GUIDELINES FOR
THE PRUDENT USE OF MEDICAMENTS AND/OR ANTIBIOTICS FOR FARMERS

Funded by
the European Union

EU FOOD SAFETY
AB GIDA GÜVENLİĞİ

Turkish Cypriot Community Food Safety Project

Funded under the EU Aid Program for the Turkish Cypriot community (TCc), the "TCc Food Safety Project" executed under the contract 2021/423-933 "Technical assistance to improve implementation of food safety standards and disease crisis preparedness", strives to support faster social and institutional development of the Turkish Cypriot community and higher economic growth of its agri-food chain sector. The aim is to achieve improved food safety, public health, animal health, and protection of the environment, and to mitigate the impact of potential exotic animal diseases, in particular those posing imminent threats. The project started in May 2021 and will be completed in April 2024.

For more information about the project, you can visit the project's website, follow its social media account and contact the project team through the following communication channels:

tccfoodsafetyproject.eu

tccfoodsafety

foodsafetyprojectTCc@gmail.com

+90 542 862 3000

GUIDELINES FOR
THE PRUDENT USE OF MEDICAMENTS AND/OR ANTIBIOTICS FOR FARMERS

This publication was funded by the European Union. Its contents are the sole responsibility of the NSF Euro Consultants Consortium and do not necessarily reflect the views of the European Union.

EU FOOD SAFETY
AB GIDA GÜVENLİĞİ

CONTENS

1. BACKGROUND

The "TCc Food Safety Project" executed under Contract 2021/423-933 "Technical assistance to improve implementation of food safety standards and disease crisis preparedness" strives to support a faster social and institutional development of the Turkish Cypriot community (TCc) and a higher economic growth of its agri-food chain sector.

The project aims to achieve improved food safety, public health, animal health and protection of the environment, and to mitigate the impact of an imminent threat of potential exotic animal diseases.

This document was produced within the following project activity:

Prepare guidelines for stakeholders to complement the input delivered in specific trainings, workshops and other capacity building activities.

2. INTENDED AUDIENCE

Antimicrobial resistance has a direct impact on human and animal health and implies a heavy economic burden due to higher costs of treatment and reduced productivity caused by sickness. This document is designed to support owners/keepers of food producing animals.

3. AIM OF THE GUIDELINES

These guidelines aim to assist the owners/keepers of food producing animals with practical guidelines for the prudent use of antimicrobials in veterinary medicine.

The guidelines are also available to the public on the project's Online Food Safety Platform **http://tccfoodsafetyproject.eu/** All parties involved in the food and catering sector should find them a valuable tool in their day-to-day operations.

4. INTRODUCTION

Antimicrobial drugs have played an important role in managing the health of humans, animals, marine life and plants/crops for more than 60 years. They inhibit the growth or kill micro-organisms that cause bacterial, viral, fungal, and parasitical infections. Antimicrobial resistance arises when some of the micro-organisms that cause infection (pathogens) adapt to survive exposure to a medicine that would normally kill them or stop their growth. This can lead to the development of micro-organisms which can no longer be treated successfully with the range of antimicrobials currently available.

The evolution of some micro-organisms to become resistant to antimicrobials is a natural biological reaction to exposure to antimicrobials. Some of the harmful micro-organisms survive and adapt to become immune to a specific or range of antimicrobials. The increased use of antimicrobials has resulted in an increase and acceleration of antimicrobial resistance. The increasing demand for antimicrobial treatments is being exacerbated by various factors such as misuse of medicines, poor infection control practices and global trade and travel.

Antimicrobials such as antibiotics are used to treat disease in both humans and animals, and are essential in maintaining human health, and animal health and welfare. Antibiotics are still deemed necessary for the treatment and prevention of infectious diseases in farm animals intended for food production and to protect public health from food-borne diseases. All antibiotics used in veterinary medicine are the same or closely related to antibacterials used in human medicine and may induce cross-resistance.

If antimicrobial resistance (AMR) occurs in relation to a particular disease or infection, this means a lack of suitable treatment options for both human and animal diseases because for example the antibiotic used does not kill or inhibit the bacteria causing the disease. Therefore, the increased rate of development of AMR is a societal issue which affects al of us, regardless of whether we are food producers, keep animals as pets, or even if we have no regular contact with animals.

Global travel of people, animals and food means that resistant bacteria arising either in humans, animals or the environment may spread from one to the other as there are no possible border restrictions against the spread of bacteria. Increased mortality, or prolonged recovery times, as well as the economic cost for healthcare systems and the productivity losses affect all members of society. In relation to the treatment of animal disease, if antibiotics are losing their efficacy, this compromises the availability of suitable medicines that farmers and pet owners can avail of to ensure their animals health and welfare, as well as leads to an increased financial cost to the animal owner.

In some categories of antimicrobials (particularly antibiotics), very few new drugs have been developed historically, primarily due to the effectiveness of existing established antibiotics. In response to the rising concerns of antimicrobial resistance, pharmaceutical companies have started to research and develop new antimicrobials, but this process will take time and the extent and effectiveness of these new antimicrobials is still uncertain. Essentially, the need for new antimicrobial drugs has increased due to the increasing resistance to existing treatments of harmful micro-organisms, in particular, bacterial resistance to antibiotics. The research and development of new antibiotics has not yet progressed sufficiently to determine if and to what extent new antimicrobials will be able to address the increasing prevalence of resistant micro-organisms in the future.

Antimicrobial resistance has a direct impact on human and animal health and implies a heavy economic burden due to higher costs of treatments and reduced productivity caused by sickness. AMR is responsible for an estimated 33,000 deaths per year in the EU. It is also estimated that AMR costs the EU €1.5 billion per year in healthcare costs and productivity losses. (Source: European Medicines Agency-EMA)

5. DEVELOPMENT OF REGULATORY FRAMEWORK

In the European Union, Regulation (EU) 2019/6 and its delegated and implementing acts represent the legal framework and the basic legal document to manage AMR.

The Commission's 2011 Action Plan against the rising threats from AMR contains 12 actions for implementation with the EU Member States and identifies 7 areas where measures are most needed:

- Making sure antimicrobials are used appropriately in both humans and animals.
- Preventing microbial infections and their spread.
- Developing new effective antimicrobials or alternatives for treatment.
- Cooperating with international partners to contain the risks of AMR.
- Improving monitoring and surveillance in human and animal medicine.
- Promoting research and innovation.
- Improving communication, education and training.

In June 2017, the European Commission adopted the **EU One Health Action Plan against AMR.** The EU AMR One-Health Network, chaired by the European Commission, includes government experts from the human health, animal health and environmental sector, the EU scientific agencies (European Centre for Disease Prevention and Control (ECDC), EMA, and European Food Safety Authority (EFSA) and Commission experts.

In March 2019, the Commission adopted a **Strategic Approach to Pharmaceuticals in the Environment.** The purpose was to address the environmental implications of all phases of the lifecycle of (both human and veterinary) pharmaceuticals, from design and production through use to disposal. Several actions in the Strategic Approach are intended to contribute to the objectives of the EU One Health Action Plan against AMR.

On 25 November 2020, the Commission adopted the **Pharmaceutical Strategy for Europe** that will address several AMR challenges including the lack of investment in antimicrobials and the inappropriate use of antibiotics.

In November 2020, the new Commission Implementing Decision (EU) 2020/1729 on the monitoring and reporting of antimicrobial resistance in zoonotic and commensal bacteria was published. This Decision is based on the latest scientific opinions and addresses known implementation issues while scientifically responding and ensuring continuity in assessing future trends in AMR.

