

RESPONSIBLE USE OF MEDICINES IN AGRICULTURE ALLIANCE

**ruma**

**GUIDELINES**

# **Responsible use of antimicrobials in cattle production**

Produced by the BCVA Working Group of the  
**RUMA® Alliance**

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## WHAT IS RESPONSIBLE USE?

*The Responsible Use of medicines means: “using medicines as little as possible and as much as necessary”.*

### ***As little as possible***

- ✓ *Reduce risk of disease challenge by*
  - *Good farm management including ventilation, stocking densities, nutrition, access to fresh water, hygiene*
  - *Biosecurity*
  - *Farm health planning*
  - *Vaccination programmes*
- ✓ *Medicines must not be used as a substitute for good farm management*

### ***As much as necessary***

- ✓ *For antibiotics, diagnosis and prescription by a veterinary surgeon*
- ✓ *Purchased from authorised supplier*
- ✓ *Follow label and veterinary instructions*
- ✓ *Correct dose*
- ✓ *Full course*
- ✓ *Observe the withdrawal period*
- ✓ *Correct storage of all medicines*

## INTRODUCTION

### 1. Facts about RUMA

#### **(RESPONSIBLE USE OF MEDICINES IN AGRICULTURE ALLIANCE)**

##### **What is RUMA?**

*RUMA was established in November 1997 to promote the highest standards of food safety, animal health and animal welfare in the British livestock industry. It is a unique independent non-profit group involving organisations that represent all the stages of the food chain from 'farm to fork'. This reflects the importance of traceability, transparency and accountability in all stages of the chain: from primary food production, through processing, manufacturing and retailing to the final consumer. Its membership includes organisations representing interests in agriculture, veterinary practice, animal medicines industry, farm assurance, training, retailers, consumers and animal welfare interests.*

*RUMA aims to produce a coordinated and integrated approach to best practice animal medicine use. It has an established communications network with government departments and many non-governmental organisations.*

*Amongst its aims is to communicate practical strategies by which the need for use of antimicrobials might be reduced without adversely affecting either the welfare of animals, or the viability of a business, and provide guidance on how antimicrobials can be used responsibly when this is necessary for animal health and welfare.*

##### **What are the Aims of RUMA?**

*The main aims of RUMA are to:-*

- a) Identify issues of scientific and public concern in the areas of public health, animal health, animal welfare and the environment which relate to animal medicine use.*
- b) Provide an informed consensus view on the identified issues, developed by discussion and consultation.*
- c) Establish and communicate guidelines which describe "best practice" in the use of medicines.*
- d) Advise industry in the implementation of "best practice", especially in the development of codes of practice and assurance schemes.*
- e) Communicate and to consult on:
 
  - i) The effective use of animal medicines.*
  - ii) The regulation of livestock production and use of medicines.**
- f) Promote the appropriate use of authorised medicines for disease prevention and control.*
- g) Liaise with National Authorities including for example the Animal and Plant Health Agency (APHA), Veterinary Medicines Directorate (VMD) and Food Standards Agency (FSA).*
- h) Identify practical strategies to sustain responsible use of medicines.*

### **How Does RUMA Achieve its Aims?**

Chiefly through the publication of the RUMA Guidelines for the responsible use of medicines, including antimicrobials, for all the major food producing species such as dairy and beef cattle, sheep, pigs, poultry and fish. These are all working documents and built up from the contributions from member organisations. Available free of charge from the RUMA website [www.ruma.org.uk](http://www.ruma.org.uk), they are continually reviewed and updated in the light of new developments.

### **Contact**

For more information on RUMA please go to the RUMA website [www.ruma.org.uk](http://www.ruma.org.uk) or contact the Secretary General by email at [rumasec@btinternet.com](mailto:rumasec@btinternet.com).

## **2. Classification of Animal Medicines**

- *POM-V (prescription only medicine - veterinarians): prescribed by a veterinary surgeon and supplied by a veterinary surgeon or a pharmacist against a veterinary surgeon's prescription;*
- *POM-VPS (prescription only medicine - veterinary surgeons, pharmacists and Suitably Qualified Persons (SQP)): prescribed by a veterinary surgeon, a pharmacist or a SQP and supplied by these professionals;*
- *NFA-VPS (non-food animal - veterinary surgeons, pharmacists and SQPs): no prescription required - supplied by a veterinary surgeon, a pharmacist or a SQP;*
- *AVM-GSL (authorised veterinary medicine - general sales list): no prescription required - can be supplied by any retailer.*

*All antimicrobial veterinary medicines are classified POM-V*

### **3. Background information on**

#### **a) The use of medicines in cattle production**

1. *All medicines used in the EU have been registered for their current uses on the basis that they are effective and safe to both man and animals. They reduce the suffering and distress associated with disease and aid recovery. Antimicrobials are used to treat bacterial and other microbial diseases in animals. Antimicrobials are sometimes used to prevent predictable disease incidence or at the outbreak of a disease in a herd or group to prevent in-contact infection (e.g. pneumonia in calves).*
2. *Antibiotic growth promoters have not been used in the EU since 1 January 2006, (Regulation (EC) No 1831/2003). Before then, certain antimicrobials, which were meant to be of no great value in the treatment or prevention of diseases, could be used as zootechnical feed additives in cattle to enhance performance (Swann Report, 1969). These were primarily used at low levels to improve the growth rate and efficiency of feed conversion but subsequently, in some cases, they were also shown to have disease prevention qualities.*
3. *The cattle industry recognises that human health must be the overriding consideration guiding antimicrobial use. The Responsible Use of Medicines in Agriculture Alliance (RUMA) is a coalition of organisations including agricultural, veterinary, pharmaceutical and retail interests. This document is one of a series of species-specific documents developed by RUMA. The main aims are to communicate practical strategies by which the need for use of antimicrobials might be reduced without adversely affecting either the welfare of animals, or the viability of a business, and provide guidance on how antimicrobials can be used responsibly when this is necessary for animal health and welfare.*
4. *A Report on British Cattle Health and Welfare was launched by the cattle industry through the Cattle Health and Welfare Group (CHAWG) in 2012 and updated in 2014. The Cattle Health and Welfare Group consists of representatives from across the industry, welfare organisations, RUMA and government, and oversees the implementation of the strategy. This group keeps the cattle industry and its stakeholders informed about the progress in achieving their aims and successful outcome and uptake. The group seeks to support producers in improving cattle health and welfare on-farm. RUMA fully supports the initiative and seeks to promote the concept of responsible use of medicines within the strategy.*
5. *Without good health, an animal's potential cannot be fully expressed. Health is essential for efficient performance and disease control is a key element of any successful management programme. Treatment of disease is not as effective or as economical as prevention. Poor health status is a major cause of variation across all forms of cattle performance, including fertility, growth rate and milk production. Many outbreaks of disease in cattle herds can be avoided by using management practices that minimise exposure to disease, reduce stress, and include good hygiene and vaccination programmes. Key management areas are highlighted in these guidelines.*

