



INFORMATION SHEET:

Antibiotic use in Agriculture

Current Situation

Antibiotics are essential in combatting many infectious diseases in both humans and animals, but the threat of antimicrobial resistance, which is known to occur in both human and veterinary medicine, is an important issue in our generation.

36% of antibiotics sold in the UK in 2017 were for use in animals, of which 72% was for food-producing animals¹. In 2016, the O'Neill review, part of the Government's 5-year Antimicrobial Strategy, recommended the reduction of antibiotic use in agriculture, aiming for a target of 50mg of antibiotic per kg of livestock by 2018^{1,2}. This contributed to the already declining rate of antibiotic use in the UK, with a recent report citing a reduction of 40% in livestock (from 62 mg/kg to 37 mg/kg) between 2013 and 2017³, surpassing the government target. To further decrease antibiotic usage in the livestock sector, the Responsible Use of Medicines in Agriculture Alliance (RUMA) have administered a Targets Task Force of vets and farmers, working with the industry and government to implement further UK sector specific targets up to 2020⁴.

Resistance

Antibiotic use in agriculture is often described as a major contributor to resistance in human medicine. Antimicrobial resistance occurs naturally in the environment, but the improper, routine use of antibiotics can accelerate this process, rendering crucial medicines ineffective against serious diseases.

The government's recent UK One Health Report stated that for people and food-producing animals, resistance level to the common antibiotic type of fluoroquinolones, critically important in human medicine, was high for *Campylobacter jejuni*¹. Findings such as this may require increasing numbers of animals and people to be treated with stronger antibiotics which are of greater risk to public health, unless resistance levels are reduced.

Furthermore, whilst the addition of antibiotics in feed to promote growth was banned in the EU in 2006, it continues in countries such as the United States where they are often administered at

¹ HM Government. *UK One Health Report; Joint Report on Antibiotic Use and Antibiotic Resistance, 2013 – 2017*. (2019). Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/775075/One_Health_Report_2019_v45.pdf

² Review on Antimicrobial Resistance. *Tackling Drug-Resistant Infections Globally: Final Report and Recommendations*. 2016. Available from: https://amr-review.org/sites/default/files/160518_Final%20paper_with%20cover.pdf

³ HM Government. *UK One Health Report; Joint Report on Antibiotic Use and Antibiotic Resistance, 2013 – 2017*. (2019). Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/775075/One_Health_Report_2019_v45.pdf

⁴ Responsible Use of Medicines in Agriculture Alliance. *Targets Task Force: One Year On. November 2018*. (2018). Available from: <https://www.ruma.org.uk/wp-content/uploads/2018/11/RUMA-TTF-1-year-on-Full-Report-FINAL.pdf>

subclinical doses, further increasing the risk of antibiotic resistance. The improper use of antibiotics in one sector, situation or country affects the spread of resistance in others, and this issue may become more globally widespread following Brexit trade deals. Potentially weakened import regulations may lead to an undermining of the progress achieved in the UK by allowing imports from countries that are not respecting UK and EU standards.

Strategies for Reducing Antibiotic Resistance

Preserving the effectiveness of antibiotics is crucial, and despite negative press and increasing pressure on the industry, strategies are in place to reduce antibiotic resistance.

Improving animal health through focusing on biosecurity, good hygiene and disease prevention is a positive way of reducing the need for antibiotics in animal husbandry. Air quality, ventilation and biosecurity are all critical within indoor systems tightly controlling the environment. Some farmers within the dairy industry have achieved a 25% reduction in antibiotic use through selective dry cow therapy

It is a requirement of Red Tractor farm assurance that annual records of antibiotic use are kept, reducing unchecked administration and encouraging responsible antibiotic use on farm. LEAF Marque builds on the Red Tractor so all animals on LEAF Marque farms are held to this standard. Furthermore, AHDB have released farm-level benchmarking tools such as eMB Pig which support farmers in monitoring their antibiotic use and enables the industry to record more accurate on farm data. The continued development of clear metrics which enable farmers to understand antibiotic amounts, targets and thresholds will contribute to continued resistance reduction⁵.

Alongside other industry representatives, RUMA are publishing husbandry and health guidelines on how to achieve the reduction targets, whilst noting that some antibiotic use may be necessary, particularly to treat underlying endemic diseases. The growing trend for marketing antibiotic free products can also be misleading. Animals untreated by antibiotics are at risk of not receiving the medication they need, thus encouraging poorer welfare standards.