The EU4Health (2021-2027) programme was adopted, representing the EU's response to COVID-19, which has had a major impact on medical and healthcare staff, patients, and health systems in Europe. EU4Health provides funding to EU countries, health organisations and NGOs including urgent health priorities that are reducing the number of antimicrobial-resistant infections and improving vaccination rates.

6. PRINCIPLES FOR THE PRUDENT USE OF ANTIMICROBIALS

Antimicrobials are essential for the medical care and health of animals and livestock populations. Any use of antimicrobials (e.g., in human and veterinary medicine) can result in the development of AMR.

The prudent use of antimicrobials is an integral part of the good veterinary practices. It is an attitude to maximise therapeutic efficacy and minimise selection of resistant micro-organisms.

The risk increases if such antimicrobials are used improperly, for example, in an untargeted manner (e.g. mass medication or use on non-susceptible microorganisms), at sub-therapeutic doses, repeatedly, or for inappropriate periods of time.

Prudent use of antimicrobials should lead to more rational and targeted use, thereby maximising the therapeutic effect and minimising the development of AMR. Taking into account cross- and co-resistance, which mean that any exposure to antimicrobials increases the occurrence of AMR, the final outcome of prudent use should be an overall reduction in the use of antimicrobials, predominantly by limiting their use only to situations where they are necessary. In these situations, antimicrobials should be used as targeted treatment and according to best practices, i.e. based on clinical diagnosis and, whenever possible, on the results of microbiological susceptibility tests, and using an antimicrobial agent of as narrow-spectrum as possible.

6.1 GENERAL PRINCIPLES ON THE PRUDENT USE OF ANTIMICROBIALS

General principles of the prudent use of antimicrobials need to be applied as a matter of routine on farms and in veterinary practices.

In cases where it is necessary to use antimicrobials to safeguard animal health and welfare, the following principles should be followed:

- The prescription and dispensation of antimicrobials must be justified by a veterinary diagnosis in accordance with the current status of scientific knowledge.
- Where it is necessary to prescribe an antimicrobial, the prescription should be based on a diagnosis made following clinical examination of the animal by the prescribing veterinarian. Where possible, antimicrobial susceptibility testing should be carried out to determine the choice of antimicrobial.
- Antimicrobial metaphylaxis[1] should be prescribed only when there is a real need for treatment. In such cases, the veterinarian should justify and document the treatment on the basis of clinical findings on the development of a disease in a herd or flock. Antimicrobial metaphylaxis should never be used in place of good management practices.
- Routine prophylaxis[2] must be avoided. Prophylaxis should be reserved for exceptional case-specific indications.
- Administering medication to an entire herd or flock should be avoided whenever possible. Sick animals should be isolated and treated individually (e.g., by administrating injectable).

[1]'metaphylaxis' means the administration of a medicinal product to a group of animals after a diagnosis of clinical disease in part of the group has been established, with the aim of treating the clinically sick animals and controlling the spread of the disease to animals in close contact and at risk and which may already be subclinically infected.

[2]'prophylaxis' means the administration of a medicinal product to an animal or group of animals before clinical signs of a disease, in order to prevent the occurrence of disease or infection.

- All information related to the animals, the cause and the nature of the infection and the range of available antimicrobial products must be taken into account when making a decision regarding antimicrobial treatment.
- A narrow-spectrum antimicrobial should always be the first choice unless prior susceptibility testing–where appropriate supported by relevant epidemiological data – shows that this would be ineffective. The use of broad-spectrum antimicrobials and antimicrobial combinations should be avoided (with the exception of fixed combinations contained in authorised veterinary medicinal products).
- If an animal or group of animals suffer from recurrent infection(s) requiring antimicrobial treatment, efforts should be made to eradicate the strains of the microorganisms by determining why the disease is recurring, and altering the production conditions, animal husbandry and/or management.
- Use of antimicrobial agents prone to propagate transmissible resistance should be minimised.
- A number of compounds on the World Health Organisation's list of critically important antimicrobials are only authorised in medicinal products for human use. As laid down in EU legislation, those that do not have marketing authorisations as veterinary medicinal products for use in food-producing animals may only be used off-label (following the cascade).
- Antimicrobial treatment must be administered to animals according to the instructions given in the veterinarian's prescription.
- The need for antimicrobial therapy should be reassessed on a regular basis to avoid unnecessary medication.
- The perioperative use of antimicrobials should be minimised by using aseptic techniques.
- When possible, alternative strategies for controlling disease that have been proven to be equally efficient and safe (e.g., vaccines) should be preferred over antimicrobial treatment.
- The pharmacovigilance system[3] should be used to obtain information and feedback on therapeutic failures, so as to identify potential resistance issues in the case of use of existing, new or alternative treatment options.
- A network of laboratories with the capacity for performing antimicrobial susceptibility tests in zoonotic and commensal microorganisms and target pathogens should be established to ensure the availability of susceptibility testing.

Many of the antimicrobials used in animals are also used in humans. Some of these antimicrobials are critical for preventing or treating life-threatening infections in humans. Special consideration is necessary to ensure the continued efficacy of such antimicrobials and to minimise the development of resistance. Before using these antimicrobials in animals, in addition to the points already mentioned, consideration should be given to the following:

- These antimicrobials should only be used in situations where a veterinarian has assessed, on the basis of antimicrobial susceptibility testing and relevant epidemiological data, that there is no non-critically important effective antimicrobial available.

[3]'pharmacovigilance' means the science and activities relating to the detection, assessment, understanding and prevention of suspected adverse events or any other problem related to a medicinal product.

- In exceptional cases where the use of these antimicrobials under off-label use (cascade) is unavoidable and legally permissible, prescription and final use should be sufficiently justified and recorded. Such use should be based on clinical grounds, i.e. the prescribing veterinarian considers the use of a particular critically important antimicrobial necessary in order to avoid the suffering of diseased animals, and should also take into consideration ethical and public health concerns. The use of critically important antimicrobials should be limited to cases where no other alternative is available.

The ultimate objective of prudent use of antimicrobials is to reduce the need for antimicrobials by preventing disease. Animal diseases and infections should primarily be prevented by ensuring biosecurity, following good production and good management practices, and implementing integrated disease control programmes to minimise the occurrence of diseases and eradicate endemic disease.

6.2 MEDICATED FEED AND ORAL ADMINISTRATION OF ANTIMICROBIALS TO GROUPS OF ANIMALS VIA FEED OR DRINKING WATER

Oral antimicrobial treatment is often administered to groups of animals through medicated feed or by adding the antimicrobial to drinking water or feed on the farm (e.g. top dressing).
Whenever possible, individual treatment of the affected animal(s) (e.g. injectable treatments) should be preferred to group or mass treatment.
When using group treatment, the following points should be taken into account:

- Medicated feed contains a veterinary medicine product and requires, according to EU legislation, veterinary prescription.
- Oral antimicrobial treatment given via medicated feed or drinking water must only be administered where prescribed by a veterinarian.
- A veterinary prescription for medicated feed shall be issued only after a clinical examination or any other proper assessment of the health status of the animal or group of animals by a veterinarian, and only for a diagnosed disease.
- The administration of antimicrobials via feed or water should be limited to the animal's requiring treatment, and the drug delivery systems should be appropriate for the intended treatment.
- The quantities of antimicrobials administered in feed or water should be monitored and documented on a continuous basis, especially in intensive food production systems.
- The instruction given in the product information (Summary of Product Characteristics (SPC), leaflet, labelling) and by the veterinarian must be followed, both in terms of dosage and duration of treatment.
- Where an antimicrobial is administered through feed, it is important to ensure the homogeneity of distribution of the drug, in order that each animal obtains the required therapeutic dose for the treatment of the disease in accordance with the veterinary prescription.
- Off-label (cascade) use should be limited to the necessary minimum and to exceptional occasions where no other authorised treatment options are available, and must always be prescribed by a veterinarian.
- Adequate, clean storage facilities should be available on the farm to ensure proper storage of the medicated feed. Access to these facilities should be restricted.

