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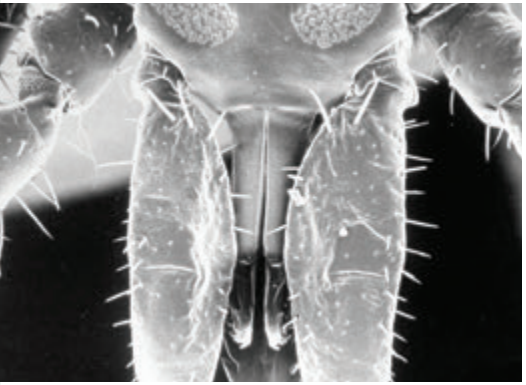
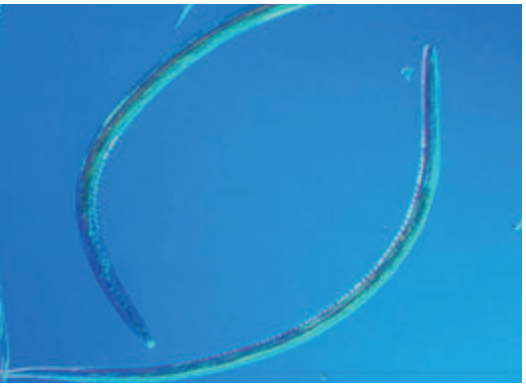
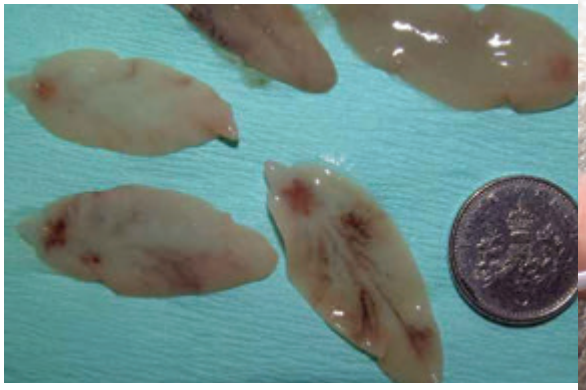
The BRP Cattle and Sheep Parasite Control Product Guide

A comprehensive list of products for the control of internal and external parasites in cattle and sheep







2016

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Parasite Control – getting it right

Choosing the right product and getting the most from it are key factors in ensuring optimum livestock performance for least cost and reducing the risk of anthelmintic resistance.

The aim of this booklet is to provide an accurate, easy-to-use reference guide on all available anti-parasitic products in their various chemical groups and summarising the parasites that they have been licensed to control. Decisions on the choice of product should be discussed with your advisor, vet, Suitable Qualified Person (SQP) or Veterinary Pharmacologist (VP).

What type of wormer should be used?

Anthelmintics (wormers) are used to treat and prevent parasite infections – roundworm, tapeworm, lungworm and liver fluke. These products fall into the following groups:

1. (BZ) Benzimidazoles
2. (LV) Levamisole (Imidazothiazoles)
3. (ML) Macrocyclic lactones, including avermectins and milbemycins
4. (AD) Amino acetonitrile derivatives (Monepantel)
5. (SI) Spiro-indoles (Derquantel available as a Multi-active)

Anthelmintics belonging to these groups are active against the major species of gut roundworms and lungworms. Some will also have activity against liver fluke and tapeworms. ML's (Group 3) injectables and pour-ons also have activity against some ectoparasites.

Other products are more specific in the parasites they will kill, ie narrow spectrum. Most anthelmintics in this category are active against liver fluke or ectoparasites.

Choosing the most appropriate product for the parasites likely, or known, to be present is vital. Targeting the right parasite will give predictable results and may mean re-treatment is less likely to be needed. This may also reduce unnecessary selection pressure for anthelmintic resistance.

Administering wormers (anthelmintics) effectively

When using any medicine or vaccine it is important to read the product label and package insert to ensure you understand how it needs to be administered to the animal. If you do not understand anything or need further information, ask your veterinary surgeon or SQP.

- Choose the most appropriate product for the parasites likely, or known, to be present
- Store wormers in accordance with instructions, usually away from direct sunlight, avoiding extremes of temperature and keep in a fridge if appropriate
- Always read the label before using all products to check that it is suitable for the livestock you want to treat and note any precautions for its use
- Only use a product before its expiry date
- Make sure the dosing equipment is compatible with the product that you are using and check it is clean and measuring the correct volume
- Administer product according to the manufacturer's instructions, paying particular attention to specific methods for ear injections and intra-ruminal boluses
- Dose according to liveweight, as detailed in the manufacturer's instructions
- Ideally all cattle should be weighed individually using scales or a weigh band to ensure they are dosed accordingly to liveweight. However, if a group of well-matched cattle are to be treated together, then it is acceptable to weigh a sample of animals and then treat the group according to this estimate
- Record all wormer products administered (batch number, amount and expiry date), animal identity, treatment dates and withdrawal periods accurately
- Note withdrawal periods for milk and meat and ensure they are adhered to. Be aware that withdrawal periods do not relate to the length of activity of a product (this will be shown elsewhere on the label)
- Do not mix different wormers together or with other products as this can inactivate active ingredients

Before using any product, even if you have used it before, read the product information on the packaging and/or the leaflet inside the pack.

For more information consult the 'data sheet' or the 'summary of product characteristics' (SPC), which contain additional details and any recent changes to specifications, such as withdrawal periods.

Data sheets can be found on **www.noahcompendium.co.uk** and SPCs on **www.vmd.defra.gov.uk** manufacturers can be contacted directly if these sources do not provide the information you are seeking.

For further information on treating dairy cows contact AHDB Dairy at **dairy.ahdb.org.uk** or call **0247 669 2051**.

