

PROMOTING RESPONSIBLE ANTIBIOTIC USE IN LIVESTOCK PRODUCTION



E-Magazine

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FIGHTING ANTIMICROBIAL RESISTANCE, A LONG-TERM COMMITMENT OF ALL PARTIES

Dr. Monique Eloit

DIRECTOR GENERAL, WORLD ORGANISATION
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Antimicrobials are essential for the protection of human and animal health. Thanks to antimicrobials, lives are saved every day and diseases contained; in particular, animal diseases that are foodborne or directly transmissible to humans. However, the evidence can no longer be ignored: today, the effectiveness of these invaluable tools is at risk. We must act quickly if we are to avoid losing the benefits brought by decades of medical progress in the very near future. Only the demonstration of long-term political commitment by all, and a coordinated, multi-sectoral effort to establish national control plans for antimicrobial resistance, will enable us to reach this goal. The livestock sector can be part of this effort, by reducing the use of antimicrobials in animal production, increasing the adaptability of animal production systems to reduced use of antimicrobials and, finally, innovating to reduce use of antimicrobials in animal production systems. The OIE seeks to support this effort, through its activities as well as through collaboration with tripartite partners WHO and FAO, or other partners part of the Livestock Global Alliance¹, such as the ILRI, IFAD and the World Bank.

Dr Monique Eloit was elected Director General of the World Organisation for Animal Health (OIE) on 26 May 2015 by the World Assembly, which brings together the national Delegates of all OIE Member Countries. She began her five-year term of office on 1 January 2016, as the 7th Director General of the OIE, after having served as Deputy Director General of the OIE for six years.

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**The risks associated
with the development
of antimicrobial
resistance have
been scientifically
confirmed.**

¹ www.livestockglobalalliance.org

Today, the risks associated with the development of antimicrobial resistance, which simultaneously threatens both human and animal health, as well as animal welfare, have been scientifically confirmed. Numerous scientific studies have documented the increase in treatment failure and human deaths that are directly or indirectly linked to antimicrobial resistance; with some projections providing a figure of tens of thousands of deaths per year². In the area of animal health, few studies exist, but the same trend can easily be assumed. From an economic perspective, a recent publication from the World Bank notes that, according to the worst-case scenario, resistance to antibiotics and other antimicrobials could cause a fall of more than 5% in the gross national product of low-income countries, pushing up to 28 million people into poverty, principally in developing countries³. In addition, at the same time as the effectiveness of existing antimicrobial treatments is being undermined, too few new treatments are being developed by the pharmaceutical industry. Throughout the world, more support must be invested in research to overcome the technical and financial constraints that threaten to leave us without effective treatment in the future, in either human or veterinary medicine. Nevertheless, in the area of animal health, as in human health, it would be a mistake to envisage simply replacing antimicrobial compounds that have become ineffective with new ones which microbes will adapt to in the future. We must now rethink our methods to ensure their sustainability and enable us to stem the decline in our medical arsenal. Some alternative solutions have already been identified, such as further improvements in animal husbandry practices to reduce the need for antimicrobials, greater use of vaccines and prevention, and the systematic introduction of improved diagnostic methods for better targeting of treatment. Others will have to be developed or improved even more. But, before and above all,

we must reduce the quantities of antimicrobials that are currently used.

These changes of practice towards a more responsible and prudent use of antimicrobials, in addition to developing alternative solutions, can draw on current knowledge and existing tools, some of the most important of which are the OIE international standards. Today, such questions are no longer only technical but also political and strategic. How do we modify practices in the long term, avoiding both unacceptable solutions and quick fixes? How can we help countries and production sectors to evolve without economic or social risk, and while still taking individual cases into account? The new OIE strategy on antimicrobial resistance suggests several tools to support its Member Countries as they implement these changes, which – if they are to be effective – should be based on:



National action plans, adapted to local conditions and sector constraints through the comprehensive and harmonised collection of usage data



A systematic, coordinated and multi-sectoral approach, based on public-private partnerships



Structural and sustainable action, through investment in health systems and within a legal framework adapted to more effectively control usage and minimise counterfeits and illegal markets



And, finally, a strong educational campaign to ensure buy-in and cooperation from all stakeholders.

A huge amount has already been achieved at the international level, as evidenced by the 2016 declaration made at the high-level meeting of the United Nations General Assembly.

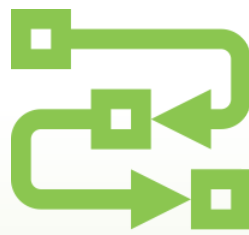
But there is still much work to be done before we see tangible results and can protect the future of

generations yet to come. I trust in the commitment of the farmers to be part of these collective efforts and to take all necessary measures against antimicrobial resistance. We all bear a part of the responsibility for the development of antimicrobial resistance. If, by working together, we manage to contain this threat, we will all share in the success.



The COMMON GOAL

To promote prudent and responsible use of antimicrobials and to combat antimicrobial resistance.



The METHODOLOGY

To reduce the use of antimicrobials in animal production, to increase the adaptability of animal production systems to reduced use of antimicrobials, and to innovate for reduced use of antimicrobials in animal production systems.



The NEED

Strong commitment of all parties over the long term.

Food and
Agriculture Organization
of the United Nations

ANTIMICROBIAL RESISTANCE WORKING GROUP

Dr. April Johnson

ANIMAL HEALTH OFFICER
(VETERINARY PUBLIC HEALTH), FAO

Antimicrobial agents are essential for human and animal health, animal welfare, sustainable food production and food security. To maintain the long-term effectiveness of antimicrobials for human and animal use, antimicrobials should be used in a prudent and responsible manner to reduce the risks associated with antimicrobial resistance (AMR). AMR refers to when microorganisms such as bacteria, fungi, viruses and parasites, develop resistance to antimicrobial substances such as antibiotics, antifungals, antivirals and antiparasitics.

