 5 oz concentrate to 2 gal water.	Reduce air movement as much as possible. DO NOT apply directly to birds. DO NOT contaminate eggs, feed or water.

Animal	Pest Problem	Insecticide Formulation	Method and Rate	Restrictions/Remarks
POULTRY HOUSES (for treatment of poultry facility) (cont.)	**Adult House Flies (and other premise flies)** (cont.)	**Residual Surface Sprays** Grenade ER, Cyonara 9.7, (9.7% lambda-cyhalothrin)	Apply to walls and ceilings. Mix 0.2- 0.4 oz/gal water to make a 0.015% to 0.03% dilution. Rates can be increased to a 0.06% dilution (0.8 oz/gal of water) if environmental conditions are severe or populations are high.	Apply dilution to horizontal and overhead surfaces where flies rest. DO NOT make applications in areas where birds are present. Allow to dry before reintroducing birds. DO NOT contaminate bird food, feed or water during application.
		Rabon 50% WP (tetrachlorvinphos)	Use 16 lb 50% WP/100 gal water. 1 gal/500 sq ft.	No need to remove birds from house. DO NOT apply to chickens.
		Pounce 25 WP (permethrin)	Mix 6 oz/11 gal water.	Apply 1 gallon solution/750 sq ft.
		Pyranha Stock Guard Concentrate (10% permethrin and 10% piperonyl butoxide)	Mix 2 to 8 oz product per gallon of water. For severe infestations use the higher rate.	Apply as directed on label. Treat walls, ceilings, moldings, screens, door and window frames and similar resting places.
		Atroban 11% EC (permethrin)	1 pt 11% EC to 10 gal water. 1 gal/750-1,000 sq ft.	Avoid contamination of feed and water.
		Ravap EC (23% tetrachlorvinphos and 5.3% dichlorvos)	1 gal Ravap EC to 25 gal water.	Apply 1 gallon diluted spray/1,000 sq ft.
		Also Permethrin (Ectiban, Insectrin, Permectrin Overtime)	Follow label mixing instructions.	DO NOT apply more often than once every two weeks.
		Talstar, Bifenthrin I/T 7.9F, Optashield CS (7.9% bifenthrin)	Mix with water and apply 0.33 to 1.0 oz product per 1,000 sq ft.	Target areas where flies rest such as ceilings, trusses, rafters, supports, walls, windows and vegetation.
		StandGuard 5.9 (5.9% gamma-cyhalothrin	Mix 0.16 oz (5 mL)/gal of water.	Spray 1 gal of diluted spray to treat 500-1,000 sq ft fly resting surfaces.
		Elector PSP (44.2% Spinosad)	Mix 2 oz product per 10 gallons of water to treat 5,000 -10,000 sq ft.	Treat fly resting areas.
		Onslaught microencapsulated insecticide (6.4% esfenvalerate)	Mix 0.5 oz product/gallon of water. Application rates is 0.5 oz product/1000 sq ft.	Treat fly resting areas in sufficient water volume to treat 1000 sq ft. Remove animals from area before treatment.
	Fire Ants	Amdro Pro (hydramethylnon) (outside use only)	2-5 Tbsp/mound broadcast 1.0-1.5 lb/acre	Apply when ants are active and soil temperature is above 60 degrees F. DO NOT treat if rain is anticipated within 6 hours. **Check with complex integrator before using insecticides inside the house.**
		Extinguish Professional (methoprene) (outside use only)	3-5 Tbsp/mound broadcast 1.0-1.5 lb/acre	
		Extinguish Plus (methoprene and hydramethylnon) (outside use only)	3-5 Tbsp/mound broadcast 1.0-1.5 lb/acre	
		Esteem Ant Bait (pyriproxyfen) (outside use only)	2-4 Tbsp/mound or 1.5-2.0 lb/acre if broadcast.	
		Clinch Ant Bait (abamectin) (outside use only)	5-7 Tbsp/mound or 1.0 lb/acre if broadcast.	