COWS Control Of Worms Sustainably

www.cattleparasites.org.uk

SCOPS Sustainable Control of Parasites in Sheep

www.scops.org.uk

Treatments for cattle parasite control – Cattle Endoparasiticides

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1-BZ Group 1: Benzimidazoles (BZ) (White)

PRODUCT	COMPANY NAME	CHEMICAL NAME	PARASITES CONTROLLED									USE	TRACE ELEMENTS	WITHDRAWAL PERIOD (MEAT)	MILK WITHHOLD
			Roundworm	Lungworm	Tapeworm	Liver fluke	Mites	Warbles	Lice	Hornflies	Eyeworm				
Albacert	Downland	Albendazole	Yes	Yes	Yes	Yes (adult only)	No	No	No	No	No	Oral Drench	Co, Se	14 days	60 hrs
Albenil 2.5% Oral Suspension	Virbac	Albendazole	Yes	Yes	Yes	Yes (adult only)	No	No	No	No	No	Oral Drench	Co, Se	14 days	60 hrs
Albex 10% Oral Suspension	Chanelle AH	Albendazole	Yes	Yes	Yes	Yes (adult only)	No	No	No	No	No	Oral Drench		14 days	60 hrs
Albex 2.5% SC Oral Suspension	Chanelle AH	Albendazole	Yes	Yes	Yes	Yes (adult only)	No	No	No	No	No	Oral Drench	Co, Se	14 days	60 hrs
Autoworm Finisher	Zoetis	Oxfendazole	Yes	Yes	Yes	No	No	No	No	No	No	Pulse release bolus		6 months	X
Autoworm First Grazer	Zoetis	Oxfendazole	Yes	Yes	Yes	No	No	No	No	No	No	Pulse release bolus		8 months	X
Bovex 2.265%	Chanelle AH	Oxfendazole	Yes	Yes	Yes	No	No	No	No	No	No	Oral Drench		19 days	84 hrs
Endospec 2.5% SC	Bimeda	Albendazole	Yes	Yes	Yes	Yes (adult only)	No	No	No	No	No	Oral Drench	Co, Se	14 days	60 hrs
Endospec 10% SC	Bimeda	Albendazole	Yes	Yes	Yes	Yes (adult only)	No	No	No	No	No	Oral Drench	Co, Se	14 days	60 hrs
Panacur Bolus	MSD AH	Fenbendazole	Yes	Yes	Yes	No	No	No	No	No	No	Bolus		200 days	X
Panacur 10% Oral Suspension	MSD AH	Fenbendazole	Yes	Yes	Yes	No	No	No	No	No	No	Oral Drench/In-Feed		12 days	5 days
Panacur 4% Powder	MSD AH	Fenbendazole	Yes	Yes	Yes	No	No	No	No	No	No	In-Feed/pre-mix		14 days	5 days
Tramazole 2.5% SC	Tulivin Labs	Albendazole	Yes	Yes	Yes	Yes (adult only)	No	No	No	No	No	Oral Drench	Co, Se	14 days	60 hrs
Zerofen 2.5%	Chanelle AH	Fenbendazole	Yes	Yes	No	No	No	No	No	No	No	Oral Drench		14 days	132 hrs
Zerofen 10%	Chanelle AH	Fenbendazole	Yes	Yes	No	No	No	No	No	No	No	Oral Drench		14 days	132 hrs

2-LV Group 2: Levamisole (LV) (Yellow)

PRODUCT	COMPANY NAME	CHEMICAL NAME	PARASITES CONTROLLED									USE	TRACE ELEMENTS	WITHDRAWAL PERIOD (MEAT)	MILK WITHHOLD
			Roundworm	Lungworm	Tapeworm	Fluke	Mites	Warbles	Lice	Hornflies	Eyeworm				
Chanaverm 7.5%	Chanelle AH	Levamisole	Yes	Yes	No	No	No	No	No	No	No	Oral Drench		20 days	X
Levacide 7.5% Solution for Injection	Norbrook Labs	Levamisole	Yes	Yes	No	No	No	No	No	No	No	Injection S/C		28 days	X
Levacide Low Volume 7.5%	Norbrook Labs	Levamisole	Yes	Yes	No	No	No	No	No	No	No	Oral Drench		14 days	X
Levacide Pour-On	Norbrook Labs	Levamisole	Yes	Yes	No	No	No	No	No	No	No	Pour-On		28 days	X
Levamisole Injection	Downland	Levamisole	Yes	Yes	No	No	No	No	No	No	No	Injection S/C		28 days	X
Levacur SC 3%	MSD AH	Levamisole	Yes	Yes	No	No	No	No	No	No	No	Oral Drench		20 days	X

Check product labels for full and final details

X = not for use in cattle producing milk for human consumption

Cattle Endoparasiticides and Ectoparasiticides

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3-ML Group 3: Macrocyclic Lactones (ML) (Clear)

PRODUCT	COMPANY NAME	CHEMICAL NAME	PARASITES CONTROLLED									USE	WITHDRAWAL PERIOD (MEAT)	MILK WITHHOLD
			Roundworm	Lungworm	Tapeworm	Liver fluke	Mites	Warbles	Lice	Hornflies	Eyeworm			
Animec 1% Injection	Chanelle AH	Ivermectin	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Injection S/C	49 days	X
Animec Pour-On 0.5%	Chanelle AH	Ivermectin	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Pour-On	28 days	X
Bimectin Injection	Bimeda	Ivermectin	Yes	Yes	No	No	Yes	Yes	Yes	No	No	InjectionS/C	49 days	X
Bimectin Pour-On for Cattle	Bimeda	Ivermectin	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No	Pour-On	31 days	X
Cydectin 0.5% Pour-On for Cattle	Zoetis	Moxidectin	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No	Pour-On	14 days	6 days
Cydectin 1% Injectable Solution for Cattle	Zoetis	Moxidectin	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Injection S/C	65 days	60* days
Cydectin 10% LA for Cattle	Zoetis	Moxidectin	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Ear Injection	108 days	80* days
Dectomax 10mg/ml Solution for Injection for Cattle and Sheep	Elanco AH	Doramectin	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Injection S/C	70 days	60* days
Dectomax Pour-On	Elanco AH	Doramectin	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No	Pour-On	35 days	60* days
Depidex Pour-On	Elanco AH	Ivermectin	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Pour-On	28 days	60* days
Ecomectin 10mg/ml Solution for Injection	Eco AH	Ivermectin	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Injection S/C	49 days	60* days
Ecomectin 5mg/ml Pour-on Solution for Cattle	Eco AH	Ivermectin	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Pour-On	31 days	60* days
Eprecis 20mg/ml solution for injection for cattle	Ceva AH	Eprinomectin	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No	Injection SC	63 days	Zero
Eprecis 5mg/ml pour-on solution for cattle	Ceva AH	Eprinomectin	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No	Injection SC	15 days	Zero
Eprinex Pour-On	Merial AH	Eprinomectin	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Pour-On	15 days	Zero
Eprizero Pour-On	Norbrook Labs	Eprinomectin	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Pour-On	10 days	Zero
Ivomec Classic Injection for Cattle and Sheep	Merial AH	Ivermectin	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Injection S/C	49 days	60* days
Ivomec Classic Pour-On for Cattle	Merial AH	Ivermectin	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Pour-On	15 days	60* days
Neoprinil 5mg/ml Pour-On solution for cattle	Virbac	Ivermectin	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Pour-On	15 days	Zero
Noromectin Multi Injection	Norbrook Labs	Ivermectin	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Injection S/C	49 days	60* days
Noromectin Pour-On	Norbrook Labs	Ivermectin	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Pour-On	28 days	60* days
Panomec Injection for Cattle, Sheep and Pigs	Merial AH	Ivermectin	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Injection S/C	49 days	60* days
Paramectin Multi Injection	Norbrook Labs	Ivermectin	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Injection S/C	49 days	60* days
Paramectin Pour-On	Norbrook Labs	Ivermectin	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Pour-On	28 days	60* days
Premadex 1% Solution for Injection	Downland	Ivermectin	Yes	Yes	No	No	Yes	Yes	Yes	No	Yes	Injection S/C	35 days	60* days
Premadex Pour-On	Downland	Ivermectin	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Pour-On	28 days	60* days