Feed businesses operators producing medicated feed must be approved for the manufacture of medicated feed. They must follow all legal requirements for medicated feeds and may only produce medicated feed from authorised veterinary medicinal products and in accordance with a veterinarian's prescription. They must follow Good Manufacturing Practices and ensure appropriate mixing to guarantee the homogeneity of antimicrobials in the feed. They must take steps to avoid cross-contamination and minimise the transfer of antimicrobials to subsequent batches of feed.

In accordance with EU legislation, medicated feed must be appropriately labelled and only be supplied to the end-user against a valid veterinary prescription. Detailed records should be kept of the antimicrobials used, the medicated feed produced and the destination.

6.3 RESPONSIBILITIES - WHAT CAN PRODUCERS DO ON THE FARM?

Farmers are the frontline defenders. There are a number of things livestock and poultry producers can do every day on their farm to help reduce antimicrobial resistance. Basic principles that must be followed by animal breeders/ livestock and poultry producers:

- Consider using antimicrobials only for treatment, when clinical signs of disease are evident in your animals and your veterinarian advises you to do so.
- Consult your veterinarian before using any antimicrobials for livestock. Medicines for use in animals are widely available, but your veterinarian is the best source of advice for responsible and effective use.
- Follow the instructions of your veterinarian on use and on withdrawal period.
- Prevent diseases by implementing good herd or flock health also using vaccination, good nutrition and animal comfort, hygienic and biosecurity practices.

6.3.1 Responsibility of animal breeders and the persons administering antimicrobials

Animal breeders must:

- obtain the antimicrobials from authorised sources, based on a veterinary prescription;
- ensure the safety of the food production chain, by respecting the instructions on administering the antimicrobials given by the veterinarian, and ensuring that the withdrawal periods are observed, so as to avoid residues of antimicrobials appear in meat, milk or other products.

The person administering antimicrobials to food-producing animals, aquaculture animals and animals bred for fur is often the farmer or the staff working on the farm, or the veterinarian him/herself. These are the people responsible for closely following the instructions on administering antimicrobials given by the veterinarian. They also play a critical role in observing and monitoring sick animals and animals that do not need antimicrobials. It is their duty to:

- cooperate with the veterinarian who regularly visits the animals and knows the history and current health status of the herd, flock or animal, to allow him/her to put in place disease prevention measures that also take account of animal welfare;
- ensure that the correct dose, treatment duration and dosing schedule is followed;
- be aware of the general aspects of prudent use of antimicrobials and AMR, including the need to take samples and perform antimicrobial susceptibility testing on target pathogens.

6.4 DISEASE PREVENTION AND REDUCING THE NEED TO USE ANTIMICROBIALS

In the first place, preventing infections is the best way to achieve this reduction and to minimise the need to use antimicrobials, as reducing the number of infections reduces the number of treatments needed. This approach is supported by the new Animal Health Strategy, as it is fully in line with the principle promoted by the Strategy that prevention is better than cure. A reduction in the incidence of animal disease and zoonotic infections should also minimise the need for, and the use of, antimicrobials.

In general, the following measures can help to prevent diseases and reduce the need to use antimicrobials in all species:

- implementing hygiene and biosecurity measures (including measures designed to prevent the introduction of infections), such as:
  - keeping separate clothes and boots for each unit
  - limiting access
  - making hand washing and hand disinfection facilities (with liquid soap, hot and cold water) available close to the workplace
  - ensuring quick removal of and prevention of access to dead animals
  - applying the 'all-in all-out' system in each unit
  - following a strict schedule for cleaning and disinfection, and
  - performing regular disinfection controls
- producing clear protocols for the prevention of infectious diseases and infection control and hygiene and making these available on farms;
- improving husbandry systems by providing appropriate housing, ventilation and environmental conditions for animals, and appropriate and clean facilities during transport (e.g., the lairage area and vehicles);
- establishing integrated production systems which avoid the need to buy and mix animal populations and to transport animals with unknown disease status;
- avoiding stressful situations which can weaken animals' immune systems and make them more susceptible to infections, e.g., limiting the transport of animals, minimising transport time and ensuring compliance with the recommended animal population density (i.e. avoiding overcrowding);
- implementing other zootechnical treatments to minimise disease and decrease use of antimicrobials;
- introducing herd-specific health plans designed to achieve a consistent stepwise improvement of herd health and avoiding and discouraging health programmes in which animals are systematically treated with antimicrobials prophylactically;
- implementing programmes to control specific animal diseases (both viral and bacterial) by means of vaccination;
- using scientifically proven, effective and safe alternatives to antimicrobials;
- using only safe, high-quality feed and water;
- providing incentives to farmers to encourage them to adopt effective preventive measures, to improve animal health and welfare standards and to monitor pathogens and their sensitivity at herd level, with the ultimate objective of ensuring evidence-based use of antimicrobials in individual herds in line with the prudent use principles set in these guidelines.

6.4.1 Bovines and Small Ruminants

Treatment given to cows at drying-off is of particular importance. The measures to be taken include:

- avoiding the prophylactic use of antimicrobials in new-born calves (e.g. antimicrobials added to milk replacers) by instead implementing good farming practices (e.g. to ensure high standards of hygiene);
- developing preventive strategies (e.g., vaccinations and feeding colostrum to calves), especially for the allotment of veal calves and beef cattle;
- avoiding the systematic treatment of cows at drying-off, and considering and implementing alternative measures on a case-by-case basis;
- establishing thorough hygiene measures and good farm practice and management strategies to minimise the development and spread of mastitis in dairy cows;
- Dry cow therapy (DCT) is an important part of mastitis control. Avoiding blanket DCT: administration of antimicrobials to all quarters of all cows routinely creates opportunity for development of antimicrobial resistance. Selective DCT: following the advice of the veterinarian, who treated the animals and who performed several antibiotic sensitivity tests in the herd during lactation.
- promoting the use of rapid diagnostic tests (e.g., standardised tests with chromogenic media) for identifying mastitis-causing pathogens, in order to minimise the use of both intramammary and injectable antimicrobials in milking cows;
- avoiding feeding calves with waste milk from cows that have been treated with antimicrobials.

On the calve fattening farms particular attention is given to:

- weaning at least 30 days before sale
- training to eat from a feed bunk and to drink from a tank
- parasite treatment
- vaccination for respiratory and digestive diseases
- castration and dehorning with wounds healed before the movement of the animal
- identification with an ear tag, and
- ensuring that calves come from one farm or from as few sources as possible.

6.4.2 Poultry

Action is needed to avoid the prophylactic and often recurrent group medication of poultry, which is frequently carried out immediately before or after transport of day-old chicks, or in some cases to address losses of productivity.

