

What are critically important antibiotics?

This is one of the most important components of the One Health campaign: understanding what are critically important antibiotics. **Tommy Heffernan** reports



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lies of antibiotics for human health, that are also used in animals, are the fluoroquinolones, third and fourth generation cephalosporins, macrolides and colistin.

In Ireland, DAFM has published a policy document which outlines the conditions under which these last resort antibiotics should be used in veterinary medicine. We need to ensure that these antimicrobials remain effective for people and animals into the future. Your vet should only prescribe these antimicrobials when no other treatment will work as proven by the results of culture and sensitivity testing of samples taken from sick animals.

New European legislation which comes into effect in 2022 will aim to limit the use of all antibiotics in particular HP-CIAs on farm. The use of antibiotics for prophylaxis i.e. to prevent disease such as blanket dry cow therapy in dairy cows at drying off is also going to come under increasing scrutiny.

Farmers and vets must plan for a time when they no longer use the category 1 and 2 high priority antibiotics, and instead replace these antibiotics of last resort with other non critically important alternatives. Your vet is the person qualified to advise you on the most appropriate antibiotic, if any, to use for a particular

Antibiotic class	Highest priority category	Active ingredient	Trade name
Macrolides	Category 1	↻ Tilmicosin	↻ Micotil/Hymatil/Milbotyl
		↻ Gamithromycin	↻ Zactran
		↻ Tulathromycin	↻ Draxxin
		↻ Tildipirosin	↻ Zuprevo
		↻ Tylosin	↻ Tylan/Tylovet/Bilovet
		↻ Erythromycin	↻ Erythrocin
Third and fourth generation cephalosporins	Category 2		↻ Eficur
			↻ Naxcel
		↻ Cefquinome	↻ Excenel
		↻ Ceftiofur	↻ Cobactin
			↻ Cefuinome
			↻ CephaGuard
Fluroquinolones	Category 2		↻ Baytril
		↻ Enrofloxacin	↻ Enrocare
		↻ Marbofloxacin	↻ Marbocare
			↻ Marbocy

The One Health concept is so important because antibiotic resistance affects us all; not just our farm animals, but ourselves and our families. The availability of effective antibiotics is crucial in human medicine both for treatment of sepsis and life threatening bacterial infections, as well as facilitating procedures such as hip replacements, and in particular chemotherapy which could not take place without effective antibiotic cover.

If antibiotics are not used responsibly, and in the right way, then a case of mastitis or pneumonia may not respond to the treatments delivered by your vet. Or far worse your sick child or loved one may develop an infection which becomes untreatable with antibiotics.

Not all antibiotics are the same, and certain classes of antibiotic are reserved in human medicine for treatment of very serious infections which have become unresponsive to other antibiotics. These stronger antibiotics are considered as drugs of last resort and are used when nothing else will work. Some of these antibiotics, which are known as Highest Priority Critically Important Antimicrobials (HP-CIAs), are also used in veterinary medicine.

These groups of antibiotics are critical tools to treat disease in humans where the first line antibiotics have not worked. Given the importance of HP-CIAs in human health, strict controls should be applied to their use in veterinary medicine. We still use a small amount of these on farms, but our aim must be to limit their use, with the eventual aim to completely remove them. The most important fami-



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sick animal. Choice of antibiotic will be affected by factors such as the likely bacterial agent causing the disease and their susceptibility, the ability of the antibiotic to penetrate to the site of infection and the route of elimination of the drug.

Highest Priority Critically Important Antibiotics are antibiotics of last resort in human hospitals and should not be used as first-line treatments on our farms, when other antibiotics are more appropriate. In order to protect animal health and welfare these HP-CIAs can be used if

there is no other effective option.

The above table will help to identify some of these HP-CIA products. Farmers need to start looking at what products they are using, and have conversations about reducing overall use. In relation to the highest priority critically important antibiotics, their use as a first-line treatment and for treatment of more than one animal must stop in order to protect all our health. We must do the right thing and use these precious antibiotics responsibly, as they are critical to human health.

Winter dosing for your flock

Most farmers have breeding on their minds, and body condition is still the number one factor in breeding success. It is a key time to pull out and thin and under conditioned sheep and examine the cause. One thing we need to rule out is parasites.

Faecal egg counts

If you get sheep into a corner of a field or pen, hold them for 10 minutes and they will defecate. Get a tea spoon of fresh dung from six to 10 samples and pool it. Do this early in the week and send it to your local lab. These pooled faecal egg counts can give you an indication of worm levels.

Sometimes you can also target thin or scoury sheep for sampling to rule out worms as a problem.

Quarantine dosing

It is important not to bring any disease onto your farm, particularly parasites or infectious lameness. All bought-in animals should receive a double combination of wormers like monepantel and moxidectin (quarantine dose). Make sure they are housed for 48 hours before turnout to prevent resistant worms from entering the rest of your flock. Check all four feet every time a new arrival comes in and stand them in a footbath 10-15 minutes.

Assessing fluke risk

It's been a wet few months and factory reports suggest that some farms are now on fluke risk. From now on, farmers should follow lamb livers to the factory and check the livers of any cull ewes or fallen sheep. FECs can be used, but they will miss ear-

ly immature fluke (not producing eggs) which can do some damage. They can be checked as part of overall flock FECs.

Dosing for fluke

Triclabendazole will kill all stages of fluke in sheep, but beware of resistance issues in some flocks. Closantel will kill some early immatures from three to five weeks and is effective against late immature and adult flukes. Nitroxylin kills adult and immature flukes but Albendazole is only effective against adult flukes

Ewes pre-tupping

The only ewes that may benefit from worming before mating are those that are thin or immature, like ewe lambs or hoggets. These are also a useful group to take some dung samples from, to check for faecal egg counts.

Sheep scab

Watch out for any sheep licking, biting or scratching. They should be investigated

with your vet to rule out scab. Dipping or Ivermectin are effective against sheep scab.

New approaches

With worm resistance and parasites in sheep continuing to be a real challenge, it is exciting to see research being done about the role of mixed swards in helping reduce the problems with parasites. The research globally is in its early stages, but many experts are excited about the preliminary findings.

New Zealand veterinary consultant Trevor Cook suggested at a recent meeting that mixed swards do play a role in finishing lambs off after weaning. He claimed mixed swards had two benefits: being highly digestible and reducing the risk of pasture larval (worm) burdens.

Plants like chicory are said to have potential anthelmintic effects, but worm parasites find it hard to migrate to animals in mixed swards. For many sheep farmers, this is a space to watch to find other measures to tackle worm resistance.



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