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PRODUCT	COMPANY NAME	CHEMICAL NAME	PARASITES CONTROLLED									USE	WITHDRAWAL PERIOD (MEAT)	MILK WITHHOLD
			Roundworm	Lungworm	Tapeworm	Liver fluke	Mites	Warbles	Lice	Hornflies	Eyeworm			
Qualimec 10mg/ ml Solution for Injection	Elanco AH	Ivermectin	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Injection S/C	49 days	60* days
Qualimec 5mg/ ml Pour-On Solution	Elanco AH	Ivermectin	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Pour-On	31 days	60* days
Virbamec Injectable Solution	Virbac	Ivermectin	Yes	Yes	No	No	Yes	Yes	Yes	No	Yes	Injection S/C	49 days	60* days
Virbamec Pour-On	Virbac	Ivermectin	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Pour-On	28 days	60* days
Zermex Pour-On	Downland	Ivermectin	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No	Pour-On	14 days	6 days
Zermex 10% LA for Cattle	Downland	Ivermectin	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Ear Injection	108 days	80* days

Combination Products

PRODUCT	COMPANY NAME	CHEMICAL NAME	PARASITES CONTROLLED									USE	WITHDRAWAL PERIOD (MEAT)	MILK WITHHOLD
			Roundworm	Lungworm	Tapeworm	Liver fluke	Mites	Warbles	Lice	Hornflies	Eyeworm			
Animec Super Injection for Cattle	Chanelle AH	Ivermectin Clorsulon	Yes	Yes	No	Yes (adult only)	Yes	Yes	Yes	No	No	Injection S/C	66 days	60* days
Bimectin Plus	Bimeda	Ivermectin Clorsulon	Yes	Yes	No	Yes (adult only)	Yes	Yes	Yes	No	No	Injection S/C	66 days	60* days
Closamectin Injection	Norbrook Labs	Ivermectin Closantel	Yes	Yes	No	Yes (adult only)	Yes	Yes	Yes	No	No	Injection S/C	49 days	X
Closamectin Pour-On	Norbrook Labs	Ivermectin Closantel	Yes	Yes	No	Yes (adult only)	Yes	Yes	Yes	No	No	Pour-On	28 days	X
Combinex Cattle	Elanco AH	Levamisole Triclabendazole	Yes	Yes	No	Yes - all stages	No	No	No	No	No	Oral Drench	56 days	X
Cydectin TriclaMox	Zoetis	Cydectin Triclabendazole	Yes	Yes	No	Yes - immature and adult	No	No	No	No	No	Pour-On	143 days	X
Downland Fluke & Worm	Downland	Levamisole Oxyclozanide	Yes	Yes	No	Yes (adult only)	No	No	No	No	No	Oral Drench	5 days	X
Ivomec Super Injection for Cattle	Merial AH	Ivermectin Clorsulon	Yes	Yes	No	Yes (adult only)	Yes	Yes	Yes	No	No	Injection S/C	66 days	60* days
Levafas Diamond	Norbrook Labs	Levamisole Oxyclozanide	Yes	Yes	No	Yes (adult only)	No	No	No	No	No	Oral Drench	5 days	X
Norofas	Downland	Ivermectin Closantel	Yes	Yes	No	Yes (adult only	Yes	No	Yes	No	No	Pour-On	28 days	X
Supremadex	Downland	Ivermectin Clorsulon	Yes	Yes	No	Yes (adult only)	Yes	Yes	Yes	No	No	Injection S/C	66 days	60* days
Virbamec Super	Virbac	Ivermectin Clorsulon	Yes	Yes	No	Yes (adult only)	Yes	Yes	Yes	No	No	Injection S/C	66 days	60* days

*Not permitted for use in cattle producing milk for human consumption or industrial purposes, or in dry cows and pregnant heifers within stated days before calving (check specific details).
X = not for use in cattle producing milk for human consumption.

Check product labels for full and final details

Check the datasheets of individual products for mite species activity as it does vary.

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Flukicides

PRODUCT	COMPANY NAME	CHEMICAL NAME	PARASITES CONTROLLED									USE	WITHDRAWAL PERIOD (MEAT)	MILK WITHHOLD
			Roundworm	Lungworm	Tapeworm	Liver fluke	Mites	Warbles	Lice	Hornflies	Eyeworm			
Endofluke 10%	Bimeda	Triclabendazole	No	No	No	Yes - all stages	No	No	No	No	No	Oral Drench	56 days	47* days
Fasinex 240	Elanco AH	Triclabendazole	No	No	No	Yes - all stages	No	No	No	No	No	Oral Drench	52 days	50* days
Tribex 10	Chanelle AH	Triclabendazole	No	No	No	Yes - all stages	No	No	No	No	No	Oral Drench	56 days	X
Triclacert 10%	Downland	Triclabendazole	No	No	No	Yes - all stages fluke	No	No	No	No	No	Oral Drench	56 days	X
Trodax 34%	Merial AH	Nitroxynil	No	No	No	Yes - immature and adult	No	No	No	No	No	Injection S/C	60 days	X
Zanil	MSD AH	Oxyclozanide	No	No	No	Yes (adult only)	No	No	No	No	No	Oral Drench	28 days	72 hrs