“ The use of antimicrobials in health care, agriculture or industrial settings increases the selection pressure which favors the survival of resistant microorganisms over susceptible ones, leading to an increase of resistant microorganisms.

Any use of antimicrobials can result in the development of AMR, but the misuse and excessive use of antimicrobials speeds up the process. Because infections caused by AMR microorganisms are difficult and sometimes impossible to treat with available medications, they pose a major global health threat to animals and people alike. Presently, AMR infections causes hundreds of thousands of human deaths every year and billions of dollars in associated health care costs and loss productivity. If left uncontrolled, by 2050, global livestock production could decrease by 7.5 percent, and as much as 11 percent, affecting the livelihoods of those in low and middle income countries¹.

Global antimicrobial consumption in the food and agriculture sector is difficult to estimate due to a lack of regulations on antimicrobial usage and poor data collection in many countries, but is estimated to be over 60 000 tons annually. This total volume is expected to rise over time with an increase in demand for food and for products of animal origin. In food production animals, antimicrobials are used to treat sick animals, to prevent disease from spreading and to promote faster animal growth. The use of antimicrobials for growth promotion is discouraged but is still being practiced in some countries.

Various factors contribute to excessive or improper use of antimicrobials in agriculture. Best practices, which lead to healthier animals or crops and a reduced need for antimicrobials, are not always applied. The legal framework may not exist to ensure the quality of antimicrobials on the market and promote prudent use of antimicrobials in animal and crop production.

¹ World Bank. 2016. Drug-Resistant Infections: A Threat to Our Economic Future (Discussion Draft). Washington, DC: World Bank. License: Creative Commons Attribution CC BY 3.0 IGO Available at:

<http://pubdocs.worldbank.org/en/527731474225046104/AMR-Discussion-Draft-Sept18updated.pdf>

For example, poor quality or counterfeit antimicrobials, containing a lower dose of active ingredient than that required, may be used and prescriptions may not be required to purchase antimicrobials, allowing access by untrained individuals and the use of antimicrobials when they are not appropriate. Additionally, animal wastes contaminated with antimicrobials may not be disposed of properly to limit environmental spread of antimicrobial residues or resistant microorganisms.

The Food and Agriculture Organization of the United Nations (FAO) has developed an Action Plan for tackling AMR which focuses on four areas:

- 1 Raising awareness on AMR and related threats;**
- 2 Developing capacity for surveillance and monitoring of AMR and antimicrobial use (AMU) in food and agriculture;**
- 3 Strengthening governance related to antimicrobial use and AMR in food and agriculture; and**
- 4 Promoting good practices in food and agriculture systems to reduce the need to use antimicrobials and promoting the prudent use of antimicrobials when they are required.**

While this article focuses on the fourth area, promotion of good practices and the prudent use of antimicrobials, the first three focus areas are also essential to ensure that everyone is aware of the problem and their role in addressing the issue, that scientific evidence is available to help make informed treatment decisions and to guide interventions and that the regulatory framework exists to ensure that a competent authority is ensuring only quality antimicrobials are available for use and to provide the conditions under which anti-

microbials should or shouldn't be used.

Prevention of disease is the best way to reduce the need for antimicrobial agents and the resulting use of antimicrobial agents. Good Practices should be applied in food and feed production, animal husbandry and management, biosecurity and applying preventative measures such as the use of vaccines. Some examples of such good practices are as follows: Animals and breeds should be chosen that are most suitable for the environment and farming system. Herd size and stocking densities should be optimized for the conditions of the farm, including the available land and infrastructures. Housing should have good ventilation. Proper nutrition should be given and routine health monitoring applied. Good biosecurity practices should be applied such as minimizing the risk of introducing sick animals to the herd, minimizing movement on and off the farm, applying appropriate disinfection to potential fomites such as transport vehicles, used equipment, etc. Access to wildlife and pests should be minimized. Animal identification systems should be used that would allow animals to be clearly identified from birth through death.

Animals that are sick should be isolated from healthy animals. The use of therapeutic options other than antimicrobials should be considered. In cases of trauma not accompanied by infection, antimicrobials may not be necessary. In the case of viral diseases, antibiotics may not be required unless secondary bacterial infections accompany the viral disease.

When the use of antimicrobials is necessary, they should be administered in a prudent manner and applied under the supervision of a professional. Veterinarians or trained animal health workers should be familiar with the health status of the animal(s) requiring treatment.

Culture and susceptibility testing should be used to determine the most appropriate antimicrobial agent is selected for treatment that will effectively treat the disease and not cause harm to the animal. When this isn't possible or where there is not time to wait for test results, historical data of susceptibility testing should be used to guide treatment decisions. Susceptibility testing should still be undertaken in this instance, in the case that treatment fails, the treatment regime can be re-adjusted based on the current test results. A narrow spectrum antimicrobial should be chosen over a broad spectrum antimicrobial when possible. The treatment regime should include the dose to be given, storage conditions, route of administration and the duration of treatment. Any withdrawal periods should be clearly highlighted to avoid the risk of introducing antimicrobial residues into the food chain. All use of antimicrobials and withdrawal periods should be recorded to ensure that everyone working with the animals knows which treatments have been given to which animals.

Antimicrobials that have been deemed as critically important in human and animal health should be avoided if possible. The World Health Organization (WHO) maintains a list of critical important antimicrobials for human health that is regularly reviewed and updated. The World Organisation for Animal Health (OIE), similarly maintains a list of antimicrobials of critical importance for animal health.

