

INSECT CONTROL ON BEEF CATTLE - 2007

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Treatment Guidelines for Pasture Flies- Horn Flies and Face Flies

Horn fly control can mean an additional 12 to 20 pounds of weight per calf over the summer months and can result in less weight loss per nursing cow. Horn fly numbers can be kept below the target level of **less than 100 fly per side** a variety of methods so factors such as cost, convenience, physical layout, and animal movement between pastures should be considered when designing a control program.

There is no good information on the number of **face flies** needed per animal to cause an economic loss. These flies are very annoying but even heavy infestations do not seem to reduce the rate of weight gain. Face flies can carry pinkeye from animal to animal in the herd but outbreaks of this disease occur even when there are no face flies around.

Pasture Flies – Face Flies and Horn Flies

Dust bags are most effective when used in forced-use situations especially where cattle have to pass under them daily to get to water or mineral. Hang bags where cattle will have daily access to them. Keep dust bags dry and charged. Do not use Ectiban or Permethrin if pyrethroid resistance is suspected or present. See ENT-42 "Dustbags for Cattle Insect Control" for more information on forced-use dustbags. Co-Ral 1% D (coumaphos), Ectiban or Permethrin 0.25%D (permethrin), Methoxychlor 5% Dust, or Rabon 3% D formulations are available for use in dust bags.

When using **back rubbers**, mix the insecticide with a good grade of mineral oil (diesel oil evaporates more quickly and is harder on the cattle's skin. Do not use motor oil. For horn fly control, saturate weekly using one gal oil per 20 feet of backrubber. Rubbers are more effective against face flies if 18" strips of cloth are tied at four to six inch intervals along the length. Do not use these dilutions as sprays. Service the devices at least once per week and position in entryways to water or mineral feeders. For more information on backrubbers see ENT 4 "Making and Using a Cattle Backrubber" available from your county extension office.

| Products for Back rubber and Face rubbers | Amount/gal oil (ratio of insecticide to oil) | Days To Slaughter |
|---|---|--------------------------|
| <i>Co-Ral 11.6% EC</i> (coumaphos) | 9.75 fl. oz. / gal / oil | 0 |
| Delnav 30% EC or 15% EC (dioxathion) | 13 Tbs (1:20) or 26 Tbs (1:10) | 0 |
| Back Side, Ectiban 5.7% EC, Insectrin, Permethrin II 10% (permethrin) | 6.5 Tbs (1:40) 1 qt / 20 gal | 0 |
| Lintox-HD (phosmet) | 1 qt in 50 gallons (1:100) | 3 |
| Ravap 28.7% EC (stirofos+dichlorvos) | 9 Tbs (1:28) | 1 |

Large **walk through fly traps**, placed at pasture gates where animals must pass through them regularly, can reduce horn fly numbers by up to 70% without the use of an insecticide. The tunnel-like trap should be placed where animals can pass through it several times a day. Flies are brushed off of the animals while they are in the device. The flies move through the angled side slats to light and are trapped between the slats and the outer screened sides of the trap. Horn flies die naturally after a short time off of the animal. Dead flies that accumulate in the trap can be removed but scavenger insects will do an effective cleanup job if the trap is not cleaned. The traps are not effective against face flies. Plans are available from the UK Entomology Department.

Insecticide Impregnated Ear Tags (number of tags per animal)

| Synthetic Pyrethroid Tags (P) Group 3 | Combination Tags P + OP Groups 1B + 3 (continued) |
|--|---|
| Atroban Extra, Apollo, Deckem, Ectiban, Ear Force, Expar Extra, Gard Star Plus, New Z Permethrin, Permethrin Insecticide Ear Tags (10% permethrin) (2) | Perma-Tect II (10% permethrin + 6.6% chlorpyrifos) (2) |
| Cutter Gold (10% cyfluthrin) (2) | Organophosphate Tags (OP) Group 1B |
| CyLence Ultra (8% <i>beta</i> -cyfluthrin) (2) | Commando (36% ethion) |
| Ectrin/Starbar / Insecticide Cattle Ear Tags (2) (8.6% fenvalerate) | Co-Ral Plus (20% coumaphos + 20% diazinon) |
| Python Magnum Insecticide Cattle Ear Tag (1) (10% zeta-cypermethrin S-isomer) | Cutter Blue (20% fenthion) (2) |
| Python / ZetaGard (10% <i>zeta</i> -cypermethrin) (1) | Dominator/Rotator/Tomahawk (pirimifos methyl) (2) |
| Saber Extra/Excalibur (10% <i>lambda</i> -cyhalothrin) (2) | New Z Diazinon (18%) Insecticide Ear Tag + Synergist |
| Combination Tags P + OP Groups 1B + 3 | OPTimizer / BovaGard/ X-Terminator (20% diazinon) |
| Double Barrel VP (6.8 % <i>lambda</i> cyhalothrin + 14% pirimophos methyl) (2) | Patriot (40% diazinon) (1) Cutter 1 (1 per animal or horn fly control 2 to suppress face flies) |
| Ear Force Ranger (10% permethrin + 6.6% chlorpyrifos + synergist) (2) | Warrior / Diaphos Rx (30% diazinon + 10% chlorpyrifos) (2) |
| Max-Con (cypermethrin + chlorpyrifos) (2) | Chlorinated hydrocarbon Tags (CH) |
| | Avenger (30% endosulfan) |

