

Recommendations for the Control of Arthropod Pests of Livestock, Poultry and Farm Buildings in Western Canada

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Preface

This Guide was originally prepared and updated by the Western Committee on Livestock Pests (WCLP) until 1999. The control products listed in the Guide are recommended for use on livestock and poultry and in farm buildings in Western Canada. Not all of the products listed are available through all agricultural chemical retailers and veterinary clinics. The information presented in this Guide does not supersede or substitute the instructions on the product labels. **Always read the label before using any control product recommended in this Guide.** The Guide is also subject to all those changes, including deletions and revisions in the label claims of products that are authorized by Health Canada as required under the Pest Control Products Act and the Food and Drugs Act.

Disclaimer: The information provided in this publication is believed to be accurate as at the date of the document and is published in good faith. Although the author has exercised due care and skill in the preparation and compilation of the information set out in this publication, he does not warrant its accuracy, completeness, currency or suitability for any purpose. To the maximum extent permitted by law, the author, disclaims all liability, including liability for any negligence, for any loss, damage, injury, cost of expense incurred by any person or animal as a result of accessing, using or relying upon any of the information or data set out in this document.

Instructions on Use of the Guide

The control products are listed by their chemical name (also known as active ingredient) under the appropriate host and the pest to be controlled. Each recommendation begins with the name of the active ingredient (AI) and the percent concentration of the AI in the final mixture (0.5%, 1%, etc.) and method of application (whole body spray, pour-on, etc.), or the concentration of a ready-to-use product (ear tag, aerosol spray, etc.) to be applied. The Treatment instructions (mixing and application) are based on the percent AI concentration and formulation of the control products (25% EC, 50% WP). It is important to use the correct product as concentrations and formulations of AIs can vary among products. Refer to the Guarantee statement on the product label for AI concentration. Important instructions include limitations and precautions on the use of each product. Please note that any statements included in the limitations do not necessarily apply to every formulation, package size or type of use, nor is the list complete.

Terms used in the Guide are defined on page 71. The Index of Recommended Active Ingredients (page 72-73) lists recommended Active Ingredients (also known as Common Name) their respective Group Numbers, selected Trade Names and corresponding formulations with % concentration of the active ingredients. Local product availability will vary.

General Precautions

Read the product label before preparing and applying any product. Precautions listed on the label must be followed to the letter. The precautions listed below apply to all control products and should be observed as a matter of routine.

1. Store pesticides in a lockable, ventilated and leak-proof facility with signage denoting pesticide storage.
2. Use the recommended dose. Avoid under- or over-dosing.
3. Do not re-use pesticide containers. Follow label instructions or local regulations for safe disposal.
4. Follow label instructions regarding use of personal protective equipment (clothing, rubber gloves, face masks, etc.) while handling pesticides.
5. Wash clothing thoroughly with soap and water after using pesticides.
6. Avoid placing animal treatment devices or treatment facilities near environmentally sensitive areas such as fish-bearing, animal feed storage or feeding areas and potable water sources.
7. Do not contaminate animal feed, water or bedding.
8. Observe pre-slaughter intervals listed on the product labels.

Control of Cattle Mange - Cattle mange is considered a reportable disease in Canada. Cattle owners should contact their local veterinarian or a Federal Health of Animals veterinarian to diagnose any suspected cases of cattle mange in their herds. Appropriate methods of treatment will be recommended.

Integrated Pest Management

The application of pesticides recommended in the Guide should be considered in the context of an integrated pest management approach that relies more on preventative and non-chemical control practices, and relying on pesticides as a last resort. Integrated Pest Management (IPM) is a systematic decision-making process that supports a balanced approach to managing livestock production systems for the effective, economical and environmental-sound suppression of pests.

The elements of IPM include:

1. Planning and managing livestock and poultry operations to prevent insects and mites from becoming pests;
2. Identifying pests, their natural enemies and damage;
3. Monitoring populations of pests and beneficial organisms;
4. Making control decisions based on potential damage, cost of control methods, and value of production;
5. Using strategies that may include a combination of behavioural, biological, chemical, cultural and

mechanical methods to reduce pest populations to acceptable levels;

6. Recording pest monitoring data and management actions and evaluating the effects and performance of management decisions

The IPM concept has evolved to reduce reliance on chemical pesticides by including alternative non-chemical methods and biological products in control programs. Adoption of IPM reduces risks to environmental, human and animal health, reduces risk of pesticide resistance shortening the useful life of selective control products, improves opportunity for biological control and in most cases reduces animal health protection costs (including protection from diseases transmitted by some insect pests).

IPM requires knowledge of how to identify pests and assess their damage, how to identify natural control agents, and how to select effective control methods that minimize undesirable side effects. Selection of controls for individual pests must be made with the entire herd or flock management system in mind. Many cultural and preventative control methods are carried out as part of normal animal husbandry practices. Readers are encouraged to seek additional information on non-chemical pest management practices.

Resistance Management

Development of resistance to insecticides is a serious problem with many insect pests. Populations may develop resistance if a single family or group of insecticides is used repeatedly in successive treatments. The most common families of insecticides include pyrethroid, organophosphate, carbamate, and more recently, neonicotinoids. The table at the end of this Guide, 'Common Livestock Insecticides', lists the Group Number for every insecticide recommended in this Guide. All control products display the chemical Group Number to which the products belong on the container label.

To delay development of insecticide resistance, alternate products of different Group Numbers or use non-insecticidal controls such as biological, physical and cultural controls where possible. Monitor pest populations and apply insecticides only if and when necessary following label instructions. Keep accurate records of the names and rates of any insecticides used and the target pests. Also monitor the results of treatments to buildings or livestock in order to detect any decrease in the effectiveness of treatments against target pests which could indicate resistance development.

Beef Cattle

Black Flies

Providing cattle with shelters or a raised knoll in the pasture will help the cattle escape some black fly pressure.

Do not introduce cattle not previously exposed to black flies into an area of high black fly activity without at least 4-5 days of low-level exposure to black flies to avoid death of the animals due to adverse reaction (anaphylactic shock) to intense black fly attack.

Permethrin whole-body spray

- Treatment: Mix 200 mL of 24% EC or 125 mL 38% EC/400 L of water. Spray until entire animal is thoroughly covered. Retreat as needed, but not more than once every 2 weeks.
- Important Instructions:
 1. Do not apply within 7 days of slaughter.
 2. Do not contaminate feed, food or water.

Permethrin backrubber solution

- Treatment: Dilute 200 mL 24% EC or 125 mL 38% EC with 10 L lightweight oil for application using a self-treatment backrubber device. Maintain backrubber following manufacturer's instructions.
- Important Instructions:
 1. Calibrate backrubber so the rate per animal does not exceed 0.125 g permethrin (26 mL solution)/animal/day.
 2. Withhold application 24 hours before slaughter.

Permethrin ready-to-use backrubber solution

- Treatment: For self-treatment application of a 1% ready-to-use product using backrubber devices. One device should be continuously available for each 35 to 45 head of cattle. Maintain backrubber following manufacturer's instructions.
- Important Instructions:
 1. Calibrate backrubber so the rate per animal does not exceed 0.125 g permethrin (26 mL solution)/animal/day.
 2. Withhold application 24 hours before slaughter.

Cattle Grubs

Doramectin injectable solution

- Treatment: Administer the 1% injectable solution by subcutaneous or intramuscular injection at a dosage of 1 mL/50 kg bodyweight to a maximum of 10 mL/injection site. Subcutaneous injections should be administered into the neck region using a sterile 16 to 18 gauge, 13-19 mm needle. Intramuscular injections should be administered into a region of large muscle mass such as in the lateral neck area using a sterile 16 to 18 gauge, 25 – 38 mm needle.
- Important Instructions:
 1. Do not apply during the months of December, January and February. Treatment should be applied under supervision of veterinarian during these months.
 2. Treated animals must not be slaughtered for food for at least 40 days after last application.

Eprinomectin ready-to-use pour-on

- Treatment: Apply 5 mL of the 0.5% ready-to-use pour-on/50 kg body weight along the backline of each animal between Oct. 1 and Nov. 30.
- Important Instructions:
 1. Do not apply during the months of December, January and February. Treatment should be applied under supervision of veterinarian during these months.
 2. Do not apply to areas of back covered with manure or mud.
 3. Zero days pre-slaughter interval.

Ivermectin ready-to-use injectable solution

- Treatment: Administer 1% ready-to-use injectable solution by subcutaneous injection at a dosage of 1 mL/50 kg body weight to a maximum of 10 mL/injection site. Inject under the loose skin in front of or behind the shoulder using a sterile 16 gauge, 15 - 20 mm needle.
- Important Instructions:
 1. Treated cattle must not be slaughtered for use in food for at least 35 days after the last treatment.
 2. Avoid use during the months of December, January or February to avoid possible host-parasite reactions.
 3. Do not administer intravenously or intramuscularly.

Ivermectin ready-to-use pour-on

- Treatment: Apply the 0.5% ready-to-use pour-on at a dosage of 10 mL/100 kg body weight along the back line of the animal in a strip extending from the withers to the tail head.
- Important Instructions:
 1. Treated animals must not be slaughtered for use in food for at least 49 days following treatment.

2. Avoid use during the months of December, January or February to avoid possible host-parasite reactions.

Moxidectin ready-to-use pour-on

- Treatment: Apply 5 mL of the 0.5% ready-to-use pour-on/50 kg body weight along the backline of each animal between Oct. 1 and Nov. 30.
- Important Instructions:
 1. Do not apply at the same time as any other pour-on product.
 2. Do not apply during the months of December, January and February. Treatment should be applied under supervision of veterinarian during these months.
 3. Do not apply to areas of back covered with manure or mud.
 4. Do not use in calves less than 14 weeks of age to be processed for veal.
 5. Treated animals must not be slaughtered for food for at least 15 days after last application.

Moxidectin ready-to-use injectable solution

- Treatment: Administer the 1% ready-to-use injectable solution by subcutaneous injection at a dosage of 0.5 mL/25 kg bodyweight for animals up to 100 kg bodyweight or 1 mL/50 kg body weight for animals above 100 kg bodyweight to a maximum of 10 mL/injection site. Inject under the loose skin in front of or behind the shoulder using a sterile 16 gauge, 15-20 mm needle.
- Important Instructions:
 1. Treated cattle must not be slaughtered for food for at least 36 days after the last treatment.
 2. Do not administer intravenously or intramuscularly.
 3. Avoid use during the months of December, January, or February to avoid possible host-parasite interactions.

Face Fly

Cypermethrin and diazinon combination ear tags

- Treatment: Attach two combination tags/animal (one tag/ear) using special pliers. Position tag on the firm flat surface between the 2nd and 3rd ribs from the bottom of the ear. Make sure the shaft of the male tag (stud) does not penetrate a rib or blood vessel
- Important Instructions:
 1. For reduction of face flies.
 2. Wear chemical-resistant gloves during application and removal.
 3. The entire herd must be tagged to control flies as claimed.
 4. Remove tags at the end of the season and before slaughter.
 5. Dip pliers with stud into a disinfectant before tagging of each animal.

Diazinon ear tags

- Treatment: Attach two 20% diazinon tags/animal (one tag/ear) using special pliers. Position tag on the firm flat surface between the 2nd and 3rd ribs from the bottom of the ear. Make sure the shaft of the male tag (stud) does not penetrate a rib or blood vessel
- Important Instructions:
 1. For reduction of face flies.
 2. Wear chemical-resistant gloves during application and removal.
 3. The entire herd must be tagged to control flies as claimed.
 4. Remove tags at the end of the season and before slaughter.
 5. Dip pliers with stud into a disinfectant before tagging of each animal.

Lambda-cyhalothrin ear tag

- Treatment: Attach one 10% lambda-cyhalothrin ear tag/animal using special pliers. Position tag on the firm flat surface between the 2nd and 3rd ribs from the bottom of the ear. Make sure the shaft of the male tag (stud) does not penetrate a rib or blood vessel. Controls face flies for up to 2 months.
- Important Instructions:
 1. Wear chemical resistant gloves during application and removal.
 2. The entire herd must be tagged to control flies as claimed.
 3. Dip pliers with stud into disinfectant before tagging of each animal.
 4. Remove the tags at the end of the season and before slaughter.
 5. Do not rotate this ear tag with other Group 3 insecticidal ear tags.

Permethrin whole-body spray

- Treatment: Mix 200 mL of 24% EC or 125 mL 38% EC/400 L of water. Spray until entire animal is thoroughly covered. Retreat as needed, but not more than once every 2 weeks.
- Important Instructions:
 1. Do not apply within 7 days of slaughter.
 2. Do not contaminate feed, food or water.

Permethrin ready-to-use backrubber solution

- Treatment: For self-treatment application of a 1% ready-to-use product using backrubber devices. One device should be continuously available for each 35 to 45 head of cattle. Maintain backrubber following manufacturer's instructions.
- Important Instructions:
 1. Calibrate backrubber so the rate per animal does not exceed 0.125 g permethrin (26 mL solution)/animal/day.
 2. Withhold application 24 hours before slaughter.

Permethrin ear tag

- Treatment: Attach two 10% permethrin ear tags/animal (one tag/ear) using special pliers. Position tag on the firm flat surface between the 2nd and 3rd ribs from the bottom of the ear. Make sure the shaft of the male tag (stud) does not penetrate a rib or blood vessel.
- Important Instructions:
 1. For reduction of face flies.
 2. Remove tags at the end of the season and before slaughter.
 3. The entire herd must be tagged to control flies as claimed.
 4. Dip pliers with stud into a disinfectant before tagging of each animal.

Tetrachlorvinphos ear tag

- Treatment: Attach one 14% tetrachlorvinphos ear tag to each ear/animal using special pliers. Position tag on the firm flat surface between the 2nd and 3rd rib from the bottom of the ear. Make sure that shaft of the male stud does not penetrate a rib or blood vessel.
- Important Instructions:
 1. For reduction of face flies.
 2. The entire herd must be tagged to control flies as claimed.
 3. Remove tags at the end of the season and before slaughter.
 4. Dip pliers with stud into a disinfectant before tagging of each animal.

Horn Fly

To optimize the economic benefit of using the recommended control products, apply the products just before or at the time of turn out, and maintain protection of cattle throughout the period of horn fly activity (May – August).

Carbaryl whole body spray

- Treatment: Mix 1.2 L Sevin XLR Plus/100 L water or 1.0 kg Sevin Brand 50W/100 L. Apply up to 4.5 L/animal using high-pressure spray. Repeat as necessary but not more often than twice weekly.
- Important Instructions:
 1. Do not apply within 7 (50W) or 11 (XLR) days of slaughter.
 2. Do not contaminate feed and water troughs.

Cyfluthrin ear tag

- Treatment: Attach one tag to each ear (two per head) with the Allflex Tagging system just before turning out cattle in spring. Position tag on the firm flat surface between the 2nd and 3rd rib from the bottom of the ear. Make sure that shaft of the male stud does not penetrate a rib or blood vessel.
- Important Instructions:

1. All mature animals in herd should be treated and lost tags replaced.
2. Remove tags at end of season.
3. Remove tags at least one day before slaughter.
4. Follow label instructions for disposal of used tags.

Cyfluthrin pour-on

- Treatment: Using a graduated dispenser, apply 2 mL of 1% ready-to-use product/45-90 kg body weight along the backline of each animal just before turn-out. Maximum single application: 12 mL/animal 451 kg and over.
- Important Instructions:
 1. Do not treat within one day of slaughter.
 2. Do not apply more than 3 times per season and not more than once every 3 weeks.
 3. Do not use in pastures where horn fly resistance to synthetic pyrethroids is present.
 4. Prevent entry of cattle into bodies of water for 24 hours after treatment.