Because the routine use of antimicrobials drives the selection for resistant organisms, the use of antimicrobials in feed and water for growth promotion is discouraged. Nevertheless, the use of antimicrobials for growth promotion continues to be practiced in many countries. Antimicrobials should be properly disposed of to avoid environmental contamination. A proportion of antimicrobials are excreted unmetabolized in an active form by animals in urine and feces. This contributes to environmental con-

tamination with antimicrobials which can result in selective pressure on environmental microorganisms to become antimicrobial resistant. To avoid environmental, water and crop contamination with AMR organisms and antimicrobial residues, animal waste should be composted prior to application on crops and it should be stored in locations that do not contaminate water sources.

In summary, antimicrobials are an important tool for both human and animal health, but their use, in agricultural and human health settings, contributes to resistance development. The complexities and interactions between human health, animal health, and the environment require that a concerted and coordinated strategy to combat AMR be adopted by all sectors to preserve their effectiveness and reduce the likelihood of adverse health and economic consequences.



Additional information can be found at:
<http://www.fao.org/antimicrobial-resistance/en/>

COMBATTING THE AMR CRISIS IN THE AFRICAN LIVESTOCK SECTOR

Sylvia Natukunda

BUSINESS & PARTNERSHIP MANAGER AND WIM GORIS,
NETWORK FACILITATOR AT AGRIPROFOCUS,
FARMING FIRST SUPPORTER

Need for upscaling proper advice and monitoring

Dairy professionals in our African network report a number of issues. Antibiotics are easily available at drugstores without a clear description of ingredients and recommended use. Without veterinary advice, farmers may apply inappropriate drugs or under-dose their animals to save money. In other cases, veterinarians advised the preventive use of antibiotics.

Farmers may also fail to observe the withdrawal period: the period of time required before an animal being treated can be used for milk or meat. Furthermore, there are reports that informal traders are applying antibiotics to avoid milk turning sour during transport. Legislation on the use of antibiotics may be in place, but the problem lies mostly in the enforcement and monitoring of drug use.

Building capacity and knowledge around alternatives and consequences

Two years ago, AgriProFocus and Dutch Farm Experience co-organised a workshop and farm visits on the issue of antibiotics in Uganda. In his keynote address, Professor Samuel Majijja from Makerere University recognized the issues mentioned. He said farmers were spoiled with almost 200 brands



© AgriProFocus Uganda 2

Antibiotics are crucial in human and animal health and yet growing levels of resistance to these drugs pose an increasingly serious threat to public health. One of the key contributing factors to such antimicrobial resistance is irresponsible use of antibiotics in the livestock sector. AgriProFocus is a multi-stakeholder network with Dutch roots that promotes farmer entrepreneurship as a contribution to food and nutrition security in developing countries. Food quality is a growing concern in many of these countries. But the awareness of the threat of antibiotic resistance is still low.

of antibiotics on the market. Meanwhile, he indicated a general lack of awareness among producers and consumers about the risks of misusing antibiotics and other veterinary drugs.

A farm visit near Rushere, Uganda also focused on antibiotics use but revealed similar problems of growing resistance to the acaricides. Native Ankole dairy cows are routinely sprayed with this substance to control ticks, which carry East Coast Fever, a parasitic disease that can be fatal. A study by [Ocaido, et al. 2009b](#) revealed that in Uganda, ticks and tick borne diseases accounted for 75.4 per cent of losses in cattle while the costs for control constituted 85 per cent of the total disease control costs in cattle ([Ocaido et al., 2009a](#)). In 2016, AgriProFocus, PUM and local partners trained farmers and other professionals in the poultry sector in Tanzania. In our poultry learning lab methodology, we use morning farm visits and afternoon classes.

In our first visit to a small poultry farm, we found that young chicks were given routine treatment of various drugs. Like many other livestock farmers, the poultry keeper just followed earlier advice from a veterinarian. He was not aware of other preventative measures that can help keep chicks healthy, such as clean water and feed, fresh air, and clean litter. The poultry learning labs turned into a practical demonstration about the biggest risk of spreading disease: health problems for the farmers themselves.

The experts emphasized bio-security control and simple, routine measures that can minimize risk. In this case, farmers wore overshoes and were not admitted to the barns.

In another visit, we were shown underweight day-old-chicks. The farmer explained that it was difficult to complain about this, as the suppliers of the chicks had a near monopoly. The veterinary advice in this case was to give them drugs to kick-start growth.

Reform is possible

The growing resistance to antibiotics is a complex problem, as many stakeholders need to change their way of doing business. The Dutch livestock sector has shown that this is possible.

In 2009, the Dutch ministry of agriculture banned the preventative use of antibiotics and launched a campaign for an overall reduction of 20 per cent in the first year and 50 per cent within three years.

The outcome was remarkable, and in 2014, antibiotics sales to livestock farms had dropped by 58 per cent, while production efficiency and financial returns had not been affected. Improved hygiene practices are among the first measures to be adopted. Interestingly, the Dutch see room for yet further overall reduction if the farms and vets that use the most antibiotics learn from those farms and vets that have already met the 70 per cent target. The context in African countries is quite different from the Netherlands. But even so, the solution to address the risks of resistance to antibiotics requires a similar approach. Farmers, their organisations, their service providers, livestock businesses and the relevant government institutions need to work together to coordinate a joint plan of action to promote responsible use of antibiotics.



A female farmer shows antibiotics

© WIM GORISAgriProFocus Tanzania



Antibiotics are crucial in human and animal health and yet growing levels of resistance to these drugs pose an increasingly serious threat to public health. One of the key contributing factors to such antimicrobial resistance is irresponsible use of antibiotics in the livestock sector.