**b) The Farmer's Role**

6. *The use of animal medicines carries with it responsibilities. The use of therapeutic antimicrobials is under the direct responsibility of veterinary surgeons. Farmers, however, have a very important role to play in ensuring that the directions of the veterinary surgeon are properly carried out and also in developing and applying disease control measures which will minimise the need for antimicrobial use.*
7. *All farmers have a responsibility for the health and welfare of the animals on their farm. There are occasions where this is a joint responsibility with their veterinary surgeons in the provision of correct and appropriate antimicrobial treatment and care. Farmers and stock keepers can play a major role in ensuring the responsible use of medicines on farms by following the guidelines published here – a short summary is also available for easy reference. Similar guidelines form part of all farm assurance schemes.*
  - *All cattle farmers must be totally committed to producing safe food.*
  - *Cattle keepers have a duty and responsibility to safeguard the health and welfare of animals on their farm.*
  - *An appropriate herd health plan that outlines routine preventive treatments (e.g. biosecurity, vaccination and worming programmes etc.) and disease control policy should be drawn up, observed and regularly reviewed in association with the attending veterinary surgeon.*
  - *Therapeutic antimicrobial products should be seen as complementing good management, vaccination, biosecurity and farm hygiene, NOT replacing them.*
  - *Treatment with a medicine that requires a veterinary prescription should only be initiated with formal veterinary approval. In-feed medication must be covered by a Medicated Feeding Stuff Prescription (MFSp).*
  - *Accurate information must be given to the attending veterinary surgeon to ensure that the correct diagnosis, medication and dosage can be calculated. Clear instructions regarding diagnosis, medication, dosage, administration and withdrawal periods must be made available in written form to all who are involved in the care of the animals concerned.*
  - *All medicines should be legally obtained and prescribed under the cascade system by the attending veterinary surgeon.*
  - *The prescribing veterinary surgeon must be made aware of other medicines being administered to the animals concerned so that adverse reactions can be avoided.*
  - *The full course of treatment at the correct dosage must always be administered in a careful manner. Make sure that only target animals receive the medication.*
  - *Make sure that the appropriate withdrawal period is complied with before supplying milk or meat from treated animals. The required withdrawal time should be specified on the label of the medicine: for off label usage the statutory minimum periods of 28 days for meat and seven days for milk must be observed. Longer periods may be advised by your veterinary surgeon.*

- *An animal medicines record book, copies of relevant regulations and Codes of Practice must be kept safely on farm e.g. the Veterinary Medicines Directorate (VMD) Code of Practice on the Responsible Use of Animal Medicines on the Farm.*
- *Accurate information must be kept on the identity of the cattle being treated and the nature of the condition being treated. Records should also include the batch number, amount and expiry date of the medicine used, plus treatment time and date information for each animal treated and the withdrawal period that must be observed. Medicine records required by legislation must be kept for at least five years (even if the cattle in question have been slaughtered).*
- *Appropriate information on all medicines used should be readily available to stock-keepers and kept on file – e.g. product data sheets, package inserts or safety data sheets.*
- *Follow the manufacturers' advice on the storage of medicines and the disposal of unused medicines (check the label or package insert). Safely dispose of unused or out-of-date medicines and containers and application equipment (including needles to a sharps container) when you finish the treatment for which they were intended. It may be possible to return unused medicines to the prescribing veterinary surgeon or supplier for disposal. Guidance notes relating to medicated feedstuffs and specified feed additives is contained in the publication <https://www.gov.uk/government/publications/medicated-animal-feedingstuffs-and-specified-feed-additives-vmgn-17>*
- *Any suspected adverse reaction to a medicine in either the treated animals (including any unusual failure to respond to medication) or farm staff having contact with the medicine should be reported immediately to the Veterinary Medicines Directorate (VMD) and the supplier. The report to VMD can be done through the prescribing veterinary surgeon or the supplier. The adverse reaction can be reported direct to the VMD by the livestock keeper. Adverse reaction forms can be found on its website <https://www.gov.uk/report-veterinary-medicine-problem>. A record of the adverse reaction should also be kept on the farm: either a copy of the VMD adverse reaction form or a note in the medicines record book.*
- *Co-operate with and observe the rules of farm assurance schemes that monitor medication and withdrawal period compliance. However, stock-keepers should never feel constrained from safeguarding the health and welfare of the animals.*
- *Work with the farm veterinary surgeon in monitoring the effectiveness of antimicrobials used and regularly investigate the possibility of alternatives (particularly through changes to management techniques) to see if they can offer the same level of protection of health and welfare as the use of antimicrobials.*
- *Adequate training and good recording systems are essential to provide a framework for identifying disease problems and making the necessary changes to management practices. This can lead to a reduction in antimicrobial use. Staff working directly with animals should be trained to identify health problems early and in the use of veterinary medicines.*



## Practical strategies to reduce the need to use antimicrobials on cattle farms

### 1. Introduction

- a. *For a specific disease to occur, certain combinations of factors involving the cattle, the environment, and the disease agent must be present. Proper manipulation of g, husbandry practices, and the environment will help to prevent disease. There are at least two reasons to ensure that cattle receive proper care. Firstly, there is an ethical concern for that animal's well-being. Secondly, production efficiency must be maximised. Management practices that incorporate good animal care are usually also the most effective from a production perspective. When cattle receive good care, production costs for the milk and beef produced are less than when cattle are not effectively cared for.*
- b. *If certain management practices conflict with the well-being of the animals, the producer should adopt practices that put the animals' welfare ahead of short-term cost savings.*
- c. *The health of cattle and the incidence of disease are directly affected by key areas of management. A desirable level of nutrition promotes good animal health and prevents many health problems. Farmers should know about the stresses, diseases, parasites and other health related conditions that may be unique to their area and especially to their specific operations. Disease control measures related to genetics and environment management also deserve attention, especially when controlling health problems.*
- d. *Disease outbreaks are often related to either*
  - i) *The introduction of new infectious disease agents from contact with new animals: this can arise either from another herd or different group.*
  - ii) *And/or a high concentration of cattle raised continuously in the same unit or on the same pasture.*

*Overcrowding and continuous use can result in physical injury due to increased social conflict and a rapid build-up or accumulation of disease producing organisms in the environment. These organisms can infect and keep re-infecting the herd e.g. lameness or mastitis.*
- e. *Veterinary surgeons ensure that animal diseases are properly diagnosed and help to design preventive programmes. Farmers should consult their veterinary surgeon when they require a diagnosis of disease in their animals, when levels of disease rise or when they need to design or modify a preventive disease programme. Disease prevention resulting in increased levels of health and performance should be part of a total management programme.*
- f. *These guidelines are designed to help producers evaluate their husbandry procedures with respect to the well-being of their animals and to offer production practices that are both ethically acceptable and cost efficient.*

The pig industry developed **four golden rules**, the principles of which also hold true for the control of most cattle diseases and to the control and elimination of organisms like *Salmonella spp.* which are food safety hazards. The key points on disease control are summarised into four guiding principles. Keeping these four principles in mind and making efforts to follow their intent, will ensure you'll be on the right track.

<b>Disease Control: Four Guiding Principles</b>	
Review biosecurity for new cattle introduced into a herd	Diseases spread around and between farms mostly by contact with other cattle. Screening and monitoring will help to limit the spread of disease. REMEMBER contact can also be INDIRECT, for example by a needle, surgical instrument, manure or people.
"Stress" is a killer.	Stressed animals are far more likely to become diseased. This includes not only obvious physical stress factors such as overcrowding or management procedures e.g. handling; but also exposure to micro-organisms which cause major stress to the immune system e.g. BVD. THINK - If a procedure causes the cattle to become stressed, ask "can this be done in a less stressful manner?" e.g. castration, introduction of heifers to the dairy herd.
Good Management and Hygiene	There is no substitute for good management, hygiene and biosecurity measures. Cleaning buildings and equipment coupled with good hygiene will all make a difference. Don't spread disease by poor management and hygiene and exceeding stocking densities.
Good Nutrition	Good intakes of colostrum provide essential antibodies to protect calves as their immune system is developing. Balanced diets with adequate levels of energy, fibre and proteins, in appropriate forms, along with trace elements, vitamins and anti-oxidants are essential if the immune system of cattle is to work properly in tackling diseases. It is essential to ensure adequate dry matter intake for all ages.

## 2. **Disease prevention**

The best way to prevent infectious disease is to prevent it from entering the farm. It is important as part of a herd health plan to develop a preventive medicine programme and consulting with those who have additional expertise and experience in the use of medicines to prevent disease may assist this. Cattle Health Certification Standards (CHeCS) provides industry recognised standards for the certification with regards to IBR, Leptospirosis, BVD, Johne's Disease and Neospora. These are recognised as the gold standard with regard to these diseases. The principles of the CHeCS biosecurity recommendations will also be valid for many other infectious diseases.

### **Biosecurity – Keep disease out**

- **Biosecurity can be very herd specific**
- **Everyone on the farm needs to realise its importance and relevance**
- **The veterinary surgeon is essential in all biosecurity discussions**
- **The guidelines below are based on CHeCS requirements which are an industry recognised standard**

**Herd Definition:** A herd is defined as cattle that are under a unified management system but not necessarily on one premise. Any cattle introduced to an existing group or herd can present a risk, even if only buying calves to rear on (e.g. BVD). Good isolation between different groups of animals is practically difficult to achieve.

