

Sustainable parasite control strategies for cattle

*Technical manual for
veterinarians and advisors*



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 don't understand anything or need further information, ask your veterinary surgeon or suitably qualified person (SQP).

General principles for dosing	Store wormers in accordance with instructions, usually away from direct sunlight, avoiding extremes of temperature and 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.
	If available, use scales or a weigh band to ensure an accurate liveweight is known for each animal in the group (see below).
	Dose according to liveweight, as detailed in the manufacturer's instructions.
	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.

Dosing accurately to live weight

With few exceptions, veterinary medicines are administered on the basis of a specific dose volume – e.g. in millilitres (ml) – given to cattle based on a specific live weight, usually in kilograms (kg).

Therefore, there are three components to accurate dosing of wormers:

1. Read the label and adhere to the instructions on dose rate.
2. Ensure that the dosing equipment is appropriate to the product and is calibrated to deliver the dose accurately.
3. Weigh each animal and dose to its live weight.

While it is acknowledged that it can be difficult to follow precise dosing instructions under practical farming conditions, every effort must be made to follow the labelling accurately. Not only is this required to comply with the product licence, but there are a number of potential untoward consequences, should the incorrect dosage be given.

Under-dosing can:

- lead to poor efficacy when treating clinical cases, which in turn may require repeat treatments to achieve a cure
- reduce the duration of protection, if the product has persistent activity
- be a risk factor for the selection of anthelmintic resistance.

Focus on:

- Using the right product – refer to the COWS product guide
- Treating the right animals at the right time - using your farm health plan as agreed with a vet
- Giving the right dose rate and administering it to the animal in the correct way

Over-dosing can:

- lead to a risk of toxicity, although most wormers have a wide safety margin, some do not
- require an adjustment to the withdrawal period, as this is determined using the recommended dosage as a standard. If cattle are over-dosed deliberately or accidentally the withdrawal period must be increased proportionally.

Weighing recommendation

Ideally, all animals should be weighed individually using scales or a weigh band and dosed accordingly. However, if a group of well-matched cattle is to be treated together, then it is acceptable to weigh a sample of animals and then treat the group according to this estimate.

If no weighing equipment is available, then a weigh band should be used. Visual estimation of liveweight has been shown to be inaccurate and therefore will inevitably lead to over- or under-dosing of many animals.