EU FARMERS AND COOPERATIVES COMMITTED TO RESPONSIBLE USE OF ANTIBIOTICS IN FARM ANIMALS AND STATISTICS SHOW ANTIMICROBIALS SALES FALLEN

Pekka Pesonen

COPA AND COGECA SECRETARY-GENERAL



European farmers and their cooperatives are very committed to ensuring that all veterinary medicines, including antibiotics, are used responsibly in farm animals. We believe that it is in European farmers and cooperatives' interests to keep their animals healthy to prevent them from getting sick in the first place and to avoid the need for antibiotic treatment. Good hygiene, proper feed, an appropriate environment for animals and good management are consequently at the top of their agenda.

But like humans, animals can still get ill. The World Animal Health Organisation OIE estimates that 20% of food production is lost due to animal disease globally. With world food demand set to rise, it's consequently important for farmers to have a good range of veterinary medicines available to enable them to keep their animals healthy and to produce safe food.

We should also not forget that the discussion on antibiotics has a strong link with animal health and welfare, as in some places or for some species, there is sometimes no choice but to use them.

A balanced approach is consequently important. We believe that antibiotics should be used "as little as possible, and as much as necessary". We are founding members of the European Platform for Responsible Use of Medicines in Animals (EPRUMA) which was established in 2005 and which promotes this concept. To achieve this, farmers need to have a very high level of competence to detect possible infections. Training and education is important here. Veterinarians meanwhile remain the competent person to make the diagnosis and to make the prescription. All farmers must follow the recommendations made in the veterinary prescription and record all treatments in order to allow for possible adjustments to future treatments.

To ensure a level playing field and to ensure antibiotics are used as responsibly as possible, we believe that there is a need to standardize and harmonise conditions for all operators across the EU vis a vis use, prescription, distribution or supply of medicines and also concerning cross-border activities. Collection of information for epidemiological surveillance should be carried out on an aggregated level, between veterinarians and pharmacists. Aggregated data collection would preserve a certain degree of data accuracy and would facilitate a risk assessment procedure across EU Member States.

The voluntary Farm Health Planning procedure is also a good initiative to help farmers find the right mix. It integrates into an individual farmer's decision-making process, improvements in animal health and welfare, animal productivity, farm profitability and so on. It is about undertaking a range of measures to manage disease risks on

“ We believe that it is in European farmers and cooperatives' interests to keep their animals healthy to prevent them from getting sick in the first place and to avoid the need for antibiotic treatment.

farmers. It is most successful when it is tailor-made to the farm which requires in-depth knowledge of the farm and its marketplace. We also believe in the one-health approach and want to ensure that everyone plays their role in controlling and reducing antimicrobial resistance in Europe.

We are continuing to explore

new ways to promote the responsible use of antibiotics in farm animals. Recent reports nevertheless show that there has been a decline in sales of antimicrobials for food producing animals over the period 2011-2014. This confirms that EU farmers are making every effort to reduce their use and we will continue to encourage this.



PERSPECTIVES FOR PROMOTING RESPONSIBLE ANTIBIOTIC USE IN LIVESTOCK PRODUCTION IN UGANDA, WITH FOCUS ON DAIRY FARMING

Charles Hilton Ogang

PRESIDENT, UGANDA NATIONAL FARMERS FEDERATION.
WFO BOARD MEMBER FOR AFRICA

The discovery of Penicillin in 1928 by Sir Alexander Fleming ushered the antibiotics era. This was a massive forward leap that equipped the medical world with the necessary arsenal to tackle most dreaded diseases. To date, antibiotics remain one of the very useful objects for combating many infectious diseases in humans and animals. However, despite this benefits, the exacerbated substance abuse over the years is fast eroding these gains, and the efficacy of antibiotics are unfortunately being immensely threatened. The current global population explosion, especially in the developing countries, Uganda inclusive, demands for provision of high value animal proteins, and milk is a major source. The drive to achieve higher milk production through

increased productivity propelled the introduction of exotic cattle breeds, mainly of European origin like Friesians. In order to achieve the expected optimum performance of these breeds, high handed use of antibiotics and anti-parasites chemicals to protect them from various infectious tropical diseases and parasites is usually the common management mode employed by most farmers. This rampant practice is increasingly becoming a health and environmental risk and biodiversity losses¹.

Some of the common abuses are treatment of cases without laboratory diagnosis, drug under dose, treatments of humans with veterinary drugs and vice versa, use of drugs as production tools and feeds enhancement in healthy animals and poultry², easy access to antibiotics

without prescription as well as over-prescription, thus resulting into the phenomenon known as Antimicrobial Resistance (AMR), as microorganisms that cause infections or diseases in humans and animals become resistant to antimicrobial agents that they were earlier on susceptible or sensitive to.

During its 39th session of members in June 2015, The Food and Agriculture Organization, FAO³ in its status report on AMR indicated that the availability and use of antimicrobial drugs in terrestrial and aquatic animals and in crop production is essential for their health and productivity and contributes to food security, food safety and animal welfare, and in turn, the protection of livelihoods and sustainability of animal production. The increasing resistance to antimicrobial drugs, including antibiotics is a real concern as it threatensto reverse all the gains which have been achieved over the years. This is also a very true threat to human health.

¹ Maria J. Groot, Katrien E. van't Hoof (2016): The Hidden Effects of Dairy Farming on Public and Environmental Health in the Netherlands, India, Ethiopia, and Uganda, Considering the Use of Antibiotics and Other Agro-chemicals.

² Bashuan, G.M; Odoch T.A (2014): Assessment of antibiotic usage in intensive poultry farms in Wakiso District, Uganda.

³ www.fao.org: 39th Session, Rome 6th-13th June 2015: Status Report on Antimicrobial Resistance.