Vaccination rates amongst farmers have been cited as between 13 – 42%⁶. Increasing the amount of vaccinations may contribute to reducing the incidence of disease treatable by antibiotics. However, due to the high genetic variability of viral infections vaccines may not always be effective and viruses can be persistent even on vaccinated farms. Developing new, affordable vaccines and antimicrobial alternatives is crucial in reducing antibiotic use and resistance and may contribute to disease eradication.

Consumer knowledge

Educating consumers on the reality of antibiotic use and resistance is key as there are many myths and misunderstanding amongst consumers, and some marketeers which may be keen to profit from this.

⁵ Evaluation of Metrics for Benchmarking Antimicrobial Use in the UK Dairy Industry. (2018). Available from: <https://veterinaryrecord.bmj.com/content/vetrec/182/13/379.full.pdf>

⁶ MSD Animal Health. *Looking Beyond Antibiotics*. (2017). Available from: http://www.msd-animal-health.co.uk/binaries/80_216960.pdf

The NOAH website⁷ highlights some of these myths:

- *Animals are given antibiotics to boost growth:* Not true. At one time very small doses of some antibiotics were allowed to be added to feed because they improved the growth rates of some farm animals. The European Union phased out this practice, stopping the sale of antibiotic growth promoters on the 1st January 2006.
- *Animals are 'pumped up' with hormones to boost growth:* No - hormonal growth promoters have been banned since 1988 in the UK and the rest of the EU. Some hormones are used as medicines to treat sick cattle or to aid fertility control in cattle, pigs and sheep. They must only be prescribed under the strict control of a veterinarian.
- *Animal medicines are only necessary in intensive farming:* Disease and illness occurs in all forms of farming. Animals, like people, get ill and need medicines either to prevent or treat disease. It is the duty of the farmer to ensure that the animals are healthy and husbandry practices comply with or exceed current animal health and welfare legislation.
- *Organically farmed animals are not given antibiotics:* Just as with people animals can be prescribed antibiotics to treat bacterial infections. If they were not then their welfare would suffer. This is the case in both organic and conventional systems of production.
- *Organic meat is healthier:* There is no evidence to suggest that organic meat is any healthier than conventionally produced meat. The balance of current scientific evidence does not support this view. Available evidence shows that the nutrient levels are similar in food produced by both organic and conventional agriculture.

In 2016 a UK processor introduced a line of farm produce labelled as 'antibiotic-free'. This kind of marketing could lead consumers to believe that other products, by default, contain antibiotics, when all use of antibiotics in farm animals in the UK is strictly regulated and withdrawal periods observed to avoid presence in meat and milk. This may result in consumers often paying unnecessary premiums. If these myths are left unchecked the demand for 'antibiotic-free' meat could rise, with potential ramifications on animal welfare.

Conclusion

Contrary to these figures, there is still a wide held concern that antibiotic use is unnecessarily high in agriculture and is the main cause of resistance, with many consumers mistakenly idolising 'antibiotic-free' animal produce.

Increased awareness and communication within the agriculture, food, veterinarian and health sectors will contribute to educating consumers on the reality of antibiotic use and resistance. Regardless of the type of farming system, antibiotic use is critical when it is needed for animal health, in the same way doctors prescribe antibiotics when humans are sick – as much as necessary and as little as possible. These messages need to be shared with consumers, alongside the fact that the price of meat may rise if antibiotic use is unnecessarily restricted.

Furthermore, governmental action will work towards regulating the appropriate use of antibiotics across all sectors. This will further support the industry in communicating the importance and

⁷ NOAH. *Animal Medicines – what you should know*. Available from: <https://www.noah.co.uk/briefingdocument/animal-medicines-what-you-should-know/#Q1>

benefits of antibiotics as a last resort, educating consumers on their necessity for the health and welfare of farmed animals.

Discussion Points

- How do we better educate consumers on the reality of antibiotic reduction?
- Discouraging unnecessary antibiotic use through implementing taxes – making other, cheaper forms of disease control more attractive?
- What concerns do you have regarding Brexit trade deals and potential weakened import regulations?
- How to encourage better monitoring of antibiotic use on farm?

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