**Farm boundaries:** Farm boundaries must prevent cattle from straying off or onto the farm and must prevent nose to nose contact with other cattle especially those of a lower health status over fences or walls. Installation of double fencing or use of an equivalent boundary to provide a gap of 3 metres between cattle and any neighbouring cattle is essential for some diseases (e.g. IBR, BVD, TB). It is also a useful standard to adopt for all disease control programmes.

**Grazing of cattle:** Grazing on pasture previously grazed by cattle of an unknown health status, including added animals, can present a risk for diseases such as TB, Johne's disease, BVD, Leptospirosis and cattle parasites. There will also be a risk of slurry or manure from cattle of an unknown status being spread on pasture. Depending on the individual diseases a period of time should elapse before grazing and this should be discussed with your veterinary surgeon as this can vary from weeks to a year depending on the disease and the season.

#### **Acquisition of new animals**

Before acquiring new animals it is worth going through a check list with regards the common diseases that could be introduced into your herd. It is strongly recommended to ask your veterinary surgeon for advice on this.

**Checklists are available on [www.eblex.org.uk](http://www.eblex.org.uk) and [www.dairyco.org.uk](http://www.dairyco.org.uk)**

**Isolation facility:** An isolation facility that prevents contact with other stock must be provided for all added animals. A dedicated building separate from other cattle buildings is ideal, but a separate paddock that prevents contact with other stock may suffice. No air space, drainage or manure storage should be shared with other cattle. Manure should only be removed from the dedicated storage area to be spread on land or added to the main manure store, when all animals in the isolation facility have passed the required health tests and been added to the herd.

**Isolation period:** A defined isolation period must be observed as specified in consultation with your veterinary surgeon. If appropriate added animals can be tested for freedom from appropriate diseases (e.g. BVD) and when results are available and indicate freedom from infection then these added animals can enter the herd.

**Feed and bedding:** When buying feed and bedding, care must be taken to avoid the risk of introducing infection into the herd. Feed and bedding stores should be protected against access by vermin, wildlife, dogs and cats.

**Colostrum:** Colostrum from other cows not in your herd can present a disease risk (e.g. Johne's disease)

**Water:** Piped mains water should be used rather than natural water sources whenever possible because there is a risk of cattle becoming infected with diseases (e.g. Salmonella, Leptospirosis, and Johne's disease) from water courses. It is preferable that cattle do not have access to watercourses that have other cattle or sheep grazing upstream or that have flowed through another farm.

**Personnel:** Visiting personnel can present a risk and as a minimum precaution, footwear should be disinfected with an appropriate foot dip - <http://disinfectants.defra.gov.uk>. It is advised that clothing worn by visiting personnel should not have been in contact with other animals or has been appropriately disinfected. It is advised that farm staff with their own stock should take appropriate precautions and at a minimum have separate clothing and footwear.

**Veterinary Equipment:** Equipment such as surgical instruments and hypodermic needles should not be shared within cattle from the same herd and must not be shared between different herds. Veterinary surgical instruments must be sterilised before use in the herd.

**Farm Equipment:** Equipment, machinery, livestock trailers and handling facilities that are shared between your cattle and other livestock must be cleaned and disinfected before use between herds. For some diseases, a Defra-approved product at the dilution recommended for tuberculosis control must be used (e.g. Johne's disease) <http://disinfectants.defra.gov.uk>.

**Delivery or collection of stock:** Delivery and pick-up points should be at a site isolated from other cattle on the farm. Where possible, the driver should remain in his cab and should certainly never assist in removing cattle from pens unless using farm-dedicated protective clothing and footwear. This is particularly important when carcass collection is taking place, to prevent potentially infectious carcasses from other farms entering your premises.

**Co-grazing with sheep or other domestic ruminants or camelids:** Co-grazing can present a disease risk (e.g. liver fluke, TB) so it is recommended that, wherever possible, cattle and other ruminants do not graze together.

**Semen/embryos:** Closed herds should only source new genetic material from reliable sources (e.g. semen collection centres approved for intra-community trade).

**Movement of cattle off farm - shows, bull hire, sales**

Any movement off the farm where the animals may mix with other cattle will present a disease risk. Shows and bull hiring units should have guides with regards to their disease status. This should be discussed with your veterinary surgeon and the appropriate contacts e.g. show veterinary surgeon, bull hire unit. If hiring bulls from another farm then the disease risks should be discussed with your veterinary surgeon and preferably form part of the bull examination prior to hiring.

Whenever cattle or other farm animals are introduced, or returned, to your farm you should follow a risk based biosecurity protocol devised with specific advice from your veterinary surgeon. Every farm should have a protocol for introducing livestock based upon local veterinary advice. Elements that may be included in such a protocol are shown in Table 1.

**Table 1 – Risk Assessments protocols to consider for incoming stock during the isolation period**

<b>Procedure</b>	<b>When to perform</b>
<i>Check health status of animal/herd in relation to your herd with vendor</i>	<i>Before purchase</i>
<i>Consult your veterinary surgeon with regards to specific disease risks</i>	<i>Before purchase</i>
<i>Check and observe animal(s) for signs of disease</i>	<i>On arrival and for entire isolation period</i>
<i>Laboratory tests e.g. BVD, IBR, Salmonella,</i>	<i>On arrival and as necessary depending on results and testing carried out pre-purchase</i>
<i>Assess parasite risk – Lungworm, fluke and mange and lice</i> <a href="http://www.cattleparasites.org.uk">www.cattleparasites.org.uk</a>	<i>Treat according to veterinary advice at start of isolation period</i>
<i>Administer preventive treatments e.g. to prevent introduction of anthelmintic resistant parasites</i>	<i>While in isolation</i>
<i>Administer vaccines to protect incoming animals from diseases already present on your farm e.g. BVD, IBR, Leptospirosis</i>	<i>After collecting test samples but well before introduced animals leave the isolation facility.</i>

### **3. Routine health procedures**

*Stringent prevention programmes involving biosecurity practices and the routine isolation and quarantine of new animals, combined with routine surveillance and action when necessary, are recommended health procedures. Because of the prevalence and impact of specific diseases, a vaccination programme is usually practised.*

### **4. Vaccination programme**

- a. *Vaccinations are available for a number of diseases that affect cattle. In many cases, vaccination constitutes the major part of the control of the disease. In others it is only a small part of the control programme. Vaccination programmes need to be tailored to each farm and should be developed in consultation with a veterinary surgeon. Remember that vaccination only raises*

- an animal's level of resistance. If other important management procedures are neglected, even this raised level of resistance may be inadequate to prevent disease.*
- b. Vaccination is a powerful tool for controlling disease on cattle farms. The use of vaccines has the ability to reduce the production losses associated with many diseases. Vaccines have two major effects:*
- i) The primary benefit is to the animals that are vaccinated, as they are less likely to become diseased. These animals can therefore withstand disease challenges and perform better. Vaccines are usually very specific and careful assessment may be required on the farm before their use. Appropriate vaccines for your farm should be used on the advice of your veterinary surgeon.*
  - ii) The secondary effect of vaccination is on the herd. As the immunity of the individuals rises, fewer infectious organisms are circulating although this will not apply for all diseases. This further reduces the presence of disease on a farm, effectively raising the health of the total farm, local or even national population. This technique has been used to reduce some diseases to minimal levels or even eradicate them e.g. Brucellosis.*
- c. Vaccines must be stored and administered according to label directions if they are to be effective. In most cases vaccines will need to be stored in a refrigerator, but not frozen, and once opened will need to be used within a short period of time. Refrigerator temperatures should be monitored. Protection from some vaccines will pass in the colostrum to the calf and provide protection to the calf. Alternatively vaccines may be administered to the calf to give protection throughout the growing period. Multi injector equipment should be maintained according to manufacturer's instructions.*
- d. For many bacteria and viruses there are no vaccines available and each farm will have a unique mix of these organisms: many of which cause little overt disease.*
- e. A vaccination programme should be drawn up in conjunction with your veterinary surgeon and will depend on the history of previous diseases e.g. Clostridia or individual challenges e.g. biosecurity risks. The basic programme may need to be modified for an individual herd's situation, and timing may be changed to fit exposure and other challenges unique to a herd. For more information on the responsible use of vaccines in cattle, see [www.ruma.org.uk/vaccines.htm](http://www.ruma.org.uk/vaccines.htm)*

