
Code of Good Practice Regarding the Responsible Use of Antimicrobials on Dairy Farms



These Guidelines have been developed by Irish Farmers and Veterinary Practitioners to guide good practice in the responsible prescribing and use of antibiotics in farm animals, in response to the global societal challenge of antimicrobial resistance



The Farmer's Role

Practical strategies to combat the growing problem of antimicrobial resistance at farm level

For disease to occur, several conditions must be met. These include host (dairy cattle) factors, environmental factors (stresses) and factors dependant on the characteristics of the infectious organism. Manipulation of husbandry and management practices on a farm can go a long way toward tipping the balance against disease. Implementing these well recognised strategies will keep your herd healthier and reduce the need for antibiotics in the long run.



Guideline 1: Prevention of disease is always better than cure.



Guideline 2: Herd Health Plans are an essential tool for Farmers.



Guideline 3: Reduce and Eliminate Disease entry to your farm through Biosecurity

- ▶ Have a planned and rigorous cleaning and disinfection routine



Guideline 4: Prevent diseases where relevant with vaccination.



Guideline 5: Keep animals stress-free through

- ▶ Good Husbandry Practices
- ▶ Good Housing and adequate space
- ▶ Plentiful access to clean drinking water



Guideline 6: Prevent and control Parasites to enhance performance, reduce stress and prevent disease.



Guideline 7: Where treatment of disease is necessary with Antibiotics, observe the six 'rights' of prescription and use

- ▶ Right Veterinary Diagnosis
- ▶ Right Animal(s)
- ▶ Right Antibiotic
- ▶ Right Dose
- ▶ Right Duration
- ▶ Right Storage and Disposal



Specific Strategies for Dairy Farmers

How can Dairy Farmers prevent AMR?

- ▶ More Focus on Preventative Strategies
- ▶ Enhanced Biosecurity
- ▶ Improved Husbandry
- ▶ Increased Strategic Use of Vaccination
- ▶ Avoid using antibiotics against viruses
- ▶ Use antibiotics for Treatment not Prevention
- ▶ Always use antibiotics as prescribed

Herd Health Planning

The aim of a Herd Health Plan (HHP) is to ensure the best possible health and welfare of the cattle on the farm, which, in turn, leads to optimum animal performance and productivity. The HHP should be devised as a collaborative effort between the dairy farmer and his veterinary practitioner. The plan is developed based on a unique personalised knowledge of the farm in combination with an on-farm risk assessment, which includes inspection of facilities, routine examinations, review of selected herd performance records, and decisions and actions related to specific herd management issues.

The stages involved in a standard HHP include:

- ▶ Investigation and establishment of the current herd health status.
- ▶ Plan to prevent disease on the farm.
- ▶ Plan to prevent the spread of disease.
- ▶ Regularly monitor the control strategies/ review the HHP

Health Management of Newborn Calves

Extensive studies by Teagasc have identified the importance of good colostrum management in calf health contributing significantly to reduced antibiotic usage in calves in dairy herds. Newborn and young calves are usually the most immunologically naive animals on the farm.

This means that their immune systems have not yet developed to the stage where they can recognise the common bacteria and viruses in the environment and effectively fight them off. It is essential that they are given every form of protection to prevent the development of disease.

The following are essential guidelines that improve the health of calves:



- ▶ Colostrum is vital to calf health. It provides the calf with valuable antibodies but is also an excellent source of food and fluid for the calf. Farmers should follow the Animal Health Ireland (AHI) guidelines “Colostrum 123 rule”;
 1. The 1st MILK, and only the first milk the cow produces, should be used to feed to the newborn calf for its first feed.
 2. Feed calves within 2 HOURS of birth as antibody absorption is highest at this time.
 3. Feed 3 LITRES to ensure the calf receives enough antibodies.
- ▶ Consider vaccinating cows against calf diseases, in particular certain types of scour. This will result in higher levels of antibodies against this disease in the cow’s colostrum and will contribute significantly to protecting the calf from this disease in the first few weeks to months of life.
- ▶ The main source of bacteria for a calf is cow manure. Practicing sound hygiene protocols at calving dramatically reduces the risk of infection, including naval treatment immediately after birth. Disinfect housing.
- ▶ Correct ventilation and air flow at calf level are critical to prevent calf stress and the development of respiratory disease in calves. Ensure good ventilation.
- ▶ Calf stocking rates should reflect the age of the calves and the ventilation system of the shed. Do not overstock.
- ▶ Treatment for scours is very similar regardless of the cause. It should be directed toward correcting dehydration, acidosis and electrolyte loss. Many of the pathogens which cause scour are viruses. Antibiotics do not kill viruses. Antibiotics are very rarely indicated in scouring calves and should only be considered following a specific veterinary diagnosis and under specific veterinary instruction. Antibiotics can further damage the gut bacteria, and be counter productive if incorrectly used.

