New Entrants to Farming Fact Sheet

What are antibiotics?

This article aims to provide a basic background to improve understanding of how important antibiotics are and how we can all play a part in ensuring they are available and can be used effectively for many years to come. Primarily only effective against bacterial infections antibiotics have no action against viruses. They can be formulated into injectable forms, topicals (sprays, creams or eye drops) or oral forms (liquids or tablets). Within the veterinary sector injectable antibiotics are most commonly used due to convenience of administration. At a basic level, antibiotics can be used therapeutically – to treat a diagnosed infection or prophylactically – to prevent an infection from becoming established; for example blanket treatment of a group of animals.

How do antibiotics work?

The basic aim of an antibiotic is to prevent bacteria from multiplying. Some antibiotics are concentration dependant where the drug concentration must be maintained above a certain threshold at the required site. Whereas some antibiotics are time dependant i.e need to be present at the site for a certain period of time. It is for these reasons that repeat dosing and completing a full course of antibiotics is important to ensure they are effective.

A key factor in the success of any antibiotic treatment is that it needs to get to the site of infection. For example, to treat mastitis the drug needs to travel to the udder, for pneumonia it needs to travel to the lungs and for joint ill it needs to gain access to the affected joint. This is in addition to it being effective against the bacteria likely to be there. It is for these reasons that certain antibiotics are more appropriate choices than others depending on the clinical problem that requires treatment.

Development of resistance

Unfortunately, bacteria are finding ways to evade antibiotics and are developing resistance. Risk factors that may promote resistance in bacteria include:

- · Using an inappropriate antibiotic for the bacteria present
- Administering too low a dose
- · Dose not being present for long enough (course too short)
- · Using antibiotics in animals that do not require it

There is concern that overuse or inappropriate of antibiotics in agriculture could lead to resistant bacteria that will not only become a threat to animals but also a huge concern for human health.











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Critically important antibiotics

Critically important antibiotics (CIA) are those that have been identified as important to human health and should only be used in animals as a last resort when sensitivity testing has been performed and no other alternative is available. In the UK, 3rd and 4th generation cephalosporins, fluoroquinolones and colistin are recognised as the most important CIAs.

What can I do?

Safeguarding antibiotics is the responsibility of everyone. Food retailers and consumers are becoming more aware of responsible antibiotic use with some health schemes requiring collation and reporting of antibiotic use on farm. Reducing antibiotic use by not treating animals could result in poor welfare and reduced production efficacy. Antibiotics should therefore be used 'as little as possible as much as necessary'. If antibiotics must be used, discuss the most appropriate choice with your vet. It is really important that you give a dose appropriate for the weight of the animal and give the correct length of course. Review your antibiotic use with your vet as part of a health review and assess where it could be refined.

Review biosecurity

Minimise entry of disease onto the farm by considering your buying in policy and contact with neighbouring stock

- Reduce stress
 - Stressed animals have a reduced immune response. Consider if stocking densities could be reduced, minimise stress during handling procedures.
 - Mixing of ages in a group will cause stress as they are in competition for feed space but there are also younger, more susceptible animals are likely to contract disease form the older animals.

Consider alternative treatments

- Environmental alterations such as assessing shed ventilation may be more beneficial and profitable than treating pneumonia in calves. Preventing pneumonia in this way may also lead to higher growth rates due to a reduction in subclinical infections.
- Consider the use of vaccines to prevent disease negating the need for treatment and potential antibiotic use.

Good nutrition

• There is no substitute for colostrum to protect against disease. Ensuring all animals have a balanced diet and are not deficient in any minerals or trace elements will maximise the natural immune system.

More information can be found at www.ruma.org.uk