Ectoparasiticides – Synthetic Pyrethroids

PRODUCT	COMPANY NAME	CHEMICAL NAME	PARASITES CONTROLLED									USE	WITHDRAWAL PERIOD (MEAT)	MILK WITHHOLD
			Roundworm	Lungworm	Tapeworm	Liver fluke	Mites	Warbles	Lice	Flies	Hornflies	Eyeworm			
Butox Swish	MSD AH	Deltamethrin	No	No	No	No	No	No	Yes	Yes	No	No	Pour-On	20 days	Zero
Deltanil	Virbac	Deltamethrin	No	No	No	No	No	No	Yes	Yes	No	No	Pour-On	17 days	Zero
Dysect Cattle Pour-On	Zoetis	Alphacypermethrin	No	No	No	No	No	No	Yes	Yes	No	No	Pour-On	28 days	Zero
Flectron Fly Tags	Zoetis	Cypermethrin	No	No	No	No	No	No	No	Yes	No	No	Ear Tag	Nil	Zero
Flypor	Elanco AH	Permethrin	No	No	No	No	Yes	No	Yes	Yes	No	No	Pour-On	3 days	6 hrs
Fly and Lice Spot On Insecticide	Zoetis	Deltamethrin	No	No	No	No	No	No	Yes	Yes	No	No	Spot On	17 days	Zero
Spotinor 10mg/ml	Norbrook	Deltamethrin	No	No	No	No	No	No	Yes	Yes	No	No	Pour-On	17 days	Zero
Zermasect Cattle	Downland	Alphacypermethrin	No	No	No	No	No	No	Yes	Yes	No	No	Pour-On	28 days	Zero

Ectoparasiticides – Miscellaneous

PRODUCT	COMPANY NAME	CHEMICAL NAME	PARASITES CONTROLLED										USE	WITHDRAWAL PERIOD (MEAT)
			Roundworm	Lungworm	Tapeworm	Fluke	Mites	Warbles	Lice	Flies	Hornflies	Eyeworm		
Horse & cattle fly repellent – Liquid	Battle Hayward and Bower	Diethyltoluamide p-Menthane-3, 8-diol	No	No	No	No	No	No	No	Yes	No	No	Topical Lotion	Nil

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Check product labels for full and final details

Check the datasheets of individual products for mite species activity as it does vary.

Cattle treatment best practice

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Dosing cattle correctly

Whichever method of administration is selected it is important to read the manufacturer's instructions carefully. Particular attention should be paid to:

- Class of stock for which the drug is recommended and any limitations regarding use
- Dose rate and any recommended increases to deal with different parasite species or developmental stages
- Meat withholding period before slaughter
- Body weight assessment to avoid underdosing
- Correct storage of wormers, ie away from direct sunlight, avoiding extremes of temperature. Check the use-by date and once open, use within the time shown on the packaging. Some products need to be well shaken before use
- Ensure that the equipment is appropriate for the product and is calibrated to deliver the dose accurately. After use, rinse, clean and then dry the equipment before storage

Pour-Ons

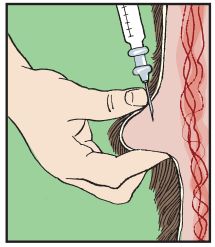
These should be applied along the length of the flattest part of the animal's back, from the withers to the tail head.

In general, animals should not be treated when the hair is wet or if rain is anticipated within two hours of treatment. However, some products are waterproof and can be used on wet animals. Areas of damaged skin should be avoided, as should areas contaminated with mud or manure.

Injectables

Injectables should be given according to the manufacturer's instructions at the recommended injection site.

- Always use a clean, sterile syringe and needle. If using a multiple injection gun, ensure the needle is disinfected between injections, for example with an automatic sterilization system
- If the site to be injected is dirty, clean the skin and swab with an alcohol impregnated wipe or cotton wool
- Before injecting, check the expiry date and read the directions of the product to be used. Some products need to be shaken before use
- Use the correct sized needle according to the size of the animal and site of injection
- Ensure the animal is adequately restrained before attempting the injection
- For subcutaneous injections, raise a fold of skin at the injection site (mainly neck but some are ear) recommended by the product manufacturer and inject carefully into the space created

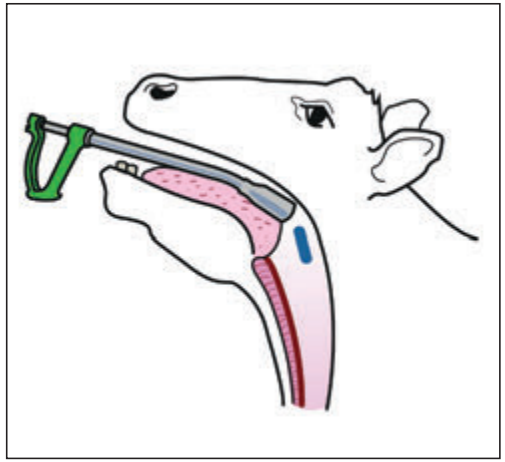


- If a large dose is to be delivered it may be advisable to split the dose between two injection sites. After the injection, briefly massage the site to improve the dispersal of the injected material
- Dispose of the needle and syringe in appropriate clinical waste and sharps containers

Boluses

These types of wormers are administered orally using product-specific equipment.

Follow the manufacturers' instructions closely to ensure that the boluses are delivered over the back of the tongue, so they can be swallowed. Avoid any excess force, as this can cause damage to the throat and do not depress the plunger until you are satisfied with the positioning of the bolus.



It is important that the animal stays as calm as possible and can swallow. This is normally achieved by keeping the head and neck in a straight line; it is very difficult to successfully and safely complete administration if the neck is twisted and the animal is fighting you.

Oral drenches

Oral drenching guns are designed to deliver the treatment towards the back of the mouth over the tongue, so the entire dose is swallowed at once to optimise efficacy.

- Make sure animals are properly restrained, with their head held up
- Slide the nozzle of the dosing gun in the side of the mouth and over the tongue so that the entire dose is swallowed immediately
- Drenching equipment must be correctly calibrated and in good working order
- Calibrate the gun using the product just before treatment starts by delivering two or more doses into a graduated measuring cylinder

Faulty equipment, or attempting to dose too quickly, may mean that the barrel of the gun does not fill properly or that the liquid is full of bubbles

Storage

Wormers should be stored securely, away from direct sunlight at 4-25°C. Check the 'use-by' date and once open, use within the time shown on the packaging. Shake white (BZ) products well before use.

What type of anthelmintic should be used?