- The injection of antimicrobials into eggs or day-old chicks in hatcheries should be avoided entirely, unless justified for exceptional reasons that are clearly described in national or regional guidelines.

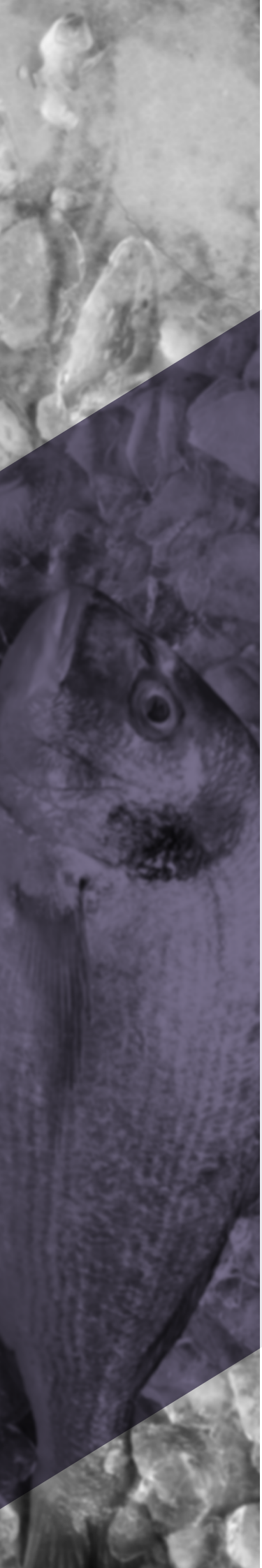
- Hatcheries should keep records of any use of antimicrobials in eggs and should provide their records to control bodies on request.
- Antimicrobials should not be used routinely on the arrival of day-old chicks at the farm. The prophylactic use of antimicrobials at this stage can be avoided by ensuring good hatchery hygiene and through good management of day-old chick production (e.g., temperature control, hygiene and stimulation of drinking and eating).
- Vaccination management should include measures to avoid a stress reaction and improvements to the availability of autogenous vaccines.
- The use of antimicrobials for non-infectious diseases with limited secondary infections should be avoided. Husbandry, management and breeding policies should be evaluated to avoid the recurrence of such diseases.
- The use of 3rd and 4th generation of cephalosporins in poultry (including eggs) should be prohibited, in line with the European Food Safety Authority's scientific opinion on the public health risks of bacterial strains producing extended-spectrum beta-lactamases (ESBL) and/or Amp C beta-lactamases in food and food-producing animals due to the risk of AMR spreading to humans.
- Fluoroquinolones should be reserved for the treatment of clinical conditions that have responded poorly, or are expected to respond poorly, to other classes of antimicrobials and, whenever possible, should only be used where susceptibility testing has first been carried out.
- Specific animal welfare programmes should be introduced, potentially including footpad scores.
- Antimicrobials shall not be used as a specific method to control *Salmonella* in poultry. In order to ensure that EU targets for reducing *Salmonella* are met, all Member States' national control programmes should include biosecurity measures designed to prevent *Salmonella* infection on poultry farms. The introduction of such measures also has a positive effect in terms of preventing other diseases.

6.4.3 Aquaculture

The same strategies for reducing the use of antimicrobials in other farm animals should also be considered in aquaculture. The use of vaccines to tackle some of the bacterial diseases most commonly occurring in fish has been demonstrated to be particularly effective.

The following actions should be implemented to prevent and reduce the need of antimicrobials in aquaculture:

- encouraging production systems that provide appropriate environmental conditions for aquaculture animals kept on farms, in particular with regard to water quality, water flow rates, oxygen levels and nutrition;
- encouraging the use of antimicrobial sensitivity testing prior to treatment, wherever possible;
- encouraging the development of specific disease surveillance programmes to identify and help prevent possible outbreaks of disease;
- implementing specific hygiene and biosecurity measures, including measures to prevent the introduction and spread of infections, such as:



- operating an 'all-in all-out' system per unit or farm, applying single bay management where possible, ensuring proper cleaning and/or disinfection of units and farms between production cycles, and carrying out fallowing of sites between production cycles;
- keeping separate equipment, clothes and boots for each unit or farm and enforcing restrictions on access to the farm;
- quickly removing dead fish and ensuring systems are in place for handling, disposing of and treating by-products;
- developing systems to avoid the spread of diseases by transport (e.g. treatment of transportation water and avoiding contact with other aquaculture animals during transport);

- encouraging the development and use of effective vaccines for aquaculture;
- recommending adequate welfare parameters, e.g., for stocking density.

6.4.4 Other Species (Pets, Animals Kept for Fur and other Non-Food-Producing Species)

When clinical infection with Methicillin-resistant *Staphylococcus aureus* (MRSA) or Methicillin-resistant *Staphylococcus pseudintermedius* (MRSP) is suspected or detected in horses and companion animals, they should be monitored for MRSA/MRSP with a view to a possible quarantine. It is very important that the risk of the infection spreading in animal hospitals and veterinary clinics is minimised. Animals showing clinical signs should therefore be handled separately. In dog kennels or in day-care for dogs, dogs showing clinical symptoms should not be kept with other animals.

The off-label (cascade) use of antimicrobials not authorised in veterinary medicine to treat non-food-producing animals should be avoided, especially when the drugs are of critical importance for human health (e.g. carbapenems and tigecycline). Their use should only be considered in very exceptional cases, e.g., when laboratory susceptibility testing has confirmed that no other antimicrobials will be effective and where there are ethical reasons to justify such a course of treatment.

7. VACCINATION

Vaccination of animals help prevents diseases, improves animal well-being and optimizes the responsible use of therapeutic treatments such as antibiotics. It also halts or slows transmission of transboundary emerging diseases to protect both public health and animal health.

With the new EU Regulation on Transmissible Animal Diseases, the animal health industry strongly supports the boost given to the importance of vaccination for prevention and control of animal diseases. A recent survey commissioned by Animal health Europe across eight European countries also showed growing awareness of the importance of animal vaccination with 69% agreeing that farm animals should be vaccinated regularly.

Vaccination programme means a plan to apply vaccination to an epidemiologically appropriate proportion of the susceptible animal population for the purposes of disease prevention or control.

Control bodies may define in local legal text a mandatory vaccination program. The objectives and strategy of a vaccination programme should be defined by the 'veterinary services' before the implementation of vaccination, taking into account the epidemiology of the disease, its impact and zoonotic potential, the species affected and their distribution. Examples of such vaccination programs are vaccination of cattle and small animals against bluetongue disease, cattle against lumpy skin disease, vaccination against rabies... It is the duty of all animal owners to comply with the vaccination program and to allow vaccination of their animals.

The veterinary profession has developed a number of vaccination programs for individual species and categories of animals with the aim of easier control of the health condition of animals in intensive production. Animal owners use such vaccination programs voluntarily, because they are aware that vaccination is the prevention of the occurrence of diseases. Keeping animals as disease-free as possible is an essential element of the economic aspect of successful animal production.

Vaccination programs must always be adapted to the health status of the animals in the herd/flock and the state of disease occurrence in the country.

7.1 EXAMPLE OF CATTLE HERD VACCINATION PROGRAM

NEONATAL CALVES: An oral vaccine containing bovine rotavirus and bovine coronavirus can be given orally to new-born calves.

3-6 MONTHS OF AGE: Vaccination of calves for infectious bovine rhinotracheitis (IBR), bovine virus diarrhoea (BVD), parainfluenza-3 (PI-3), and bovine respiratory syncytial virus (BRSV), Leptospirosis, Clostridial group.