## **5. Internal and external parasite control**

- a. Parasitic infections stress animals, affect growth performance and reduce resistance to other diseases. Successful parasite control and prevention programmes require planning. Controlling internal and external parasites promotes animal health. Treatment with antiparasitic medicines will usually stop cases of acute parasitism. However, unless this is part of a strategic*

*programme, animals are often re-infected almost immediately and their parasite burdens may return to near pre-treatment levels. Control programmes should have as a goal the management of the environment through rotation of pasture and strategic treatments according to the risk and seasonal influences. Immunity to parasitic gastroenteritis (PGE) and lungworm will be acquired after two grazing seasons but monitoring for fluke if infection is a risk must be done, even in adult cattle. Vaccination against lungworm is available, it is important to maintain resistance levels to lungworm in adult animals. For more information see <http://www.cattleparasites.org.uk>.*

- b. Attention must be given to good management as well as treatment with antiparasitic medicines for any programme to be successful. The specific products used and the timing of their administration should be planned carefully. Read and follow label directions on medicines to ensure effective control. Withdrawal times for meat and milk must be strictly observed to avoid residues. Dosing equipment should be maintained according to manufacturer's instructions.*
- c. Quarantine treatment for fluke should be discussed with your veterinary surgeon. Faecal samples can be used as a monitoring tool and will indicate active infection for fluke and exposure to PGE worms, but will not necessarily accurately assess worm burdens in individual animals. Ostertagia and fluke antibodies may be used to monitor Fluke and PGE exposure as well. This will allow further refinement of the de-worming programme.*
- d. Animals in all phases of production should be observed routinely for signs of external parasites. An external parasite control programme can be designed based on the results of the monitoring and risk periods e.g. at housing. For more information on the responsible use of anthelmintics in cattle see [www.ruma.org.uk/antiparasitics.htm](http://www.ruma.org.uk/antiparasitics.htm) and [www.cattleparasites.org.uk](http://www.cattleparasites.org.uk)*

## **6. Lameness**

*Every effort should be made to control lameness as it can be a serious welfare problem. Mobility scoring and early treatment of lame cows is recommended particularly in dairy herds. If the cause of lameness is not clear, normal treatments are not working or the animal is severely lame, veterinary help should be sought on welfare grounds.*

*Antimicrobial footbaths are commonly used as part of herd level management and control plans for digital dermatitis (DD), when both alternative and effective solutions are available. There are no antimicrobial products licensed for use as footbathing agents in dairy cattle, therefore, these products are used under the cascade and require a statutory minimum milk withdrawal period of 7 days. Cows with clean hooves in a clean environment should not get DD, therefore, effective control should be achieved as far as possible through improving foot hygiene alone – improved building design and management, regular foot cleaning and disinfection. Routine foot bathing regimes using non- antimicrobial products tend to be more effective. Where antimicrobial footbaths are required, care should be taken to minimise environmental impact when disposing of the solution.*

## **7. Health management of newborn calves**

- a. *It is vital that newborn calves receive good quality colostrum - the sooner the better! The first hour after birth is optimum but ideally they should all receive colostrum (10% of body weight or a minimum of 4 litres) within six hours of birth. New-born animals that receive adequate amounts of good quality colostrum are far less susceptible to scours and other diseases. Do not pool colostrum and try to feed good quality colostrum from the calf's dam unless advised by your veterinary surgeon to do otherwise.*
- b. *Welfare codes dictate that calves should be fed off the ground, fibre should be available and feeding should be a minimum of twice daily under 28 days. It is also vitally important that calves have easy access to clean water at all times.*
- c. *Accurate diagnosis of conditions in calves is important for determining prevention and treatment procedures. Scour problems are an ever-existing threat to calves. A good programme of adequate nutrition, management, cleaning and disinfection along with a good herd health programme are necessary to minimise the incidence and losses. Early diagnosis and treatment will reduce the threat of an outbreak. The correct diagnosis is also very important when considering vaccinations and other control procedures for the herd.*
- d. *Treatment for scours is very similar regardless of the cause (which should nonetheless be diagnosed accurately for future control and prevention). It should be directed toward correcting dehydration, acidosis, and electrolyte loss. The availability of water may prevent calves with mild scour becoming dehydrated. However, all but the mildest cases should be fed an electrolyte solution between their normal milk feeds. Do not starve these calves of milk or colostrum. Antimicrobial treatment is very rarely indicated in scouring calves and should only be considered following a specific veterinary diagnosis and under specific veterinary instruction.*
- e. *Keep daily records on the treatment administered and a record of the calves treated. This aids in evaluating the treatment and using follow-up treatments as necessary. If an outbreak of scours occurs, persistent treatment and records are essential for doing a good job.*

## **8. Enteritis and pneumonia**

- a. *Management practices are important in the prevention and control of enteritis and pneumonia, especially in terms of vaccination, hygiene and housing, including appropriate disinfection routines and adequate ventilation and stocking densities. Regular cleaning of faeces from housing areas is essential to minimise the risk of diseases such as coccidiosis in calves.*
- b. *In the treatment of scours good management and the use of electrolyte solutions is essential. Calves with scour almost never need antimicrobial treatment (see also Section 7 - Health management of new-born calves above).*



- c. *Good management and the use of appropriate vaccines often remove or significantly reduce the need for antimicrobial usage in the treatment of pneumonia. Early diagnosis of pneumonia and effective treatment helps to limit the spread of pneumonia within groups and should also reduce the effects of pneumonia in individual animals.*
- d. *Particular attention should be given to options for improving ventilation and minimising draughts when pneumonia occurs. It is important to routinely check that fans and ventilation systems are operating effectively.*
- e. *It is important for the farm veterinary surgeon to accurately diagnose the cause of the disease so that, in consultation with the farmer, measures for treatment and prevention can be tailored to the agent responsible.*

## **9. Mastitis**

***(see RUMA Guidelines on the Responsible Use of Antimicrobials in Dry Cow Strategies at [www.ruma.org.uk](http://www.ruma.org.uk))***

*Management practices are important in the prevention and control of mastitis – these include*

- a. *regular testing and maintenance of the milking machine by an approved milking machine engineer(ISO6690:2007) along with regular cleaning of the milking machine (ISO 5707:2007). The milking machine can act as both a vector and cause damage directly. It is essential that it is tested, at least annually, to avoid excessive vacuum on the teat, inappropriate pulsation ratio and vacuum fluctuations.*
- b. *management of the environment, both while housed or at grass, to minimise environmental challenge for lactating cows, dry cows and heifers. This includes regular cleaning of bedded areas and application of clean bedding material while the cows are housed and rotation and maintenance of pastures to avoid poaching while animals are at grass.*
- c. *teat disinfection with an approved disinfectant at milking to reduce the bacterial load on the teat end and prevent infection during the milking routine. The skin on the teat has no sebaceous glands and teat disinfection with an appropriate product will maintain good teat condition as well as reducing the bacterial load. Good teat condition is one of the first defence mechanisms against mastitis.*
- d. *regular monitoring to detect and treat clinical cases of mastitis promptly using an appropriate choice of antibiotic for the bacteria types present and the sensitivity of those bacteria.*
- e. *the non-lactating or dry period is a risk period for acquisition of new infections which can cause clinical cases both in the dry period or in the next lactation.*
- f. *Prevention of new infections can be done in a variety of ways and should be discussed with your veterinary surgeon. The dry period also provides an economical advantage to treating intramammary infections, coupled with a low*

risk of residues in milk to treat any subclinical infections which have been present in lactation. Treatment strategies should be discussed with your veterinary surgeon and reviewed within the herd health plan. Internal teat sealants can provide an effective way to prevent new infections being acquired during the dry period.