Product purchase and storage

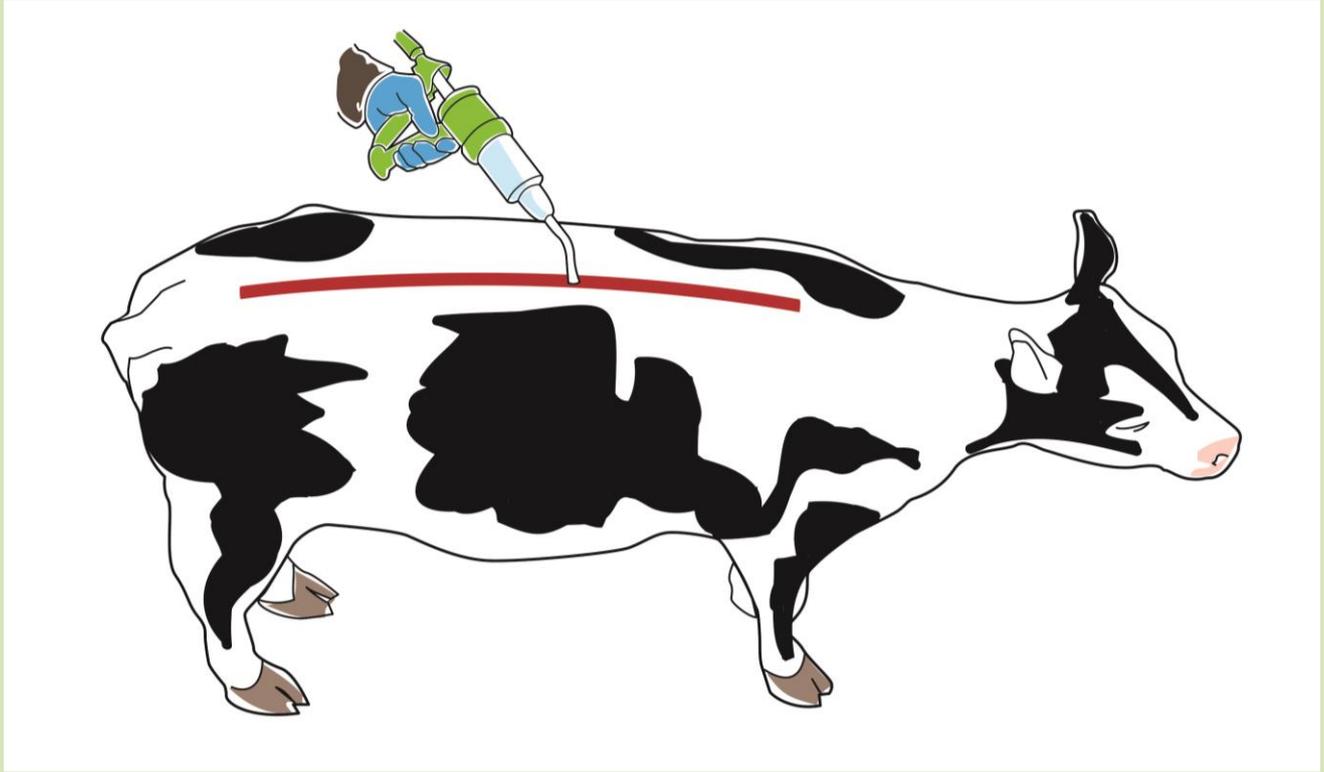
- Always source wormers from a registered supplier and check expiry date before using.
- Consult your adviser to check the right product has been chosen for the particular use and seek further advice if necessary.
- Store wormers securely and away from direct sunlight, according to the

manufacturer's instructions, for example, refrigerated or at 4-25°C.

- Always check the 'use by' date and once open, use within the time shown on the packaging.
- Shake white (BZ) drenches well before use.

Pour-on products

Application method for pour-on products



Pour-on treatments are simple to apply and can be effective, but as with other methods, using the correct technique is important to ensure that the product works.

When using a pour-on product, be sure to:

- use application equipment that is compatible with the formulated product and calibrate it regularly to ensure it is delivering the correct dose
- after use, rinse, clean and then dry the dosing equipment before storage
- apply pour-ons and spot-ons accurately and in accordance with the specific instructions of the manufacturer
- when treating livestock, apply along the length of the flattest part of the back, from the withers to the tail head
- in general do not treat when the hair is wet, or rain is anticipated within two hours of treatment unless the packaging specifies that the product is rainproof
- avoid damaged skin and areas covered with mud or manure.

Injectables

Before using any injectable product read the instructions to find out how to administer the product. Most injectable anthelmintics are given by the subcutaneous route (under the skin). It is important that the injection is given accurately as recommended, otherwise the anthelmintic may be absorbed differently, which could affect efficacy and tissue residues, and there is also a risk of scar tissue or an abscess in the underlying muscle.