Cypermethrin and diazinon combination ear tags

- Treatment: Attach one combination tag/animal using special pliers. Position tag on the firm flat surface between the 2nd and 3rd ribs from the bottom of the ear. Make sure the shaft of the male tag (stud) does not penetrate a rib or blood vessel
- Important Instructions:
 1. Wear chemical-resistant gloves during application and removal.
 2. The entire herd must be tagged to control flies as claimed.
 3. Remove tags at the end of the season and before slaughter.
 4. Dip pliers with stud into a disinfectant before tagging of each animal.

Diazinon ear tags

- Treatment: Attach one 20% diazinon ear tag/animal using special pliers. Position tag on the firm flat surface between the 2nd and 3rd ribs from the bottom of the ear. Make sure the shaft of the male tag (stud) does not penetrate a rib or blood vessel
- Important Instructions:
 1. Wear chemical-resistant gloves during application and removal.
 2. The entire herd must be tagged to control flies as claimed.
 3. Remove tags at the end of the season and before slaughter.
 4. Dip pliers with stud into a disinfectant before tagging of each animal.

Dichlorvos ready-to-use spray (may contain pyrethrins)

- Treatment: Apply 0.2% ready-to-use product as a fine mist at a rate of 30-60 mL/adult cow. Use only enough to wet the ends of hair but not enough to wet the skin. Repeat at daily intervals or as necessary, to give continued protection.
- Important Instructions:

1. Do not use more often than once a day.
2. Take care not to spray in animal's eyes or mouth.
3. Do not contaminate feed, water or foodstuffs.
4. Any treated surface that may contact food or feed products should be washed thoroughly with potable water after spraying and before re-use.

Lambda-cyhalothrin ear tags

- Treatment: Attach one lambda-cyhalothrin 10% ear tag/animal using special pliers. Position tag on the firm flat surface between the 2nd and 3rd ribs from the bottom of the ear. Make sure the shaft of the male tag (stud) does not penetrate a rib or blood vessel. Provides season-long control of horn flies.
- Important Instructions:
 1. Wear chemical resistant gloves during application and removal.
 2. The entire herd must be tagged to control flies as claimed.
 3. Dip pliers with stud into disinfectant before tagging of each animal.
 4. Remove the tags at the end of the season and before slaughter.
 5. Do not rotate this ear tag with other Group 3 insecticidal ear tags.

Malathion whole-body spray

- Treatment: Mix 4 L 50% EC/100 L of water. Apply as whole-body spray and repeat as necessary.
- Important Instructions:
 1. Do not apply to animals of under one month of age.
 2. Do not apply to dairy animals within two weeks of calving.
 3. Do not apply within 30 days of slaughter.
 4. Do not contaminate feed or water.

Malathion backrubber solution

- Treatment: Mix 350 mL 50% EC/10 L of diesel fuel or no. 2 heating oil. Check and recharge as necessary every 2 to 3 weeks. One device should be continuously available for each 35 to 45 head of cattle.
- Important Instructions:
 1. Do not apply to animals under one month of age.
 2. Do not apply within 30 days of expected slaughter.
 3. Do not let backrubber run dry before end of fly season.

Permethrin whole-body spray

- Treatment: Mix 200 mL of 24% EC or 125 mL 38% EC/400 L of water. Spray until entire animal is thoroughly covered. Retreat as needed, but not more than once every 2 weeks.
- Important Instructions:
 1. Do not apply within 7 days of slaughter.

2. Do not contaminate feed, food or water.

Permethrin ready-to-use pour-on

- Treatment: Apply 15 mL of a 1% ready-to use pour-on/45 kg (100 lbs) body weight, up to a maximum of 150 mL for any one animal. Pour along the back and down the face taking care to avoid the eyes and mouth. Product may be applied to the face with a cloth that is slightly moistened with the product. Repeat treatment as needed but not more than once every 2 weeks.
- Important instructions:
 1. Leave a one day interval between last application and slaughter.
 2. Do not use with any other permethrin treatment.

Permethrin ready-to-use backrubber solution

- Treatment: For self-treatment application of a 1% ready-to-use product using backrubber devices. One device should be continuously available for each 35 to 45 head of cattle. Maintain backrubber following manufacturer's instructions.
- Important Instructions:
 1. Calibrate backrubber so the rate per animal does not exceed 0.125 g permethrin (26 mL solution)/animal/day.
 2. Withhold application 24 hours before slaughter.

Permethrin ready-to-use pour-on

- Treatment: Apply along backline and down face at 3 mL of 5% ready-to-use pour-on/45 kg (100 lbs) body weight up to a maximum of 30 mL/animal, taking care to avoid the eyes and mouth. May also be applied to the face using a cloth slightly moistened with the product.
- Important Instructions:
 1. Leave a one day interval between last application and slaughter.
 2. Repeat treatment as needed but not more than once every 2 weeks.

Permethrin ear tags

- Treatment: Attach one 10% permethrin ear tag/animal using special pliers. Position tag on the firm flat surface between the 2nd and 3rd ribs from the bottom of the ear. Make sure that shaft of the male stud does not penetrate a rib or blood vessel.
- Important Instructions:
 1. The entire herd must be tagged to control flies as claimed.
 2. Remove tags at the end of the season and before slaughter.
 3. Dip pliers with stud into a disinfectant before tagging of each animal.

Pyrethrins ready-to-use sprays

- Treatment: Apply as per label instructions once or twice daily.
- Important Instructions:

1. Do not contaminate feed or water troughs.

Tetrachlorvinphos ear tag

- Treatment: Attach one 14% tetrachlorvinphos ear tag to each ear/animal using special pliers. Position tag on the firm flat surface between the 2nd and 3rd rib from the bottom of the ear. Make sure that shaft of the male stud does not penetrate a rib or blood vessel.
- Important Instructions:
 1. The entire herd must be tagged.
 2. Remove tags at the end of the season and before slaughter.
 3. Dip pliers with stud into a disinfectant before tagging of each animal.

House Fly

Insecticides provide only temporary relief from the annoyance of house flies. The most effective means of controlling house flies is to eliminate breeding materials (animal bedding, moist manure, spoiled grain and forage) at 10-day maximum intervals from such sites as in calf hutches, under feed bunks and fences, under slatted floors, in and around feed and silage storages, etc.

Always use a control product with a different group number for each pesticide application to prevent the development of pesticide resistance. The table at the end of this Guide lists the control products with their active ingredient (chemical name) and group number.

See the discussion under Farm Building – House Flies (p. 38), for information on other fly management practices.

***Beauveria bassiana* HF 23 (Suspension)**

- Treatment: Apply product at a rate of 9.5 to 16 mL/100 m² in sufficient water to ensure uniform coverage over the treated area. Apply the spray to walls, floor, posts and manure where the greatest numbers of flies are located.
- Important Instructions:
 1. Re-treat at 2-7 day intervals as long as fly pressure persists.
 2. Store in a cool, dry place in original container and out of direct sunlight at temperatures not exceeding 27°C.
 3. Do not store for longer than 14 months from the date of manufacture.

***Beauveria bassiana* HF 23 (Fly Bait)**

- Treatment: Scatter bait- onto window sills and other areas where flies congregate at a rate of 125 g per 46 m² of area. Apply only to areas out of reach of animals. Reapply as needed to reduce fly populations.

Bait stations- Place fly bait in bait stations, bait pans, or trays in areas where flies congregate at a rate of 125 g per 46 m² of area. Bait stations must be hung above head level out of contact from animals or placed on floor in areas out of reach of animals. Bait should be replaced every 5 to 7 days.

- Important Instructions:
 1. Store in a cool, dry place in original container and out of direct sunlight at temperatures not exceeding 27°C.
 2. Do not store for longer than 14 months from the date of manufacture.

Lambda-cyhalothrin surface spray

- Treatment: Mix 30 mL Saber ER/10 L water and apply as a course spray to run-off on surfaces where flies congregate. Re-apply as necessary.
- Important Instructions:
 1. Remove animals before spraying, and return when dry.
 2. Do not contaminate feed or water troughs.
 3. Do not spray over milk or milking equipment.

Pyrethrins ready-to-use sprays

- Treatment: Apply as per label instructions once or twice daily.
- Important Instructions:
 1. Do not contaminate feed or water troughs.

Lice

Doramectin injectable solution (sucking lice only)

- Treatment: Administer the 1% injectable solution by subcutaneous or intramuscular injection at a dosage of 1 mL/50 kg bodyweight to a maximum of 10 mL/injection site. Subcutaneous injections should be administered into the neck region using a sterile 16 to 18 gauge, 13-19 mm needle. Intramuscular injections should be administered into a region of large muscle mass such as in the lateral neck area using a sterile 16 to 18 gauge, 25 – 38 mm needle.
- Important Instructions:
 1. Do not apply during the months of December, January and February. Treatment should be applied under supervision of veterinarian during these months.
 2. Treated animals must not be slaughtered for food for at least 40 days after last application.

Eprinomectin ready-to-use pour-on (sucking and biting lice)

- Treatment: Apply 5 mL of the 0.5% ready-to-use pour-on/50 kg body weight along the backline of each animal between Oct. 1 and Nov. 30.
- Important Instructions:
 1. Do not apply during the months of December, January and February. Treatment should be applied under supervision of veterinarian during these months.
 2. Do not apply to areas of back covered with manure or mud.
 3. Zero days pre-slaughter interval.

Ivermectin ready-to-use injectable solution (sucking lice only)

- Treatment: Administer 1% ready-to-use injectable solution by subcutaneous injection at a dosage of 1 mL/50 kg body weight (200 µg/kg body weight) to a maximum of 10 mL/injection site. Inject under the loose skin in front of or behind the shoulder using a sterile 16 gauge, 15 - 20 mm needle.
- Important Instructions:
 1. Treated cattle must not be slaughtered for use in food for at least 35 days after the last treatment.
 2. Avoid use during the months of December, January or February to avoid possible host-parasite reactions.
 3. Do not administer intravenously or intramuscularly.

Ivermectin ready-to-use pour-on (sucking and biting lice)

- Treatment: Apply the 0.5% ready-to-use pour-on at a dosage of 10 mL/100 kg body weight along the back line of the animal in a strip extending from the withers to the tail head.
- Important Instructions:
 1. Treated animals must not be slaughtered for use in food for at least 49 days following treatment.
 2. Avoid use during the months of December, January or February to avoid possible host-parasite reactions.

Moxidectin ready-to-use pour-on (sucking and biting lice)

- Treatment: Apply 5 mL of the 0.5% ready-to-use pour-on/50 kg body weight along the backline of each animal between Oct. 1 and Nov. 30.
- Important Instructions:
 1. Do not apply at the same time as any other pour-on product.
 2. Do not apply during the months of December, January and February. Treatment should be applied under supervision of veterinarian during these months.
 3. Do not apply to areas of back covered with manure or mud.
 4. Do not use in calves less than 14 weeks of age to be processed for veal.
 5. Treated animals must not be slaughtered for food for at least 15 days after last application.

Moxidectin ready-to-use injectable solution (sucking lice only)

- Treatment: Administer the 1% ready-to-use injectable solution by subcutaneous injection at a dosage of 0.5 mL/25 kg bodyweight for animals up to 100 kg bodyweight or 1 mL/50 kg body weight for animals above 100 kg bodyweight to a maximum of 10 mL/injection site. Inject under the loose skin in front of or behind the shoulder using a sterile 16 gauge, 15-20 mm needle.
- Important Instructions:
 1. Treated cattle must not be slaughtered for food for at least 36 days after the last treatment.
 2. Do not administer intravenously or intramuscularly.
 3. Avoid use during the months of December, January, or February to avoid possible host-parasite interactions.

Carbaryl whole-body spray

- Treatment: Mix 1.2 L Sevin XLR Plus/100 L water or 1.0 kg Sevin Brand 50W/100 L. Apply up to 4.5 L/animal using high-pressure spray. Repeat if necessary at intervals of 14 to 18 days.
- Important Instructions:
 1. Do not apply to livestock within 7 (50W) or 11 (XLR) days of slaughter.
 2. Avoid contamination of feed and water troughs.

Cyfluthrin pour-on

- Treatment: Using a graduated dispenser, apply 2 mL of 1% ready-to-use product/45-90 kg body weight along the backline of each animal just before turn-out. Maximum single application: 12 mL/animal 451 kg and over.
- Important Instructions:
 1. Do not treat within one day of slaughter.
 2. Do not apply more than 3 times per season and not more than once every 3 weeks.

Malathion whole-body spray

- Treatment: Mix 4 L 50% EC/100 L of water. Apply as whole-body spray and repeat as necessary.
- Important Instructions:
 1. Do not apply to animals of under one month of age.
 2. Do not apply to dairy animals within two weeks of calving.
 3. Do not apply within 30 days of slaughter.
 4. Do not contaminate feeds, foods, or water.

Malathion backrubber solution

- Treatment: Treatment: Mix 350 mL 50% EC/10 L of diesel fuel or no. 2 heating oil. Check and recharge as necessary every 2 to 3 weeks. One device should be continuously available for each 35 to 45 head of cattle.
- Important Instructions:

1. Do not apply to animals under one month of age.
2. Do not apply within 30 days of expected slaughter.
3. Do not let backrubber run dry before end of fly season.

Permethrin whole-body spray

- Treatment: Mix 200 mL of 24% EC or 125 mL 38% EC/400 L of water. Spray until entire animal is thoroughly covered. A second treatment is recommended 14-21 days later.
- Important Instructions:
 1. Do not apply within 7 days of slaughter.
 2. Do not contaminate feed, food or water.

Permethrin ready-to-use pour-on

- Treatment: Apply 15 mL of a 1% ready-to use pour-on /45 kg (100 lbs) body weight, up to a maximum of 150 mL for any one animal. Pour along the back and down the face taking care to avoid the eyes and mouth. Product may be applied to the face with a cloth that is slightly moistened with the product. Repeat treatment as needed but not more than once every 2 weeks. For optimum control of lice two treatments 14 days apart are recommended.
- Important instructions:
 1. May be applied up to one day before slaughter.
 2. Controls biting lice; aids in control of sucking lice.

Permethrin ready-to-use pour-on

- Treatment: Apply along backline and down face at 3 mL of 5% ready-to-use pour-on/45 kg (100 lbs) body weight up to a maximum of 30 mL/animal, taking care to avoid the eyes and mouth. May also be applied to the face using a cloth slightly moistened with the product. Repeat treatment as needed but not more than once every two weeks. For optimum lice control, apply two treatments at 14-day intervals.
- Important Instructions:
 1. Controls biting lice, and aids in control of sucking lice.
 2. Leave a one day interval between last application and slaughter.

Mosquitoes

Where possible, eliminate temporary pools of water to reduce mosquito breeding sites in or near pastures and near animal rearing facilities. Check with local agricultural chemical supplier for mosquito larvicide products to kill mosquito larvae in permanent water bodies in which mosquitoes breed.

Dichlorvos ready-to-use spray (may contain pyrethrins)

- Treatment: Apply 0.2% ready-to-use product as a fine mist at a rate of 30-60 mL/adult cow. Use only enough to wet the ends of hair but not enough to wet the skin. Repeat at daily intervals or as necessary, to give continued protection.
- Important Instructions:
 1. Do not use more often than once a day.
 2. Take care not to spray in animal's eyes or mouth.
 3. Do not contaminate feed, water or foodstuffs.
 4. Any treated surface that may contact food or feed products should be washed thoroughly with potable water after spraying and before re-use.