**The conceptual framework,
Challenges and related risks:**

As earlier spelt out, the big picture about AMR is attributed to current global population explosion, which is directly correlated to the increasing demands for high value animal proteins, hence introduction of high producing livestock breeds that require heavy application of antibiotics and other pertinent agrochemicals to control diseases and parasites. But of high importance is the poor regulation and governance of antibiotics use by pertinent authorities in the country, giving a lot of room for unprecedented drug abuse.

Relatedly, A study conducted by Afema et al (2016)⁴ on salmonella AMR from slaughtered livestock and environmental waste samples analyzed the College of Veterinary medicine, Makerere University Kampala and validated at Washington State University, resulted into 38.7% resistance against a total of 6 out of 15 different types of antimicrobials. Out of these resistance, though the samples might not have been representative from dairy farms, indicate resistance against Streptomycin and Tetracycline, which are also some of the most used antibiotics for treating common infections in livestock in the country; this indicated similar pattern to the study by Mpairwe and Wamala⁵, thus providing evidence based examples of AMR in Uganda.

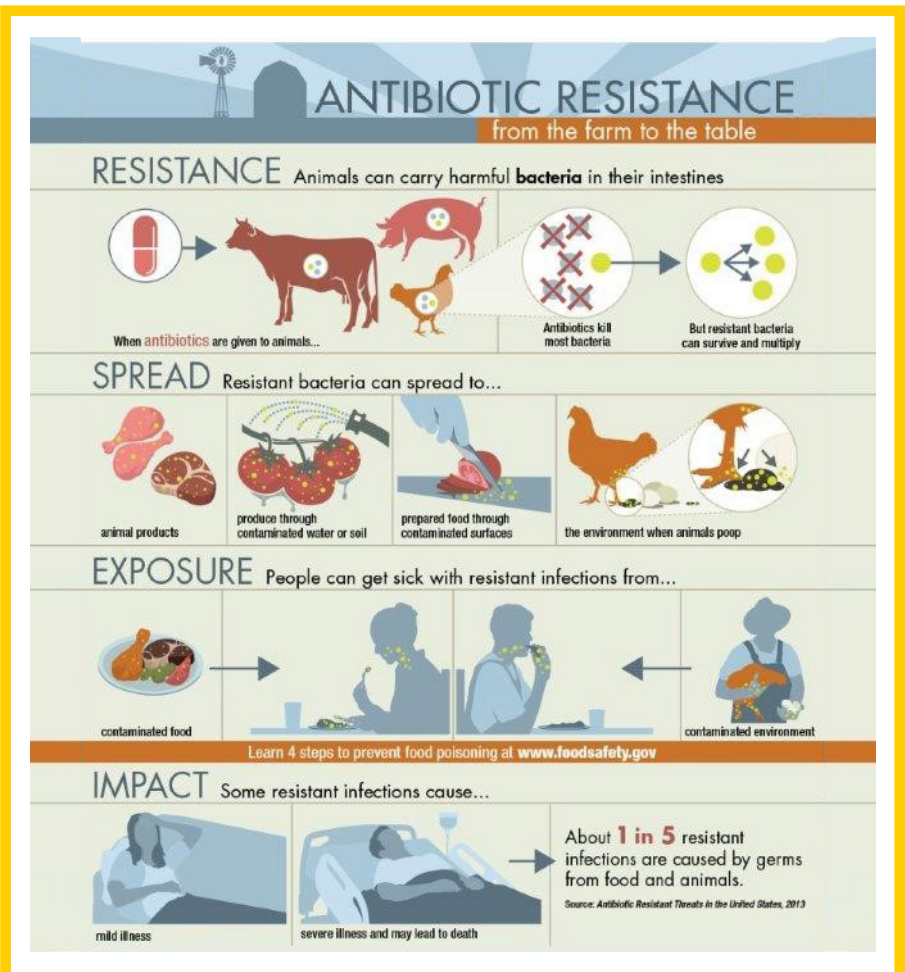


Figure adapted courtesy of the Center for Disease Control and Prevention, Foodborne Outbreak Tracking and Reporting, <http://www.cdc.gov/foodsafety/from-farm-to-table.html>

Furthermore, a report by Kilimo trust in 2015 on a study conducted in Uganda showed that farmers, directly or indirectly through veterinary practitioners are the biggest culprits in antibiotics abuse especially in the malpractices spelt out above, but more so, they do not quite often observe the mandated withdrawal time when animal and animal products should be free of antibiotics, thus safe for human consumption. This is perpetuated by the ever increasing demand for animal products especially milk and meat as farmers offload

antibiotics containing products into the market, hence predisposing consumers to the risks of drug abuse⁶. The conceptual framework is clearly linked to the dangers of Antimicrobial resistance from farm to tale (figure above).

⁴ Afema JA, Byarugaba DK, Shah DH, Atukwase E, Nambi M, Sicho WM (2016): Potential Sources and Transmission of Salmonella and Antimicrobial Resistance in Kampala, Uganda. PLoS ONE 11(3).

⁵ UNAS, CDDEP, GARP-Uganda, Mpairwe, Y., & Wamala, S. (2015): Antibiotic Resistance in Uganda: Situation Analysis and Recommendations (pp. 107). Kampala, Uganda: Uganda National Academy of Sciences; Center for Disease Dynamics, Economics & Policy

⁶ Kilimo Trust (Oct. 2015): EAC Livestock Sector News Updates

Major challenges related to AMR in Uganda hinge on:

LOW LEVEL OF AWARENESS ON AMR AND RELATED THREATS TO THE KEY STAKEHOLDERS ESPECIALLY FARMERS ALONG THE VALUE CHAIN FROM PRODUCTION NODES TO THE TABLE

UNDERDEVELOPED CAPACITY FOR SURVEILLANCE AND MONITORING OF AMR AND ANTIMICROBIAL USE (AMU) IN FOOD AND AGRICULTURE.