Parasite	Treatment advice	Product notes
Gutworms eg *Ostertagia* *Cooperia*	Worming is essential to break the lifecycle of gutworms where cattle are grazing infected pastures. Treatments should aim to limit disease and minimise pasture contamination. At housing of first (and probably second) year grazing animals, it is important to choose cattle anthelmintics (commonly known as wormers) that are effective against inhibited fourth stage *Ostertagia ostertagi* larvae which can cause Type II ostertagiasis (resulting from the emergence of thousands of inhibited larvae from the wall of the fourth stomach) – a serious, potentially fatal disease known as winter scour.	Macrocyclic lactone (ML) products are active against inhibited larvae. Benzimidazoles may also be used, but their efficacy against inhibited larvae can be unpredictable. Levamisole is ineffective against larval *O. ostertagi*.
Lungworm	Lungworm infection (husk) usually occurs in youngstock during the second half of the grazing season. Without good lungworm control cattle maybe more susceptible to pneumonia after housing. As well as being controlled by most anthelmintics, lungworm in cattle can be effectively controlled using an oral lungworm vaccine.	If considering using a lungworm vaccine, take veterinary advice to ensure correct use. Care is required to avoid using wormers for a number of weeks before and after vaccine administration.
Liver fluke	Treatment for fluke should take account of the particular risk, time of year and the stage of development of the fluke. This should be discussed with your adviser. If rumen fluke are suspected discuss options with your vet, as treatment is not always required, few products are effective and the dose rate may need to be adjusted.	Different products will kill different ages of fluke so product selection is important. There have been reports of triclabendazole resistance so where appropriate other products should be used.
Ectoparasites eg lice, mange, ticks, flies	Spread of lice and mange is by close contact and occurs most frequently during the winter months when cattle are housed. Low levels of ectoparasite infection can be tolerated. Where heavy infestations occur all in-contact cattle should be treated.	Ectoparasites can be controlled with synthetic pyrethroid products or MLs (avermectins and milbemycins). The range of ectoparasites controlled differs amongst formulations so it is important to read the label for each product before use and get appropriate advice.

Products that combine a wormer and flukicide can seem like an attractive option for broad spectrum control with a single administration and it is recommended that they are used if:

- Cattle require treatment for both worms and fluke
- The wormer is effective against the stages of the target worms present and the value of any persistent activity is assessed
- The flukicide has the appropriate activity for the stages of liver fluke likely to be present

Consult your vet, Suitably Qualified Person (SQP) for more detailed advice to ensure you choose the right product and administer it in the right way.

Treatments for sheep parasite control – Sheep Endoparasiticides

Better Returns Programme

1-BZ Group 1: Benzimidazoles (BZ) (White)

PRODUCT	COMPANY NAME	CHEMICAL NAME	PARASITES CONTROLLED							USE	TRACE ELEMENTS	WITHDRAWAL PERIOD (MEAT)
			Roundworm	Lungworm	Tapeworm	Liver fluke	Mange mites	Nasal bots	Sheep scab			
Albacert	Downland	Albendazole	Yes	Yes	Yes	Yes (adult only)	No	No	No	Oral	Co, Se	5 days
Albenil SC	Virbac	Albendazole	Yes	Yes	Yes	Yes (adult only)	No	No	No	Oral	Co, Se	5 days
Albex 2.5% SC	Chanelle AH	Albendazole	Yes	Yes	Yes	Yes (adult only)	No	No	No	Oral	Co, Se	5 days
Albex 10%	Chanelle AH	Albendazole	Yes	Yes	Yes	Yes (adult only)	No	No	No	Oral	Co, Se	5 days
Allverm 4%	Elanco AH	Ricobendazole	Yes	Yes	Yes	Yes (adult only)	No	No	No	Oral	Co, Se	3 days
Benzimole	Mole Valley	Albendazole	Yes	Yes	Yes	Yes (adult only)	No	No	No	Oral		5 days
Bovex 2.265%	Chanelle AH	Oxfendazole	Yes	Yes	Yes	No	No	No	No	Oral		24 days
Endospec SC 2.5%	Bimeda	Albendazole	Yes	Yes	Yes	Yes (adult only)	No	No	No	Oral	Co, Se	4 days
Endospec SC 10%	Bimeda	Albendazole	Yes	Yes	Yes	Yes (adult only)	No	No	No	Oral	Co, Se	4 days
Ovidown SC	Downland	Oxfendazole	Yes	Yes	Yes	No	No	No	No	Oral	Co, Se	21 days
Panacur 10% Oral Suspension	MSD AH	Fenbendazole	Yes	Yes	Yes	No	No	No	No	Oral		15 days
Parafend 2.265%	Norbrook Labs	Oxfendazole	Yes	Yes	Yes	No	No	No	No	Oral		10 days
Rycoben SC 2.5% Oral Suspension	Elanco AH	Ricobendazole	Yes	Yes	Yes	Yes (adult only)	No	No	No	Oral	Co, Se	3 days
Tramazole 2.5% SC	Tulivin Labs	Albendazole	Yes	Yes	Yes	Yes (adult only)	No	No	No	Oral	Co, Se	4 days
Zerofen 2.5%	Chanelle AH	Fenbendazole	Yes	Yes	Yes	No	No	No	No	Oral		21 days
Zerofen 10%	Chanelle AH	Fenbendazole	Yes	Yes	Yes	No	No	No	No	Oral		21 days

2-LV Group 2: Levamisole (LV) (Yellow)

PRODUCT	COMPANY NAME	CHEMICAL NAME	PARASITES CONTROLLED							USE	TRACE ELEMENTS	WITHDRAWAL PERIOD (MEAT)
			Roundworm	Lungworm	Tapeworm	Liver fluke	Mange mites	Nasal bots	Sheep scab			
Chanaverm	Chanelle AH	Levamisole	Yes	Yes	No	No	No	No	No	Oral		20 days
Levacide 7.5% solution for injection	Norbrook Labs	Levamisole	Yes	Yes	No	No	No	No	No	Injection S/C		15 days
Levacide Low Volume	Norbrook Labs	Levamisole	Yes	Yes	No	No	No	No	No	Oral		21 days
Levacur SC 3%	MSD AH	Levamisole	Yes	Yes	No	No	No	No	No	Oral	Co, Se	20 days
Levamisole Injection	Downland	Levamisole	Yes	Yes	No	No	No	No	No	Injection S/C		15 days
Levamole	Mole Valley	Levamisole	Yes	Yes	No	No	No	No	No	Oral		20 days

Treatments for sheep parasite control – Sheep Endoparasiticides

Better Returns Programme

3-ML Group 3: Macrocyclic Lactones (ML) (Clear)