PRE-BREEDING: IBR, BVD, PI-3, BRSV, Leptospirosis, Clostridial group

PRE-CALVING: Clostridial group, *E. coli* mastitis vaccine at least twice, at six and three weeks prior to calving; Rotavirus, coronavirus, and *E. coli* scours vaccine twice, at six and three weeks prior to calving.

7.2 EXAMPLE OF VACCINATION PROGRAM FOR BROILERS PARENTAL FLOCKS

AGE	VACCINE	ROUTE	TYPE
1 day	Marek's disease	Subcutaneous (SC)	Turkey herpesvirus
6–7 days	Tenosynovitis	SC	Live (Mild)
14–21 days	Newcastle/ infectious bronchitis	Water	B1/Mass
14–28 days	Infectious bursal disease	Water	Intermediate
4 wk	Newcastle/ infectious bronchitis	Water or coarse spray	B1/Mass
6–8 wk	Tenosynovitis	SC	Live (Mild)
8–10 wk	Infectious bursal disease	Water or coarse spray	Live
8–10 wk	Newcastle/ infectious bronchitis	Water or coarse spray	B1 or LaSota/Mass
10–12 wk	Encephalomyelitis	Wing web	Live, chick-embryo origin
10–12 wk	Fowlpox	Wing web	Modified live
10–12 wk	Chicken infectious anemia	Wing web	Modified live
10–12 wk	Laryngotracheitis	Intraocular	Modified live
10–12 wk	Tenosynovitis	Parenteral	Inactivated
10–12 wk	Fowl cholera	Parenteral or Wing web	Inactivated Live CU, PM-1, or M9
12-14 wk	Newcastle/ infectious bronchitis	Water or aerosol	B1 or LaSota/Mass
14-18 wk	Fowl cholera	Parenteral or Wing web	Inactivated Live CU, PM-1, or M9
16-18 wk	Infectious bursal disease	Parenteral	Inactivated
16-18 wk	Tenosynovitis	Parenteral	Inactivated
16-18 wk	Newcastle/ infectious bronchitis	Water or aerosol	B1 or LaSota/Mass
Every 60-90 days or 18 wk	Newcastle/ infectious bronchitis	Parenteral	Inactivated

7.3 EXAMPLE OF VACCINATION PROGRAM FOR BROILERS

VACCINE	AGE	ROUTE	TYPE
Marek's disease	1 day	SC	Turkey herpesvirus and SB-1 or Rispens strain for high-challenge areas
Newcastle disease	1 day or	Coarse spray	B1
	14–21 days	Water or coarse spray	B1 or LaSota
Infectious bronchitis	1 day or	Coarse spray	Massachusetts
	14–21 days	Water or coarse spray	
Infectious bursal disease	14–21 days	Water	Intermediate

8. BIOSECURITY ON FARM

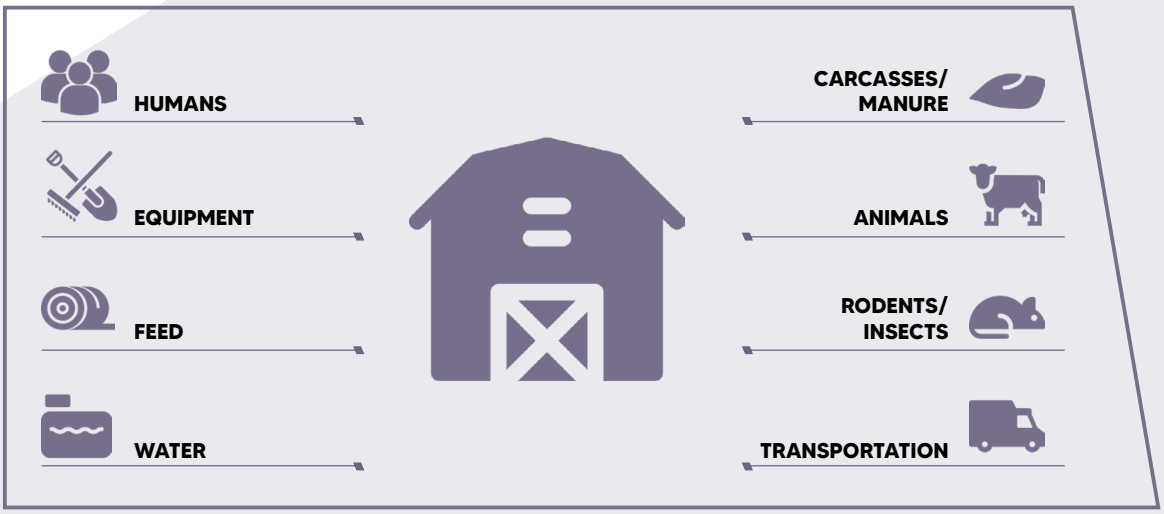
Biosecurity measures are the best prevention of the occurrence of diseases on farms and thus significantly contribute to the reduced use of antimicrobial agents.

The implementation of general biosecurity measures in addition to being essential for farms, should be mandatory for traders and transporters of animals, veterinarians, and other operators who, in the course of their work, come into contact with animals on the farm.

Biosecurity is normally targeted at commercial holdings. However, all holdings that have access to markets should be included in the biosecurity programme. Although non-commercial farms can be a dead end in terms of disease spreading, backyard units that sell animals at local or regional level can have a role in the spread of diseases.

8.1 BIOSECURITY RISKS

Different microorganisms (bacteria, viruses, fungi) and parasites - biological agents of disease - can be introduced to the farm in various ways.



8.2. GENERAL BIOSECURITY MEASURES ON FARM

The general biosecurity rules apply to different types of animal husbandry, but it is necessary to adapt them to the animal species and the type of animal husbandry. The general biosecurity rules are:

- procurement/ purchase of animals from farms with verified health status;
- isolation (quarantine) of newly acquired animals and animals showing signs of disease (recommended for 28 days for cattle and small ruminants or implementation of the all in - all out principle);
- securing entrances and exits against unauthorized access by people or vehicles;
- the entry of other persons into the facilities where animals are housed, and into the discharges, shall be allowed only with the permission of the owner/ keeper of the animal;
- use of protective clothing and footwear for anyone who comes into contact with the animals;
- installation, maintenance and use of the disinfection barrier at the entrance to the facility with animals or on the farm (disinfection barriers are installed in the corresponding side rooms of the facility with animals); if there are no disinfection barriers, it is always necessary to change shoes and clothes before entering and exiting the farm.
- maintaining lists or records on visitors, means of transport, performance of disinfection, disinsection and pest control;
- accommodation spaces and associated side spaces, as well as the devices and equipment must allow for regular and adequate cleaning and disinfection and pest control;
- regular cleaning and disinfection of buildings and other premises where animals are kept, of warehouses of fodder, means of transport, equipment or machinery;

- handling of dead animals and waste;
- provision of separate rooms or facilities for individual types of animals;
- regular monitoring of the animal's health status, including recording changes in the animal's health status;
- ensuring regular veterinary care for animals;
- provision of health-appropriate drinking water and water for watering;
- provision of suitable feed, of known origin, in sufficient quantity;
- ensuring hygiene during calving and during milking;
- preventive disinfection, disinsection and deratization on the farm and on the means of transport;
- checking the animal's health before leaving the farm, sale or (transmission of clinically healthy animals).