EASY ACCESS TO ANTIBIOTICS WITHOUT PRESCRIPTION AND OVER-PRESCRIPTION

LOW LEVEL OF GOVERNANCE RELATED TO AMU AND AMR IN FOOD AND AGRICULTURE.

UNDERDEVELOPED CAPACITY TO PROMOTE GOOD PRACTICES IN FOOD AND AGRICULTURE SYSTEMS AND THE PRUDENT USE OF ANTIMICROBIALS.

NON-INVOLVEMENT OF FARMERS ORGANISATION (UNFFE) IN AWARENESS CREATION THROUGH THEIR NETWORKS AND THE USE OF THEIR SYSTEM OF EXTENSION LINK FARMER (ELF).



Sample collection in Karamoja, Uganda for laboratory analysis. A one health focused programme.

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Major initiatives that should be enhanced to promote good practices of use of antibiotics on dairy farms in Uganda

Essentially, these should focus on transforming the above challenges into opportunities, a proactive strategy and coherence, based on the one health platform for action from rhetoric to walking the talks

1 An all-inclusive stakeholders public awareness creation and sensitization on AMR and promote prudent use of antibiotics

Enhanced capacity for quality assurance of animal products, especially milk and meat by development of efficient surveillance, reporting and laboratory diagnostic mechanisms for monitoring AMU and AMR in the country

2 A heightened level of AMU and AMR governance by the competent Food and Drugs authorities to recommend, develop and implement national guidelines on prudent use of antimicrobials in food-producing animals, as per set international standards (codex alimentarius code of practice) to reduce non-therapeutic use of antimicrobials and to phase out the use of antimicrobials as growth promoters.. This calls for stringent control and regulation of AMU by pertinent veterinary (MAAIF) and public health (MoH) authorities throughout the country

3 Promotion of and sensitization about good practices in the food and agriculture value chain and public health system to endorse a plan of action on AMU and AMR for food safety.

4 A strengthened collaboration and sourcing technical support from specialized international technical agencies especially FAO, WHO, OIE and donor agencies to fight AMR based on the one health framework through the veterinary and public health departments of MAAIF and MoH respectively since AMU and AMR is a multi-sectorial challenge which cuts across livestock, human and environmental health interface

5 Promote improving farm bio security measures, good husbandry practices and encourage vaccinations to reduce on antibiotic use on dairy farms.

6 Awareness creation of AMU and AMR among farmers through the established farmers organization (UNFFE) and others.

WORKING TOGETHER TO SAVE ANTIMICROBIALS

Debra Pretty-Straathof

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For rapidly growing urban populations, it became critical to get as much food to market as quickly as possible. Antibiotics were viewed as another tool among the technologies which helped food production keep up with rising demand. They were soon administered around the world to large flocks of poultry and herds of cattle and pigs as a measure to help prevent illness and disease, and to help keep the cost of production as low as possible; thereby keeping the cost of food affordable for growing families.

It worked well for about 40 years, but with the emergence of superbugs or bacteria which had developed resistance to antibiotics, people were starting to die from infections again. Alarm was raised around the world with calls for a halt to the practice of mass administration of the medication to animals raised for food. That, in turn, gave rise to concern from groups such as the American Meat Institute which published a brochure, *The facts about antibiotic use in livestock and poultry production*. They quoted the Centers for Disease Control and Prevention Website from Feb. 24/14, which reported that much of issue of resistance was caused by overprescribing antibiotics by physicians to their patients. Some estimates have measured that humans are prescribed about 50% more anti-

The first antibiotic was discovered in 1928 by Alexander Fleming. Lab animals were treated with amazing results but it was not used to treat people with bacterial infections until 1941. Penicillin was a miracle drug because people no longer died from common infections when using this new medicine. The lives of countless soldiers wounded in WWII were saved with penicillin and Fleming, Howard Florey and Ernst Chain were awarded the Nobel Prize for Medicine in 1945.

Around the same time, in the mid-1940s, antibiotics were made available to veterinarians who used it to treat mastitis in dairy cattle. Soon after, in the 1950s it was discovered that chickens, swine and cattle gained weight on less feed when small amounts of antibiotics were added to their diet.

biotics than is required. That practice has taken a dramatic drop as physicians realized that prescribing antibiotics when they are not needed resulted in the unintended consequence of helping to develop the bacterial resistance. There was also fear that without the assistance of the antimicrobials the cost of food would rise dramatically, but the World Health Organization warned that unless antibiotic use was reined in, the world was headed for a dystopian/frightening future where routine infections are deadly once again. Some estimates claim that up to 80 percent of the world's antibiotics are used in agriculture. Ongoing urban media coverage, farm publications, new protocols mandated by some marketing commodity boards gave the emerging crisis extensive coverage and attention to the challenge. Governments were slow to take action to help alleviate the situation, but in 2013 the USA Centre for Disease Control (CDC) finalized and released a report detailing antibiotic resistance and classified the top 18 resistant bacterium as either being urgent, serious or concerning threats (CDC).

Effective January 1, 2017 the use of subtherapeutic doses in animal feed and/or water to promote growth and improve feed efficiency was eliminated (in



the USA) as a result of new FDA Veterinary Feed Directive. This practice has been banned in Europe since 2006.

In 2014 the Canadian government, through the Canadian Food Inspection Agency (CFIA) renewed the Feed Regulations. The comprehensive food safety and livestock feed handling rules were further strengthened in record keeping; restrictions were placed on the use of antibiotics in feed and farmers were required to keep

additional records on drug and other additives, and they strengthened the oversight by veterinarians and CFIA inspectors. The Agency required risk management plans be developed that

include procedures, training documentation, etc...