Mastitis Control Programmes

Minimising the levels of disease-causing organisms on a dairy farm and preventing the potential spread of these organisms from cow to cow is key to the responsible use of antimicrobials in milk production.

The recent Animal Health Ireland (AHI) initiative, CellCheck, has made great progress with mastitis control on Irish dairy farms in terms of stakeholder education, implementation of best practice, and promotion of awareness of prudent use of antibiotics in milk production.

Dairy farmers should participate in the CellCheck programme to develop tailored mastitis control programmes appropriate for individual farms.

In terms of mastitis control advice for farmers, the CellCheck Farmer Workshop “Top 5” are:

- ▶ Milk recording
- ▶ Wearing clean gloves during milking
- ▶ Post-milking teat disinfections
- ▶ Routine milking machine maintenance
- ▶ Changing liners at 2,000 milkings

Selective Dry Cow Strategies

A selective dry cow strategy should be considered in herds that meet certain criteria in terms of somatic cell count, and mastitis incidence. Prior to adopting a SDCT approach you should discuss your strategy in detail with your vet, and dairy advisors.

Key requirements include:

- ▶ Best practice and high levels of hygiene at drying off, throughout the dry period and at calving
- ▶ Regular milk recording
- ▶ Low levels of infection pressure in the herd

Lameness

Controlling lameness in the herd to an acceptable level will reduce the overall antibiotic consumption. Managing lameness in the herd can be achieved by following the guidelines below:

- ▶ Provide an environment and conditions for the cows that are comfortable, clean and safe.
- ▶ Cubicles should be the correct size for cows to enter, lie down, and exit easily.
- ▶ Cubicles should be clean and bedded using sawdust and lime.
- ▶ All walking surfaces should be kept clean of manure build-up and be non-slip and comfortable.
- ▶ Roadways should be comfortable and not dangerous for cows.
- ▶ Proper claw trimming is an essential component of lameness control and cow comfort
- ▶ Disinfectant footbaths are very useful in the prevention of lameness in herds. They need to be properly maintained and cleaned at the appropriate times. Ensure that the product instructions are followed with regard to dilution and frequency of replacement.





Vaccination

Vaccination is a powerful tool in preventing the occurrence of infection at farm level and in reducing the need to use antibiotics. The use of vaccines is accredited with minimising production losses associated with many diseases.

Some important principles about vaccination should be considered before deciding on a vaccination strategy for any farm:

- ▶ A vaccination programme should be tailored to each farm and devised in conjunction with the responsible veterinary practitioner. Vaccines are available for a variety of bovine diseases. Not all of them are required or will be useful on every farm.
- ▶ Often, vaccines will require repeat administrations, or “boosters” to ensure that the level of antibodies in the blood will be adequate to fight off the infection should it be encountered. This information is available on the datasheet, or summary of product characteristics. Always administer the booster, if required.
- ▶ Correct storage of vaccines is essential. In general, cold storage applies, and most vaccines will need to be stored in a fridge. They are inactivated by heat and sunlight (e.g. the car dash board) and are

inactivated by freezing. Vaccine failure has regularly been attributed to poor storage conditions.

- ▶ The use-by date on vaccines must be adhered to strictly as vaccines deteriorate after this date. Once opened, it is essential that they are used within the timeframe indicated.

Using vaccines to their maximum effect as part of a herd health plan will improve the productivity of the herd, will minimise the burden of disease and reduce the requirement for antibiotic usage.