Malathion whole-body spray

- Treatment: Mix 4 L 50% EC/100 L of water. Apply as whole-body spray and repeat as necessary.
- Important Instructions:
 1. Do not apply to animals of under one month of age.
 2. Do not apply to dairy animals within two weeks of calving.
 3. Do not apply within 30 days of slaughter.
 4. Do not contaminate feeds, foods, or water.

Permethrin whole-body spray

- Treatment: Mix 200 mL of 24% EC/400 L of water. Spray until entire animal is thoroughly covered. Repeated applications may be required after 8 days.
- Important Instructions:
 1. Do not apply within 7 days of slaughter.
 2. Do not contaminate feed, food or litter.

Permethrin backrubber solution

- Treatment: Dilute 200 mL 24% EC with 10 L lightweight oil for application using a self-treatment backrubber device.
- Important Instructions:
 1. Calibrate backrubber so the rate per animal does not exceed 0.125 g permethrin (26 mL solution)/animal/day.
 2. Withhold application 24 hours before slaughter.

Pyrethrins ready-to-use sprays

- Treatment: Apply as per label instructions once or twice daily.
- Important Instructions:
 1. Do not contaminate feed or water troughs.

Stable Fly

Dichlorvos ready-to-use spray (may contain pyrethrins)

- Treatment: Apply 0.2% ready-to-use product as a fine mist at a rate of 30-60 mL/adult cow. Use only enough to wet the ends of hair but not enough to wet the skin. Repeat at daily intervals or as necessary, to give continued protection.
- Important Instructions:
 1. Do not use more often than once a day.
 2. Take care not to spray in animal's eyes or mouth.
 3. Do not contaminate feed, water or foodstuffs.
 4. Any treated surface that may contact food or feed products should be washed thoroughly with potable water after spraying and before re-use.

Pyrethrins ready-to-use sprays

- Treatment: Apply as per label instructions once or twice daily.
- Important Instructions:
 1. Do not contaminate feed or water troughs.

Rocky Mountain Wood Tick

Lambda-cyhalothrin 1% ready-to-use pour-on

- Treatment: Apply 10 mL to animals weighing less than 275 kg and 15 mL to animals weighing more than 275 kg. Pour along the back and down the face taking care to avoid the eyes and mouth.
- Important instructions:
 1. Apply at time of entry into tick infested pastures.
 2. Repeat treatment as needed but not more than once every 3 weeks.
 3. Do not apply more than 4 times per year.
 4. Leave a 7 day interval between last application and slaughter.

Permethrin whole-body spray

- Treatment: Mix 200 mL of 24% EC/100 L of water. Using a high pressure sprayer, apply up to 3 L/animal along the top line from head to tail head. Repeat application after 2 – 3 weeks if tick paralysis is observed.
- Important Instructions:
 1. Do not apply within 7 days of slaughter.
 2. Do not contaminate feed, food or litter.
 3. Do not apply more than 1.5 g permethrin (312 mL solution)/animal/application.

Permethrin ready-to-use pour-on

- Treatment: Apply 15 mL of a 1% ready-to use pour-on/45 kg body weight, up to a maximum of 150 mL for any one animal. Pour along the back and down the face taking care to avoid the eyes and mouth. Product may be applied to the face with a cloth that is slightly moistened with the product. Repeat treatment as needed but not more than once every 2 weeks. 1-2 treatments/year may be necessary.
- Important instructions:
 1. Apply at time of entry into tick infested pastures.
 2. Leave a one day interval between last application and slaughter.

Permethrin ready-to-use pour-on

- Treatment: Apply along backline and down face at 3 mL of a 5% ready-to-use pour-on/45 kg body weight up to a maximum of 30 mL/animal, taking care to avoid the eyes and mouth. May also be applied to the face using a cloth slightly moistened with the product. Repeat treatment as needed but not more than once every two weeks.
- Important Instructions:
 1. Apply at time of entry into tick infested pastures.
 2. Leave a one day interval between last application and slaughter.

Winter Tick

Carbaryl whole body spray

- Treatment: Mix 1.2 L Sevin XLR Plus/100 L water or 1.0 kg Sevin Brand 50W/100 L water. Apply up to 4.5 L/animal using high-pressure spray. Repeat as necessary, but not more often than twice weekly.
- Important Instructions:
 1. Do not apply to livestock within 11 days before slaughter.

Dairy Cattle (Non-Lactating)

Black flies

Providing cattle with shelters or a raised knoll in the pasture will help the cattle escape some black fly pressure.

Do not introduce cattle not previously exposed to black flies into an area of high black fly activity without at least 4-5 days of low-level exposure to black flies to avoid death of the animals due to adverse reaction (anaphylactic shock) to intense black fly attack.

Permethrin whole-body spray

- Treatment: Mix 200 mL of 24% EC or 125 mL 38% EC/100 L of water. Apply 1 – 2 L of spray mixture/animal over entire body. Repeated applications may be required after 8 days.
- Important Instructions:
 1. Do not apply within 7 days of slaughter.
 2. Do not contaminate feed, food, water or litter.
 3. Do not apply within 30 days of freshening.

Permethrin ready-to-use backrubber solution

- Treatment: For self-treatment application of a 1% ready-to-use product using backrubber devices. One device should be continuously available for each 35 to 45 head of cattle. Maintain backrubber following manufacturer's instructions.
- Important Instructions:
 1. Calibrate backrubber so the rate per animal does not exceed 0.125 g permethrin (26 mL solution)/animal/day.
 2. Withhold application 24 hours before slaughter.

Cattle Grubs

Doramectin injectable solution

- Treatment: Administer the 1% injectable solution by subcutaneous or intramuscular injection at a dosage of 1 mL/50 kg bodyweight to a maximum of 10 mL/injection site. Subcutaneous injections should be administered into the neck region using a sterile 16 to 18 gauge, 13-19 mm needle. Intramuscular injections should be administered into a region of large muscle mass such as in the lateral neck area using a sterile 16 to 18 gauge, 25 – 38 mm needle.
- Important Instructions:

1. Do not apply during the months of December, January and February. Treatment should be applied under supervision of veterinarian during these months.
2. Treated animals must not be slaughtered for food for at least 40 days after last application.
3. Non-lactating dairy cows must not be treated within 2 months of calving.

Eprinomectin ready-to-use pour-on

- Treatment: Apply 5 mL of the 0.5% ready-to-use pour-on/50 kg body weight along the backline of each animal between Oct. 1 and Nov. 30.
- Important Instructions:
 1. Do not apply during the months of December, January and February. Treatment should be applied under supervision of veterinarian during these months.
 2. Do not apply to areas of back covered with manure or mud.
 3. There is no milk withholding period after treatment.
 4. Zero day pre-slaughter interval.

Ivermectin ready-to-use injectable solution

- Treatment: Administer 1% ready-to-use injectable solution by subcutaneous injection at a dosage of 1 mL/50 kg body weight (200 µg/kg body weight) to a maximum of 10 mL/injection site. Inject under the loose skin in front of or behind the shoulder using a sterile 16 gauge, 15 - 20 mm needle.
- Important Instructions:
 1. Treated cattle must not be slaughtered for use in food for at least 35 days after the last treatment.
 2. Avoid use during the months of December, January or February to avoid possible host-parasite reactions.
 3. Do not administer intravenously or intramuscularly.
 4. Non-lactating dairy cows must not be treated within 2 months of calving.

Ivermectin ready-to-use pour-on

- Treatment: Apply the 0.5% ready-to-use pour-on at a dosage of 10 mL/100 kg body weight along the back line of the animal in a strip extending from the withers to the tail head.
- Important Instructions:
 1. Treated animals must not be slaughtered for use in food for at least 49 days following treatment.
 2. Non-lactating dairy cows must not be treated within two months of calving.
 3. Avoid use during the months of December, January or February to avoid possible host-parasite reactions.
 4. Do not apply when hair or hide is wet.

Moxidectin ready-to-use pour-on

- Treatment: Apply 5 mL of the 0.5% ready-to-use pour-on/50 kg body weight along the backline of each animal between Oct. 1 and Nov. 30.
- Important Instructions:
 1. Do not apply at the same time as any other pour-on product.
 2. Do not apply during the months of December, January and February. Treatment should be applied under supervision of veterinarian during these months.
 3. Do not apply to areas of back covered with manure or mud.
 4. Do not use in calves less than 14 weeks of age to be processed for veal.
 5. Treated animals must not be slaughtered for food for at least 15 days after last application.

Moxidectin ready-to-use injectable solution

- Treatment: Administer the 1% ready-to-use injectable solution by subcutaneous injection at a dosage of 0.5 mL/25 kg bodyweight for animals up to 100 kg bodyweight or 1 mL/50 kg body weight for animals above 100 kg bodyweight to a maximum of 10 mL/injection site. Inject under the loose skin in front of or behind the shoulder using a sterile 16 gauge, 15-20 mm needle.
- Important Instructions:
 1. Treated cattle must not be slaughtered for food for at least 36 days after the last treatment.
 2. Do not administer intravenously or intramuscularly.
 3. Avoid use during the months of December, January, or February to avoid possible host-parasite interactions.
 4. Non-lactating dairy cows must not be treated within 60 days of calving.

Face fly

Cypermethrin and diazinon combination ear tags

- Treatment: Attach two combination ear tags/animal (one tag/ear) using special pliers. Position tag on the firm flat surface between the 2nd and 3rd ribs from the bottom of the ear. Make sure the shaft of the male tag (stud) does not penetrate a rib or blood vessel
- Important Instructions:
 1. For reduction of face flies.
 2. Wear chemical-resistant gloves during application and removal.
 3. The entire herd must be tagged to control flies as claimed.
 4. Remove tags at the end of the season and before slaughter.
 5. Dip pliers with stud into a disinfectant before tagging of each animal.

Diazinon ear tags

- Treatment: Attach two 20% diazinon ear tags/animal (one tag/ear) using special pliers. Position tag on the firm flat surface between the 2nd and 3rd ribs from the bottom of the ear. Make sure the shaft of the male tag (stud) does not penetrate a rib or blood vessel
- Important Instructions:
 1. For reduction of face flies.
 2. Wear chemical-resistant gloves during application and removal.
 3. The entire herd must be tagged to control flies as claimed.
 4. Remove tags at the end of the season and before slaughter.
 5. Dip pliers with stud into a disinfectant before tagging of each animal.

Lambda-cyhalothrin ear tags

- Treatment: Attach one 10% lambda-cyhalothrin ear tag/animal using special pliers. Position tag on the firm flat surface between the 2nd and 3rd ribs from the bottom of the ear. Make sure the shaft of the male tag (stud) does not penetrate a rib or blood vessel. Controls face flies for up to 2 months.
- Important Instructions:
 1. Wear chemical resistant gloves during application and removal.
 2. The entire herd must be tagged to control flies as claimed.
 3. Dip pliers with stud into disinfectant before tagging of each animal.
 4. Remove the tags at the end of the season and before slaughter.
 5. Do not rotate this ear tag with other Group 3 insecticidal ear tags.

Permethrin whole-body spray

- Treatment: Mix 200 mL of 24% EC or 125 mL 38% EC/100 L of water. Apply 1 – 2 L of spray mixture/animal over entire body. Retreat as needed, but not more than once every 2 weeks.
- Important Instructions:
 1. Do not apply within 7 days of slaughter.
 2. Do not contaminate feed, food or litter.
 3. Do not apply within 30 days of freshening.

Permethrin ready-to-use backrubber solution

- Treatment: For self-treatment application of a 1% ready-to-use product using backrubber devices. One device should be continuously available for each 35 to 45 head of cattle. Maintain backrubber following manufacturer's instructions.
- Important Instructions:
 1. Calibrate backrubber so the rate per animal does not exceed 0.125 g permethrin (26 mL solution)/animal/day.
 2. Withhold application 24 hours before slaughter.

Permethrin ear tags

- Treatment: Attach two 10% permethrin ear tags/animal (one tag/ear) using special pliers. Position tag on the firm flat surface between the 2nd and 3rd ribs from the bottom of the ear. Make sure the shaft of the male tag (stud) does not penetrate a rib or blood vessel.
- Important Instructions:
 1. For reduction of face flies.
 2. Remove tags at the end of the season and before slaughter.
 3. The entire herd must be tagged to control flies as claimed.
 4. Dip pliers with stud into a disinfectant before tagging of each animal.

Tetrachlorvinphos ear tag

- Treatment: Attach one 14% tetrachlorvinphos ear tag to each ear/animal using special pliers. Position tag on the firm flat surface between the 2nd and 3rd rib from the bottom of the ear. Make sure that shaft of the male stud does not penetrate a rib or blood vessel.
- Important Instructions:
 4. For reduction of face flies.
 5. The entire herd must be tagged to control flies as claimed.
 6. Remove tags at the end of the season and before slaughter.
 7. Dip pliers with stud into a disinfectant before tagging of each animal.

Horn fly

To optimize the economic benefit of using the recommended control products, apply the products just before or at the time of turn out, and maintain protection of cattle throughout the period of horn fly activity (May – August).

Carbaryl whole body spray

- Treatment: Mix 1.2 L Sevin XLR Plus/100 L water or 1.0 kg Sevin Brand 50W/100 L water.. Apply up to 4.5 L/animal using high-pressure spray. Repeat as necessary, but not more often than twice weekly.
- Important Instructions:
 1. Do not apply within 7 (WP) or 11 (XLR) days of slaughter.
 2. Avoid contamination of feed and water troughs.
 3. Avoid direct application to underline or udder.

Cyfluthrin ear tag

- Treatment: Attach one tag to each ear (two per head) with the Allflex Tagging system just before turning out cattle in spring. Position tag on the firm flat surface between the 2nd and 3rd ribs from the bottom of the ear. Make sure the shaft of the male tag (stud) does not penetrate a rib or blood vessel.
- Important Instructions:
 1. All mature animals in herd should be treated and lost tags replaced.
 2. Remove tags at end of season.
 3. Remove tags at least one day before slaughter.
 4. Follow label instructions for disposal of used tags.

Cyfluthrin pour-on

- Treatment: Using a graduated dispenser, apply 2 mL of 1% ready-to-use product/45-90 kg body weight along the backline of each animal just before turn-out. Maximum single application: 12 mL/animal 451 kg and over.
- Important Instructions:
 1. Do not treat within one day of slaughter.
 2. Do not apply more than 3 times per season and not more than once every 3 weeks.
 3. Do not use in pastures where horn fly resistance to synthetic pyrethroids is present.
 4. Prevent entry of cattle into bodies of water for 24 hours after treatment.

Cypermethrin and diazinon combination ear tags

- Treatment: Attach one combination ear tag/animal using special pliers. Position tag on the firm flat surface between the 2nd and 3rd ribs from the bottom of the ear. Make sure the shaft of the male tag (stud) does not penetrate a rib or blood vessel
- Important Instructions:
 1. Wear chemical-resistant gloves during application and removal.
 2. The entire herd must be tagged to control flies as claimed.
 3. Remove tags at the end of the season and before slaughter.
 4. Dip pliers with stud into a disinfectant before tagging of each animal.

Diazinon ear tags

- Treatment: Attach one 20% diazinon ear tag/animal using special pliers. Position tag on the firm flat surface between the 2nd and 3rd ribs from the bottom of the ear. Make sure the shaft of the male tag (stud) does not penetrate a rib or blood vessel.
- Important Instructions:
 1. Wear chemical-resistant gloves during application and removal.
 2. The entire herd must be tagged to control flies as claimed.
 3. Remove tags at the end of the season and before slaughter.
 4. Dip pliers with stud into a disinfectant before tagging of each animal.