The CFIA and Health Canada have strict rules on withdrawal timelines for all drugs to be out of any animal's system before they can be marketed, or milk can be shipped, for processing. Under the supervision of a veterinarian, antimicrobials will still be used for humane animal care or to prevent a disease from spreading and in some cases, for prevention of disease. Farmers may also take training in the proper administration of the drugs and must keep detailed records to show diligence in their animal care practices. This helps ensure food safety rules are followed and animal health care is appropriate.

The farmer's desire to maintain public trust and their markets, have driven the use of antibiotics to lower levels in agriculture. Many of the world's livestock producers, their associations and governments have taken steps to reduce or eliminate the use of non-medical antibiotics. When the link between microbial resistance and therapeutic antibiotic use was suspected and the evidence grew that over-use in animals was partly responsible for the emergence of microbial resistance – both voluntary and legislated action was taken by farmers and governments.

The dairy industry in Canada is highly regulated and the products are tested many times on their way to consumers. The tests measure antibiotic residue in parts per billion and are very accurate. There is zero tolerance for any antibiotic residue in milk. A mistake is very expensive. Each tank of milk is sampled before it's shipped off-farm and if a farm has sent a contaminated product, not only are they fined but they must pay for the loss of all other farms milk that it contaminated. By law, every delivery of milk coming to the milk processing plant must be tested before it can be accepted by the plant.

Dairy cows occasionally become sick. Mastitis, a common infection in the udder, can often be

corrected with modified milking methods, but it can also be deadly. Under the supervision of a veterinarian, the cow will be treated with antibiotics. All her milk is discarded until all traces of the antibiotic has left her system. Drugs have strict withdrawal timeframes, and the farmer can test the milk to ensure purity before allowing it to go into the refrigerated tank with the rest of the milk. According to Dairy Farmers of Canada's website, Nov 20/16, "it is a prerequisite for all Canadian dairy farms to prove they work with a veterinarian be-

fore they can sell milk," and also that farmers "prove they take the necessary steps to prevent accidental contamination of milk on the farm, with the Food Safety module of proAction®. This program is based on Hazard Analysis Critical Control Point (HACCP) standards, and include proper treatment protocols, identification of treated animals and accurate record keeping, all of which help to prevent milk from treated cows entering the bulk tank. If in doubt, farmers can use quick tests to verify their milk is not tainted."



Farm women (and men) in some countries face huge challenges to access the services of a veterinarian, buy antibiotics or get trained to administer antimicrobials. If they are farming alone and are already facing major challenges to access education, capital and other supplies it may prove impossible.

Sometimes there are physical challenges administering drugs to a large animal but with training they can work safely to treat the animal correctly. Training and safety is important for all farmers – male or female. It also helps to have the facilities needed to be able to handle the livestock in a manner that is both safe for the animal and the farmer. If there is no refrigeration available or a cool place to store the drugs, they may not be effective in treating the illness.

As the main caretakers of their families, women play an important role in recognizing the threat that losing antibiotics to resistant bacteria poses to their family and community's health, as well as their livestock. They use their voice to support the preservation of one of the the most important medical discoveries of the twentieth century. There have been very few new antibiotics developed in recent decades and we need to protect the ones that still work.

Antibiotics: ALTERNATIVE SOLUTIONS IN LIVESTOCK PRODUCTION FROM THE NIGERIAN PERSPECTIVE

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Antibiotics, also called antibacterial, are a type of antimicrobial drug used in the treatment and prevention of bacterial infections. They may either kill or inhibit the growth of bacteria. A limited number of antibiotics also possess antiprotozoal activities.

Livestock are domesticated animals raised in an agricultural setting to produce commodities such as food, income, fiber, and labour. The term is often used to refer solely to those raised for food, and sometimes only farmed ruminants, such as cattle, sheep and goats. In recent years, some organizations have also raised livestock to promote the survival of rare breeds. The breeding, maintenance, and slaughter of these animals, known as animal husbandry, is a component of modern agriculture that has been practiced in many cultures since humanity's transition to farming from hunter-gatherer lifestyles.

Dietary changes and growing population are leading to increase in demand for livestock and its products. Livestock production provides between 40% - 50% of household incomes and 26% of protein intake in diets. Livestock sector is a promising target given their high emissions contributions and vital role in household incomes and food security. Thus growth in demand for livestock products is an important opportunity to improve on its production to deliver a good end product.

Over the years, livestock production across the world has been dependent on Farm management, biosecurity and drug use - mainly antibiotics. Thus detailed attention to promote responsible and valuable use of antibiotics in livestock production is fundamental for success and profits in livestock production.

Antibiotics are administered to farm animals either for therapeutic, prophylactic, and or sub-therapeutic use. Antibiotic prophylactic use has been abused which has led to its residual effect in meat products of the animal it is being administered to. This has therefore raised the concern to look into its responsible use and lethal free use of antibiotics in animal production.

There are different reasons for overuse and abuse of drugs, such as poor farm management, prevalent epidemic and endemic farm, poor knowledge of the drugs and its viability. The abuse has consequently made some consumers to totally avoid consuming products and by-products derived from animals raised under such conditions.

Free range animal production and organically produced livestock is gaining ground and its products is finding its way into the market because of the interference of antibiotics activities in human due to the consumption of these animal products because a potential

relationship between antibiotic use in livestock and antibiotics use in humans have been established. Organic animal production versus Green Clean and Ethical ways of raising livestock has taken the lead in the campaign of our medical counterpart but antibiotics use in farm animal might be inevitable thus the responsible use of it. Healthy food comes from healthy animal.

The high population density of modern intensively managed livestock operations results in sharing of both commensal flora and pathogens, which can be conducive to rapid dissemination of infectious agents. As a result, livestock in these envi-

ronments commonly require aggressive infection management strategies, which often include the use of antibiotic therapy. Poor uniformity of flocks, poor performance, and other associated diseases are prevalent in livestock production due to some bacterial infections.