- g. Any treatments either in lactation or in the dry period should be recorded along with the withhold time for the milk.
- h. Diagnosis including bacteriology and sensitivity of milk samples and monitoring of clinical cases of mastitis is recommended in order to both review management changes and, if necessary, changes in treatment protocols.
- i. where cows have persistent cases of mastitis then culling should be considered as a control option.

## 10. Monitoring

Animals should be observed regularly for any sign of illness, injury, or unusual behaviour.

- a. If a problem develops, testing (serology, tissue, milk or faecal samples) should be carried out for detection of common diseases, with advice from the veterinary surgeon. Results obtained will guide both treatment and modification of the health plan and health planning practices.
- b. Producers and veterinary surgeons should understand the inherent limitations of testing. Tests do not always give results that are "black or white". Results of most tests require some interpretative skills, including an awareness of the clinical signs present in the herd. In many cases it is a difficult matter to differentiate vaccine induced antibody titres from titres induced by infection. The use of DIVA (Differentiating Infected from **Vaccinated** Animals) vaccines and other tests where available will help in interpretation.
- c. Examples of routine health procedures (always consult your Veterinary Surgeon)

<b>Routine procedure</b>	<b>Disease prevention</b>	<b>Optimum time to carry out</b>
Vaccination of all breeding stock against BVD and Leptospirosis (and IBR if appropriate to the farm as per herd health plan)	BVD, Leptospirosis, IBR	Follow data sheet and veterinary advice; vaccine may require 6 or 12 monthly boosters. Ensure all heifers receive 2 doses pre-bulling.
Combined Pneumonia/calf vaccines	RSV, IBR, PI3, Pasteurella, BVD	Depends on herd history and specific disease. Seek veterinary advice for best protocol.

<b><i>Routine procedure</i></b>	<b><i>Disease prevention</i></b>	<b><i>Optimum time to carry out</i></b>
<i>Clostridial disease vaccines</i>	<i>Clostridial diseases such as Tetanus, Blackleg, Strike,</i>	<i>Must have 2 doses of vaccine at a young age. Annual booster, ensure full protection prior to stressful events e.g. turnout, castration</i>
<i>Faecal testing</i>	<i>Worm egg counts (PGE, Fluke), enteric pathogens, Johnes</i>	<i>On purchase (in isolation period), sick cows.</i>
<i>Bulk milk screening</i>	<i>BVD, leptospirosis, IBR, Mycoplasma, mastitis pathogens</i>	<i>Regular routine</i>
<i>Individual cow milk screening</i>	<i>Cell counts, bacteriology, protein, butterfat, lactose, Johnes, IBR, Leptospirosis, BVD</i>	<i>Regular routine</i>
<i>Individual blood screening (especially where milk can't be used e.g. suckler cows, bulls, youngstock)</i>	<i>BVD, Johnes, IBR, Leptospirosis, Neospora, minerals and trace elements</i>	<i>On purchase (in isolation period), sick cows, annual youngstock</i>
<i>Silage analysis and ration formulation</i>	<i>Nutritional values</i>	<i>Monitoring checks</i>

- d. *Records of vaccinations and parasite treatments should be available to help detect health problems. These records do not need to be elaborate, yet are a valuable management tool. The more detail provided, the more likely those problems will be detected early.*

## **11. Environment**

- a. *Environmental considerations in cattle production operations must include the environmental welfare of the cattle as well as the farm design to protect air and water quality. Consideration must also be given to the work environment for the owner, manager and employees. Proper design and management of farms should provide the proper environment for raising cattle and also protect the natural environment.*
- b. *The proper ventilation of buildings will help prevent disease. Shallow ponds, slow moving streams and other wet places breed disease. Drain or keep cattle away from such areas.*

**Air Quality**

- c. *Air quality is important to the health and well-being of cattle and to those people who manage and tend the cattle. The measure of air quality relates to the content of certain gases, particulate matter or dust and airborne microbes in the air around or in cattle facilities.*
- d. *Good ventilation and proper waste management will ensure acceptable air quality. Although a number of gases may be present in cattle housing, the most important in terms of air quality are ammonia, hydrogen sulphide, carbon monoxide, and methane.*
- e. *Ventilation rates in buildings should be increased when under-floor manure pits are being agitated or emptied. Gases released from stored slurry can be fatal to both cattle and people. Enclosed slurry stores should be treated with extreme caution.*
- f. *Airborne dust in cattle buildings is usually the result of the bedding materials, mechanical bedding systems such as straw choppers can be a particular problem. Increased animal activity and excessively high ventilation or air movement rates can cause dust particles to become airborne for extended periods of time.*

**Slurry disposal and waste management**

- g. *Slurry pits should be large enough to hold 4 to 6 months production to reduce the need for frequent emptying and should at least comply with minimum legal standards. Ideally the pit should be outside the unit with channels running from different buildings. Storing slurry for as long as possible (at least four weeks) will kill most salmonellas and other organisms. Aerosol spread is a risk when spraying slurry on to land and injection is recommended instead of surface spreading. Use farm owned or dedicated vehicles for removal to reduce risks. Use fenced pads for solid manure and stack and compost before spreading on arable land. If spread on pasture, ideally keep cattle off for at least 60 days.*

**12. Cleaning and disinfection**

- a. *Cleaning and disinfection is the most basic and most important of all the disease control measures. Prompt and proper removal of wastes, and cleaning and disinfection of both equipment and the environment, is central to disease control. Normally, the cleaner the environment, the healthier the cattle will be.*

*Milking machines and ancillary equipment should be cleaned according to ISO 5707:2007 and manufacturer's recommendations using appropriate and approved cleaning products.*

- b. *Effective disinfection requires cleanliness first because disinfectants have little or no action on dirty surfaces. The organic material in manure and dirt inactivates the chemical disinfectant. Also, dirt and manure provide protection for disease organisms and the chemical solution is unable to penetrate and reach them. Cold temperatures reduce the effectiveness of most disinfectants. The chemical agents commonly used require several minutes in contact with disease-producing agents to be effective.*

- c. *Cleaning can be done with a shovel and a brush or speeded up by use of high pressure washers and detergents. Pre-soaking for at least two hours before cleaning will help make the job easier. When there is a lot of manure or dirt present use a detergent. The detergent hastens the job of removing the dirt by increasing the wetting speed. Don't forget to clean walls above cattle level and ceilings or roofs. Aim for surfaces that are "white-glove" clean before applying disinfectant. Pressure washers can create aerosols which may need to be reviewed with your veterinary surgeon with regards certain pathogens e.g. Salmonella and TB.*
- d. *If possible allow surfaces to dry before using disinfectants. It is important to make up the disinfectant at the correct concentration – read the label. Add a measured amount of disinfectant to a known volume of water e.g. If the correct concentration of a disinfectant is 4% add 4 litres of disinfectant to 100 litres of water. It may help to have a barrel of known volume and a specific measuring container for the disinfectant.*

**NB:***The concentration of disinfectants is important; always measure the required amounts rather than guessing.*

**Table 2 - Common disinfectants, their characteristics and uses**

**For an up to date list of Defra approved disinfectants: <http://disinfectants.defra.gov.uk>**

<b>Active compound</b>	<b>Uses</b>	<b>Range of effectiveness</b>	<b>Disadvantages</b>
<i>Chlorhexidine</i>	<i>Equipment, premises, foot baths</i>	<i>Some bacteria and viruses, ineffective against parvovirus, Pseudomonas</i>	<i>Reduced activity against certain organisms</i>
<i>Phenolic type</i>	<i>Equipment, premises, foot baths</i>	<i>Variety of bacteria, limited effect on fungi and viruses, poor against bacterial spores</i>	<i>Environmental concerns</i>
<i>Formaldehyde, other Aldehydes</i>	<i>Equipment, premises, foot baths</i>	<i>Variety of bacteria, bacterial spores, fungi and viruses</i>	<i>Irritating fumes</i>
<i>Iodophors</i>	<i>Cleaned equipment</i>	<i>Bacteria and fungi, limited effect on bacterial spores and viruses</i>	<i>Inactivated by organic material</i>
<i>Inorganic Peroxygen Compounds</i>	<i>Cleaned equipment &amp; buildings</i>	<i>Many bacteria, viruses, fungi and spores</i>	<i>Inactivated by organic material</i>
<i>Quaternary Ammonium Compounds</i>	<i>Cleaned equipment</i>	<i>Variety of bacteria, limited effect on bacterial spores, fungi and viruses</i>	<i>Inactivated by organic</i>

