Tackling antimicrobial resistance (AMR) by increasing the health and welfare of pigs and poultry and thereby reducing the need to use antimicrobials.
The Healthy livestock project and Antimicrobial Resistance

Infectious diseases are the most common diseases in the world. In severe cases such disease can be very serious and life-threatening. Medicines against these diseases, called antimicrobials, are one of the most valuable inventions in the history of human and animal medicine. Since their discovery, antimicrobials saved the lives of millions of people and animals. However, every antimicrobial use inevitably promotes the emergence of defence mechanisms by the disease agent. Bacteria will become resistant to the treatment, making the once so valuable antimicrobial worthless.

The main objective of HealthyLivestock is to reduce the use of antimicrobials applied by the pig and broiler industry in China and Europe, and the subsequent residues in the food chain and the environment, by improving on-farm animal health & welfare without compromising productivity.

HealthyLivestock has chosen to tackle antimicrobial resistance at its roots. Through a multidisciplinary approach it will lead to a reduction of the risk for animals to get exposed to disease agents, an increased resilience of the animals towards disease challenges, an early detection of health problems and specific diseases, and if antimicrobials are needed, a more precise use or alternatives.

EU One Health Actions

Reduction of antibiotics use in livestock farming is a growing trend. In 1986, Sweden became the first country in the world to ban growth promoting antimicrobial. In 2006, the European Union began the legislation to ban growth-promoting antimicrobial use in feeds as last step in the phasing out of antibiotics used for non-medicinal purposes. In 2017, the United States began to ban antimicrobial use in feeds. In the efforts to fight back antimicrobial reduction, national governments have continuously issued new policies to deal with the crisis of antimicrobial resistance.

In June 2017 the European Commission adopted the new ‘EU One Health Action Plan’ against AMR. The plan builds on the previous action plan (2011), and its evaluation. The new plan supports the EU and its Member States in delivering innovative, effective and sustainable

The European Union part of the HealthyLivestock project is funded by the European Union Horizon 2020 research and innovation program under grant agreement number 773436.
European law on veterinary medicines

In 2019, the EU officially adopted new legislation on veterinary medicines which will be applicable in all EU countries from 28 January 2022.

The new legislation is part of the actions in accordance with the ‘One Health’ approach.

Part of those actions include strengthening of the prudent use of antimicrobials, avoiding their routine prophylactic and metaphylactic use.

Others are actions that will restrict the use in animals of antimicrobials that are of critical importance for preventing or treating life-threatening infections in humans.

More examples for this kind of actions regarding: mandatory On-farm Monitoring system and national surveillance of antibiotic use, limitations and requirement of a veterinary prescription for medicated feed, veterinary prescriptions, Pharmacovigilance, medicine online sales and imported animals and animal products.

* Regulation (EU) 2019/6 on veterinary medicines  * Regulation (EU) 2019/4 on medicated feed

The policy and commitments of the Chinese government on antimicrobial reduction

In 2018, the Ministry of Agriculture and Rural Affairs formulated “Pilot Work Plan for Reduction of Veterinary Antimicrobial Usage (2018-2021)” to promote farming models with less antimicrobial usage in three years. Every year, no less than 100 farms will be recruited to carry out pilot work in veterinary antimicrobial reduction. The farms that qualify will be published in the national list of qualified farms in veterinary antimicrobial reduction.

According to Announcement No. 194 of Ministry of Agriculture and Rural Affairs of the People's Republic of China in 2019, the production, import, operation and use of some pharmaceutical feed additives will be stopped. From January 1st 2020, all kinds of growth promoting pharmaceutical feed additives except for traditional Chinese medicine will be withdrawn. From July 1st 2020, feed production companies will stop producing commercial feed containing growth promoting pharmaceutical feed additives.

For further information please follow us and contact us on:

Web: HealthyLivestock.net | Twitter: @HLSProject
LinkedIn: #Healthy Livestock | Facebook: HealthyLivestock Project
HealthyLivestock 2nd Annual Meeting in Ghent, Belgium

The 2nd Consortium Meeting was held in August 2019 in Gent, in the context of the European Federation of Animal Science (EAAP) conference.