8.2.1 Biosecurity Plan

The animal breeder should draw up a biosecurity plan in cooperation with the veterinarian for the implementation of general biosecurity measures on the farm.

The plan should contain at least:

- description of husbandry
- farming technologies
- floor plan of facilities where animals are housed with marked entrances and exits from the holding
- plans of cleaning, disinfection and pest control plan
- the way of handling newly arrived animals

8.2.2 An Example of Elements of a Biosecurity Plan - Poultry

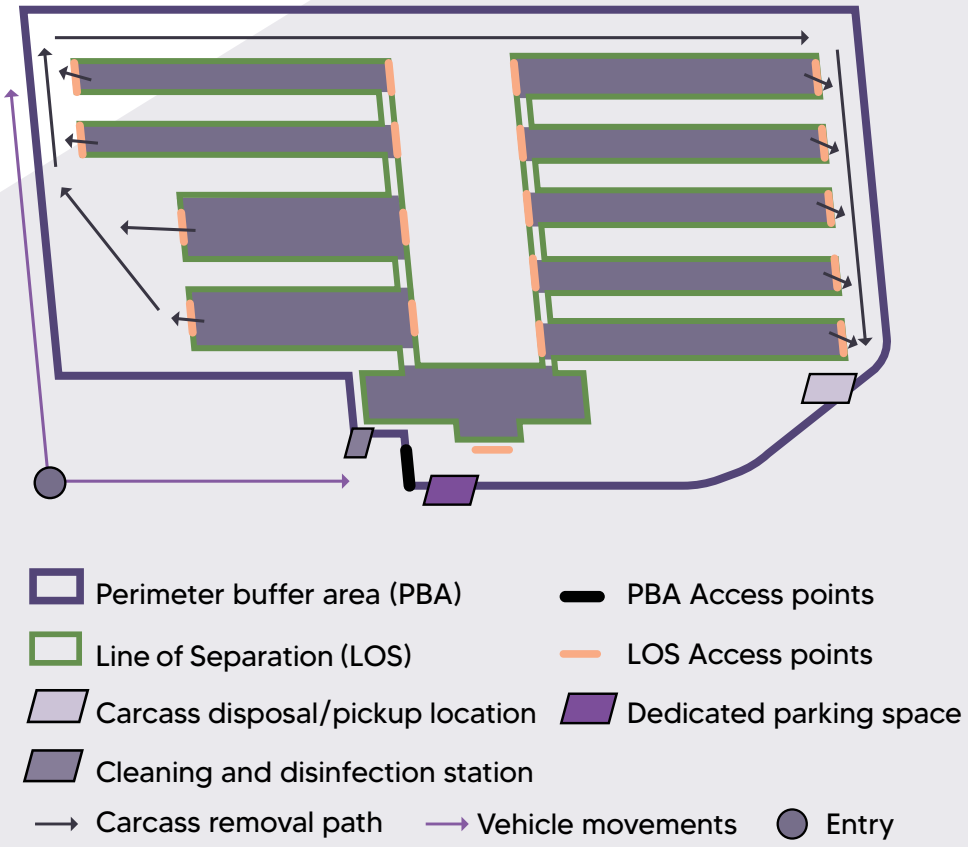
Person responsible for Biosecurity (Biosecurity Coordinator)

Depending on the type and size of poultry operation, the Biosecurity Coordinator's responsibility could be at the farm, production site, production complex, or company level. The Biosecurity Coordinator should be knowledgeable in the principles of biosecurity.

Biosecurity plan should include a site map(s) labelled as follows:

- Entrance(s) to site
- Perimeter Buffer Area (PBA) and PBA Access Point(s)
- Line of Separation (LOS) and LOS Access Point(s)
- Load-in/out location(s)
- Cleaning and disinfection (C&D) station(s),
- Designated parking area outside the PBA (for vehicles that will not be C&D)
- Carcass disposal/pickup location and carcass removal pathways, and
- Vehicle movement pathways (animal transport vehicles, deliveries, etc.).

An example of a labelled site farm map can be found below:



The perimeter buffer area (PBA) is a functional zone surrounding the poultry houses or poultry raising area that separates them from areas unrelated to poultry production on that site and/or adjoining properties. It is comprised of the poultry houses and poultry raising areas as well as the nearby structures and high traffic areas involved in the daily function of the poultry farm. Fenced off to prevent physical access.

Entry to the PBA is restricted to a limited number of controlled PBA Access Points. Each PBA Access Point should be clearly marked with signs, understandable to all entrants and protected with a suitable barrier.

Nonessential vehicles shall not enter the PBA and therefore do not need to be cleaned and disinfected each time they arrive at the site. A designated parking area should be located outside of the PBA where individuals can conveniently walk to the nearest PBA Access Point.

Specific biosecurity measures for vehicles, equipment, and personnel entering through the PBA Access Point are required and vary by site; these should be described in the site-specific biosecurity plan.

Line of Separation (LOS) is a functional line separating the poultry house(s) and the poultry inside from exposure to potential disease sources. Generally, it is defined by the walls of the poultry building with practical deviations to account for entry points, structural aspects, or outside access areas. Movement of people across the LOS requires Biosecurity Entry and Exit Procedures

Movement of poultry across the LOS should be done through an established LOS Access Point. In some facilities, the people LOS Access Point and the poultry LOS Access Point are the same.

Movement of personal items and food across the LOS is limited to what is necessary to perform job duties and the items (e.g., hats, glasses, cell phones, lunch bags) should be clean and not worn/used around poultry or cleaned and disinfected before crossing the LOS.

Movement of vehicles, equipment and supplies that do not need to enter the poultry housing area should be directed to a designated area outside of the LOS. Signs indicating this should be posted at the LOS Access Point. All supplies that cross the LOS should be cleaned and disinfected.

Personnel

Prior to arrival at the site, it is recommended that all individuals who will enter the PBA:

- Shower and wear clean clothes and footwear prior to arrival on the site.
- Leave unnecessary personal items, such as jewellery, at home.
- Ensure that the insides of their vehicles are clean (free of poultry manure, litter, feathers, etc.), and are not contaminated by soiled clothes, footwear, or other items that could transfer virus.
- Understand and be able to follow all procedures for crossing the PBA and LOS before they arrive at the site.
- Sign a statement confirming they have been informed of these biosecurity protocols and will follow them.

Prior to entering the PBA, individuals granted entry should sign the entry logbook maintained on site. To enter the PBA, it is recommended that individuals:

- Wear site-dedicated footwear, OR
- Wear disposable or disinfected footwear; AND
- Ensure hands are clean or Apply hand sanitizer and/or
- Wear disposable or disinfected gloves over clean hands.

To cross the LOS, it is recommended that individuals:

- Ensure hands are clean.
- If disposable or disinfected gloves are used, they should be put on over clean hands AND
- Put on clean biosecurity site-specific coveralls or clothing), AND
- Ensure that any street clothes or accessories, if permitted, are completely covered by biosecurity coveralls or clothing , AND
- Put on clean, site-specific boots or boot covers, OR disposable boot covers, OR
- Clean and disinfect boots using proper cleaning and disinfection steps, including appropriate disinfectant contact time.