Dichlorvos ready-to-use spray (may contain pyrethrins)

- Treatment: Apply 0.2% ready-to-use product as a fine mist at a rate of 30-60 mL/adult cow. Use only enough to wet the ends of hair but not enough to wet the skin. Repeat at daily intervals or as necessary, to give continued protection.
- Important Instructions:
 1. Do not use more often than once a day.
 2. Take care not to spray in animal's eyes or mouth.
 3. Do not contaminate feed, water or foodstuffs.
 4. Any treated surface that may contact food or feed products should be washed thoroughly with potable water after spraying and before re-use.

Lambda-cyhalothrin ear tags

- Treatment: Attach one 10% lambda-cyhalothrin ear tag/animal using special pliers. Position tag on the firm flat surface between the 2nd and 3rd ribs from the bottom of the ear. Make sure the shaft of the male tag (stud) does not penetrate a rib or blood vessel. Provides 2 months control of face flies.
- Important Instructions:
 1. Wear chemical resistant gloves during application and removal.
 2. The entire herd must be tagged to control flies as claimed.
 3. Dip pliers with stud into disinfectant before tagging of each animal.
 4. Remove the tags at the end of the season and before slaughter.
 5. Do not rotate this ear tag with other Group 3 insecticidal ear tags.

Malathion whole-body spray

- Treatment: Mix 4 L 50% EC/100 L of water. Apply as whole-body spray and repeat as necessary.
- Important Instructions:
 1. Do not apply to animals of under one month of age.
 2. Do not apply to dairy animals within two weeks of calving.
 3. Do not apply within 30 days of slaughter.
 4. Do not contaminate feeds, foods, or water.

Malathion backrubber solution

- Treatment: Treatment: Mix 350 mL 50% EC/10 L of diesel fuel or no. 2 heating oil. Check and recharge as necessary every 2 to 3 weeks. One device should be continuously available for each 35 to 45 head of cattle.
- Important Instructions:
 1. Do not apply to animals under one month of age.
 2. Do not apply within 30 days of expected slaughter.
 3. Do not let backrubber run dry before end of fly season.

Permethrin whole-body spray

- Treatment: Mix 200 mL of 24% EC or 125 mL 38% EC/100 L of water. Apply 1 – 2 L of spray mixture/animal over entire body. Retreat as needed, but not more than once every 2 weeks.
- Important Instructions:
 1. Do not apply within 7 days of slaughter.
 2. Do not contaminate feed, food or litter.
 3. Do not apply within 30 days of freshening.

Permethrin ready-to-use pour-on

- Treatment: Apply 15 mL of a 1% ready-to use pour-on/45 kg (100 lbs) body weight, up to a maximum of 150 mL for any one animal. Pour along the back and down the face taking care to avoid the eyes and mouth. Product may be applied to the face with a cloth that is slightly moistened with the product. Repeat treatment as needed but not more than once every 2 weeks.
- Important instructions:
 1. Leave a one day interval between last application and slaughter.

Permethrin ready-to-use backrubber solution

- Treatment: For self-treatment application of a 1% ready-to-use product using backrubber devices. One device should be continuously available for each 35 to 45 head of cattle. Maintain backrubber following manufacturer's instructions.
- Important Instructions:
 1. Calibrate backrubber so the rate per animal does not exceed 0.125 g permethrin (26 mL solution)/animal/day.
 2. Withhold application 24 hours before slaughter.

Permethrin ready-to-use pour-on

- Treatment: Apply along backline and down face at 3 mL of a 5% ready-to-use pour-on/45 kg (100 lbs) body weight up to a maximum of 30 mL/animal, taking care to avoid the eyes and mouth. May also be applied to the face using a cloth slightly moistened with the product. Repeat treatment as needed but not more than once every two weeks.
- Important Instructions:
 1. Leave a one day interval between last application and slaughter.

Permethrin ear tags

- Treatment: Attach one 10% permethrin ear tag/animal using special pliers. Position tag on the firm flat surface between the 2nd and 3rd ribs from the bottom of the ear. Make sure that shaft of the male stud does not penetrate a rib or blood vessel.
- Important Instructions:
 1. The entire herd must be tagged.
 2. Remove tags at the end of the season and before slaughter.

3. Dip pliers with stud into a disinfectant before tagging of each animal.

Pyrethrins ready-to-use sprays

- Treatment: Apply as per label instructions once or twice daily.
- Important Instructions:
 1. Do not contaminate feed or water troughs.
 2. Do not spray over milk or milking equipment.

Tetrachlorvinphos ear tag

- Treatment: Attach one 14% tetrachlorvinphos ear tag to each ear/animal using special pliers. Position tag on the firm flat surface between the 2nd and 3rd rib from the bottom of the ear. Make sure that shaft of the male stud does not penetrate a rib or blood vessel.
- Important Instructions:
 1. The entire herd must be tagged.
 2. Remove tags at the end of the season and before slaughter.
 3. Dip pliers with stud into a disinfectant before tagging of each animal.

House fly

Insecticides provide only temporary relief from the annoyance of house flies. The most effective means of controlling house flies is to eliminate breeding materials (animal bedding, moist manure, spoiled grain and forage) at 10-day maximum intervals from such sites as in calf hutches, under feed bunks and fences, under slatted floors, in and around feed and silage storages, etc.

Always use a control product with a different group number for each pesticide application to prevent the development of pesticide resistance. The table at the end of this Guide lists the control products with their active ingredient (chemical name) and group number.

See the discussion under Farm Building – House Flies (p. 38), for information on other fly management practices.

***Beauveria bassiana* HF 23 (Suspension)**

- Treatment: Apply product at a rate of 9.5 to 16 mL/100 m² in sufficient water to ensure uniform coverage over the treated area. Apply the spray to walls, floor, posts and manure where the greatest numbers of flies are located.
- Important Instructions:
 1. Re-treat at 2-7 day intervals as long as fly pressure persists.
 2. Store in a cool, dry place in original container and out of direct sunlight at temperatures not exceeding 27°C.
 3. Do not store for longer than 14 months from the date of manufacture.

***Beauveria bassiana* HF 23 (Fly Bait)**

- Treatments:
Scatter bait- onto window sills and other areas where flies congregate at a rate of 125 g per 46 m² of area. Apply only to areas out of reach of animals. Reapply as needed to reduce fly populations.
Bait stations- Place fly bait in bait stations, bait pans, or trays in areas where flies congregate at a rate of 125 g per 46 m² of area. Bait stations must be hung above head level out of contact from animals or placed on floor in areas out of reach of animals. Bait should be replaced every 5 to 7 days.
- Important Instructions:
 - 1 Store in a cool, dry place in original container and out of direct sunlight at temperatures not exceeding 27°C.
 - 2 Do not store for longer than 14 months from the date of manufacture.

Lambda-cyhalothrin surface spray

- Treatment: Mix 30 mL Saber ER/10 L water and apply as a course spray to run-off on surfaces where flies congregate. Re-apply as necessary.
- Important Instructions:
 1. Remove animals before spraying, and return when dry.
 2. Do not contaminate feed or water troughs.
 3. Do not spray over milk or milking equipment.

Pyrethrins ready-to-use sprays

- Treatment: Apply as per label instructions once or twice daily.
- Important Instructions:
 1. Do not contaminate feed or water troughs.
 2. Do not spray over milk or milking equipment.

Lice

Doramectin injectable solution (sucking lice only)

- Treatment: Administer the 1% injectable solution by subcutaneous or intramuscular injection at a dosage of 1 mL/50 kg bodyweight to a maximum of 10 mL/injection site. Subcutaneous injections should be administered into the neck region using a sterile 16 to 18 gauge, 13-19 mm needle. Intramuscular injections should be administered into a region of large muscle mass such as in the lateral neck area using a sterile 16 to 18 gauge, 25 – 38 mm needle.
- Important Instructions:

1. Do not apply during the months of December, January and February. Treatment should be applied under supervision of veterinarian during these months.
2. Treated animals must not be slaughtered for food for at least 40 days after last application.
3. Non-lactating dairy cows must not be treated within 2 months of calving.

Eprinomectin ready-to-use pour-on (sucking and biting lice)

- Treatment: Apply 5 mL of the 0.5% ready-to-use pour-on/50 kg body weight along the backline of each animal between Oct. 1 and Nov. 30.
- Important Instructions:
 1. Do not apply during the months of December, January and February. Treatment should be applied under supervision of veterinarian during these months.
 2. Do not apply to areas of back covered with manure or mud.
 3. There is no milk withholding period after treatment.

Ivermectin ready-to-use injectable solution (sucking lice only)

- Treatment: Administer 1% ready-to-use injectable solution by subcutaneous injection at a dosage of 1 mL/50 kg body weight (200 ug/kg body weight) to a maximum of 10 mL/injection site. Inject under the loose skin in front of or behind the shoulder using a sterile 16 gauge, 15 - 20 mm needle.
- Important Instructions:
 1. Treated cattle must not be slaughtered for use in food for at least 35 days after the last treatment.
 2. Avoid use during the months of December, January or February to avoid possible host-parasite reactions.
 3. Do not administer intravenously or intramuscularly.
 4. Non-lactating dairy cows must not be treated within 2 months of calving.

Ivermectin ready-to-use pour-on

- Treatment: Apply the 0.5% ready-to-use pour-on at a dosage of 10 mL/100 kg body weight along the back line of the animal in a strip extending from the withers to the tail head.
- Important Instructions:
 1. Treated animals must not be slaughtered for use in food for at least 49 days following treatment.
 2. Non-lactating dairy cows must not be treated within two months of calving.
 3. Avoid use during the months of December, January or February to avoid possible host-parasite reactions.
 4. Do not apply when hair or hide is wet.

Moxidectin ready-to-use pour-on (sucking and biting lice)

- Treatment: Apply 5 mL of the 0.5% ready-to-use pour-on/50 kg body weight along the backline of each animal between Oct. 1 and Nov. 30.

- Important Instructions:
 1. Do not apply at the same time as any other pour-on product.
 2. Do not apply during the months of December, January and February. Treatment should be applied under supervision of veterinarian during these months.
 3. Do not apply to areas of back covered with manure or mud.
 4. Do not use in calves less than 14 weeks of age to be processed for veal.
 5. Treated animals must not be slaughtered for food for at least 15 days after last application.

Moxidectin ready-to-use injectable solution (sucking lice only)

- Treatment: Administer the 1% ready-to-use injectable solution by subcutaneous injection at a dosage of 0.5 mL/25 kg bodyweight for animals up to 100 kg bodyweight or 1 mL/50 kg body weight for animals above 100 kg bodyweight to a maximum of 10 mL/injection site. Inject under the loose skin in front of or behind the shoulder using a sterile 16 gauge, 15-20 mm needle.
- Important Instructions:
 1. Treated cattle must not be slaughtered for food for at least 36 days after the last treatment.
 2. Do not administer intravenously or intramuscularly.
 3. Avoid use during the months of December, January, or February to avoid possible host-parasite interactions.
 4. Non-lactating dairy cows must not be treated within 60 days of calving.

Carbaryl whole body spray

- Treatment: Mix 1.2 L Sevin XLR Plus/100 L water or 1.0 kg Sevin Brand 50W/100 L water. Apply up to 4.5 L/animal using high-pressure spray. Repeat if necessary at intervals of 14 to 18 days.
- Important Instructions:
 1. Do not apply to livestock within 7 (WP) or 11 (XLR) days of slaughter.
 2. Avoid contamination of feed and water troughs.
 3. Avoid direct application to underline or udder.
 4. Do not apply before milking.

Cyfluthrin pour-on

- Treatment: Using a graduated dispenser, apply 2 mL of 1% ready-to-use product/45-90 kg body weight along the backline of each animal just before turn-out. Maximum single application: 12 mL/animal 451 kg and over.
- Important Instructions:
 1. Do not treat within one day of slaughter.
 2. Do not apply more than 3 times per season and not more than once every 3 weeks.

Malathion whole-body spray

- Treatment: Mix 4 L 50% EC/100 L of water. Apply as whole-body spray and repeat as necessary.
- Important Instructions:

1. Do not apply to animals of under one month of age.
2. Do not apply to dairy animals within two weeks of calving.
3. Do not apply within 30 days of slaughter.
4. Do not contaminate feeds, foods, or water.

Malathion backrubber solution

- Treatment: Mix 350 mL 50% EC/10 L of diesel fuel or no. 2 heating oil. Check and recharge as necessary every 2 to 3 weeks. One device should be continuously available for each 35 to 45 head of cattle.
- Important Instructions:
 1. Do not apply to animals under one month of age.
 2. Do not apply within 30 days of expected slaughter.
 3. Do not let backrubber run dry before end of fly season.

Permethrin whole-body spray

- Treatment: Mix 200 mL of 24% EC or 125 mL 38% EC/400 L of water. Spray to ensure thorough coverage of animal. A second treatment at 14 to 21 days is recommended.
- Important Instructions:
 1. Do not apply within 30 days of freshening.
 2. Do not apply within 7 days of slaughter.

Permethrin ready-to-use pour-on

- Treatment: Apply 15 mL of a 1% ready-to use pour-on/45 kg (100 lbs) body weight, up to a maximum of 150 mL for any one animal. Pour along the back and down the face taking care to avoid the eyes and mouth. Product may be applied to the face with a cloth that is slightly moistened with the product. Repeat treatment as needed but not more than once every 2 weeks. For optimum control of lice two treatments 14 days apart are recommended.
- Important instructions:
 1. Controls biting lice, and aids in control of sucking lice.
 2. May be applied up to the day before slaughter.
 3. Do not use with any other permethrin treatment.

Permethrin ready-to-use pour-on

- Treatment: Apply along backline and down face at 3 mL of a 5% ready-to-use pour-on/45 kg (100 lbs) body weight up to a maximum of 30 mL/animal, taking care to avoid the eyes and mouth. May also be applied to the face using a cloth slightly moistened with the product. Repeat treatment as needed but not more than once every two weeks. For optimum lice control, apply two treatments at 14-day intervals.
- Important Instructions:
 1. Leave a one day interval between last application and slaughter.

2. Do not use in combination with any other permethrin product.

Mosquitoes

Where possible, eliminate temporary pools of water to reduce mosquito breeding sites in or near pastures and near animal rearing facilities. Check with local agricultural chemical supplier for mosquito larvicide products to kill mosquito larvae in permanent water bodies in which mosquitoes breed.

Dichlorvos ready-to-use spray (may contain pyrethrins)

- Treatment: Apply 0.2% ready-to-use product as a fine mist at a rate of 30-60 mL/adult cow. Use only enough to wet the ends of hair but not enough to wet the skin. Repeat at daily intervals or as necessary, to give continued protection.
- Important Instructions:
 1. Do not use more often than once a day.
 2. Take care not to spray in animal's eyes or mouth.
 3. Do not contaminate feed, water or foodstuffs.
 4. Any treated surface that may contact food or feed products should be washed thoroughly with potable water after spraying and before re-use.

Malathion whole-body spray

- Treatment: Mix 4 L 50% EC/100 L of water. Apply as whole-body spray and repeat as necessary.
- Important Instructions:
 1. Do not apply to animals of under one month of age.
 2. Do not apply to dairy animals within two weeks of calving.
 3. Do not apply within 30 days of slaughter.
 4. Do not contaminate feeds, foods, or water.

Permethrin whole-body spray

- Treatment: Mix 200 mL of 24% EC/100 L of water. Apply 1 – 2 L of spray mixture/animal over entire body. Repeated applications may be required after 8 days.
- Important Instructions:
 1. Do not apply within 7 days of slaughter.
 2. Do not contaminate feed, food, water or litter.
 3. Do not apply within 30 days of freshening.

Pyrethrins ready-to-use sprays

- Treatment: Apply as per label instructions once or twice daily.
- Important Instructions:
 1. Do not contaminate feed or water troughs.
 2. Do not spray over milk or milking equipment.