<b>Active compound</b>	<b>Uses</b>	<b>Range of effectiveness</b>	<b>Disadvantages</b>
Chlorine, Hypochlorites, Chloramines	Cleaned equipment	Bacteria and fungi, limited effect on bacterial spores and viruses	Inactivated by organic material, may be irritating
Lime	Premises (farrowing pens), cracks in floors	Bacteria and viruses	Application and caustic to skin when wet

- e. *Avoid using a pressure washer to apply disinfectant if possible. Many disinfectants are corrosive and will damage a pressure washer. Try to apply disinfectant with a low pressure sprayer as this gives droplets that are more likely to cling to surfaces and have time to be effective.*
- f. *Disinfectants need time to kill micro-organisms. Follow the manufacturer’s instructions and rinse to remove residues if required. Disinfectants may also vary in efficacy with temperature. Allow sufficient time for the building to dry out completely before re-stocking. Many micro-organisms are killed by drying.*
- g. *Some detergents and disinfectants can be combined for easier one-step cleaning and disinfection. Steam is also an effective method of cleaning and reducing infection but the cleaner nozzle would need to be held not more than 6 to 8 inches from the surface to have much effect in killing organisms.*
- h. *Disinfectant foot-baths should be strategically placed and well-maintained. Maintenance is important as otherwise foot-baths may become a source of contamination rather than preventing transmission. Dilution by rainwater, wrong concentration and infrequent replenishing reduce the effectiveness of foot-baths. Disinfectants, especially iodine-based products, will be inactivated by the accumulation of faecal matter in foot-baths. Soiled boots should be cleaned thoroughly and all gross faecal material removed before using foot-baths. Disinfectants will not kill infective organisms that are protected within faecal matter.*
- i. *Faeces, urine and other materials from sick animals that accumulate on bedding and floors are a potential source of infection. To reduce the disease burden, all bedding, manure, and other waste materials should be removed regularly from the buildings. Where appropriate consult your veterinary surgeon for specific recommendations on adequate rest periods for each area of your farm before the re-introduction of new animals.*

### **13. Pest Control**

- a. *Pest management programmes are needed to control the infestation of pests on cattle farms. Flies, rodents, birds, feral cats, insects and even domestic pets can be involved directly or indirectly in spreading disease e.g. transmission of Salmonella by starlings and gulls. Don’t let any other animals near the cattle and keep them out of feed and bedding stores.*

- b. *Guarding against any contamination of feed is essential to eliminate the possibility of unapproved materials being consumed by cattle. Fouling of feed by cats, dogs, birds and rodents can spread some diseases e.g. Neospora, Salmonellosis. Entrance points in feed mixing and storage areas should be covered with screen or sealed to prevent entry by pests.*
- c. *A professional contractor can be employed to eliminate rodents. If the task is undertaken by farm staff a plan of bait stations should be kept and a list of dates they are inspected together with a record of rodent activity and actions taken. Only approved pesticides, properly applied, should be used in pest control. Intensive baiting should be used when pens are empty. Check regularly that the pest control programme is effective. Before adding a new batch of cattle, check for rodents.*

#### **14. Preventing Injuries**

- a. *Cattle can be injured in many ways. Good judgement must be utilised when designing and maintaining a safe environment for the cattle. Consideration should be given to stocking rates (standing and lying spaces) for the whole year and not just one time point.*
- b. *During the design process, it is necessary to think about potential problem areas, such as sharp corners, smooth concrete, or improper size of openings. Existing farms should be routinely evaluated to insure that they are safe for the cattle. The producer should walk through the facilities often, noting the condition of fences, pens and flooring, and making necessary repairs. Special attention should -be given to handling facilities such as races, crushes and holding pens. These areas will also be monitored during Farm Quality Assurance visits.*
- c. *The key to preventing injury to both cattle and employees is being observant and prompt in effecting repairs.*

#### **15. Disease treatment**

- a. *In spite of good preventive medicine programmes and proper care, animals may still become sick or injured. Early recognition and treatment of disease is essential to protect animal welfare and is a cornerstone of responsible medicine use.*
- b. *Accurate diagnosis allows selection of the proper treatment and helps in deciding what management steps, if any, are needed to prevent the spread of disease in the herd. Where the diagnosis indicates the potential for disease spread, sick animals should be isolated to minimise the spread. Isolation also makes it easier to observe and treat affected animals.*
- c. *Whenever possible, precise diagnosis of deaths should be attempted. This allows for a more rational choice of treatment as well as identifying steps that need to be taken to protect animals that have not been infected. When the presence of a specific pathogen has been established in the laboratory, antimicrobial susceptibility (sensitivity) tests can be conducted to aid in proper antimicrobial selection. These services (including post-mortem examination of*

- dead animals) are available through veterinary surgeons and regional post-mortem and diagnostic facilities. Contact names and telephone numbers should be kept in a handy location.*
- d. Sick animals should be treated promptly. When using medicines, it is essential to read and follow the label instructions. A record of the product used, dose, duration of treatment, and period of withdrawal should be kept. Treated cattle should be identified to ensure that withdrawal times are observed. A record of medicine usage is a legal requirement but it is also useful in developing and documenting an adequate health care treatment plan.*
- e. Cattles that become ill should be isolated. Isolation slows the spread of disease to healthy cattle and allows increased care for the sick cattle. Hospital/isolation pens need to be protected from extreme weather to aid in recovery of the animal's health.*
- f. Medicines that are approved to be injected into animals, infused into the udder, or added to feed or water must be used only when absolutely necessary and where relevant, on advice by a veterinary surgeon and only as recommended by the manufacturer. Such products can help ensure the health and well-being of animals and, when used strictly according to recommendations and regulations, will ensure a safe and wholesome product. Simple rules should be followed:*
- Label instructions must always be read and followed completely regarding dose, frequency and timing of use, and withdrawal intervals before marketing.*
  - Treat all animals at the dose and for the duration recommended.*
  - All medicines should be stored according to the manufacturer's instructions. Those medicines requiring refrigeration should be identified and kept in an efficient working fridge. Temperatures within the fridge should be monitored.*
  - Details of purchase, use and disposal of unused medicines should be recorded in a medicines book.*
  - Treated animals should be identified to ensure that withdrawal times are observed.*
  - When in doubt, seek professional advice.*
  - Do not use any product for which clear instructions are not available.*
- g. Records should be monitored for treatment responses and efficacy of treatments and reviewed by your veterinary surgeon. It can be useful to refer to the standard operating procedures and protocols for compliance on medicine use.*
- h. Prompt and appropriate disposal of dead animals is important for animal and human health. The Animal By-Products Regulations 2003 prohibit on-farm burial and cattle disposal pits. Dead animals can be a source of disease for other animals. They should either be removed immediately by a carcass collection service or completely incinerated in an on-farm, licensed incinerator, as soon as is practical. However, animals that die suddenly and unexpectedly may need to*



*be tested for Anthrax. Always seek advice from your veterinary surgeon if an animal dies suddenly.*