After the plenary opening ceremony, the HealthyLivestock commenced the real work in six breakout sessions. Each work package (WP) had its own session where the Chinese and EU partners discussed the workplans, milestones, deadlines and deliverables. The discussions in the smaller groups appeared to be very fruitful for exchanging views and finding consensus on how to proceed.

The following day conclusions from the single work package meetings were shared and discussed in the plenary meeting. Each of the Work packages presented the progress of its research, the different activities, reported the ongoing work and the expected outcomes of it. The different presentations showed that during the last year, which was the first year of the project, the project objectives were met and the project runs on time.

(For more information about the WPs progress and news please visit our website)

In addition, the external Scientific Advisory Board (SAB) met, and provided us with a critical look at the project progress.

According to SAB, it was important to avoid ‘silo’s’: islands of work within the project. The SAB suggested to consider developing position papers with different WPs and to develop synergistic activities that would support maximum impact. Prof. Simon More, on behalf of SAB, wished us a very good project and hoped that the SAB could play a role in moving HealthyLivestock from ‘excellent’ to ‘fantastic’!

Our conclusions from the meeting is that the research progress of the different Work Packages and the achievements reached in the first year of the project are very satisfying. With the continuous hard work and participants collaboration, we will successfully achieve our project objectives.

3rd WCFAW: Report on Hans Spoolder’s speech and the session on animal welfare and antimicrobial reduction

On September 19 to 20th 2019, the 3rd World Conference on Farm Animal Welfare was jointly held by FAO and China Association for the Promotion of International Agricultural Cooperation in Qingdao, China, featuring the theme of “Consumer-driven Quality Improvement, Assuring Animal & Human Health”. It focused on topics such as animal welfare-friendly production systems, quality improvement and brand building of agricultural products and industry trends. Animal welfare-friendly
production can effectively reduce stress and disease risks, thus reducing antimicrobial usage and ensuring food safety. At the plenary session, EU project coordinator—Dr. Hans Spoolder gave a presentation on “Tackling Antimicrobial Resistance through Improved Livestock Health & Welfare”, in which he introduced the project and the current achievements. In another session, dedicated to animal welfare and antimicrobial reduction, experts and industry representatives commented on the latest knowledge on antimicrobial reduction. Among others, Henk Stigter, Agricultural Counsellor for Veterinary and Phytosanitary Affairs of Embassy of the Kingdom of the Netherlands and Professor Sandra Edwards of Newcastle University shared their experiences in antimicrobial reduction in livestock production in Europe and discussed new farming models and alternative solutions under the current conditions in China. They stated that it’s feasible to reduce antimicrobial use without compromising productivity whilst improving animal health and welfare through improved management practices, proper feed formula and health management.

The World Conference on Farm Animal Welfare is an important conference with extensive participation of the relevant stakeholders worldwide. Taking advantage of this conference, the project outcomes can be effectively promoted in the industry; the new ideas and achievements can be communicated and spread widely, thus facilitating the implementation of the relevant technologies and expanding the project influence.

Interview with professor Alain Bousquet-Melou
DIRECTOR OF THE UMR 1436 ENVT INRA, WORK PACKAGE 4 LEADER

How would you describe the role of Work Package 4 in the HealthyLivestock project?

Word package 4, that is dedicated to precision medication, is the fourth brick of the strategic plan of the HealthyLivestock project, in continuity with the bricks investigating biosecurity, resilience/robustness of animals, and early detection of diseases. It aims at introducing innovative and acceptable therapeutic solutions against bacterial infections while reducing the use of antibiotics. The research axes focus on the optimization of the use of antibiotics when delivered in drinking water, and on the developed of alternatives to antibiotics among which products of Traditional Chinese Veterinary Medicine (TCVM).

Is there any important progress achieved or about to be achieved in the ongoing research that you would like to share?

A set of experiments and observational studies are currently implemented in commercial and/or experimental farms. The main results should be available in the next 12 months.

How do you see the feasible implication of WP4 research outcomes in the farming practice in the future?

The implementation of WP4 outcomes in the farming practice requires a close collaboration between farmers, veterinarians, pharmaceutical companies and equipment suppliers. The science-based identification of optimized - as well as useless - therapeutic practices using labelled molecules, or new strategies based on non-antibiotic substances, should be promoted towards regulatory authorities that could translate these findings in terms of recommendations/guidelines in the respect of the regulation of veterinary drugs.
Interview with Professor Yao Wen
Nanjing Agricultural University (NAU), Work Package 3 Leader

What significant benefits do you think the scientific innovations of NAU will bring to the industry?