Parasite Control

Optimum parasite control will improve the growth rate and productivity of cattle, as well as maximising the herd's ability to fend off other infections and remain healthy. It is important to get expert advice before using anthelmintics on your farm. Some important parasite control considerations are:

- ▶ Most adult cattle will develop immunity to most types of parasites over their lifetime. Exposure to very small burdens of parasites will do little or no harm to the cattle but will contribute positively to the build-up of immunity in the herd.
- ▶ Control programmes involve managing parasites in the cattle and in the environment.



- ▶ Breaking the parasite's life cycle is the key.
- ▶ Monitoring for treatment success/failure is essential on farm.
- ▶ Testing for resistance should form part of the investigative phase of any herd health plan.
- ▶ Concentrate on managing parasites in young animals – calves and replacement heifers.
- ▶ Identifying which parasites are a threat to the herd, and how to manage them, should always be done in consultation with your veterinary practitioner.

It is important to be familiar with the clinical signs shown by cattle suffering from the variety of parasites commonly found in the local area. Common signs like coughing, scour, weight loss should always be investigated for a parasitic cause or anthelmintic treatment failure before antibiotics are considered as part of the treatment options.

Biosecurity

Biosecurity is the term used to describe the implementation of a set of management practices to prevent and or control disease occurrence on farm. Bioexclusion refers to the actions necessary to keep disease out of a farm. Where disease does

occur, biocontainment is the term used to describe management practices to keep it from spreading between animals on the farm.

A good bioexclusion protocol should include the following:

- ▶ Ensure that disinfection facilities are provided to all farm visitors.
- ▶ Keep a closed herd if possible.
- ▶ Buy from accredited disease-free herds as much as possible.
- ▶ Always isolate purchased animals or animals that have participated in shows for at least 28 days to monitor for signs of disease.
- ▶ Sharing of equipment between farms should be avoided unless it can be thoroughly disinfected.
- ▶ A farm's biosecurity plan should be reviewed annually as farming practices may have changed.

In terms of biocontainment, develop a plan that addresses the three issues below:

- ▶ **Reduce the sources** of infection by ensuring all animals are healthy. Sources of infection include infected animals or contaminated environment, equipment or people.

- ▶ **Prevent the spread** of infection to susceptible animals.
Minimising or preventing spread includes quarantine incoming/added/returning animals, isolation of sick animals, protecting susceptible animals, reducing contamination of environment and equipment.
- ▶ **Improve immunity** of susceptible animals.
The most susceptible animals in the herd require attention to prevent the spread of infectious diseases and can include pregnant dams, colostrum deprived calves, late born calves, and stressed animals. Older cattle act as reservoirs of infection for younger animals – e.g. IBR latent carrier cows can infect calves, and animals returning from rearing farms or an out-farm can bring infection back to the home herd, and also can pick up infection from the home herd upon re-entry.

Improving Immunity:

- ▶ Protect animals with immature immune systems - provide adequate colostrum to all newborn calves
- ▶ Prevent immuno-compromising conditions - e.g. a poor plane of nutrition, nutritional deficiencies, lameness, BVD or liver fluke infections.
- ▶ Reduce stresses which lower immunity particularly at high risk times - e.g. around calving, change of housing or weaning.
- ▶ Use preventive medicines where appropriate - e.g., vaccines, dry cow mastitis therapy, dosing for fluke and worms, treating for lice and ticks.
- ▶ Operate and maintain a hospital area and a quarantine area on your farm.

- ▶ Optimise management activities - ensure vaccines are given at the appropriate time

Air Quality and Ventilation

Good air quality is an important factor to maintain health and well-being in housed animals. Air quality is determined by the quantity of gases, dust particles, and air-borne bacteria and virus within the housing facilities. Good air quality will be achieved by combining appropriate ventilation with good hygiene practices in sheds, both of which should be investigated as part of your herd health plan.

Poor air flow, a build-up of waste gases, draughts, and increased levels of disease-causing organisms will overwhelm an animal's immune system and result in disease.

Cleaning and Disinfection

Cleaning and disinfection are the most important of all disease control measures. Removing or killing the infective agents as quickly as possible once they emerge on the farm is key to preventing the spread of disease, and by extension, the need for drug therapy. Ensure you are using the correct disinfectant for your farm, and that you follow the instructions around the use of the disinfectant. Ensure all farm workers understand the importance of disinfection procedures so that they are not a source of infection for your animals.

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