## **16. Withdrawal periods**

- a. *Withdrawal periods are only established after considerable research and are set for the purpose of ensuring consumer safety. The withdrawal period is the time between the last dose given to the animal and the time when the level of residues in the tissues (muscle, liver, kidney, skin/fat) or products (milk, eggs, honey) is lower than or equal to the Maximum Residue Limit. The Maximum Residue Limit (MRL) is the maximum concentration of residue resulting from administration of a veterinary medicinal product which is legally permitted or recognised as acceptable in or on a food.*
- b. *Before medicines can be used for food animals, studies must be carried out to assess the time needed for any residues of a substance or its metabolites, which may still be present in an animal's body, to fall below the level shown to be safe. Once this has been determined, the withdrawal period is established. The withdrawal period is the minimum time required between the last treatment and the collection of meat or milk for human consumption. The veterinary surgeon may extend the withdrawal period in some circumstances.*
- c. *The National Office of Animal Health (NOAH) includes a table of 'withdrawal periods for animal medicines' in the back of the NOAH Compendium of Data Sheets for Animal Medicines and online at [www.noahcompendium.org.uk](http://www.noahcompendium.org.uk). The Summary of Product Characteristics (SPCs), on which the datasheets are based can be found on the VMD website <http://www.vmd.defra.gov.uk/ProductInformationDatabase> for national registrations or on [www.ema.europa.eu/ema/](http://www.ema.europa.eu/ema/) for EMA centrally approved medicines. The marketing authorisation holder must always be the absolute reference point for any information on a specific product.*
- d. *Authorised products have stated withdrawal periods. Where products are prescribed for a species for which it is not authorised or are used outside the SPC/data sheet recommendations e.g. the dosage is increased, the treatment period is increased or the interdose interval is shortened, then the veterinary surgeon should set a withdrawal period not less than the minimum of 7 days for milk and 28 days for meat. The withdrawal period specified must be adhered to in order to ensure that food produced from treated animals does not contain harmful residues. For medicines that are used in combination the VMD guidance should be referred to particularly Guidance Note 13 'The prescribing cascade for veterinary medicines'*  
<https://www.gov.uk/government/collections/veterinary-medicines-guidance-notes-vmqns>.

## **17. Planning and training**

- a. *In any area of a business, failure to plan is often simply a plan to fail. Animal health and welfare is no different and taking a proactive approach will yield*

*direct benefits. It is recommended that a herd health plan is drawn up for every unit in consultation and agreement with its staff and its veterinary and other advisers. Health plans should identify the best ways to prevent or treat disease in the animals on the unit and to ensure their welfare. It should set clear realistic goals and outline the practical strategies to achieve these goals, including any necessary changes in farm practice. Ensure that the plan takes full account of all medicines used on the unit.*

- b. Ideally those working directly with the cattle should be directly involved in developing the health plan. Health plans are only likely to be effective if all staff agree that the targets and the strategies are practical and sensible. The resources needed to deliver the plan should be available. Wherever possible protocols and procedures should be developed that make it easier to follow the plan than not to do so. The plan must be put into practice, reviewed regularly and updated in the light of experience and progress.*

*Standard operating procedures and protocols provide a good way to implement herd health planning.*

- c. It is important that people working with animals can recognise when health problems occur and that they use veterinary medicines correctly. Staff working with animals need to be skilled stock-people, in assessing animal welfare and in the administration and safe use of veterinary medicines. Training should be provided where required. The City and Guilds (<http://www.cityandguilds.com/>) provides independent assessment, certification and recognition of skills. Staff should be encouraged to gain the appropriate City and Guilds Certificates of Competence.*
- d. Copies of relevant regulations, Codes of Practice and training materials should be available on every unit.*
- e. The Veterinary Medicines Directorate (VMD) Code of Practice on the Responsible Use of Animal Medicines on the Farm developed with the support of industry is a useful source of advice*

*(<https://www.gov.uk/government/publications/responsible-use-of-animal-medicines-on-the-farm> ).*

- f. Advice on minimising the risk of bulk milk tank contamination with medicines is included in the British Cattle Veterinary Association guidance poster “Best practice to prevent medicine residues in milk” [http://www.bcva.eu/sites/default/files/PF502\\_004%20BCVA%202014%20Milk%20Residue%20Poster.pdf](http://www.bcva.eu/sites/default/files/PF502_004%20BCVA%202014%20Milk%20Residue%20Poster.pdf) This is also available in multiple European languages at <http://www.bcva.eu/>*

## Summary

***There should be regular consultation with a veterinary surgeon for help with disease prevention, control, diagnosis and treatment. A herd health plan including vaccinations and parasite control should be developed and reviewed and updated often. Basic disease prevention and control methods along with minimising stress to the animals should be used to the greatest degree possible.***

### **Keep disease out**

1. *Source of cattle: Only buy/import cattle from herds with similar or better health status. Quarantine new cattle, vaccinate and integrate appropriately.*
2. *Vehicles: Keep vehicles outside the farm boundary – visitors, feed delivery, cattle delivery/collection.*
3. *Pests: Control rats, mice, flies, keep birds out of buildings, avoid contact with other stock and keep cats and dogs away from cattle. Remove rubbish that provides potential breeding sites for vermin.*
4. *Visitors: Don't allow visitors near cattle unless essential. Provide CLEAN overalls and boots. Keep outdoor cattle away from footpaths.*

### **Keep disease levels down and stop spread**

5. *Cleaning: Apply new bedding regularly when cattle are housed. Keep passages, walkways, collecting yards and loading ramps and trailers clean and disinfected.*
6. *Vaccination: Develop a vaccination programme in consultation with your veterinary surgeon and make sure that animals are vaccinated and receive boosters as agreed.*
7. *Mixing cattle: Avoid mixing cattle. Change system to avoid/reduce mixing. Don't put poor cattle back with younger ones. Adopt a "Slow track" system for casualties.*
8. *Water: Keep water system clean, use known safe water source and avoid watercourses for outdoor cattle.*
9. *Personal hygiene: Provide staff toilet with wash basin, always wash hands after use. Take care if staff have Salmonella-like infections. CLEAN and disinfect boots and wash hands between houses/groups.*
10. *Outdoor cattle: Rotate pasture regularly with secure fencing using double fencing if appropriate.*

### **Help the cattle to help themselves**

11. *Colostrum: Make sure all calves get enough colostrum as soon as possible after birth.*
12. *Feed: Feed an appropriate balanced diet. Keep all feed stores/bins pest proof. Clean and disinfect feed bins regularly. Only buy from certified sources. Check for spoilage and mould.*
13. *Environment: Eliminate drafts, provide adequate ventilation and good temperature control.*
14. *Minimise stress when handling cattle for routine procedures.*

- 15 *Ensure milking routines are optimised to minimise stress along with mastitis pathogen transmission. The milking machine should be maintained, tested and cleaned appropriately (ISO6690:2007 and ISO5707:2007)*

## Appendix A - Responsible Use of Antimicrobials in cattle production

### 1. Treatment and prevention of disease

A1. *Microbial diseases cause dysfunction (e.g. mastitis, pneumonia, lameness), pain, distress and even death, which can result in economic loss. Authorised therapeutic antimicrobials reduce this suffering and distress and speed recovery in infected animals. Since the animal cannot be allowed to suffer, the alternative is euthanasia. The removal of antimicrobials from veterinary medicine would cause great welfare problems.*

A2. *The antimicrobials that are authorised for use in animals in the UK are detailed in the NOAH Compendium of Data Sheets for Animal Medicines published by NOAH (online at [www.noahcompendium.co.uk](http://www.noahcompendium.co.uk)) and on the VMD database of veterinary products at [www.vmd.defra.gov.uk/ProductInformationDatabase](http://www.vmd.defra.gov.uk/ProductInformationDatabase).*

*Withdrawal periods for veterinary medicines are set to ensure that any residue which may remain after treatment is harmless. Information on withdrawal periods is contained as a table in the back of the NOAH Compendium, online and on the VMD's database.*

A3. *The major antimicrobial exposure in cattle occurs during the treatment of mastitis and respiratory diseases. The next most common conditions for which antimicrobials are used are peri-parturient problems including metritis and lameness. A wide range of antimicrobials is used in the treatment of bacterial diseases in cattle. Treatment of groups of animals is generally only undertaken after diseases known to affect whole groups have been identified in a proportion of the group.*

*Veterinary surgeons will usually take a range of other factors into account before deciding to prescribe antimicrobials for the entire group e.g. severity of disease in affected animals, the likelihood for it to spread, prevailing weather conditions, housing conditions and other forms of medication.*

A4. *Therapy usually involves an individual animal or group of diseased animals. Antimicrobials, used responsibly, are an essential element in the fight against animal disease. However, in animals, as in humans, a proportion of those treated for infectious disease could recover without antimicrobials but at the expense, in many cases, of their welfare and productivity.*