PRODUCT	COMPANY NAME	CHEMICAL NAME	PARASITES CONTROLLED							USE	WITHDRAWAL PERIOD (MEAT)
			Roundworm	Lungworm	Tapeworm	Liver fluke	Mange mites	Nasal bots	Sheep scab		
Animec Oral for Sheep	Chanelle AH	Ivermectin	Yes	Yes	No	No	No	Yes	No	Oral Drench	10 days
Bimectin	Bimeda	Ivermectin	Yes	Yes	No	No	No	Yes	No	Injection S/C	42 days
Cydectin 0.1% Oral	Zoetis	Moxidectin	Yes	Yes	No	No	No	No	No	Oral Drench	14 days
Cydectin1% injection	Zoetis	Moxidectin	Yes	Yes	No	No	No	Yes	Yes	Injection S/C	70 days
Cydectin 20mg/ml LA injection	Zoetis	Moxidectin	Yes	Yes	No	No	No	Yes	Yes	Injection S/C	104 days
Dectomax 10mg/ml Solution for Injection	Elanco AH	Doramectin	Yes	Yes	No	No	No	Yes	Yes	Injection I/M	70 days
Depidex	Elanco AH	Ivermectin	Yes	Yes	No	No	No	Yes	No	Oral Drench	14 days
Ecomectin 10mg/ml Solution for Injection	Eco AH	Ivermectin	Yes	Yes	No	No	Yes	Yes	Yes	Injection S/C	42 days
Ivomec Classic Injection	Merial AH	Ivermectin	Yes	Yes	No	No	No	Yes	Yes	Injection S/C	37 days
Molemec Drench	Mole Valley	Ivermectin	Yes	Yes	No	No	No	Yes	No	Oral	6 days
Molemec Injection	Mole Valley	Ivermectin	Yes	Yes	No	No	No	Yes	Yes	Injection S/C	37 days
Noromectin Drench	Norbrook Labs	Ivermectin	Yes	Yes	No	No	No	Yes	No	Oral Drench	14 days
Noromectin Multi Injection	Norbrook Labs	Ivermectin	Yes	Yes	No	No	No	Yes	Yes	Injection S/C	42 days
Oramec	Merial AH	Ivermectin	Yes	Yes	No	No	No	Yes	No	Oral Drench	6 days
Panomec Injection for Cattle, Sheep and Pigs	Merial AH	Ivermectin	Yes	Yes	No	No	No	Yes	Yes	Injection S/C	37 days
Paramectin Multi Injection	Norbrook Labs	Ivermectin	Yes	Yes	No	No	No	Yes	Yes	Injection S/C	42 days
Paramectin Drench	Norbrook Labs	Ivermectin	Yes	Yes	No	No	No	Yes	No	Oral Drench	14 days
Premadex 1% Injection	Downland	Ivermectin	Yes	Yes	No	No	Yes	Yes	Yes	Injection S/C	42 days
Qualimec Injection 10mg/ml Solution for Injection	Elanco AH	Ivermectin	Yes	Yes	No	No	No	Yes	Yes	Injection S/C	42 days
Vectin 0.08%	MSD AH	Ivermectin	Yes	Yes	No	No	No	Yes	No	Oral Drench	14 days
Zermex Drench	Downland	Moxidectin	Yes	Yes	No	No	No	No	No	Oral Drench	14 days
Zermex 1% Injection	Downland	Moxidectin	Yes	Yes	No	No	No	Yes	Yes	Injection S/C	70 days
Zermex 20mg/ml LA for injection	Downland	Moxidectin	Yes	Yes	No	No	No	Yes	Yes	Injection S/C	104 days

I/M = intramuscular S/C = subcutaneous

Check product labels for full and final details

4-AD Group 4: Amino Acetonitrile Derivatives (AD) (Orange)

PRODUCT	COMPANY NAME	CHEMICAL NAME	PARASITES CONTROLLED							USE	WITHDRAWAL PERIOD (MEAT)
			Roundworm	Lungworm	Tapeworm	Liver fluke	Mange mites	Nasal bots	Sheep scab		
Zolvix	Elanco AH	Monepantel	Yes	No	No	No	No	No	No	Oral	7 days

5-SI Group 5: Spiro-indoles (SI) available as a Multi-active (Purple)

PRODUCT	COMPANY NAME	CHEMICAL NAME	PARASITES CONTROLLED							USE	WITHDRAWAL PERIOD (MEAT)
			Roundworm	Lungworm	Tapeworm	Liver fluke	Mange mites	Nasal bots	Sheep scab		
Startect Dual Active	Zoetis	Derquantel Abamectin	Yes	Yes	No	No	No	No	No	Oral	14 days

Combination Products

PRODUCT	COMPANY NAME	CHEMICAL NAME	PARASITES CONTROLLED							USE	WITHDRAWAL PERIOD (MEAT)
			Roundworm	Lungworm	Tapeworm	Liver fluke	Mange mites	Nasal bots	Sheep scab		
Closamectin Injection	Norbrook Labs	Ivermectin Closantel	Yes	Yes	No	Yes - including 7 weeks immature	No	Yes	No	Injection S/C	28 days
Closiver Solution for Injection	Downland	Ivermectin Closantel	Yes	Yes	No	Yes - including 7 weeks immature	No	Yes	No	Injection S/C	28 days
Combinex Sheep	Elanco AH	Levamisole Triclabendazole	Yes	Yes	No	Yes - including immature fluke from 2 days of age	No	No	No	Oral	56 days
Cydectin TriclaMox	Zoetis	Moxidectin Triclabendazole	Yes	Yes	No	Yes - including early immature fluke	No	No	No	Oral	31 days
Downland Fluke & Worm	Downland	Levamisole Oxyclozanide	Yes	Yes	No	Yes (adults only)	No	No	No	Oral	28 days
Fasimec Duo	Elanco AH	Ivermectin Triclabendazole	Yes	Yes	No	Yes - including immature fluke from under 1 week of age	No	Yes	No	Oral	27 days
Levafas Diamond	Norbrook Labs	Levamisole Oxyclozanide	Yes	Yes	No	Yes (adults only)	No	No	No	Oral	5 days
Levitape	Elanco AH	Levamisole Praziquantel	Yes	Yes	Yes	No	No	No	No	Oral	28 days
Mebadown Super Oral Suspension	Downland	Mebendazole Closantel	Yes	Yes	Yes	Yes - including immature fluke over 5 weeks of age	No	No	No	Oral	65 days
Supaverm Oral Suspension	Elanco AH	Mebendazole Closantel	Yes	Yes	Yes	Yes (including immature fluke over 5 weeks of age)	No	No	No	Oral	65 days

I/M = intramuscular S/C = subcutaneous

NB Lice – endectocides do not cover biting (chewing) lice which are the species of importance in the UK