Stable fly

Dichlorvos ready-to-use spray (may contain pyrethrins)

- Treatment: Apply 0.2% ready-to-use product as a fine mist at a rate of 30-60 mL/adult cow. Use only enough to wet the ends of hair but not enough to wet the skin. Repeat at daily intervals or as necessary, to give continued protection.
- Important Instructions:
 1. Do not use more often than once a day.
 2. Take care not to spray in animal's eyes or mouth.
 3. Do not contaminate feed, water or foodstuffs.
 4. Any treated surface that may contact food or feed products should be washed thoroughly with potable water after spraying and before re-use.

Pyrethrins ready-to-use sprays

- Treatment: Apply as per label instructions once or twice daily.
- Important Instructions:
 1. Do not contaminate feed or water troughs.
 2. Do not spray over milk or milking equipment.

Rocky Mountain Wood Tick

Permethrin ready-to-use pour-on

- Treatment: Apply along backline and down face at 3 mL of a 5% ready-to-use pour-on/45 kg (100 lbs) body weight up to a maximum of 30 mL/animal, taking care to avoid the eyes and mouth. May also be applied to the face using a cloth slightly moistened with the product. Repeat treatment as needed but not more than once every two weeks.
- Important Instructions:
 1. Apply at time of entry into pasture.
 2. Leave a one day interval between last application and slaughter.
 3. Do not use with any other permethrin product.

Winter Tick

Carbaryl whole body spray

- Treatment: Mix 1.2 L Sevin XLR Plus/100 L water or 1.0 kg Sevin Brand 50W or 50 W/100 L water. Apply up to 4.5 L/animal using high-pressure spray. Repeat as necessary, but not more often than twice weekly.
- Important Instructions:
 1. Do not apply to livestock within 7 (WP) or 11 (XLR) days before slaughter.
 2. Avoid contamination of feed and water troughs.

Dairy Cattle (Lactating)

Black flies

Providing cattle with shelters or a raised knoll in the pasture will help the cattle escape some black fly pressure.

Do not introduce cattle not previously exposed to black flies into an area of high black fly activity without at least 4-5 days of low-level exposure to black flies to avoid death of the animals due to adverse reaction (anaphylactic shock) to intense black fly attack.

Cattle Grubs

Eprinomectin ready-to-use pour-on

- Treatment: Apply 5 mL of the 0.5% ready-to-use pour-on/50 kg body weight along the backline of each animal between Oct. 1 and Nov. 30.
- Important Instructions:
 1. Do not apply during the months of December, January and February. Treatment should be applied under supervision of veterinarian during these months.
 2. Do not apply to areas of back covered with manure or mud.
 3. There is no milk withholding period after treatment.

Moxidectin ready-to-use pour-on

- Treatment: Apply 5 mL of the 0.5% ready-to-use pour-on/50 kg body weight along the backline of each animal between Oct. 1 and Nov. 30.
- Important Instructions:
 1. Do not apply at the same time as any other pour-on product.

2. Do not apply during the months of December, January and February. Treatment should be applied under supervision of veterinarian during these months.
3. Do not apply to areas of back covered with manure or mud.
4. Do not use in calves less than 14 weeks of age to be processed for veal.
5. Treated animals must not be slaughtered for food for at least 15 days after last application.

Face Fly

Cypermethrin and diazinon combination ear tags

- Treatment: Attach two combination ear tags/animal (one tag/ear) using special pliers. Position tag on the firm flat surface between the 2nd and 3rd ribs from the bottom of the ear. Make sure the shaft of the male tag (stud) does not penetrate a rib or blood vessel
- Important Instructions:
 1. For reduction of face flies.
 2. Wear chemical-resistant gloves during application and removal.
 3. The entire herd must be tagged to control flies as claimed.
 4. Remove tags at the end of the season and before slaughter.
 5. Dip pliers with stud into a disinfectant before tagging of each animal.

Diazinon ear tags

- Treatment: Attach two 20% diazinon ear tags/animal (one tag/ear) using special pliers. Position tag on the firm flat surface between the 2nd and 3rd ribs from the bottom of the ear. Make sure the shaft of the male tag (stud) does not penetrate a rib or blood vessel
- Important Instructions:
 1. For reduction of face flies.
 2. Wear chemical-resistant gloves during application and removal.
 3. The entire herd must be tagged to control flies as claimed.
 4. Remove tags at the end of the season and before slaughter.
 5. Dip pliers with stud into a disinfectant before tagging of each animal.

Permethrin ear tags

- Treatment: Attach two 10% permethrin ear tags/animal (one tag/ear) using special pliers. Position tag on the firm flat surface between the 2nd and 3rd ribs from the bottom of the ear. Make sure the shaft of the male tag (stud) does not penetrate a rib or blood vessel.
- Important Instructions:
 1. For reduction of face flies.
 2. Remove tags at the end of the season and before slaughter.
 3. The entire herd must be tagged to control flies as claimed.
 4. Dip pliers with stud into a disinfectant before tagging of each animal.

Tetrachlorvinphos ear tag

- Treatment: Attach one 14% tetrachlorvinphos ear tag to each ear/animal using special pliers. Position tag on the firm flat surface between the 2nd and 3rd rib from the bottom of the ear. Make sure that shaft of the male stud does not penetrate a rib or blood vessel.
- Important Instructions:
 4. For reduction of face flies.
 5. The entire herd must be tagged to control flies as claimed.
 6. Remove tags at the end of the season and before slaughter.
 7. Dip pliers with stud into a disinfectant before tagging of each animal.

Horn fly

Cyfluthrin ear tag

- Treatment: Attach one tag to each ear (two per head) with the Allflex Tagging system just before turning out cattle in spring. Position tag on the firm flat surface between the 2nd and 3rd rib from the bottom of the ear. Make sure that shaft of the male stud does not penetrate a rib or blood vessel.
- Important Instructions:
 1. All mature animals in herd should be treated and lost tags replaced.
 2. Remove tags at end of season.
 3. Remove tags at least one day before slaughter.
 4. Follow label instructions for disposal of used tags.

Cyfluthrin pour-on

- Treatment: Using a graduated dispenser, apply 2 mL of 1% ready-to-use product/45-90 kg body weight along the backline of each animal just before turn-out. Maximum single application: 12 mL/animal 451 kg and over.
- Important Instructions:
 1. Do not treat within one day of slaughter.
 2. Do not apply more than 3 times per season and not more than once every 3 weeks.
 3. Do not use in pastures where horn fly resistance to synthetic pyrethroids is present.
 4. Prevent entry of cattle into bodies of water for 24 hours after treatment.

Cypermethrin and diazinon combination ear tags

- Treatment: Attach one combination ear tag/animal using special pliers. Position tag on the firm flat surface between the 2nd and 3rd ribs from the bottom of the ear. Make sure the shaft of the male tag (stud) does not penetrate a rib or blood vessel

- Important Instructions:
 1. Wear chemical-resistant gloves during application and removal.
 2. The entire herd must be tagged.
 3. Remove tags at the end of the season and before slaughter.
 4. Dip pliers with stud into a disinfectant before tagging of each animal.

Diazinon ear tags

- Treatment: Attach one 20% diazinon ear tag/animal using special pliers. Position tag on the firm flat surface between the 2nd and 3rd ribs from the bottom of the ear. Make sure the shaft of the male tag (stud) does not penetrate a rib or blood vessel.
- Important Instructions:
 1. Wear chemical-resistant gloves during application and removal.
 2. The entire herd must be tagged to control flies as claimed.
 3. Remove tags at the end of the season and before slaughter.
 4. Dip pliers with stud into a disinfectant before tagging of each animal.

Dichlorvos ready-to-use spray (may contain pyrethrins)

- Treatment: Apply 0.2% ready-to-use product as a fine mist at a rate of 30-60 mL/adult cow. Use only enough to wet the ends of hair but not enough to wet the skin. Repeat at daily intervals or as necessary, to give continued protection.
- Important Instructions:
 1. Do not use more often than once a day.
 2. Take care not to spray in animal's eyes or mouth.
 3. Do not contaminate feed, water or foodstuffs.
 4. Any treated surface that may contact food or feed products should be washed thoroughly with potable water after spraying and before re-use.

Malathion backrubber solution

- Treatment: Mix 350 mL 50% EC/10 L of diesel fuel or no. 2 heating oil. Check and recharge as necessary every 2 to 3 weeks. One device should be continuously available for each 35 to 45 head of cattle.
- Important Instructions:
 1. Do not apply to animals under one month of age.
 2. Do not apply within 30 days of expected slaughter.
 3. Do not let backrubber run dry before end of fly season.

Permethrin ready-to-use pour-on

- Treatment: Apply 15 mL of a 1% ready-to use pour-on/45 kg (100 lbs) body weight, up to a maximum of 150 mL for any one animal. Pour along the back and down the face taking care to avoid the eyes

and mouth. Product may be applied to the face with a cloth that is slightly moistened with the product. Repeat treatment as needed but not more than once every 2 weeks.

- Important instructions:
 1. Leave a one day interval between last application and slaughter.
 2. Do not use with any other permethrin treatment.

Permethrin ready-to-use pour-on

- Treatment: Apply along backline and down face at 3 mL of a 5% ready-to-use pour-on/45 kg (100 lbs) body weight up to a maximum of 30 mL/animal, taking care to avoid the eyes and mouth. May also be applied to the face using a cloth slightly moistened with the product. Repeat treatment as needed but not more than once every two weeks.
- Important Instructions:
 1. Leave a one day interval between last application and slaughter.
 2. Do not use in combination with any other permethrin product.

Permethrin ear tags

- Treatment: Attach one 10% permethrin ear tag/animal using special pliers. Position tag on the firm flat surface between the 2nd and 3rd ribs from the bottom of the ear. Make sure that shaft of the male stud does not penetrate a rib or blood vessel.
- Important Instructions:
 1. The entire herd must be tagged.
 2. Remove tags at the end of the season and before slaughter.
 3. Dip pliers with stud into a disinfectant before tagging of each animal.
 4. Do not apply within 30 days of freshening

Pyrethrins ready-to-use sprays

- Treatment: Apply as per label instructions once or twice daily.
- Important Instructions:
 1. Do not contaminate feed or water troughs.
 2. Do not spray over milk or milking equipment.
 3. Do not spray on udders

Tetrachlorvinphos ear tag

- Treatment: Attach one 14% tetrachlorvinphos ear tag to each ear/animal using special pliers. Position tag on the firm flat surface between the 2nd and 3rd rib from the bottom of the ear. Make sure that shaft of the male stud does not penetrate a rib or blood vessel.
- Important Instructions:
 1. The entire herd must be tagged to control flies as claimed.
 2. Remove tags at the end of the season and before slaughter.
 3. Dip pliers with stud into a disinfectant before tagging of each animal.

House fly

Insecticides provide only temporary relief from the annoyance of house flies. The most effective means of controlling house flies is to eliminate breeding materials (animal bedding, moist manure, spoiled grain and forage) at 10-day maximum intervals from such sites as in calf hutches, under feed bunks and fences, under slatted floors, in and around feed and silage storages, etc.

Always use a control product with a different group number for each pesticide application to prevent the development of pesticide resistance. The table at the end of this Guide lists the control products with their active ingredient (chemical name) and group number.

See the discussion under Farm Building – House Flies (p. 48), for information on other fly management practices.

***Beauveria bassiana* HF 23 (Suspension)**

- Treatment: Apply product at a rate of 9.5 to 16 mL/100 m² in sufficient water to ensure uniform coverage over the treated area. Apply the spray to walls, floor, posts and manure where the greatest numbers of flies are located.
- Important Instructions:
 1. Re-treat at 2-7 day intervals as long as fly pressure persists.
 2. Store in a cool, dry place in original container and out of direct sunlight at temperatures not exceeding 27°C.
 3. Do not store for longer than 14 months from the date of manufacture.

***Beauveria bassiana* HF 23 (Fly Bait)**

- Treatments:

Scatter bait- onto window sills and other areas where flies congregate at a rate of 125 g per 46 m² of area. Apply only to areas out of reach of animals. Reapply as needed to reduce fly populations.

Bait stations- Place fly bait in bait stations, bait pans, or trays in areas where flies congregate at a rate of 125 g per 46 m² of area. Bait stations must be hung above head level out of contact from animals or placed on floor in areas out of reach of animals. Bait should be replaced every 5 to 7 days.
- Important Instructions:
 1. Store in a cool, dry place in original container and out of direct sunlight at temperatures not exceeding 27°C.
 2. Do not store for longer than 14 months from the date of manufacture.

Lambda-cyhalothrin surface spray

- Treatment: Mix 30 mL Saber ER/10 L water and apply as a course spray to run-off on surfaces where flies congregate. Re-apply as necessary.
- Important Instructions:

3. Remove animals before spraying, and return when dry.
4. Do not contaminate feed or water troughs.
5. Do not spray over milk or milking equipment.

Lice

Carbaryl whole body spray

- Treatment: Mix 1.2 L Sevin XLR Plus/100 L water or 1.0 kg Sevin brand 50W or 50W /100 L water. Apply up to 4.5 L/animal using high-pressure spray. Repeat if necessary at intervals of 14 to 18 days.
- Important Instructions:
 1. Do not apply to livestock within 7 (WP) or 11 (XLR) days of slaughter.
 2. Avoid contamination of feed and water troughs.
 3. Avoid direct application to underline or udder.
 4. Do not apply before milking.
 5. Wash udder thoroughly before milking.
 6. Do not contaminate milking utensils.

Cyfluthrin pour-on

- Treatment: Using a graduated dispenser, apply 2 mL of 1% ready-to-use product/45-90 kg body weight along the backline of each animal just before turn-out. Maximum single application: 12 mL/animal 451 kg and over.
- Important Instructions:
 1. Do not treat within one day of slaughter.
 2. Do not apply more than 3 times per season and not more than once every 3 weeks.

Malathion backrubber solution

- Treatment: Mix 350 mL 50% EC/10 L of diesel fuel or no. 2 heating oil. Check and recharge as necessary every 2 to 3 weeks. One device should be continuously available for each 35 to 45 head of cattle.
- Important Instructions:
 1. Do not apply to animals under one month of age.
 2. Do not apply within 30 days of expected slaughter.
 3. Do not let backrubber run dry before end of fly season.

Eprinomectin ready-to-use pour-on (sucking and biting)

- Treatment: Apply 5 mL of the 0.5% ready-to-use pour-on/50 kg body weight along the backline of each animal between Oct. 1 and Nov. 30.

- Important Instructions:
 1. Do not apply during the months of December, January and February. Treatment should be applied under supervision of veterinarian during these months.
 2. Do not apply to areas of back covered with manure or mud.
 3. There is no milk withholding period after treatment.

Moxidectin ready-to-use pour-on (sucking and biting lice)

- Treatment: Apply 5 mL of the 0.5% ready-to-use pour-on/50 kg body weight along the backline of each animal between Oct. 1 and Nov. 30.
- Important Instructions:
 1. Do not apply at the same time as any other pour-on product.
 2. Do not apply during the months of December, January and February. Treatment should be applied under supervision of veterinarian during these months.
 3. Do not apply to areas of back covered with manure or mud.
 4. Do not use in calves less than 14 weeks of age to be processed for veal.
 5. Treated animals must not be slaughtered for food for at least 15 days after last application.