Animal	Pest Problem	Insecticide Formulation	Method and Rate	Restrictions/Remarks	Minimum Days From Last Application to Slaughter
SHEEP AND GOATS (DO NOT treat animals under 3 months old, dairy goats or sick animals.)	**Fleeceworms and Screwworms** (Wool maggots and maggots in wounds)	Catron IV (0.5% permethrin) Prozap Screw Worm Aerosol (0.5% permethrin)	Ready-to-use spray. Spray wound and surrounding area.	Check label for restrictions.	
	Lice, Keds and **Ticks** (In fall or spring after shearing)	Treat animals 3-6 months old lightly only. Read insecticide label for further instructions. Repeat after 2-3 weeks if needed. (DO NOT repeat within 1 week.) Treat during fall and winter.			
		GardStar 40% EC, Tengard SFR (permethrin)	4 oz/25 gal water. Treats 50-100 head.	Use high-pressure spray.	0
		Pyranha Stock Guard Concentrate (10% permethrin and 10% piperonyl butoxide)	Mix 2 to 8 oz product per gallon of water. For severe infestations use the higher rate.	Wet hair thoroughly.	
		Permectrin II 10% EC and generics (permethrin) (**sheep only**)	Check label for dosages.		0
		Permectrin CDS, Martin's Fly-Ban Synergized pour-on (7.4% permethrin, 7.4% p1peronyl butoxide)) (**sheep only**)	Apply 1 ml per 50 lbs BW along the backline. Do not apply more than 12 ml per animal.		0
		Ultra boss pour-on insecticide for cattle, sheep and goats (5% permethrin and 5% piperonyl butoxide)	Pour 1.5 ml per 50 lbs BW along the back. Do not apply more than 18 ml per animal.		0
		Python Dust (0.075% zeta-cypermethrin and 0.25% piperonyl butoxide)	Ready-to-use dust. Dust animals. Apply up to 2 oz per animal.		0
		Atroban (11% permethrin) (sheep only)	1 qt/50 gal water.	Use 1-2 qt/animal.	0
		Synergized DeLice (1% permethrin)	Ready-to-use pour-on.	Pour along back. Treatment at 14-day intervals.	0
	Nasal Bots	Ivomec Sheep Drench, Durvet Ivermectin Sheep Drench (0.08% ivermectin)	Administer orally at 3 mL per 26 lb body weight.	Formulated for sheep only. May cause severe reactions in other animals. DO NOT treat within 11 days of slaughter.	11

Animal	Pest Problem	Insecticide Formulation	Method and Rate	Restrictions/Remarks	Minimum Days From Last Application to Slaughter
SWINE	**Sarcoptes Mange** and **Lice**	GardStar 40% EC, Tengard SFR (permethrin)	4 oz/25 gal water. Treats 50-100 head.	Repeat at 14 days. Thoroughly wet or dip animals. Mange–spray pens thoroughly.	0
		Atroban 11% EC (permethrin)	1 qt/50 gal water. Use 1 pt of spray per animal.	DO NOT spray food or water.	5
		Ivomec 1% Injection (ivermectin)	1 mL/75 lb body weight.	Subcutaneous administation only. An Ivomec 0.27% formulation is available for grower and feeder pigs.	18
		Dectomax Injectable Solution (1% doramectin)	1 mL/75 lb body weight.	Intramuscular injection.	24
		Prolate/Lintox-HD (11.75% phosmet)	Mix 1 qt/25 gal water.	DO NOT treat pigs less than 3 months old.	1
		Swine Gard pour-on (10% permethrin)	Ready to use. Apply 3 mL per 100 lb of body weight up to a maximum of 15 mL. Pour across back of head and ears then apply down midline of neck and over shoulders.	DO NOT treat more often than every two weeks. For optimum control, two treatments 14 days apart may be required. Apply to swine 85 lb and over.	5
	Demodex Mange	No known treatments for swine.			
