



Use of Antimicrobials in Livestock Production

Highlights

- The widespread use of antimicrobials in human medicine and agriculture has fostered the emergence and spread of antimicrobial-resistant pathogens worldwide. There is global concern that drug-resistant organisms may seriously threaten public and animal health.
- Human health, animal health and environmental stakeholders need to work together to enable a holistic “one-health” approach to address the growth in antimicrobial resistance (AMR).



What's the issue?

Antimicrobials are compounds that either kill or constrain bacteria, viruses, fungi or protozoa. Their use in animal production can improve both animal health and productivity, and thus contribute to food security, food safety, animal welfare, protection of livelihoods and animal resources.

However, the efficacy of antimicrobials in the treatment of illness in humans and livestock is being undermined by increasing resistance to bacteria found in humans, animals, food and the environment. Although resistance is a natural phenomenon, current levels of resistance in humans are – in part – due to the use in animals of antimicrobials that are the same as or similar to antimicrobials used for humans. Resistant bacteria can spread to humans through direct contact or through the environment, including via contaminated water. In food-producing livestock, antimicrobial resistant bacteria can also reach people directly via the food chain.

In addition to the treatment of sick animals and the protection of healthy animals in contact with sick ones, antimicrobials are used as growth promoters in some countries and production systems, in order to decrease the time and total feed consumption needed to grow the animal to market weight. Some countries have banned the use of antimicrobial growth promoters (AGPs) in animal production because of the risk of growing resistance.

Research undertaken for the OECD has found that the growth response to antimicrobials is small when nutrition, hygiene practices, the genetic potential of animals and health status of the herd or flock are optimal. This would suggest that a ban on AGPs could have limited impact on livestock productivity in industrialised countries with modern production systems. However, the costs of investing in improved hygiene practices are – while difficult to estimate – potentially significant, and countries with less developed systems could observe larger productivity and economic effects. In addition, a lack of reliable data and information on the impact on animal growth of restricting the use of AGPs has impeded international consensus on this subject.

There is also insufficient data to develop global maps of antimicrobial resistance in livestock and humans, which would otherwise enable accurate comparisons between humans, livestock species, countries and regions.



What should policy makers do?

- **Encourage and facilitate the collection and sharing of information on current levels of antimicrobial use in the livestock sector and the effects**, in addition to the role of the environment in the development of antimicrobial resistance (AMR). Governments should also support the development of international standards and approaches by the World Health Organisation (WHO), the World Organisation for Animal Health (OIE), and the Food and Agriculture Organization (FAO) to mitigate the rise in AMR.
- **Facilitate dialogue between human health and animal health stakeholders to enable a holistic “one health” approach**, which recognises links between animal and human health.
- **In so far as is possible, national rules on antimicrobial use should be consistent with international recommendations**, such as the WHO Global Action Plan on Antimicrobial Resistance.



Further reading

This document is based on the evidence and analysis found in a number of OECD reports and papers published in recent years:

- **Antimicrobial Resistance: The Use of Antimicrobials in the Livestock Sector**
- **The Economic Costs of Withdrawing Antimicrobial Growth Promoters from the Livestock Sector**

A complete list of relevant books and papers can be found at <http://oe.cd/taking-stock> or on the Agriculture Ministerial website at www.oecd.org/agriculture/ministerial.



Food Loss and Waste in the Agro-Food Chain

Highlights

- Food is lost or wasted throughout the entire food chain, from farms to households. The reduction of food loss and waste could contribute to increased food chain efficiency, improved food security and the reduction of pressure on the environment.
- The agreement of common data collection methodologies and definitions for food loss and waste is an important foundation for the design of appropriate policy responses.



What's the issue?

Food loss and waste are a common occurrence throughout the food chain. Examples include crops left behind in fields due to poor harvesting or price fluctuations; edible produce degraded by disease; spillages and spoilage during food processing, transport and at retail level; and uneaten food.

The reduction of food losses and waste could increase the efficiency of the food chain and contribute to food security and the reduction of pressure on the environment. While the reduction of food waste in medium- and high-income countries may not directly help to tackle food insecurity in low-income countries, it reduces competition for limited natural resources, making these available for other uses. Edible food that would otherwise be wasted could be redistributed to food-insecure populations in low- medium- and high-income countries alike. A further advantage would be the minimisation of waste sent to landfill, the source of significant volumes of methane.

Finally, food waste reduction can also bring economic benefits, such as lower costs for businesses and reduced prices for consumers. OECD scenario-based analysis has estimated, for example, that a 20% reduction in food loss and waste – for a broad number of countries and commodities – between 2014 and 2023 would generate an accumulated total of USD 2.52 trillion in consumer savings over the ten-year period.

To date, however, there are no commonly agreed definitions of “food waste”, “food wastage” or “food loss”. The lack of harmonisation on definitions – or on methodologies for food waste data collection and measurement, such as value, weight or caloric equivalent – poses significant problems for the collation and comparison of data necessary for the development of targeted measures to address waste. The diverse range of activities that exist in the food chain adds to the complexity of such efforts.

Indeed, OECD research has revealed that very little is known about food waste in the manufacturing and service sectors (food distribution and catering) in particular – in spite of indications from available data that food waste generated by these sectors can be significant in some countries. Even less data is available for the primary sector.



What should policy makers do?

- **Develop a common methodological framework for food waste data collection, in addition to common definitions of food waste and loss and of the system boundaries of the food supply chain**, in order to facilitate tailor-made policy responses.
- **Foster partnerships between the public and private sectors on food waste reduction and prevention.**
 - Implement consumer awareness campaigns with the active participation of the private sector.
 - Encourage private sector research in technological innovations to minimise waste.
- **The potential for consumer and food safety regulations to contribute to the reduction of food waste should be further explored.**
- **Ensure coherence across a range of policy areas which can impact food waste**, including agriculture, the environment and food safety.



Further reading

This document is based on the evidence and analysis found in a number of OECD reports and papers published in recent years:

- **Food Waste Along the Food Chain**
- **Market and Trade Impacts of Food Loss and Waste Reduction**

A complete list of relevant books and papers can be found at <http://oe.cd/taking-stock> or on the Agriculture Ministerial website at www.oecd.org/agriculture/ministerial.