Wild Birds, Rodents and Insects

Poultry operations should have control measures to prevent contact with and protect poultry from wild birds, their faeces and their feathers as appropriate to the production system. Waterfowl carry all avian influenza (AI) subtypes without becoming ill. Ducks and mallards in particular, are excellent long-distance carriers. Infected small wild birds may introduce AI into a house. Influenza virus is spread by the faecal-oral route in waterfowl. During annual migrations, waterfowl excrete virus into bodies of water, where it can survive for months at cool temperatures and spread infection to other waterfowl. Domesticated poultry can become infected if they consume feed or water contaminated by wild bird faeces. Feathers and contaminated dust can also carry AI virus and can contaminate the environment.

Rodent activity may be detected by the presence of chewed building material crumbs, droppings, and holes. Record and monitor strategically placed traps and bait stations for rodent activity. An integrated pest management system is an effective way of detecting and eliminating rodents from a poultry farm.

- Company-developed rodent control plan

Many effective rodenticides (poison baits) are commercially available, including anticoagulants such as warfarin, or non-anticoagulants such as bromethalin and cholecalciferol. Any rodenticide should be used according to label directions, and strict safety measures must be observed to prevent poison consumption by non-target species (e.g., children, pets, poultry, wildlife). Effectiveness of the bait should be assessed regularly, and baits rotated routinely. Based on the results of rodent population monitoring, the number and location of traps and/or stations can be adjusted where necessary.

- Contracted rodent control plan - using professional rodent control company.

Insect control options include a company-developed insect control plan. Insect populations can be reduced by exclusionary tactics as well as biological and/or chemical control programs.

- Biological control involves propagation of fly predators, such as the macrochelid mite and hister beetle, which can live in poultry manure.

- Chemical control consists of insecticide applications of pyrethroids, carbamates, organophosphates, and others, which may target larvae or adults. Rotation of chemical control products is often beneficial and reduces the chance of developing resistance. Chemicals should be mixed and applied according to label instructions with proper application methods.

Manage manure piles to maintain moisture levels less than 40% throughout to limit insect breeding. Wet manure spots should be topped with drying materials.

Maintain proper barn ventilation to control moisture. Monitor fans, baffles, heaters, louvers, and other mechanisms to ensure they are in proper working order.

Equipment and Vehicles

Equipment used on poultry production sites can serve as a mean for disease spread. This includes any items used for handling, care, treatment, or euthanasia of poultry, or any other items that may have been in contact with infected poultry or entered poultry houses. Additionally, public roadways may be contaminated with AI virus. When possible, all vehicles and equipment should remain outside of the PBA.

All vehicles and equipment entering the PBA should only do so through a PBA Access Point. Vehicles and equipment entering the PBA should be effectively cleaned and disinfected before entry. Effective disinfection of vehicles and equipment requires thorough cleaning to remove visible contamination, proper application of a registered disinfectant labelled for avian influenza A viruses, then allowing time at an appropriate temperature for the disinfectant to kill the virus.

Employees should be trained to monitor vehicle cleanliness to ensure compliance, and the site-specific biosecurity plan should identify objective check points for determining if vehicles, equipment, and supplies are effectively cleaned and disinfected. Vehicles and equipment that have not been effectively cleaned and disinfected should not be permitted to enter the site.

Sharing of site-dedicated vehicles and equipment should be avoided. Sharing of specialized equipment that is used infrequently (e.g., manure handling equipment, decaking equipment, turkey or chicken loading equipment, spent hen removal equipment, pullet crates, etc.) between poultry sites presents a risk for virus spread. Shared equipment should only visit one site per day and should be effectively cleaned and disinfected between sites.

Cleaning and Disinfection of the Poultry House between Flocks

Once manure/litter is completely removed from the poultry house, the poultry house should undergo complete cleaning and disinfection (using chemical disinfectants or heat) before the introduction of new birds. All live and dead birds, old feed, eggs, and other gross organic matter must be removed before cleaning and disinfection. Complete cleaning and disinfection should include waterline treatment. This may also require a modified PBA, LOS, and/or access points depending on the method of cleaning and disinfection used.

Replacement Poultry

Replacement poultry should be sourced from poultry flocks of known high health status that are regularly monitored for poultry pathogens. This includes flock health status, vaccine and disease history, and negative monitoring for AI and other diseases, as well as biosecurity protocols. Additionally, when filling a house, there shall be a single-source chickens per building (avoid co-mingling).

The interior of the trailer used to move poultry should be cleaned, disinfected (using chemical disinfectants or heat) and allowed to dry prior to loading cages with poultry. Containers and equipment used for placement of poultry should be new or effectively cleaned and disinfected.

Impose an all-in, all-out system - after a house is stocked, new birds should not be introduced. For example, chicks, pullets, or poults should not be introduced to replace early mortalities in order to keep the house fully stocked.

When loading/unloading poultry, maintain directional flow of birds and personnel. People or animals which have crossed the PBA and/or LOS at the access point, should not be allowed to cross back to the outside of the LOS, and vice versa, without going through the appropriate biosecurity entry/exit procedures.

Water Supplies

It is recommended that drinking water or water used for evaporative cooling be sourced from a contained supply such as a well or 'municipal' system. If drinking water comes from a surface water source, water treatment must be used to reduce the level of disease agents. If surfaces have been cleaned or flushed with surface water, subsequent disinfection should be employed to prevent disease transmission. If water treatment is not possible, a risk analysis should be performed to determine actions needed to mitigate risks.

Feed and Replacement Litter

Feed, feed ingredients, bedding, and litter should be delivered, stored and maintained in a manner that limits exposure to and contamination by wild birds, rodents, insects, and other animals. Feed spills within the PBA (outside of the LOS) should be cleaned up and disposed in a timely fashion.

Feed delivery trucks that enter the PBA should be cleaned and disinfected before entry. This is especially important during periods of increased risk, if feeds come from a commercial source which also services other farms.

Finished feed, feed ingredients, and fresh litter should be stored and handled so that it cannot be contaminated, or treated to eliminate contamination.

- Finished feed, feed ingredients, and fresh litter delivery trailers should be covered so that the contents cannot be contaminated during transport.
- Finished feed, feed ingredients, and fresh litter should be stored in closed bins or buildings which exclude the potential for contamination with AI virus.
- If bagged feed is used, it should be elevated off the floor and proper rodent control procedures should be implemented in these areas.
- Common feed spill areas should be identified and measures to capture or reduce spilled feed in these areas should be implemented.
- Finished feed and litter should be transported from storage into poultry houses in a manner that prevents it from being contaminated.
- All feed, feed ingredients, and litter spills should be cleaned up as soon as possible to minimize attraction of wildlife and rodents.

Manure and Litter Management

Manure and spent litter should be removed, stored and disposed of in a manner to prevent exposure to disease agent susceptible poultry. Onsite litter and manure storage should limit attraction of wild birds, rodents, insects, and other animals.

Vehicles removing manure/litter from a site that uses a belt system to deliver manure to a separate building outside the PBA may remain outside the PBA and follow designated routes.

Dead Birds' Disposal

Dead birds should be collected daily, stored and disposed in a manner that does not attract wild birds, rodents, insects, and other animals, and that minimizes the potential for cross-contamination from other facilities or between premises. It is recommended that dead birds' disposal is on-site, if possible. Dead birds' disposal should be described in the site-specific biosecurity plan.

The site-specific plan should address procedures for handling dead birds' disposal in a way that reduces the potential for cross-contamination from other facilities, between premises and with other animal species like wildlife. It is recommended that dead birds are removed and placed in a closed, leak-proof container within the LOS during the day and that the container is removed daily. If re-usable containers are used to transport dead birds to a dead bird collection container or disposal site, the re-usable containers from each house should be cleaned and disinfected before being returned to the house.