Insecticide ear tags can provide good control of horn flies and may provide some reduction in face fly numbers. Horn fly resistance to synthetic pyrethroids is an increasing problem. Install tags after flies first appear in the spring. Use on calves and mature cattle. Do not apply Cutter 1, Terminator, Patriot, or Optimizer tags to calves less than 3 months old. Remove tags in Sept or Oct. If insecticide resistance is suspected, or if pyrethroid ear tags were used the previous year, use an organophosphate insecticide in ear tags, or other control devices such as dust bags or sprays.

| Pour-on Insecticides for Pasture Flies | Days to Slaughter |
|---|--------------------------|
| Atroban, Back Side, Back Side Plus, Boss, Brute, Buzz Off, DeLice, Durasect II, Expar, Permethrin CD, Permethrin CDS, Ultra Boss (permethrin) | 0 |
| CyLence 1% (cyfluthrin) | 0 |
| Dursban 44 PO (chlorpyrifos) | 14 See label |
| Elector (spinosad) | 2 |
| Ivomec 0.5% (ivermectin) | 48 |
| Lysoff 7.6% PO (fenthion) | 21-35 |
| Sabre 1% (l-cyhalothrin) | 0 |

| Insecticide Sprays for Pasture Flies | Amt/25 gal water | Days to Slaughter |
|--|----------------------------|--------------------------|
| Atroban 11% EC, GardStar EC, Permethrin II 10% or 25% WP (permethrin) | ½ - 1 pt ½ cup or 12 oz | 0 |
| <i>Co-Ral 11.6% EC</i> | 2.5 fl oz / 4 gal | 0 |
| Del-Phos 11.6 EL, Prolate/Lintox – HD (phosmet) | See label | 0 |
| Ectiban 5.7% EC | 1 qt | 0 |
| Elector (spinosad) | See label | 2 (horn flies) |
| Methoxychlor 50WP or 25 EC | 2 lbs or 2 qts | 0 |
| Rabon 50% WP | 1-1/3 lb | 0 |
| Ravap 28.7% EC | 1/3 gal | 0 |
| Vapona Concentrate Insecticide 40.2% | ½ gal limit 2 oz/animal | 1 |

When applying insecticide sprays for pasture fly control, use a power sprayer for complete coverage. Do not contaminate feed or water.

Feed additives target fly maggots breeding in fresh animal manure. Research results indicate that results can be very variable. All animals must eat a minimal dose of a feed additive regularly. Supplementary control measures must be taken to deal with flies moving in from nearby herds. Feed additives include Moorman's 0.02% IGR (methoprene) at the rate of 1/4 to ½ pound per month and Rabon 7.76% Premix (stirofos) fed at the rate of 70 milligrams of active ingredient per day.

An insecticide bolus is a large pill-like formulation that is given to the animal with a standard balling gun. For best results, the entire herd should be treated. Vigilante 9.7% (diflubenzuron) and Inhibitor (methoprene) are available in bolus formulations. The active ingredients, both insect growth regulators, are gradually released from the bolus and prevent development of face fly and horn fly larvae in manure.

Cattle Lice

Lice can be eliminated from a herd if the herd is kept isolated from other cattle and if the following procedure is followed. Treat all animals in the herd with approved pour-on, spot-on, or spray-type chemicals. This treatment will kill all active forms but will not kill the eggs. Retreat the entire herd 14 to 21 days later, except for products that require a longer interval between applications. This should completely eliminate lice on the herd. A louse-free herd can be maintained if all new animals are treated twice before being added to the herd.

| Non-Systemic Pour-ons for winter louse control | Days to Slaughter |
|---|--------------------------|
| Atroban, Back Side, Back Side Plus, Boss, Brute, DeLice, Ecto Zap, Expar, Permethrin, Permethrin CDS, Ultra Boss (permethrin) | 0 |
| CyLence 1% (cyfluthrin) | 0 |
| Elector (spinosad) | 2 |
| Sabre 1% (l-cyhalothrin) | 0 |

Spot-ons Dursban 43.2% OS (chlorpyrifos) at the rate of 2 cc of formulation per 100 lbs of body weight. 14 day slaughter interval. Do not exceed 16 cc/animal. Do not retreat within 30 days

Systemic insecticides The systemic pour-on and injectable insecticides for cattle grub control will also control or suppress sucking and or biting lice. See the cattle grub control table for specific products.