Permethrin ready-to-use pour-on

- Treatment: Apply 15 mL of a 1% ready-to use pour-on/45 kg (100 lbs) body weight, up to a maximum of 150 mL for any one animal. Pour along the back and down the face taking care to avoid the eyes and mouth. Product may be applied to the face with a cloth that is slightly moistened with the product. Repeat treatment as needed but not more than once every 2 weeks.
- Important instructions:
 1. Controls biting lice; aids in control of sucking lice.
 2. Leave a one day interval between last application and slaughter.
 3. Do not use with any other permethrin product.

Permethrin ready-to-use pour-on

- Treatment: Apply along backline and down face at 3 mL of a 5% ready-to-use pour-on/45 kg (100 lbs) body weight up to a maximum of 30 mL/animal, taking care to avoid the eyes and mouth. May also be applied to the face using a cloth slightly moistened with the product. Repeat treatment as needed but not more than once every two weeks.
- Important Instructions:
 1. Leave a one day interval between last application and slaughter.
 2. Do not use in combination with any other permethrin product.

Mosquitoes

Where possible, eliminate temporary pools of water to reduce mosquito breeding sites in or near pastures and near animal rearing facilities. Check with local agricultural chemical supplier for mosquito larvicide products to kill mosquito larvae in permanent water bodies in which mosquitoes breed.

Dichlorvos ready-to-use spray (may contain pyrethrins)

- Treatment: Apply 0.2% ready-to-use product as a fine mist at a rate of 30-60 mL/adult cow. Use only enough to wet the ends of hair but not enough to wet the skin. Repeat at daily intervals or as necessary, to give continued protection.
- Important Instructions:
 1. Do not use more often than once a day.
 2. Take care not to spray in animal's eyes or mouth.
 3. Do not contaminate feed, water or foodstuffs.
 4. Any treated surface that may contact food or feed products should be washed thoroughly with potable water after spraying and before re-use.

Pyrethrins ready- to-use sprays

- Treatment: Apply as per label instructions once or twice daily.
- Important Instructions:
 1. Do not contaminate feed or water troughs.
 2. Do not spray over milk or milking equipment.

Stable fly

Dichlorvos ready-to-use spray (may contain pyrethrins)

- Treatment: Apply 0.2% ready-to-use product as a fine mist at a rate of 30-60 mL/adult cow. Use only enough to wet the ends of hair but not enough to wet the skin. Repeat at daily intervals or as necessary, to give continued protection.
- Important Instructions:
 1. Do not use more often than once a day.
 2. Take care not to spray in animal's eyes or mouth.
 3. Do not contaminate feed, water or foodstuffs.
 4. Any treated surface that may contact food or feed products should be washed thoroughly with potable water after spraying and before re-use.

Pyrethrins ready-to-use sprays

- Treatment: Apply as per label instructions once or twice daily.
- Important Instructions:

1. Do not contaminate feed or water troughs.
2. Do not spray over milk or milking equipment.

Rocky mountain wood tick

Permethrin ready-to-use pour-on

- Treatment: Apply along backline and down face at 3 mL of a 5% ready-to-use pour-on/45 kg (100 lbs) body weight up to a maximum of 30 mL/animal, taking care to avoid the eyes and mouth. May also be applied to the face using a cloth slightly moistened with the product. Repeat treatment as needed but not more than once every two weeks.
- Important Instructions:
 1. Leave a one day interval between last application and slaughter.
 2. Do not use in combination with any other permethrin product.

Winter tick

Carbaryl whole body spray

- Treatment: Mix 1.2 L Sevin XLR Plus/100 L water or 1.0 kg Sevin Brand 50W /100 L water. Apply up to 4.5 L/animal using high-pressure spray. Repeat as necessary, but not more often than twice weekly.
- Important Instructions:
 1. Do not apply to livestock within 7 (WP) or 11 (XLR) days before slaughter.
 2. Avoid contamination of feed and water troughs.

Farm Buildings

Fowl Tick (Poultry houses)

Carbaryl surface spray

- Treatment: Mix 4.2 L Sevin XLR Plus/100 L water or 4.0 kg Sevin Brand 50W/100 L water and spray 5 - 10 L/100 m² of wall, litter and roost surface. Force into cracks and crevices. Repeat as necessary. Also controls bed bugs, fleas and chicken mites.
- Important Instructions
 1. Do not apply to livestock, poultry, or poultry nest litter within 7 days before slaughter.
 2. Avoid contamination of nests, eggs, feed and water troughs.
 3. Ventilate during treatment.

Tetrachlorvinphos surface spray

- Treatment: For 1% spray, mix 1 kg 50% WP/50 L of water. Apply 3-4 L/10 m² thoroughly to walls, ceilings, floor cracks and crevices with a power sprayer.
- Important Instructions:
 1. Remove birds before spraying.

House Fly

Insecticides provide only temporary relief from the annoyance of house flies. The most effective means of controlling house flies is to eliminate breeding materials (animal bedding, moist manure, spoiled grain and forage) at 10-day maximum intervals from such sites as in calf hutches, under feed bunks and fences, under slatted floors, in and around feed and silage storages, etc.

Consider placing granular bait products in tamper-proof bait stations placed where flies congregate to minimize exposure to animals and people. An alternative application method is to apply a 50:50 mixture of syrup and wood glue to 15 cm x 30 cm pieces of wood. When the surface is tacky, cover it with the dry bait, and place the boards where house flies congregate.

Always use a control product with a different group number for each pesticide application to prevent the development of pesticide resistance. The table at the end of this Guide lists the control products with their active ingredient (chemical name) and group number.

There are also non-chemical alternatives such as sticky fly strips, baited fly traps and electrocuting devices that will help reduce fly nuisance under low fly pressure. They will not control fly levels.

Another non-chemical control method to supplement chemical treatments and traps is the regular release of parasitic wasps to kill fly pupae in fly breeding materials. The following table lists various species of parasitic wasps produced in North America for the biological control house flies, and the companies that produce and sell them.

This list was obtained from the publication *Guidelines for Purchasing and Using Commercial Natural Enemies and Biopesticides in North America* by Lynn M. LeBeck and Norman C. Leppla, Entomology and Nematology Department, UF/IFAS Extension, Gainesville, FL 32611. Document IPM-146 (IN849), August 2015.

Species	Suppliers
<i>Muscidifurax raptor</i> (flies in garbage, manure, and compost)	Beneficial Insectary (Guelph, ON) • Natural Insect Control (Stevensville, ON) • Entomology Solutions (Louisville, KY) • Anatis Bioprotection (Quebec) • IPM Laboratories (Locke, NY)
<i>Muscidifurax raptorellus</i> (flies in garbage, manure, and compost)	Anatis Bioprotection • Tip Top Bio-Control (California) • ARBICO (Arizona) • Spalding Laboratories (California) • Entomology Solutions • Green Methods (California) • Evergreen Growers Supply (Oregon) • Natural Insect Control • Beneficial Insectary • IPM Laboratories • Rincon-Vitova (California) • Koppert (Canada)
<i>Muscidifurax zaraptor</i> (flies in garbage, manure, and compost)	Evergreen Growers Supply • Buglogical Control Systems (Arizona) • Natural Insect Control • Beneficial Insectary • Rincon-Vitova • Green Methods • Entomology Solutions • Spalding Laboratories • ARBICO
<i>Muscidifurax</i> spp. (flies in garbage, manure, and compost)	Beneficial Insectary • Entomology Solutions • Rincon-Vitova • IPM Laboratories • ARBICO • Green Methods
<i>Nasonia vitripennis</i> (flies in garbage, manure, and compost)	ARBICO • Buglogical Control Systems
<i>Spalangia cameroni</i> (flies in garbage, manure, and compost)	Spalding Laboratories • Entomology Solutions • Rincon-Vitova • Beneficial Insectary • Green Methods • Evergreen Growers Supply
<i>Spalangia endius</i> (flies in garbage, manure, and compost)	Kunafin (Texas) • Entomology Solutions • Beneficial Insectary

***Beauveria bassiana* HF 23 (Sspension)**

- Treatment: For controlling flies in poultry houses, apply at a rate of 9.5 to 16 mL product per 100 m². Apply the spray to walls, floor, posts and manure concentrating areas where the greatest numbers of flies are located. This is a contact infection material with greatest efficacy against adult flies.
- Important Instructions:
 1. Do not use a sprayer with a filter or screen smaller than 50 microns which would prevent the active ingredient from passing.

2. Re-treat at intervals of 2 to 7 days as long as pest pressure persists.
3. Store in a cool, dry place at a room temperature not exceeding 27°C.
4. Do not store for longer than 14 months from the date of manufacture.

***Beauveria bassiana* HF 23 (Fly Bait)**

- Treatment:
 - Scatter bait- onto window sills and other areas where flies congregate at a rate of 125 g per 46 m² of area. Apply only to areas out of reach of animals. Reapply as needed to reduce fly populations.
 - Bait stations- Place fly bait in bait stations, bait pans, or trays in areas where flies congregate at a rate of 125 g per 46 m² of area. Bait stations must be hung above head level out of contact from animals or placed on floor in areas out of reach of animals. Bait should be replaced every 5 to 7 days.
- Important Instructions:
 1. Store in a cool, dry place in original container and out of direct sunlight at temperatures not exceeding 27°C.
 2. Do not store for longer than 14 months from the date of manufacture.

Cyfluthrin surface spray

- Treatment: Mix 9.5 - 19 g (1-2 scoops) of 20% WP product in 3.75 L water to make a suspension. One level scoop or 4 level teaspoons contain 9.5 grams of 20% WP product. Apply to 100 m² of surface using a low pressure sprayer. Applications can be made to all fly resting surfaces.
- Important instructions
 1. Do not apply when animals are present.
 2. Do not allow cattle to re-enter facilities within 2 hours following application.
 3. Do not allow poultry to re-enter facilities within 24 hours following application.
 4. Apply only in well-ventilated areas.
 5. Do not apply as a space spray.
 6. Cover water bowls and feed troughs in dairies.
 7. Do not apply directly to water bowls and feed troughs.

Dichlorvos surface spray

- Treatment: Mix 25 mL 20% EC/L water and apply as a course wet spray to areas where flies gather. Use about 5 L/100 m². Repeat weekly if necessary.
- Important instructions:
 1. Remove animals and close doors and windows before spraying.
 2. Ventilate thoroughly before returning animals.
 3. Apply only when dairy not in operation.
 4. Do not use in rooms where milk is processed, handled, or stored.
 5. Do not contaminate feed, water, or litter.

Dichlorvos space spray

- Treatment: Using a non-thermal mist fogger, apply 100 mL 2% ready-to-use product/100 m³. Repeat weekly if necessary. Keep areas closed for 10-20 minutes after application.
- Important instructions:
 1. Remove animals and close doors and windows before spraying.
 2. Ventilate thoroughly before returning animals.
 3. Apply only when dairy not in operation.
 4. Do not use in rooms where milk is processed, handled, or stored.
 5. Do not contaminate feed, water, or litter.

Dimethoate surface spray

- Treatment: Mix 200-250 mL 48% EC/10 L water. Apply 5-10 L/100 m² of surface, or to point of run-off, where flies congregate. Repeat as necessary.
- Important instructions:
 1. Remove livestock and poultry before spraying.
 2. Do not use in rooms where milk is processed, handled or stored.
 3. Do not contaminate feed or feed troughs, water troughs/waters or litter.
 4. Do not use in dwellings.

Imidacloprid with muscalure dry bait

- Treatments: Begin treatments when the first house flies are noticed.
 - Scatter 200 g QuickBayt Granular Fly Bait per 100 m² of dry level surfaces where flies congregate but not in areas accessible to livestock, pets and children or near ventilation fans.
 - Place 50 g QuickBayt Granular Fly Bait in a tamper-resistant fly bait station; suspend a station at least 1.25 m above each 1.25 m² of floor area.
- Important Instructions:
 1. Do not scatter bait in horse stables.
 2. Do not apply inside food processing plants, restaurants or other commercial facilities.
 3. Do not allow bait to come into contact with food or water, livestock feed or their water.
 4. Do not apply to milking equipment.

Lambda-cyhalothrin surface spray

- Treatment: Mix 30 mL Saber ER/10 L water and apply as a course spray to run-off on surfaces where flies congregate. Re-apply as necessary.
- Important Instructions:
 1. Remove animals before spraying, and return when dry.
 2. Do not contaminate feed or water troughs.
 3. Do not spray over milk or milking equipment.

Malathion surface spray

- Treatment: Mix 2-4 L 50% EC/200 L water. Spray walls and ceilings to point of run-off. Repeat after 2 to 3 weeks as required. Attractants such as molasses, syrup or sugar may be used at the rate of 10 L per 500 L of water.
- Important instructions:
 1. Wait 14 days before applying to freshly whitewashed surfaces.
 2. Do not treat dairy barns.
 3. Do not contaminate feed or water.

Methomyl with tricosene bait

- Treatment: Scatter bait at rate of 250 g/100 m² on areas such as window sills and other areas where flies congregate. Scatter daily or as necessary. Or place bait station or bait-treated boards where flies congregate (see introduction to chapter).
- Important instructions:
 1. Do not use in dwellings.
 2. Do not use in rooms where milk is processed, handled, or stored.
 3. Do not contaminate feed, water, food or litter.
 4. For use in dog kennels and fur-bearing animal units.

Permethrin surface spray

- Treatment: Mix 40 mL 24% EC or 25 mL 38% EC/5 L water. Apply to areas where flies gather at rate of 2.5 L/100 m² of surface or just to point of run-off.
- Important instructions:
 1. Do not apply as a space spray.
 2. Do not apply directly to animals or poultry.
 3. Do not contaminate feed, water, feeding or watering troughs.
 4. Thoroughly clean all milk utensils or equipment before resuming operation.
 5. Alternate with products from other chemical groups to avoid resistance development.

Pyrethrins ready-to-use sprays

- Treatment: Apply as per label instructions. Leave room closed for 10 - 15 minutes before ventilating.
- Important instructions:
 1. Do not contaminate feed or water troughs.
 2. Do not spray over milk or milking equipment.

Tetrachlorvinphos surface spray

- Treatment: To prepare 1-2% spray, mix 1 - 2 kg 50% WP/50 L of water. Apply about 8 L/100 m² of surface area where flies congregate. Use 2% spray on white-washed wood and concrete surfaces. Repeat as necessary.
- Important instructions:

1. Do not use in milk processing rooms.
2. Do not apply in combination with whitewash.
3. Do not treat freshly whitewashed surfaces.
4. Do not contaminate feed, water or litter.

Thiamethoxam with tricosene (dry bait)

- Treatment: Scatter bait at a rate of 200 g per 100 m² over fly feeding areas and where flies congregate. Or place bait station or bait-treated boards where flies congregate (see introduction to chapter).
- Important instructions:
 1. Do not use in milk processing rooms.
 2. Do not apply in combination with whitewash.
 3. Do not treat freshly whitewashed surfaces.
 4. Do not contaminate feed, water or litter.

Thiamethoxam with tricosene (wetable granules)

- Treatment (paint-on): Mix 125 g product in 100 mL of warm water and paint mixture on surfaces only where flies congregate. Stir occasionally during application. Alternatively, paint the mixture on strips of cardboard, wood or light boards and hang them from the ceiling in locations not accessible to people or animals. Repeat applications as necessary.
- Treatment (spray-on): Mix 125 g product in 1000 mL (1 L) of warm water and apply as a course spray only to surfaces where flies congregate. Repeat applications as necessary.
- Important instructions:
 1. Do not apply to glass, porous, dirty or newly whitewashed surfaces.
 2. Do not contaminate feed, water or litter.
 3. Do not use on walkways used by animals or on any surfaces that may be routinely contacted by people or pets.
 4. Do not apply bait where animals can lick the product.

Lesser mealworm (Darkling beetles)

Before applying residual sprays, ensure all spoiled grain and feed, litter and other debris are removed between batches of birds. Remove all grain and feed under the floors which can harbour beetles between batches.