8.2.3 Basic Cleaning and Disinfection Protocol

The basic cleaning and disinfection protocol, regardless of the item involved, is as follows:

- Dry clean
  Remove any gross contamination and organic material.
- Wash and rinse
  Wash the item with a detergent solution to further remove organic debris. Inspect for cleanliness and repeat wash procedure if not clean.
- Dry
  When possible complete drying of the items should occur before disinfectant application
- Disinfection application
  Use only registered disinfectants. Follow the manufacturer directions for concentration and contact time of disinfectants. Ensure all areas are covered thoroughly with the solution and remain "wet" with the solution for the necessary contact time. Apply the disinfectant a second time if necessary.
- Rinse and dry
  Rinse equipment thoroughly with clean warm water. Thorough rinsing can be very important as some disinfectant solutions may cause damage to surfaces (e.g., deterioration of rubber or corrosion of metal parts), if not completely rinsed away. Allow items(s) to air-dry.

Factors Affecting Cleaning and Disinfection Efficacy

- Type of the surface
  Porous, uneven, cracked, or pitted surfaces, especially wooden surfaces and earthen floors, are difficult to disinfect. Some chemical disinfectants may also be incompatible with or corrosive to certain materials or surface types (e.g., metal, rubber, plastic). Due to the construction and presence of uneven surfaces on equipment, equipment cleaning and disinfection procedures can be difficult. Heat may be a more effective method for inactivating the virus on these surfaces.
- pH
  The activity of some disinfectants is also affected by the pH because it changes the degree of ionization of the chemical disinfectant, thereby impacting efficacy. For example, the efficacy of phenols, acids, and hypochlorites is decreased with the increase of pH; on the contrary, quaternary ammonium compounds have greatest efficacy as pH increases.
- Water quality
  The water quality used when diluting and applying detergents and disinfectants is important. Water hardness can inactivate or reduce the effectiveness of certain disinfectants (e.g., quaternary ammonium compounds). Be sure to consider any standing water or other water sources (e.g., rainfall) present that may immediately dilute the disinfectant during application

- Temperature
  Some disinfectants are less effective or ineffective at low temperatures (e.g., cold weather conditions). Additionally, disinfectant solutions may freeze outdoors under low temperature conditions. When possible, buildings and equipment should be heated to approximately 20°C when applying disinfectants. Elevated temperatures can help for microorganism destruction. However, higher temperatures can also accelerate decomposition or evaporation of a disinfectant, thereby reducing the necessary contact time and efficacy. Excessive heat may also damage items being disinfected.
- Weather
  Adverse weather conditions (e.g., cold, rain, wind) may also make these procedures difficult.

Metal surfaces (e.g., stainless steel, aluminium) are generally easier to disinfect than other materials, especially when the surfaces are smooth. However, some chemical disinfectants are incompatible or corrosive with metal surfaces (see table below).

CHEMICAL DISINFECTANT	EFFECT ON METAL SURFACES
Sodium hydroxide	Corrosive to aluminium and derived alloys, and galvanized metal
Sodium carbonate	Corrosive to aluminium and derived alloys
Acids	Highly corrosive to metals
Glutaraldehyde, Virkon® S	Mildly corrosive to metals
Iodophors, hypochlorites, formaldehyde	Corrosive to some metals
Phenolics	Relatively non-corrosive

8.2.4 Isolation

Isolation refers to keeping sick animals separate from healthy ones.

- Provide an air space, water source and feed source separate from the rest of your livestock.
- Prevent direct contact with the rest of your livestock.
- Provide a clean, dry, comfortable resting space for the animal(s).
- Provide adequate restraint facilities for examinations and administration of treatments.
- Allow equipment storage in that area (e.g., shovels, halters, buckets, etc.) for use only in the isolation area.
- Prevent the movement of equipment and manure from the isolation area to other locations with livestock.
- Ensure workers clean hands and boots and change clothes before going to other areas.
- Be easy to clean and disinfect.
- Prevent access to other animals like pet dogs or wildlife.

9. AWARENESS RAISING

It is only possible to minimise the development of AMR through the prudent use of antimicrobials if all parties involved are well informed. Awareness campaigns therefore play an important role, and need to be regularly repeated and updated.

Farmers' associations should promote the principles of prudent use of antimicrobials among their members. They should inform farmers of the implications of the use of antimicrobials in animals for the risk of AMR, and thus help to minimise the use. Other aspects such as the risk of AMR due to direct contact with animals should also be publicised.

Training courses and guidance materials given to farmers should include information on preventive measures that promote animal health, in particular implementation of biosecurity measures, good farming practices and herd health planning. Such practices can help to reduce the need for antimicrobials. Training should also cover the administration of antimicrobials and environmental risks.

Industry stakeholder associations should continue to support the development and implementation of initiatives to tackle AMR and to promote the prudent use of antimicrobials. They should develop appropriate communication materials and provide adequate information about the risk of AMR to their members. They should also support national initiatives involving the collection of data on sales of antimicrobials.

Industry stakeholder associations should promote quality schemes and systems of production and supply that implement the principles of prudent use, i.e. that minimise the use of antimicrobials and promote animal welfare.

Veterinary professional associations should continue developing guidelines for the prudent use of antimicrobials and promoting their implementation. Veterinary professional associations and statutory bodies should provide specific training for veterinary practitioners on AMR and the prudent use of antimicrobials.

They should include principles on the prudent use of antimicrobials in their codes of conduct for veterinarians.

10. NATIONAL STRATEGIES

All states should develop and implement national strategies or action plans for tackling AMR. These strategies or action plans should have a holistic approach, and should cover all sectors and aspects of AMR (e.g., public health, animal health and welfare, food safety, consumer safety, the environment, research and non-therapeutic use of antimicrobials). They should involve the relevant competent authorities and all other parties concerned.

National strategies should set out a comprehensive set of actions. They should cover at least the following areas: the monitoring and surveillance of AMR and antimicrobial use in both humans and animals, risk management measures, risk communication strategies, guidelines on prudent use, treatment and husbandry management, education and training and research.

Preventing diseases is, in the first instance, the best way to reduce the need for antimicrobials. States are therefore recommended to focus their AMR strategy primarily on species that are commonly treated with mass or group medication (pigs, poultry, veal calves and aquaculture), but not to the exclusion of other food-producing and non-food-producing species.

Further risk-based targeting could be considered in a national strategy. For example, some states have introduced strict provisions on specific antimicrobials included in the World Health Organisation's list of critically important antimicrobials, for example on the use of third- and fourth-generation cephalosporins and/or fluoroquinolones.

11. REFERENCES

OIE Terrestrial Manual 2022, Principles of veterinary vaccine production.

The OIE Strategy on Antimicrobial Resistance and the Prudent Use of Antimicrobials.

Commission notice: Guidelines for the prudent use of antimicrobials in veterinary medicine (2015/C 299/04).

USDA, Information manual for implementing poultry biosecurity, February 2019.

USDA APHIS, Foreign Animal Disease Preparedness and Response Plan Guidelines: Cleaning and Disinfection. 2014 July.

CONTACT

+90 542 862 3000

tccfoodsafety

tccfoodsafetyproject.eu

foodsafetyprojectTCc@gmail.com

Tabak Derviş Street,
No: 3, Nicosia Cyprus

Funded by
the European Union

EU FOOD SAFETY
AB GIDA GÜVENLİĞİ