Sprays In addition to the sprays previously listed for horn fly and face fly control, Prolate/Lintox _ HD (1 qt in 38 gal of water) or TactiK 12.5% EC (8 fl oz per 25 gallons of water) will control cattle lice. Use Tactik within 6 hours of mixing.

Cattle Grubs

Cattle grub treatments must be properly timed in order to be effective and to minimize risk to animals. Make applications as soon as heel fly activity ceases, usually by the last week in July. **Do not treat after October 31, preferably not after October 15.** Cattle grub treatments applied as pour-ons, spot-ons, injections, or sprays are systemic insecticides which travel within the animal's bloodstream. Treatments applied too late may cause toxic reactions and must be avoided. When using Ivermectin in the fall worming, there is no need to use another insecticide for cattle grub control. Do not treat calves less than 3 months old or cattle under stress from illness, shipping, castration, dehorning, etc.

Spot-ons Spoton 20% OS (fenthion) can be used according to label directions. Apply to a single location on back midline; maximum dosage per animal 20 cc. 45 slaughter interval.

Injection Ivomec 1% or Ivomec F can be injected for cattle grub control. 49 day slaughter interval. Dectomax 1% Injectable has a 35 day slaughter interval.

Sprays (Amount / 100 gallons water) GX118 11.6% EC - 2 gal When using systemic insecticide sprays for cattle grub control, it is necessary to use a high pressure sprayer to insure that the skin as well as the hair is thoroughly soaked. Sprayer pressures should be from 200 to 400 psi. Wet all animals thoroughly to insure that the insecticide is absorbed into the body (3-4 quarts of finished spray per animal).

Pour-ons Apply pour-on formulations along back line from shoulder to hip Prolate- 8 oz.

| Grub Pour-on Insecticides | Amt/hundred weight | Days to Slaughter |
|----------------------------------|------------------------------|--------------------------|
| Co-Ral 4% OS | ½ fl oz (4 oz maximum) | 0 |
| Cysectin Pour-On (moxidectin) | See label | 0 |
| Dectomax Pour-On (doramectin) | See label | 45 (Flammable) |
| Eprinex Pour On (eprinomectin) | 1 ml / 22 lbs | 0 |
| Ivomec Pour On (ivomectin) | 1 ml per 22 lbs | 49 |
| Neguvon 8% OS (trichlorfon) | ½ fl oz (4 oz maximum) | 21 |
| GX118 11.6% EC (phosmet) | 1 fl oz of 1:2 water mixture | 21 |
| Tiguvon 3% OS (fenthion) | ½ fl oz | 35 |
| Warbex 13.2% OS (famphur) | ½ fl oz (4 oz maximum) | 35 |

Occasional Pests

Horse flies Although Ectiban 5.7% EC is labeled for horse fly control at the rate of 1 qt per 100 gallons of water, it will only provide temporary relief, not long term control. There are no practical control methods for these insects on pastured animals. Animals with access to sheds or barns can escape attack.

Maggots in wounds Some flies will deposit eggs on wounds or cuts and the maggots will develop in decaying flesh. Caron IV (permethrin) can be used on wounds to kill or repel flies.

Ticks occasionally can be a problem on beef cattle grazing in over-grown areas. Many of the sprays listed above for pasture fly control will control ticks. See the product labels for directions.

Mites Ivomec Pour On or Ivomec 1% Injection may be administered for mange mite control. See the label for dose rates. Ivomec Pour On has a 48 day slaughter interval, there is a 49 day waiting interval for the Ivomec 1%

Injection. Eprinex is labeled for control of chorioptic and sarcoptic mange mites with no slaughter interval. Cydectin is labeled for psoroptic and chorioptic mange. Dectomax Pour-On is labeled for chorioptic and sarcoptic mange. Prolate/Lintox 11.75% EC (1 qt per 25 gallons of water) can be applied as a spray.