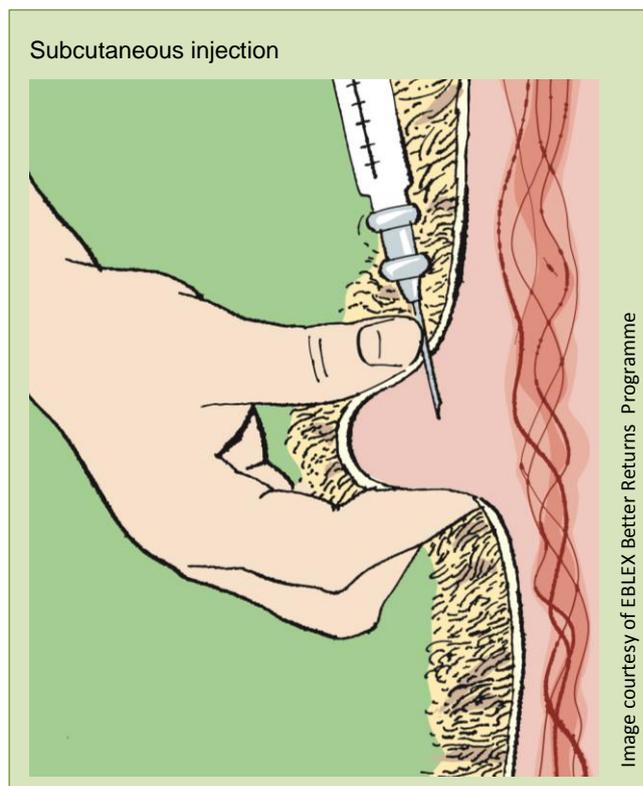
Think about the following before injecting:

- check the product label for information about directions for use, injection site, needle size, etc
- use a clean, sterile syringe and needle and if using a multiple injection gun, ensure the needle is disinfected between injections with a recognised sterilisation system
- ensure the animal is restrained correctly before attempting the injection
- if a large dose is to be delivered, split the dose between two injection sites.
- dispose of used needles and syringes in appropriate clinical waste and sharps containers.

Subcutaneous injections

Subcutaneous injections are administered in areas where the skin is loose (mainly the neck, or behind the shoulder). Grasp a fold of skin and slide the needle through the skin parallel to the animal's neck or trunk. This method will avoid penetration of underlying muscle. To avoid any injection site reactions potentially interfering with the interpretation of TB tests, in some regions it may be advisable to inject subcutaneously behind the shoulder rather than the neck.

Some products are administered into the base of the ear. In this case, the skin at the base of the selected ear should be pinched and the product injected into the subcutaneous tissue. First-time users of products administered into the ear are urged to get professional instruction, in addition to the specific information in the package insert.



Intramuscular injections

The main site for intramuscular injection is the muscle mass of the neck. Therefore, an animal must be adequately restrained to avoid head-butting or kicking when giving an injection.

The normal method of administration, particularly in larger cattle, is to draw product up into the syringe, then disconnect the needle to insert it in the animal. Hold the needle hub firmly between thumb and middle finger and insert it into the muscle, up to the hub, with a sharp slap action. Connect the syringe to the needle, draw back to check for absence of blood and then slowly inject the contents of the syringe over 10 seconds. Do not inject too quickly as this may cause pain to the animal.

Do not inject in the rump

Do not inject in the rump of the animal, as this contains the higher price cuts of meat and if fibrosis or an abscess is formed here, it will dramatically reduce the value of the carcass.

Oral drenching

Correct drenching technique is a vital part of ensuring that each wormer does its job effectively.

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.

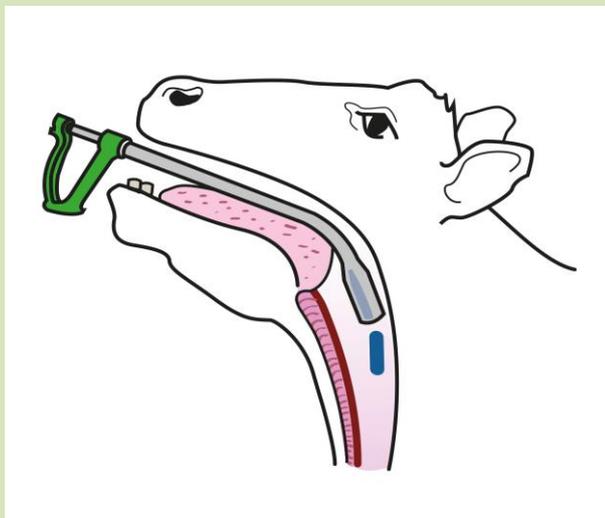
Checking dosing gun calibration



Photo courtesy of EBLEX Better Returns Programme

Intra-ruminal boluses

Bolus administration



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.