Some farms try to avoid the use of antibiotics but this plan might be aborted at the break out of diseases such as Mastitis in dairy farms, poor uniformity of flocks, poor performance, other associated diseases and even some skin diseases as it applies to all farm animals.

The use of antibiotics as feed additives in animal production is being reviewed by several countries and new alternatives need to be used. Both polyphenols and tannic acids from plant extracts appear to be effective options to enhance the intestinal health of animals.

When looking for alternatives to antibiotics, the tendency is to compare the results to the standard obtained for decades with the use of antibiotics. However, it is necessary to combine different products such as essential oils, prebiotics, phytobiotics and organic acids for example, to achieve an adequate response to increased field challenges and new market requirements.





Detailed attention to promote responsible use of antibiotics is therefore fundamental to success and profits in livestock production, to make it productive, increase and sustain farm productivity, harness profitable markets for animal products and reduce the risk of livestock related diseases.

Not only does synthetic drugs and antibiotics have a detrimental effect on the consumer, it also does on the animals; in poultry production, for layers, any antibiotic treatment will mean to destroy the eggs during the period of treatment and the withdrawal period which is a big loss to the farmer.

Responsible use of Antibiotics also requires consideration of appropriate site of disposing the left over, time and period of application, and consideration of neighbours. Veterinary doctors, animal scientists or farm attendants should be properly trained on maintaining and calibrating equipment to deliver the intended dose on a regular basis.

Most antibiotic use in livestock requires a veterinary prescription, although individual treatment decisions are often made and administered by lay farm workers in accordance with guidelines provided by a veterinarian.

In conclusion, it is important for all livestock farmers to adopt and engage in the best farm management practices, use herbal products, Aromatic oils like clove oil and eucalyptus oil, use Natural Vitamin C, which will help develop the immune system, prevent liver diseases in farm animals, boost gastro intestinal functioning and control bacteria with no drug residue which are carcinogenic like their inorganic or synthetic antibiotic counterparts.

NEWS 



The way of coffee for Colombian Normalisation

During the last decades, thousands deaths have compromised the economic and social development of Colombia as a results of fifty year civil war in the country and its isolated regions. Now on the way to stabilization. A mandatory step of this peace and stability road ahead is the support to a group of people whomost suffered from armed conflict, farmers, many of whom for decades were forced to leave their lands, particularly those located in the rural remote mountain regions.

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Famers of the world united celebrated the Earth Day 2017, on April 22nd

After one year from the signature of the Paris Agreement signing, Farmers take the occasion of the International Earth Day, today, to call up on the Governments of the world to join their efforts in support ofthe Paris Agreement implementation towards a sustainable planet earth. The International Earth Day today remind all of us of the critical importance to work together towards a more sustainable future, with a view to implement the 2030 Agenda for Sustainable Development which involves every human being on this planet, leaving none behind this privilege.

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**" Farmers need to have access to their markets to be sustainable".
WFO President's speech at the workshop "Connecting World Farmers to the Value Chain"**

On Friday April 7th, World Farmers' Organisation (WFO) and Agri-Cooperative Organisations (Copa-Cogeca) organised a workshop called "Connecting World Farmers to the Value Chain", with the support of the European Commission and CEMA. The event aimed at showing how digitalisation and the use of innovative technologies can represent great opportunities for farmers to improve their production, to produce more efficiently and to enjoy a more effective connection to the market, contributing to their empowerment.

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Farmers at the Global Symposium on Soil Organic Carbon

Rome, March 23, 2017

The Global Symposium on Soil Organic Carbon (GSOC17) was held on 21-23 March at the FAO Headquarters in Rome. During the three day event, more than 300 participants representing all geographical regions and countries of the world discussed how a sustainable soil management can play an important role in adaptating and mitigating climate. It was also aimed at enhancing the provision of ecosystem services by storing carbon (carbon sequestration) and the reduction of greenhouse gas emissions in the atmosphere.

<http://wfo-oma.com/news/farmers-at-the-global-symposium-on-soil-organic-carbon.html>



THE GLOBAL GOALS
For Sustainable Development

UN High-level Action Event on Climate Change and the Sustainable Development Agenda

23 March 2017, UN Headquarters, New York

On 23 March 2017, the President of the 71st UN General Assembly, Ambassador Peter Thomson, in collaboration with the Executive Secretary of the United Nations Framework Convention on Climate Change, Ms. Patricia Espinosa, will convene Member States, the UN System, and stakeholders at United Nations Headquarters in a High-level Action Event on Climate Change and the Sustainable Development Agenda. This event will invigorate political momentum on climate change, highlighting its deep linkage to the Sustainable Development Agenda and will increase common understanding among key actors including Member States, the UN system and non-state stakeholders regarding the urgent need to ramp up ambition and implementation, especially given upcoming 2020 targets and milestones for both climate and SDGs.

<http://www.un.org/pga/71/event-latest/climate-change-and-the-sustainable-development-agenda/>

4th edition of the Global Forum on Innovations in Agriculture

March, 20-21, Abu Dhabi, EAU

GFIA is the world's largest showcase of sustainable agriculture innovations for increased profits and environmentally responsible farming practices. GFIA is uniquely committed to meeting the needs of both large and smallholder farmers by presenting the best available and emerging solutions with the potential to deliver higher yields without damaging our natural resources and climate. GFIA is also live marketplace for suppliers to meet thousands of farmers and procurement managers from government, food producers, agri businesses, NGOs and cooperatives and WFO will participate to this event to discuss policy, strategy and solutions for a food secure future with key stakeholders.

<http://www.innovationsinagriculture.com/>



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