	Lice Only	Rabon 50% WP (tetrachlorvinphos)	Mix 4 lb/50 gal water or 1/2 lb/6 gal water.	Apply 1-2 qt per animal as a coarse spray. Wet animal entirely.	0
		Co-Ral Fly and Tick Spray (6.15% coumaphos)	Mix 5 oz/4 gal water. Spray animal until runoff.	DO NOT apply more frequently than 10 days.	10
		Co-Ral 1% Livestock dust (1.0% coumaphos)	1 oz/head.		0
		Pyranha Stock Guard Concentrate (10% permethrin and 10% piperonyl butoxide)	Mix 2 to 8 oz product per gallon of water. For severe infestations use the higher rate.	Wet hair thoroughly.	5
		Prozap Insectrin Dust, Permectrin Fly and Livestock Dust, Gardstar Garden and Poultry Dust) (0.25% permethrin)	1 oz/animal.		5
		Rabon Dust (3% tetrachlorvinphos)	3-4 oz/animal.	In severe infestations, apply to bedding. Apply 1 lb/150 sq ft of bedding.	0

Animal	Pest Problem	Insecticide Formulation	Method and Rate	Restrictions/Remarks
SWINE BARNS (not on animals)	**House Flies** and **Flies around the premises**	**Sanitation, Biological Control and Integrated Pest Management (IPM)**	Sanitation is critical to any fly control program in swine operations. 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 and 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, use of lagoons, etc.) 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. **Parasite and/or insecticide use are not a substitute for a good sanitation program.**
	Adult Flies	**Sprays** Ravap EC (23% tetrachlorvinphos and 5.3% dichlorvos)	12 Tbsp/gal water.	Use 1 gal of diluted spray per 500-1,000 sq ft.
		Pounce 25 WP (25% permethrin)	6 oz/11 gal. Apply 1 gal/750 sq ft.	
		Pyranha Stock Guard Concentrate (10% permethrin and 10% piperonyl butoxide)	Mix 2 to 8 oz product per gallon of water. For severe infestations use the higher rate.	Apply as directed on label. Treat walls, ceilings, moldings, screens, door and window frames and similar resting places.
		Rabon 50% WP (tetrachlorvinphos)	1/2 lb/3 gal water.	
		Atroban 11% EC (permethrin)	1 pt/10 gal water.	Use 1 gal diluted spray per 750-1,000 sq ft.
		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 organophos-phate application within 8 hours. If animals are present, ventilate treated area immediately following application. DO NOT contaminate water, feed or foodstuffs.
		Annihilator Polyzone (4.75% % deltamethrin)	Mix with water and apply 0.25- 1.5 oz product per 1,000 sqft.	Wet surfaces where flies rest. DO NOT spray animals, humans, animal feed or water. DO NOT apply more than once per week.
		Grenade ER, Cyonara 9.7 (9.7% lambda-cyhalothrin)	Mix 0.2-0.4 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.
		Talstar P, Bifen I/T , (7.9% bifenthrin)	Mix with water and apply 0.33-1.0 oz product per 1,000 sq. ft.	Target areas where flies rest such as ceilings, trusses, rafters, supports, walls, windows and vegetation.
		Optimate CS (5.9% gamma-cyhalothrin)	Mix 0.16 oz (5 mL)/gal of water.	Spray 1 gal of diluted spray to treat 500-1,000 sq ft fly resting surfaces.
		Baits QuickBayt 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 and inaccessible areas of swine confinement facilities, or mix 1.5 oz bait/1 oz water, mix thoroughly, let stand for 15 minutes and paint on non-dusty fly resting areas inaccessible to animals.	Use around the outside of animal housing structures. DO NOT allow bait to contact food or water. Can be used inside swine confinement buildings **ONLY** 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.

Animal	Pest Problem	Insecticide Formulation	Method and Rate	Restrictions/Remarks
SWINE BARNS (not on animals) (cont.)	**Adult Flies** (cont.)	**Baits**		
		QuickBayt Spot Spray (10% imidacloprid and 0.1% muscalure (z)-9-tricosene)	Mix 16 oz per gallon of water.	For use in and around swine confinement buildings. DO NOT apply on surfaces accessible to children or pets. DO NOT apply where animals can ingest product.