Better Returns Programme

Flukicides

PRODUCT	COMPANY NAME	CHEMICAL NAME	PARASITES CONTROLLED							USE	WITHDRAWAL PERIOD (MEAT)
			Roundworm	Lungworm	Tapeworm	Liver fluke	Mange mites	Nasal bots	Sheep scab		
Endofluke 10%	Bimeda	Triclabendazole	No	No	No	Yes - including immature fluke from 2 days of age	No	No	No	Oral	56 days
Fasinex 5%	Elanco AH	Triclabendazole	No	No	No	Yes - including immature fluke from 2 days of age	No	No	No	Oral	56 days
Fasinex 100	Elanco AH	Triclabendazole	No	No	No	Yes - including immature fluke from 2 days of age	No	No	No	Oral	35 days
Flukiver 5% w/v oral suspension	Elanco AH	Closantel	No	No	No	Yes - including immature fluke over 5 weeks of age Haemonchus Contortus*	No	Yes	No	Oral	42 days
Tribex 5%	Chanelle AH	Triclabendazole	No	No	No	Yes - including immature fluke from 2 days of age	No	No	No	Oral	56 days
Triclacert 5%	Downland	Triclabendazole	No	No	No	Yes - including immature fluke	No	No	No	Oral	56 days
Triclafas Drench	Norbrook Labs	Triclabendazole	No	No	No	Yes - including immature fluke from 2 days of age	No	No	No	Oral	56 days
Trodax 34%	Merial AH	Nitroxynil	No	No	No	Yes - including immature fluke Haemonchus Contortus*	No	No	No	Injection S/C	49 days
Zanil	MSD AH	Oxyclozanide	No	No	No	Yes (adult only)	No	No	No	Oral	28 days

* Barbers Pole Worm

Injectables for Sheep Scab

PRODUCT	COMPANY NAME	CHEMICAL NAME	SHEEP SCAB	NASAL BOTS	WITHDRAWAL PERIOD (MEAT)	MOVE TO CLEAN PASTURE
Cydectin 1%	Zoetis	Moxidectin	28 days persistent activity for protection. Two injections 10 days apart to treat existing scab	✓	70 days	No
Cydectin 20mg/ml LA injection	Zoetis	Moxidectin	60 days persistent activity for protection. One injection to treat existing scab	✓	104 days	No
Dectomax 10mg/ml Solution for Injection for Cattle and Sheep	Elanco AH	Doramectin	One injection	✓	70 days	Yes
Ecomectin 10mg/ml Solution for Injection	Eco AH	Ivermectin	Two injections 7 days apart	✓	42 days	Yes
Ivomec Classic	Merial AH	Ivermectin	Two injections 7 days apart	✓	37 days	Yes
Molemec Injection	Mole Valley	Ivermectin	Two injections 7 days apart	✓	37 days	Yes
Noromectin Multi Injection	Norbrook Labs	Ivermectin	Two injections 7 days apart	✓	42 days	Yes
Panomec Injection for Cattle, Sheep and Pigs	Merial AH	Ivermectin	Two injections 7 days apart	✓	37 days	Yes
Paramectin Multi Injection	Norbrook Labs	Ivermectin	Two injections 7 days apart	✓	42 days	Yes
Premadex 1% Injection	Downland	Ivermectin	Two injections 7 days apart	✓	42 days	Yes
Qualimec Injection 10mg/ml Solution for Injection	Elanco AH	Ivermectin	Two injections 7 days apart	✓	42 days	Yes
Zermex 1% Injection	Downland	Moxidectin	28 days persistent activity for protection. Two injections 10 days apart	✓	70 days	No
Zermex 20mg/ml LA for injection	Downland	Moxidectin	60 days persistent activity for protection. One injection to treat	✓	104 days	No

Check product labels for full and final details

Better Returns Programme

Plunge Dips

PRODUCT	COMPANY NAME	CHEMICAL NAME	BLOWFLY	SHEEP SCAB	LICE	TICKS	WITHDRAWAL PERIOD (MEAT)
Osmonds Gold Fleece Dip	Bimeda	Diazinon	8 weeks protection	Up to 4 weeks protection	✓	3–6 weeks protection	49 days
Paracide 62	Animax Ltd	Diazinon	8 weeks protection	Up to 4 weeks protection	✓	3–6 weeks protection	70 days

Pour-Ons

PRODUCT	COMPANY NAME	CHEMICAL NAME	BLOWFLY	LICE	TICKS	WITHDRAWAL PERIOD (MEAT)
CLiK	Elanco AH	Dicyclanil (IGR)	16 weeks P	No	No	40 days
CLiKZiN	Elanco AH	Dicyclanil (IGR)	8 weeks P	No	No	7 days
Crovect	Elanco AH	Cypermethrin	6–8 weeks P+T	Kills existing lice	Up to 10 weeks	8 days
Ectofly 12.5mg/ml	Bimeda	Cypermethrin	6-8 weeks P+T	Kills existing lice	No	8 days
Deltanil	Virbac	Deltamethrin	Treats established strike only	4-6 week reduction in incidence	6 weeks	35 days
Dysect	Zoetis	Alpha-cypermethrin	8–10 weeks P+T	Kills existing lice	8–12 weeks	49 days
Fly & Lice Spot On	Zoetis	Deltamethrin	Treats established strike only	4–6 week reduction in incidence	Up to 6 weeks	35 days
Spotinor 10mg/ml	Norbrook	Deltamethrin	Treats established strike only	4-6 weeks reduction in incidence	6 weeks	35 days
Vectocert 1.25%	Downland	Cypermethrin	6-8 weeks P+T	Kills existing lice	No	8 days
Vetrazin	Elanco AH	Cyromazine (IGR)	10 weeks	No	No	28 days
Zermasect Sheep	Downland	Alpha-cypermethrin	8–10 weeks P+T	Kills existing lice	8–12 weeks	49 days