We have developed new feeding stations for pigs and poultry which could detect abnormality of individuals or small groups and provide early warning. The further development and application of these technologies would greatly reduce the need for human labor and improve livestock and human welfare alike, which could help attract young people of higher education to join in livestock farming industry and change the current situation of low-educated and aging population in the stock keepers, facilitating the industry upgrade in automation and intelligent farming in China.

Do you have any suggestions for the practical application and promotion of the project outcomes?

To be effective in application, the issues and needs of workers in the production line and their feedback on the new technologies are important for technological improvement. Researchers and farm technicians need to work together. Farm technicians need to understand that some unusual ideas of researchers might lead to technological innovation, while researchers shall understand about technological needs in farming so as to be more targeted.

To achieve the overall project goal, it is necessary to integrate and apply the various innovations of the project. What are your plans for that?

In the current strict situation in preventing African Swine Fever, it's challenging to promote the new technologies on pig farming. We plan to choose suitable companies nearby to apply the current project outcomes, collect data and optimize the model. Afterwards, we will apply and promote the technologies in demonstration farms. We hope to get support and help from companies.

What good experiences you would like to share considering the abundant outcomes achieved by NAU?

In Work Package 3, NAU has work closely with New Hope Liuhe and discussed about the practical issues faced by the company, thus adjusting the researches accordingly. NHLH has made the farms fully available to the researchers and shared about their health management standards and data in poultry production, which is very helpful.

Through regular exchanges and farm residence of graduate students, there has formed an effective cooperation model involving scientific research, application, data feedback, technology improvement and further application and promotion.

GLOBALG.A.P. and HealthyLivestock EU / Chinese project

By Roland Aumüller, GLOBALG.A.P./FoodPlus

The improvement of animal welfare in the husbandry of pigs and broilers plus the reduction of antibiotics during the production cycles of the said species is a major objective of the GLOBALG.A.P. Integrated Farm Assurance Standard (IFA) for livestock.

While performing webinars on the responsible use of antibiotics in livestock and aquaculture production for GLOBALG.A.P certification bodies and producers, questions of the
Can a hatching environmental make a difference in later life resilience?

By Dr. Roos Molenaar, Postdoctoral researcher, Adaptation Physiology (ADP) group

Within the HealthyLivestock project, Wageningen University & Research together with Friedrich-Loeffler-Institute are studying possibilities to improve the resilience of broilers against diseases by improving welfare and peri-hatching conditions. The ultimate goal is to reduce the need for antimicrobial interventions by improving resilience of broilers. In our first study, we are investigating the consequences of the peri-hatching environment in broiler chickens on health, welfare and performance in later life. Because of differences in hatching time, handling and transportation, the time between emergence from the eggshell and first feed and water intake can be up to 48-72 hrs in chickens. To reduce this period without feed and water and the stress involved during handling and transportation of chickens, several hatching systems have been developed in the recent years.

Two of those systems are investigated in the current study. The HatchCare system, which is located at the hatchery, hatches the eggs in cradles during the last 3 days of incubation where light, feed and water is provided. After processing with minimal handling, chickens are transported to the broiler farm. The X-Treck system is an on-farm hatching system, where eggs incubated for 18 days are placed in the broiler house and chickens have immediate access to feed and water after they have hatched. In contrast, chickens in the conventional system hatch in baskets in a dark incubator and are provided with feed and water after processing, transport and arrival in the broiler house.

Our experiment consists of 3 hatching treatments: conventional, HatchCare and X-Treck and they are tested in 3 consecutive cycles at the Experimental Poultry Centre in Geel, Belgium. In each cycle, two rooms, both containing 2 pens, are assigned to each hatching treatment, with 1,150 Ross broiler chickens per pen. Hatchability and chick quality, mortality and performance, behavioural observations and tests, welfare indicators and slaughter yield are measured and used as indicators for resilience. The experiment will be running until the end of October and we are looking forward to present the results to you at a later stage.
Tackling antimicrobial resistance (AMR) by increasing the health and welfare of swine and poultry and thereby reducing the need to use antimicrobials.

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