***Beauveria bassiana* HF 23 (Suspension)**

- Treatment: Apply product at a rate of 4 mL/m² in sufficient water to ensure uniform coverage over the treated area. Apply the spray to walls, floor, posts where the greatest numbers of pests are located. This is a contact infection material.
- Important Instructions:

1. Re-treat between flocks or in areas where beetles accumulate.
2. Store in a cool, dry place in original container and out of direct sunlight at temperatures not exceeding 27°C.
3. Do not store for longer than 14 months from the date of manufacture.

***Beauveria bassiana* HF 23 (Beetle Bait)**

- Treatment: Apply bait under feed lines and feed pans at a rate of 8.9 to 17.8 grams per square meter using a drop spreader or hand shaker to a maximum of 10.88 kg of bait per house. Application should be made prior to bird placement. Re-treatment may be necessary if beetle numbers are high at the start of a flock and should be done in 4 week intervals.
- Important Instructions:
 1. Store in a cool, dry place in original container and out of direct sunlight at temperatures not exceeding 27°C.
 2. Do not store for longer than 12 months from the date of manufacture.

Carbaryl surface spray

- Treatment: Mix 1.3 L Sevin XLR Plus/100 L water or 1.25 kg Sevin brand 50W/100 L water. Spray 5 - 10 L/ 100 m² of floor space. In broiler houses, repeat after each batch of birds.
- Important instructions:
 1. Do not apply to livestock, poultry, or poultry nest litter within 7 days before slaughter.
 2. Avoid contamination of nests, eggs, feed and water troughs.
 3. Ventilate during treatment.

Cyfluthrin surface spray

- Treatment: Mix 9.5 - 19 g (1-2 scoops) of 20% WP product in 3.75 L water to make a suspension. One level scoop or 4 level teaspoons contain 9.5 grams of 20% WP product. Apply to 100 m² of surface using a low pressure sprayer. Applications can be made to all fly resting surfaces.
- Important instructions
 1. Do not apply when animals are present. Do not allow cattle to re-enter facilities within 2 hours following application.
 2. Do not allow poultry to re-enter facilities within 24 hours following application.
 3. Apply only in well-ventilated areas.
 4. Do not apply as a space spray.
 5. Cover water bowls and feed troughs in dairies.
 6. Do not apply directly to water bowls and feed troughs.
 7. Allow sprays to dry before restocking areas.

Tetrachlorvinphos surface spray

- Treatment: To prepare a 1-2 % spray, mix 0.5 - 1 kg 50% WP/50 L of water. Apply about 1-4 L/100 m² of surface area where flies congregate. Use 2% spray on white-washed wood and concrete surfaces. Repeat as necessary.
- Important instructions:
 1. Do not use in milk processing rooms.
 2. Do not apply in combination with whitewash.
 3. Do not treat freshly whitewashed surfaces.
 4. Do not contaminate feed or water.

Thiamethoxam + tricosene wettable granules

- Treatment (spray-on): Mix 125 g product in 1000 mL (1 L) of warm water and apply as a course spray in a single 1 metre-wide band at a rate of 4 g per m² (about 1 L per 15m²) along all sides of broiler house. All cracks and crevices should be thoroughly wetted to ensure contact of product with beetles returning to the new litter.
- Important instructions:
 1. Apply after cleaning the facility and replacement of litter, but just before the house is heated and stocked.
 2. Do not contaminate feed and water.

Mites, Fleas, Beg Bugs, Lice

Carbaryl surface spray

- Treatment: Mix 1.2L Sevin XLR Plus/100 L water or 1.0 kg Sevin brand 50W/100 L water. Apply 5 - 10 L/100 m² of wall, litter or roost surface. Force spray into cracks and crevices. Repeat as necessary.
- Important instructions:
 1. Do not apply to livestock, poultry, or poultry nest litter within 7 (WP) or 11 (XLR) days before slaughter.
 2. Avoid contamination of nests, eggs, feed and water troughs.
 3. Ventilate during treatment.

Malathion surface spray

- Treatment: Mix 525 mL 50% EC/10 L water (0.3%) for lice and 175 mL 50% EC/10 L water (0.1%) for mite control. Apply thoroughly to floors, litter, nests and roosts. May be used on shipping crates after use. Repeat as necessary.
- Important instructions:
 1. Do not contaminate feed or water.
 2. Do not apply directly to birds.

3. Do not apply to poultry within one week of slaughter.

Nuisance Insects (Gnats, Flies, Mosquitoes)

Where possible, eliminate temporary pools of water to reduce mosquito breeding sites in or near pastures and near animal rearing facilities. Check with local agricultural chemical supplier for mosquito larvicide products to kill mosquito larvae in permanent water bodies in which mosquitoes breed.

Cyfluthrin surface spray

- Treatment: Mix 9.5 - 19 g (1-2 scoops) of 20% WP product in 3.75 L water to make a suspension. One level scoop or 4 level teaspoons contain 9.5 grams of 20% WP product. Apply to 100 m² of surface using a low pressure sprayer. Applications can be made to all fly resting surfaces.
- Important instructions
 1. Do not apply when animals are present. Do not allow cattle to re-enter facilities within 2 hours following application.
 2. Do not allow poultry to re-enter facilities within 24 hours following application.
 3. Apply only in well-ventilated areas.
 4. Do not apply as a space spray.
 5. Cover water bowls and feed troughs in dairies.
 6. Do not apply directly to water bowls and feed troughs.
 7. Allow sprays to dry before restocking areas.

Dichlorvos surface spray

- Treatment: Mix 25 mL 20% EC/L water and apply as a course wet spray to areas where insects gather. Use about 5 L/100 m². Remove animals and close doors and windows before spraying. Repeat weekly if necessary.
- Important instructions:
 1. Remove animals and close doors and windows before spraying.
 2. Ventilate thoroughly before returning animals.
 3. Apply only when dairy not in operation.
 4. Do not use in rooms where milk is processed, handled, or stored.
 5. Do not contaminate feed, water, or litter.

Malathion surface spray

- Treatment: Mix 2-4 L 50% EC/200 L water. Spray walls and ceilings to point of run-off. Repeat after 2 to 3 weeks as required. Attractants such as molasses, syrup or sugar may be used at the rate of 10 L per 500 L of water.
- Important instructions:
 1. Wait 14 days before applying to freshly whitewashed surfaces.

2. Do not treat dairy barns.
3. Do not contaminate feed or water.

Pyrethrins ready-to-use sprays

- Treatment: Apply as per label instructions. Close doors and windows. Leave room closed 10 minutes before ventilating.
- Important instructions:
 1. Do not contaminate feed or water troughs.
 2. Do not spray over milk or milking equipment.

Stable Fly

Cyfluthrin surface spray

- Treatment: Mix 9.5 - 19 g (1-2 scoops) of 20% WP product in 3.75 L water to make a suspension. One level scoop or 4 level teaspoons contain 9.5 grams of 20% WP product. Apply to 100 m² of surface using a low pressure sprayer. Applications can be made to all fly resting surfaces.
- Important instructions:
 1. Do not apply when animals are present.
 2. Do not allow cattle to re-enter facilities within 2 hours following application.
 3. Do not allow poultry to re-enter facilities within 24 hours following application.
 4. Apply only in well-ventilated areas.
 5. Do not apply as a space spray.
 6. Cover water bowls and feed troughs in dairies.
 7. Do not apply directly to water bowls and feed troughs.
 8. Allow sprays to dry before restocking areas.

Dichlorvos surface spray

- Treatment: Mix 25 mL 20% EC/L water and apply as a course wet spray to areas where insects gather. Use about 5 L/100 m². Remove animals and close doors and windows before spraying. Repeat weekly if necessary.
- Important instructions:
 1. Remove animals and close doors and windows before spraying.
 2. Ventilate thoroughly before returning animals.
 3. Apply only when dairy not in operation.
 4. Do not use in rooms where milk is processed, handled, or stored.
 5. Do not contaminate feed, water, or litter.

Malathion surface spray

- Treatment: Mix 2-4 L 50% EC/200 L water. Spray walls and ceilings to point of run-off. Repeat after 2 to 3 weeks as required. Attractants such as molasses, syrup or sugar may be used at the rate of 10 L per 500 L of water.
- Important instructions:
 1. Wait 14 days before applying to freshly whitewashed surfaces.
 2. Do not treat dairy barns.
 3. Do not contaminate feed or water.

Permethrin surface spray

- Treatment: Mix 40 mL 24% EC or 25 mL 38% EC/5 L water. Apply to areas where flies gather at rate of 2.5 L/100 m² of surface or just to point of run-off.
- Important instructions:
 1. Do not apply as a space spray.
 2. Do not apply directly to animals or poultry.
 3. Do not contaminate feed, water, feeding or watering troughs.
 4. Thoroughly clean all milk utensils or equipment before resuming operation.

Goats (Non-Lactating)

Lice

Carbaryl whole body spray

- Treatment: Mix 1.2 L Sevin XLR Plus/100 L water or 1.0 kg Sevin Brand 50W or 50W/100 L water. Apply up to 4.5 L/animal using high-pressure spray. Repeat if necessary at intervals of 14 to 18 days.
- Important Instructions:
 1. Do not apply to livestock within 11 days of slaughter.
 2. Avoid contamination of feed and water troughs.

Winter Ticks

Carbaryl whole body spray

- Treatment: Mix 1.2 L Sevin XLR Plus/100 L water, or 1.0 kg Sevin Brand 50W or 50 W/100 L water. Apply up to 4.5 L/animal using high-pressure spray. Repeat as necessary, but not more often than twice weekly.
- Important Instructions:
 1. Do not apply to livestock within 7 (WP) or 11 (XLR) days before slaughter.
 2. Avoid contamination of feed and water troughs.

Goats (Lactating)

Lice

Carbaryl whole body spray

- Treatment: Mix 1.0 kg 50W/100 L water. Apply up to 4.5 L/animal using high-pressure spray. Repeat if necessary but not more often than twice weekly.
- Important Instructions:
 1. Avoid contamination of feed and water troughs.
 2. Do not apply to livestock within 7 days before slaughter.
 3. Strictly avoid direct applications to underline and udder. Apply immediately after milking, and wash udder thoroughly before next milking. Do not contaminate milk utensils.

Winter Ticks

Carbaryl whole body spray

- Treatment: Mix 1.0 kg 50 W/100 L water. Apply up to 4.5 L/animal using high-pressure spray. Repeat as necessary, but not more often than twice weekly.
- Important Instructions:
 1. Do not apply to livestock within 7 (WP) or 11 (XLR) days before slaughter.
 2. Avoid contamination of feed and water troughs.
 3. Strictly avoid direct applications to underline and udder. Apply immediately after milking, and wash udder thoroughly before next milking. Do not contaminate milk utensils.

Horses

Black flies

Providing horses with shelters or a raised knoll in the pasture will help them escape some black fly pressure. Avoid introducing horses not previously exposed to black flies into an area during a period of high black fly activity.

Permethrin ready-to-use spray

- Treatment: Spray 0.5% ready-to use product about 3 seconds on each side of body being careful to spray back, withers and forelegs thoroughly. Repeat treatment daily as necessary. Will aid in repelling mosquitoes.
- Important Instructions:
 1. If a horse develops skin irritation after use, cease using this product and consult a veterinarian.
 2. Do not saturate the hair or soak skin.

Face fly

Permethrin ready-to-use spray

- Treatment: Spray 0.5% ready-to-use product about 3 seconds on each side of body being careful to spray back, withers and forelegs thoroughly. Repeat treatment daily as necessary. Will aid in repelling mosquitoes.

- Important Instructions:
 1. Do not spray animal's face, eyes or genitals.
 2. Avoid spraying the eyes, nose or mouth.
 3. Do not saturate the hair or soak skin.
 4. Not to be used on newborn or nursing foals.
 5. Do not apply to back of animal prior to saddling.

Permethrin ready-to-use foam spray

- Treatment: Apply 0.5% ready-to-use foam to a soft cloth and spread about face and other body regions where flies gather such as back, belly, ear and leg regions where the specific attacking insects feeds. Repeat treatment daily if necessary. Will aid in repelling mosquitoes.
- Important Instructions:
 1. Do not spray animal's face, eyes or genitals.
 2. Avoid putting the foam in eyes, nose or mouth.
 3. Do not saturate the hair or soak skin.
 4. Not to be used on newborn or nursing foals.
 5. Do not apply to back of animal prior to saddling.

Horn fly

Carbaryl whole body spray

- Treatment: Mix 1.2 L Sevin XLR Plus/100 L water or 1.0 kg Sevin brand 50W/100 L water. Apply up to 4.5 L/animal using high-pressure spray. Repeat as necessary, but not more often than twice weekly.
- Important Instructions:
 1. Do not apply within 7 (WP) or 11 (XLR) days of slaughter.
 2. Avoid contamination of feed and water troughs.

Permethrin ready-to-use spray

- Treatment: Spray 0.5% ready-to use product about 3 seconds on each side being careful to spray back, withers and forelegs thoroughly. Repeat treatment daily as necessary. Will aid in repelling mosquitoes.
- Important Instructions:
 1. Do not spray animal's face, eyes or genitals.
 2. Avoid spraying the eyes, nose or mouth.
 3. Do not saturate the hair or soak skin.
 4. Not to be used on newborn or nursing foals.
 5. Do not apply to back of animal prior to saddling.

Permethrin ready-to-use foam spray

- Treatment: Apply 0.5% ready-to-use foam to a soft cloth and spread about face and other body regions where flies gather such as back, belly, ear and leg regions where the specific attacking insects feeds. Repeat treatment daily if necessary. Will aid in repelling mosquitoes.
- Important Instructions:
 1. Do not spray animal's face, eyes or genitals.
 2. Avoid putting the foam in eyes, nose or mouth.
 3. Do not saturate the hair or soak skin.
 4. Not to be used on newborn or nursing foals.
 5. Do not apply to back of animal prior to saddling.

Horse flies

Permethrin ready-to-use spray

- Treatment: Spray 0.5% ready-to use product about 3 seconds on each side of body being careful to spray back, withers and forelegs thoroughly. Repeat treatment daily as necessary. Will aid in repelling mosquitoes.
- Important Instructions:
- Important Instructions:
 1. Do not spray animal's face, eyes or genitals.
 2. Avoid spraying the eyes, nose or mouth.
 3. Do not saturate the hair or soak skin.
 4. Not to be used on newborn or nursing foals.
 5. Do not apply to back of animal prior to saddling.

Permethrin ready-to-use foam spray

- Treatment: Apply 0.5% ready-to-use foam to a soft cloth and spread about face and other body regions where flies gather such as back, belly, ear and leg regions where the specific attacking insects feeds. Repeat treatment daily if necessary. Will aid in repelling mosquitoes.
- Important Instructions:
 1. Do not spray animal's face, eyes or genitals.
 2. Avoid putting the foam in eyes, nose or mouth.
 3. Do not saturate the hair or soak skin.
 4. Not to be used on newborn or nursing foals.
 5. Do not apply to back of animal prior to saddling.

Pyrethrins ready-to-use sprays

- Treatment: Follow label instructions. Avoid contact with eyes, nose and muzzle. Do not saturate the hair or soak skin. Repeat as necessary.
- Important instructions:
 1. Do not contaminate feed or water troughs.

Lice

Carbaryl whole body spray

- Treatment: Mix 1.2 L Sevin XLR Plus/100 L water or 1.0 kg Sevin brand 50W/100 L water. Apply up to 4.5 L/animal using high-pressure spray. Repeat if necessary at intervals of 14 to 18 days.
- Important Instructions:
 1. Do not apply to animals within 7 (WP) or 11 (XLR) days of slaughter.
 2. Avoid contamination of feed and water troughs.