Fly Control in and around Beef Barns and Feedlots

Sanitation is the key step in reducing fly numbers around barns and confinement areas. Breeding sites include wet manure, straw, decaying feed, and all combinations. Keep areas around cattle pens, feed bunks and silos well drained. Insecticide treatments will work better when used in conjunction with an ongoing sanitation program to eliminate breeding sites. Immediate spreading of manure will reduce fly development or manure piles can be covered with black plastic. Use of sawdust bedding instead of straw will reduce fly production, as well.

Residual Fly Sprays

Insecticides may be applied as residual surface sprays, non-residual space sprays, baits, manure sprays, or feed additives. Always read and follow label instructions before applying insecticides for fly control. Treat walls, ceilings, posts, and other fly resting sites. Spray these areas thoroughly and to the point of runoff. In order to minimize control failures due to insecticide resistance, do not apply the same insecticide, or insecticide within the same chemical class (particularly pyrethroids), repeatedly throughout an entire season. See product labels for use rates.

| Synthetic Pyrethroid Insecticides | Organophosphate Insecticides |
|---|---|
| cyfluthrin - Countdown 2 EC or Countdown 20% WP | diazinon - Dryzon 50% WP |
| deltamethrin – Annihilator 5% WP | fenthion - Baytex 45% EC |
| fenvalerate - Ectrin 10% WDL | naled - Fly Killer D |
| <i>lambda</i> -cyhalothrin - Grenade 10% WP | stirofos - Rabon 50% WP stirofos + vapona Ravap EC |
| permethrin - Atroban 25% WP or 11% EC, Ectiban 7% EC or WP, Expar, Gardstar, Insectaban, Insectrin, Overtime, Permaban, Permethrin II 10% or 25% WP | dichlorvos - Vapona |
| Spinosyn | |
| Elector (spinosad) | |

Do not contaminate food, water or utensils with spray. Do not treat animals directly. Remove animals from barns when using Diazinon or Baytex. One gallon of spray treats 500-1,000 square feet, depending on the type of surface (See label directions). Apply to walls, ceilings and other fly resting sites. Alternate applications of pyrethroids and organophosphates. Residual fly spray materials listed above provide control for 1-7 weeks.

Fly Parasite Release Programs

Several commercial firms offer a fly parasite release program that can be used to supplement fly control around concentrated livestock operations. These small wasp parasites attack house flies or stable flies. The benefits of parasite release programs in livestock operations have not yet been proven. Several parasite species are available. *Spalangia nigroaenea* attacks house flies and stable flies in feedlots. Parasites in the genus *Muscidifurax* attack house flies while those in the genus *Spalangia* attack stable flies. Do not buy blends of unknown species and do not buy shipments of *Nasonia vitripennis*, a species that has been ineffective in midwestern feed lots. See ENTFACT 502- "Biological Control of Flies".

Fly traps can catch large numbers of flies but do not cause any significant reduction in total fly numbers. In addition, this approach does nothing to eliminate fly breeding sites. Electrocuting light traps may reduce house fly and stable fly numbers in closed buildings.

Contact sprays, fogs, or space sprays can provide rapid but short-term control of flies present during treatment. Repeat as needed. Do not contaminate feed or water. Animals may be present during application but do not apply space sprays directly to livestock. In order to minimize control failures due to insecticide resistance, do not apply the same insecticide, or insecticide within the same chemical class (particularly pyrethroids), repeatedly throughout an entire season. See table at the end for alternatives.

| Contact Sprays, Fogs or Space Sprays |
|---|
| Dibrom 36% EC or 1% RTU (naled) Ectiban 5.7% or Permethrin II (10%) (permethrin) Pyrethrins + synergist Vapona Feedlot Spray 43.2% EC (dichlorvos) |

Fly baits can be scattered where house flies congregate to provide some temporary reduction in numbers. Never use baits where cattle or other domestic livestock can eat them. Place baits in areas where flies congregate, such as window sills or doorways. Baits alone will not control fly populations. They should be used along with sanitation and other insecticidal methods (e.g., residual and space sprays). Baits containing the active ingredient methomyl include Apache, Golden Malrin Fly Bait Plus, and Tailspin. Dipterex 1% Bait contains trichlorfon.

Manure sprays kill fly larvae that are developing in treated areas. They are recommended where manure cannot be removed on a 7 to 10 day schedule. Apply at a rate of approximately 1 gal/100 sq. ft. to kill maggots. Do not spread treated manure onto crops not listed on the insecticide label. Apply sprays at rates that wet the manure surface, it is not necessary to soak the manure. Repeat treatments as necessary but no more often than every 7 days. Rates to use in per 25 gallons of water include: 1 qt Larvadex 5% SC (cyromazine); 4 lbs Rabon 50% WP or 1 gal 24% EC; 1 gal Ravap 28.7% EC, or 1qt Vapona Concentrate.

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