		Golden Malrin (1.1% methomyl and 0.049% (z)-9-tricosene)	Ready to use. Scatter 4 oz/500 sq ft of area where flies congregate, rest or feed, or use bait in any commercial bait station.	Use as a scatter bait only around the outside of animal housing areas or swine confinement buildings. Bait stations must be hung at least 4 ft above ground level. Scatter baits and bait stations must only be used in areas inaccessible to animals, pets or children.
		QuikStrike Fly Scatter Bait (0.5% dinotefuran and 0.04% (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 ft from ground level. Scatter baits and bait stations must only be used in areas inaccessible to animals, pets or children.
		QuikStrike Fly Bait Spray (0.5% dinotefuran and 0.04% (z)-9-tricosene)	To spray on, mix 2 oz product with 16 oz of water to treat 250 sq ft. To paint on, mix 2 oz of product with 3 oz water to treat 250 sq ft.	Apply to fly resting areas such as walls, fences, window sills, posts, etc., typically 4 feet above the floor surface.
		Gordon's Fly Bait (0.5% spinosad and 0.04% (z)-9-tricosene)	Scatter 12-16 oz of Elector Bait/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 or water. When using Elector in bait stations, hang stations in areas inacces-sible to children, livestock and pets. Elector Bait stations or hang cards must be located at least 4 feet above the ground.
		Starbar Cyanarox Insecticidal Bait, Zyrox Fly Granular bait (0.5% cyantraniliprole)	Ready-to-use granular fly bait. Apply from 3.2-6.4 oz granular bait/1,000 sq ft. Depending upon application site, product can be scattered or placed in bait stations.	DO NOT place bait in areas accessible to food-producing animals or animals being grown for food. DO NOT place bait in areas accessi-ble to children and pets. Bait stations must be used if bait is applied inside residential structures, commercial establishments, food processing plants, restaurants and animal housing units. DO NOT apply bait outdoors when raining.
		Decimari Fly Bait (0.5% clothianidin and 0.5% pyriproxyfen)	Scatter 6.3 oz product per 1,000 sqft in areas inaccessible to children, pets and animals or use in bait station inaccessible to children, pets and animals.	Follow other label recommendations. May also be used as a paint-on application.
		Starbar Aviator Fly Bait aerosol (0.5% acetamiprid and 0.05% Z-9 tricosine)	Ready to use.	Do not apply directly to animals, food, feed handling and feed storage areas. Keep treatments out of the reach of children, pets and other animals
	Fly Maggots (fly breeding areas)	Neporex 2 SG (2% cyromazine)	**Spray:** Mix 1 lb Neporex 2 SG/gal of water. Apply as a coarse low-pressure spray on fly breeding sites with suitable spray equipment (hand-pressurized or power-operated sprayers). One gallon of finished solution will treat 200 sq ft. Treat manure surface and wet spots around feed and water troughs. Also apply 3 days after manure removal or when larvae are found. **Scatter:** Apply 1 lb Neporex 2 SG/ 200 sq ft. Apply after cleaning and prior to the installation of pigs on fly breeding sites where fly larvae are found.	DO NOT apply directly to livestock or livestock feed. DO NOT feed treated manure to animals. Allow at least 1 day between last application and harvest. May be used with slatted floors to treat areas where manure and other refuse accumulate to create fly breeding sites.
		Dimilin 2L, Unforgiven, Cavalier 2L (22% diflubenzuron)	For spot treatments: Mix 7.5 oz Dimilin SL to 15 gallons of water. Apply one quart per 10 square feet area of fly breeding material infested with fly eggs and larvae.	
		Tekko 10 (9.3% novoluron)	For spot treatments: Apply 3 oz Tekko 10 per 1,000 square feet of fly breeding material in sufficient volume to ensure coverage.	