Mosquitoes

Where possible, eliminate temporary pools of water to reduce mosquito breeding sites in or near pastures and near animal rearing facilities. Check with local agricultural chemical supplier for mosquito larvicide products to kill mosquito larvae in permanent water bodies in which mosquitoes breed.

Pyrethrins ready-to-use sprays

- Treatment: Follow label instructions. Avoid contact with eyes, nose and muzzle. Do not saturate the hair or soak skin. Repeat as necessary.
- Important instructions:
 1. Do not contaminate feed or water troughs.

Stable fly

Pyrethrins ready-to-use sprays

- Treatment: follow 1 label instructions. Avoid contact with eyes, nose and muzzle. Do not saturate the hair or soak skin. Repeat as necessary.
- Important instructions:
 1. Do not contaminate feed or water troughs.

Permethrin ready-to-use foam spray

- Treatment: Apply 0.5% ready-to-use foam to a soft cloth and spread about face and other body regions where flies gather such as back, belly, ear and leg regions where the specific attacking insects feeds. Repeat treatment daily if necessary. Will aid in repelling mosquitoes.
- Important Instructions:
 1. Do not spray animal's face, eyes or genitals.
 2. Avoid putting the foam in eyes, nose or mouth.
 3. Do not saturate the hair or soak skin.
 4. Not to be used on newborn or nursing foals.
 5. Do not apply to back of animal prior to saddling.

Winter tick

Carbaryl whole body spray

- Treatment: Mix 1.2 L Sevin XLR Plus/100 L water or 1.0 kg Sevin brand 50W/100 L water. Apply up to 4.5 L/animal using high-pressure spray. Repeat as necessary, but not more often than twice weekly.
- Important Instructions:
 1. Do not apply to livestock within 7 (WP) or 11 (XLR) days before slaughter.
 2. Avoid contamination of feed and water troughs.

Poultry

Fleas

Carbaryl bird spray

- Treatment: Mix 1.2 L Sevin XLR Plus/100 L water or 1.0 Sevin brand 50W/100 L water. Apply 4.5 L/100 birds using low-pressure equipment. Repeat in 4 to 8 weeks as necessary.
- Important instructions:
 1. Do not apply to poultry or poultry nest litter within 7 (WP) or 11 (XLR) days before slaughter.
 2. Avoid contamination of nests, eggs, feed and water troughs.
 3. Do not treat birds with respiratory or other ailments as they may be irritated by dust.

Lice

Carbaryl bird spray

- Treatment: Mix 1.2 L Sevin XLR Plus/100 L water or 1.0 Sevin brand 50W/100 L water.. Apply 4.5 L/100 birds using low-pressure equipment. Repeat in 4 to 8 weeks as necessary.
- Important instructions:
 1. Do not apply to poultry or poultry nest litter within 7 (WP) or 11 (XLR) days before slaughter.
 2. Avoid contamination of nests, eggs, feed and water troughs.
 3. Do not treat birds with respiratory or other ailments as they may be irritated by dust.

Malathion surface spray

- Treatment: Mix 525 mL 50% EC/10 L water and apply thoroughly to floors, litter, nests and roosts. May be used on shipping crates after use. Repeat as necessary.
- Important instructions:
 1. Do not contaminate feed or water.
 2. Do not apply directly to birds.
 3. Do not apply to poultry within one week of slaughter.

Northern fowl mite and Chicken mite

Carbaryl bird spray

- Treatment: Mix 1.2 L Sevin XLR Plus/100 L water or 1.0 kg Sevin brand 50W/100 L water Apply 4.5 L/100 birds using low-pressure equipment. Repeat in 4 to 8 weeks as necessary.
- Important instructions:
 1. Do not apply to poultry or poultry nest litter within 7 (WP) or 11 (XLR) days before slaughter.
 2. Avoid contamination of nests, eggs, feed and water troughs.
 3. Do not treat birds with respiratory or other ailments as they may be irritated by dust.

Malathion surface spray

- Treatment: Mix 175 mL 50% EC/10 L water and apply thoroughly to floors, litter, nests and roosts. May be used on shipping crates after use. Repeat as necessary.
- Important instructions:
 1. Do not contaminate feed or water.
 2. Do not apply directly to birds.
 3. Do not apply to poultry within one week of slaughter.

Permethrin bird spray

- Treatment: Mix 200 mL of 25% EC or 125 mL 38% EC/100 L water. Apply 4 L/100 birds. Spray from below to ensure thorough treatment of the vent area.
- Important instructions:
 1. Do not treat within 7 days of slaughter.

Tetrachlorvinphos surface spray

- Treatment: To prepare a 0.5% spray, mix 1 kg 50% WP/100 L of water. Apply directly to birds (4 L/100 birds). Spray vent and fluff areas from below. Repeat when necessary, but not more often than once every 14 days. For individual bird treatment, apply 30 mL/bird.
- Important instructions:
 1. Treat roosters carefully to avoid re-infestation of breeding flocks.
 2. For maximum control of northern fowl mite, penetration of feathers around vent area is essential. Use power sprayer at 7-9 kg/sq. cm. at no less than recommended pressure.

Sheep

Lice

Carbaryl whole body spray

- Treatment: Mix 1.2 L Sevin XLR Plus/100 L water or 1.0 kg Sevin Brand 50W/100 L water.. Apply up to 4.5 L/animal using high-pressure spray. Repeat if necessary at intervals of 14 to 18 days.
- Important Instructions:
 1. Do not apply within 7 (WP) or 11 (XLR) days of slaughter.
 2. Avoid contamination of feed and water troughs.

Sheep Ked

Permethrin whole-body spray

- Treatment: Mix 200 mL 24% EC/50 L water or 125 mL 38% EC/50 L water. Spray entire animal thoroughly in fall or winter before lambing and shearing
- Important Instructions:
 1. Do not apply more than 150 mL/animal.
 2. Do not apply more than once per year.
 3. Do not treat sick animals.
 4. Do not contaminate feed, water or bedding.
 5. Do not treat within 90 days of slaughter.

Nasal bot fly

Ivermectin ready-to-use injectable solution

- Treatment: Administer 1% ready-to-use injectable solution by subcutaneous injection at a dosage of 1 mL/50 kg body weight to a maximum of 10 mL/injection site. Inject under the loose skin in front of or behind the shoulder using a sterile 16 gauge, 15 - 20 mm needle.
- Important Instructions:
 1. Treated cattle must not be slaughtered for use in food for at least 35 days after the last treatment.
 2. Not for use in ewes where milk is to be used for human consumption.
 3. Do not administer intravenously or intramuscularly.

Winter ticks

Carbaryl whole body spray

- Treatment: Mix 1.2 L Sevin XLR Plus/100 L water or 1.0 kg Sevin Brand 50W/100 L water. Apply up to 4.5 L/animal using high-pressure spray. Repeat as necessary, but not more often than twice weekly.
- Important Instructions:
 1. Do not apply to livestock within 7 (WP) or 11 (XLR) days before slaughter.
 2. Avoid contamination of feed and water troughs.

Swine

Lice

Carbaryl whole body spray

- Treatment: Mix 1.2 L Sevin XLR Plus/100 L water or 1.0 kg Sevin Brand 50W/100 L water. Apply up to 4.5 L/animal using high-pressure spray. Repeat if necessary at intervals of 14 to 18 days.
- Important Instructions:
 1. Do not apply to livestock within 7 (WP) or 11 (XLR) days of slaughter.
 2. Avoid contamination of feed and water troughs.

Doramectin injectable solution (sucking lice only)

- Treatment: Administer the 1% injectable solution by subcutaneous or intramuscular injection at a dosage of 1 mL/34 kg bodyweight to a maximum of 10 mL/injection site. Subcutaneous injections should be administered into the neck region using a sterile 16 to 18 gauge, 13-19 mm needle. Intramuscular injections should be administered into a region of large muscle mass such as in the lateral neck area using a sterile 16 to 18 gauge, 25 – 38 mm needle.
- Important Instructions:
 1. Read label for recommended treatment program for sex and maturity categories of swine.
 2. Treated animals must not be slaughtered for food for at least 62 days after last application.

Ivermectin ready-to-use injectable solution (sucking lice only)

- Treatment: Administer 1% ready-to-use injectable solution by subcutaneous injection at a dosage of 1 mL/33 kg body weight to a maximum of 10 mL/injection site. Inject under the loose skin in front of or behind the shoulder using a sterile 16 gauge, 15 - 20 mm needle.
- Important Instructions:

1. Read label for recommended treatment program for sex and maturity categories of swine.
2. Treated animals must not be slaughtered for use in food for at least 28 days after the last treatment.
3. Do not administer intravenously or intramuscularly.

Sarcoptic mange mites

(Sarcoptes scabiei var. suis)

Doramectin injectable solution

- Treatment: Administer the 1% injectable solution by subcutaneous or intramuscular injection at a dosage of 1 mL/50 kg bodyweight to a maximum of 10 mL/injection site. Subcutaneous injections should be administered into the neck region using a sterile 16 to 18 gauge, 13-19 mm needle. Intramuscular injections should be administered into a region of large muscle mass such as in the lateral neck area using a sterile 16 to 18 gauge, 25 – 38 mm needle.
- Important Instructions:
 1. Treated animals must not be slaughtered for food for at least 62 days after last application.

Ivermectin ready-to-use injectable solution

- Treatment: Administer 1% ready-to-use injectable solution by subcutaneous injection at a dosage of 1 mL/33 kg body weight to a maximum of 10 mL/injection site. Inject under the loose skin in front of or behind the shoulder using a sterile 16 gauge, 15 - 20 mm needle.
- Important Instructions:
 1. Read label for recommended treatment program for sex and maturity categories of swine.
 2. Treated animals must not be slaughtered for use in food for at least 28 days after the last treatment.
 3. Do not administer intravenously or intramuscularly.

Malathion whole body spray

- Treatment: Mix 175 mL 50% EC /10 L water. Apply 2.3 L/animal using high pressure sprayer. Repeat in 12 days if necessary. Avoid eyes, mouth and nose of animals.
- Important instructions:
 1. Do not apply to animals of under one month of age.
 2. Do not apply to livestock within 30 days of slaughter.
 3. Do not apply to animals nursing young.

Index of Livestock/Poultry Insecticides

This index of products does not include all products registered or approved by Health Canada for application to livestock, poultry and farm buildings to control insect and mite pests. It presents a representative sample of products with different formulations and uses of the active ingredients recommended in the Guide. Trade Names of products registered by Health Canada are hyperlinked to the PMRA's Label Search database. The Trade Names listed in the Index are hyperlinked to the [PMRA Product Label Search](#) web site or to [Drugs.com Veterinary Product Database](#) where the labels or label information can be reviewed. The Registration Number or Drug Identification Number (DIN) is provided for each product listed.

Active Ingredient (Group Number)	Trade Name	Registration Number	% Active Ingredient in formulation
<i>Beauveria bassiana</i> HF (23)	Balance ES	28890	1.18% liquid suspension
	Balance Biological Fly Bait	29529	0.095% granules
	Balance ES-Beetle	30545	liquid suspension
	Balance Biological Beetle Bait	30546	granules
Carbaryl (1A)	Sevin Brand 50W	6839	50% wettable powder
	Sevin (veterinary use only)	9042	50% wettable powder
	Sevin (veterinary use only)	9061	5% dust
	Sevin Brand XLR Plus	19531	42.8% liquid suspension
Cypermethrin (3) + diazinon (1B)	Eliminator	24438	6% cypermethrin + 11% diazinon ear tag
Cyfluthrin (3)	CyLence	25674	1% RTU pour-on
	CyLent Gold	26880	10% ear tag
	Tempo 20 WP	25673	20% wettable powder
Diazinon (1B)	Optimizer	25334	21% ear tag
	Protector	23004	20% ear tag
Dichlorvos (1B)	Dichlorvos Plus #1	21824	1% RTU
	DDVP 20	23915	20% liquid concentrate
	Disvap III	28782	0.2% RTU
	Wilson Barn & Livestock Spray	17422	0.2% RTU
Dimethoate (1B)	Cygon 480	8277, 9807	48% liquid concentrate
	Cygon 480-Ag	25650, 25651	48% liquid concentrate
	Lagon 480	9382	48% liquid concentrate
Doramectin	Dectomax Injectable	DIN 02231083	1% injectable solution
Eprinomectin	Eprinex Pour-on	DIN 02237228	0.5% pour-on
Imidacloprid	QuickBayt® Granular Fly Bait	PCP 32234	0.5% fly bait
Ivermectin	Bimectin Injectable	DIN 02275112	1% injectable
	Bimectin Pour-on	DIN 02283123	0.5% pour-on

	<u>Ivomec Injectable</u> <u>Ivomec Pour-On</u> <u>Noromectin Pour-on</u> <u>Noromectin Injectable</u>	DIN 00630470 DIN 00761842 DIN 02248033 DIN 02247349	1% injectable solution 0.5% pour-on 0.5% pour-on 1% injectable solution
Lambda-cyhalothrin (3)	<u>Saber Pour-on</u> <u>Saber Insecticide Ear Tag</u> <u>Saber ER Premise</u>	27829 26646 27954	1% pour-on 10% ear tag 10% liquid concentrate
Malathion (1B)	<u>Malathion 50</u> <u>Co-op Backrubber concentrate</u> <u>Farm & Ranch Backrubber concentrate</u> <u>Oak lake Cattle Backrubber concentrate</u>	13883 18149 23421 27095	50% liquid concentrate 50% liquid concentrate 50% liquid concentrate 50% liquid concentrate
Methomyl (1A)	<u>Fatal Attraction</u> <u>Blue Streak</u> <u>Starbar Premium</u> <u>Stimukil</u>	29428 25358 15176 24969	1% fly bait 1% fly bait 1% fly bait 1% fly bait
Moxidectin	<u>Cydectin Injectable</u> <u>Cydectin Pour-on</u>	DIN 02215713 DIN 02228386	1% injectable 0.5% pour-on
Permethrin (3)	<u>Konk 405</u> <u>Back Rubbing Solution</u> <u>Backline</u> <u>Boss</u> <u>DeLice</u> <u>Disvap V</u> <u>Ectiban 25 Fly Killer</u> <u>Gardstar</u> <u>Incide 25 Fly Killer</u> <u>Lice-X Liquid</u> <u>Lice-Away</u> <u>Lice-X Ultra 5.0</u> <u>Knock Down Fly Killer</u> <u>Pounce 384</u> <u>Sentinel Fly Killer</u> <u>Vetolice</u> <u>Zap-It</u> <u>Bugwacker 240</u>	27681 23249 31712 25488 22681 23029 15701 18686 31895 23777 23777.02 30540 30500 16688 16084 23681 31683 31808	0.5% RTU spray 1% RTU solution 5% pour-on 5% pour-on 1% pour-on 0.1% RTU 24% liquid concentrate 10% ear tag 24% liquid concentrate 1.0% pour-on 1.0% pour-on 5.0% pour-on 0.5% RTU foam 38% liquid concentrate 10% liquid concentrate 1% pour-on 0.5% RTU spray 24% liquid concentration
Pyrethrin (3)	<u>Various labels</u>		ready-to-use sprays and aerosols
Tetrachlorvinphos (1B)	<u>Debantic 50 WP</u> <u>Ectogard</u>	17415 22880	50% wettable powder 14% ear tag
Thiamethoxam (4)	<u>Agita Fly Bait</u> <u>Agita 10 WG</u>	28297 30336	1% Dry bait 10% Wettable granules