A5. *Antimicrobials are sometimes used to treat a group of animals to prevent diseases that might occur. In some situations depending on contagiousness of bacteria and individual stocking/housing situation when the proportion of animals diseased during a defined time period a veterinary surgeon may*

*prescribe treatment of all animals in the group as the probability of most or all of the animals getting infected is high.*

- A6. *In both treatment and prevention the medicine is prescribed by a veterinary surgeon and is administered over a defined, preferably short, period of time. Use for prevention is avoided whenever possible but may be necessary mainly during periods when stress is imposed on animals e.g. changes in diet, weaning, transport and mixing.*
- A7. *Antimicrobials help prevent the spread of infection by reducing the bacterial burden in infected animals and may reduce zoonotic disease by reducing bacterial contamination in the food chain at source.*
- A8. *Antimicrobials are administered by the most effective, licensed routes. If an individual animal is suffering from a bacterial disease it is usually treated with a course of injectable antimicrobials. (e.g. *Listeria monocytogenes* and penicillin)*

## **2. Antimicrobials as zootechnical additives (growth promoters or enhancers)**

- A9. *Antimicrobials, other than coccidiostats and histomonostats, have not been permitted to be used as zootechnical feed additives from 1 January 2006, (Regulation (EC) No 1831/2003) – this means that antibiotic growth promoters have not been used since then in the EU.*

## **3. Antimicrobial Regulations and Veterinary Medicines Guidance Notes**

- A10. *Antimicrobial products and their use are governed by the VMD Medicines Regulations 2013. The Veterinary Medicines Guidance Notes are to help with the practical interpretation and application of the Regulations and are regularly updated. They are especially useful with regard to the application of the dispensing of medicines, cascade, importation and use of medicated feed.*  
<https://www.gov.uk/government/collections/veterinary-medicines-guidance-notes-vmgns>

*Further reference: BVA Guidelines on the Responsible Use of Antimicrobials*  
[http://www.bva.co.uk/public/documents/BVA\\_Antimicrobials\\_Poster.PDF](http://www.bva.co.uk/public/documents/BVA_Antimicrobials_Poster.PDF)

## Appendix B – Guidelines for the Use of Antimicrobials in Cattle Medicine

### 1. **Responsibilities**

*Whilst the immediate responsibility of the prescribing veterinary surgeon is to safeguard the health and welfare of animals under his care by controlling disease outbreaks and by reducing the overall level of disease within the herd, they must be aware of the hazards that this presents and show a continuous responsibility to the consumer by reassessing the risk and reducing it wherever possible.*

*An accurate specified diagnosis should be made leading to the selection of the most appropriate choice of medication. Previous or current bacteriological sensitivity testing together with records of previous responses must be a component of a balanced decision.*

*There must be a commitment to Continuous Professional Development to ensure the maintenance of the depth of knowledge of all therapeutic agents.*

### 2. **Farm Guidelines**

*There should be written instructions on each farm outlining the farmer's obligations in law concerning his use of medicine including antimicrobials. It should cover:*

- *Storage*
- *Administration techniques*
- *Recording*
- *Withdrawal periods*
- *Disposal.*

*Part of the instructions should be specific to the farm including:*

- *The correct dosage and duration of medication*
- *The correct circumstances of use*
- *The correct procedures for observing withdrawal periods.*

*All of which is to ensure the accuracy of medication of animals at the anticipated site of infection.*

### 3. **Integration with Preventative Medicine Programme**

*These written instructions should be in conjunction and co-ordination with a written Preventative Medicine Programme as part of a Veterinary Health Plan tailored to meet the needs of the farm and emphasising those areas of management that are likely to reduce the requirement to use medication.*

#### **4. Review**

*There should be a written procedure for a regular audit and periodic review of the medicine prescribed to provide the opportunity to reassess the efficacy of treatment (treatment = medication + management) after this review and, where appropriate, medication should either be stopped or reduced in duration.*

*Any suspicion of adverse reactions or evidence of bacterial resistance should be thoroughly investigated through the support of in-vitro bacterial sensitivity testing with the medication changed appropriately regarding these findings.*

#### **5. Veterinary Practice Policy**

*All available veterinary practice information should be consolidated into one form or database, such that this centralised information should:*

- *Allow monitoring of the level of medication used*
- *Contain a list of those medicines permitted for use on each farm*
- *Contain a list of medicine withdrawal and a system for allowing information to be updated*
- *A record of antibacterial sensitivities*
- *Any comments concerning the response of medication under these circumstances.*

#### **6. Population Medicine**

*Where the health and welfare of animals is being safeguarded by the medication of a population the aim should be:*

- *That it is used strategically*
- *That it encompasses the smallest population*
- *It is used for the shortest effective duration.*

*Where this population includes animals not clinically affected, i.e. subclinical or healthy, it must be justifiable either on the grounds of the protection of the susceptible or by the reduction in the excretion of pathogens capable of producing or perpetuating clinical disease.*

*Where such diseases are enzootic all aspects of treatment (medication + management) should undergo a regular routine reassessment.*

#### **7. Fluoroquinolones, 3<sup>rd</sup> and 4<sup>th</sup> generation Cephalosporins and long acting Macrolides**

*Fluoroquinolones, 3<sup>rd</sup> and 4<sup>th</sup> generation cephalosporins and long acting macrolides have an important place in the therapeutic armoury for serious diseases of both animals and humans. The use of these classes in both human and veterinary medicine has produced particular debate and the following guidelines for use should be followed.*

- *Fluoroquinolones, 3<sup>rd</sup> and 4<sup>th</sup> generation cephalosporins and long acting macrolides should only be used therapeutically not for*



*prophylaxis (apart from dry cow therapy which is not known to lead to resistance issues - only one product is currently available that contains a Critically Important Antibiotic (CIA) cefquinome, a fourth generation cephalosporin. This antibiotic is only available for animal treatment.)*

- *Products should be chosen on therapeutic efficacy and while withdrawal periods for meat and milk are a consideration, any choice should be primarily based on likely efficacy and bacterial sensitivity. Ideally, sensitivity testing should take place prior to or in parallel with use.*
- *The legal guidelines for prescribing POM-Vs including the cascade should be fully followed.*

## **8. Veterinary Health Plan**

*A Veterinary Health Plan should be drawn up in conjunction with the farm's veterinary surgeon and reviewed on a regular basis. The plan allows diseases known or thought to be present on the farm to be recorded along with outline preventative measures and the treatments prescribed by the veterinary surgeon. Key measures of performance can be tabulated. Cleaning programmes can be noted and staff training requirements identified.*

*The Responsible Use of Medicines in Agriculture Alliance (RUMA) was established in November 1997 to promote the highest standards of food safety, animal health and animal welfare in British livestock farming.*

*A unique initiative involving organisations representing every stage of the food chain process, RUMA aims to promote a co-ordinated and integrated approach to best practice.*

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## **RUMA**

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### **RUMA is made up of the following organisations:**

*Agricultural Industries Confederation (AIC)  
 AHDB – Dairy (formerly known as Dairy Co)  
 AHDB – Pork (formerly known as BPEX)  
 AHDB – Beef and Lamb (formerly known as EBLEX)  
 Animal Health Distributors Association (AHDA)  
 Animal Medicines Training Regulatory Authority (AMTRA)  
 Assured Food Standards (AFS) better known as Red Tractor Assurance  
 British Egg Industry Council (BEIC)  
 British Poultry Council (BPC)  
 British Retail Consortium (BRC)  
 British Veterinary Association (BVA)  
 City and Guilds Land Based Services  
 Dairy UK  
 Game Farmers' Association (GFA)  
 Linking Environment & Farming (LEAF)  
 National Beef Association (NBA)  
 National Farmers' Union (NFU)  
 National Office of Animal Health (NOAH)  
 National Pig Association (NPA)  
 National Sheep Association (NSA)  
 NFU Scotland (NFUS)  
 Royal Association of British Dairy Farmers (RABDF)  
 Royal Pharmaceutical Society (RPS)  
 Royal Society for the Prevention of Cruelty to Animals (RSPCA)  
 Scottish Salmon Producers' Organisation (SSPO)*