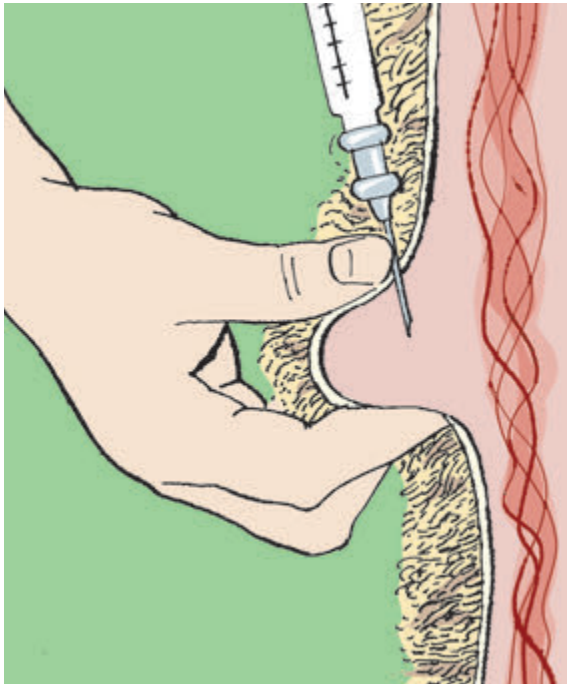
P = Prevention, T = Treatment

Check product labels for full and final details

Better Returns Programme

Subcutaneous injections

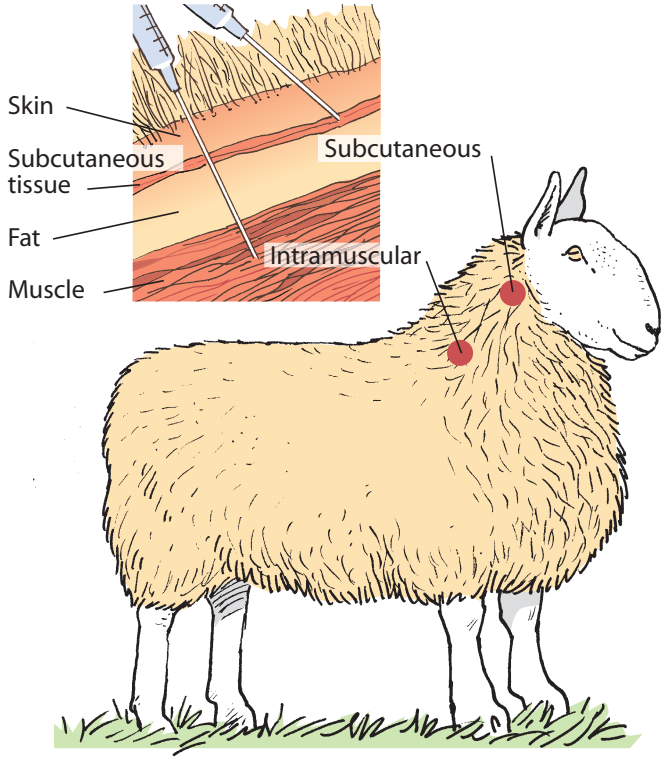
Subcutaneous injections need to be administered with care to ensure the product is placed under the skin and not into fleece or muscle. The sheep needs to be well restrained and the skin 'tented' away from the underlying muscle. The preferred injection site is 10-15cm (4-6 inches) below the ear on the side of the neck (see diagram). Usually a 1.6cm (5/8th inch) needle is ideal. After administration the site should be gently massaged.



Intramuscular injections

Intramuscular injections are made into muscle. Again, care is needed to ensure that the product is deposited in muscle and not just under the skin. This requires sheep to be well restrained. The correct site is on the side of the neck 10-15cm (4-6 inches) in front of the shoulder in the mid neck area well above the large jugular vein. Insert a 2.5-4cm (1-1½ inch) needle at 60° to the neck aiming inwards and upwards towards the head. Again, massage in after administration.

The neck site for intramuscular injections ensures that no valuable cut of meat is damaged and the constant movement of the neck ensures good dispersion of the product.



Pour-ons and spot-ons

Pour-ons and spot-ons need to be applied accurately and each manufacturer may recommend subtle differences. Use appropriate and calibrated guns, always clean with warm soapy water and then rinse after use. Store in a safe dry place. When treating sheep with these products, make sure they are applied along the back line. If placed to one side, the product will not spread evenly around the body. No pour-on or spot-on is effective against sheep scab.

Sheep product information compiled in association with SCOPS

Better Returns Programme

Dosing

Weigh – do not guess

Underestimating the weight of sheep is a common cause of underdosing. Select and weigh the biggest sheep in the group to determine the correct dose. If there is a wide range of weights, consider splitting the group, then weigh the heaviest in each section. Do not forget to check that the weigh crate is accurate before starting!

Calibrate and maintain the drench gun

Always check the gun is delivering the right amount before you drench. Remove the plunger from a 10ml syringe, put a thumb over the end and squirt the dose into it, making sure there are no air bubbles left. Adjust the gun until the dose delivered is correct. Drenching guns should also be well maintained and replaced regularly. Clean with warm soapy water after use and check springs and tubes to make sure there are no kinks that will form air bubbles.

Drench correctly

The drenching technique is a vital part of ensuring that the wormer does its job effectively. Make sure the sheep are properly restrained and cannot leap around when they are being drenched so they swallow the whole amount. Sheep can also suffer serious injury, or even death, if they are unrestrained and the gun penetrates the tissues at the back of the mouth. Place a hand under the head and tilt slightly to the side.

Slot the nozzle in the gap between molar and incisor teeth and then over the back of the tongue. The nozzle must be placed over the back of the tongue. If the wormer is just put into the mouth, it will bypass the rumen as it escapes down the oesophageal groove and will be less effective. This is particularly important for white (BZ) drenches.

Withholding food

Research has shown that the efficacy of the white (BZ) and clear (AV) drenches can be improved by withholding food for 12-24 hours before treatment. It is inadvisable to deprive heavily pregnant ewes of food, so if you treat this class of stock with anthelmintics, then you may wish to use yellow drenches (LV) as their efficacy is less dependent on rumen fill.

Storage

Wormers should be stored securely, away from direct sunlight at 4-25°C. Check the 'use-by' date and, once open, use within the time shown on the packaging. Shake white (BZ) products well before use.

Dipping

For plunge dipping it is essential to know the capacity of the bath. Only use the two closed systems to charge the bath and to top up. Always top up as per instructions, if not, the dip wash will strip out and later sheep will not carry enough ectoparasiticide for it to be effective. Do not dip tired, thirsty or heat-stressed sheep. Allow dipped sheep to drain in designated draining pens and do not return to pasture until excess dip has been shed. When dipping, use protective clothing, handle equipment carefully and stick to manufacturer instructions.

Plunge dip products are not approved for use in shower or spray races and may be less effective compared to plunge dipping because the product may not reach all parts of the fleece in sufficient concentrations.

Wormer Purchase Checklist

Better Returns Programme

Do you need to treat?

Which animals are at risk?

Have animals been grazing high-risk pastures?

Have weather/grazing conditions increased the risks? (eg wet conditions and liver fluke infection)

Has the risk been monitored, eg using Faecal Egg Counts (FECs)?

Can management be used to reduce the risk and the need to treat? eg move lambs/calves to lower risk grazing

Product Choice

- **What are the target parasites?**

  Treatments should be chosen according to the target parasites, the life cycle stage, time of year and objective (curative or preventative). Use combination products only when the target parasites are present.

- **Avoid overuse of the same products**

  Consider alternative chemical groups where possible to reduce selection for resistance to one group.

- **Withdrawal periods**

  Consider withdrawal periods carefully when choosing a product.

- **Administer it effectively**

  Make sure you have the right equipment, it is properly calibrated and you know the correct dose rate for the weight of animal to be treated. Avoid under- or over-dosing. Always follow the manufacturers' recommendations and store products correctly and do not use out-of-date product.

- **What pack size is required?**

  If a pack size is slightly less than required, leave one or two fit animals not dosed; never underdose the whole group.

- **Do not mix wormers with any other product prior to administration**

Consult your vet or advisor (SQP) for further advice when purchasing anthelmintics if you require clarification

For more information contact:

Better Returns Programme

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