



ROADMAP Newsletter

July 2021



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EDITORIAL

by Nicolas Fortane (INRAE), ROADMAP Project Coordinator

It has been two years since the ROADMAP project began, and it still has as many years to go before it comes to an end... not to mention the many valorisation and dissemination activities that await us after the project!

It has been two very intense and demanding years: building and maintaining an interdisciplinary (and international) culture; ensuring the methodological coordination of all the tasks; collecting a lot of data of very different kinds; organising and participating in a whole series of multi-actor events (such as our Living Labs, but not only)... in a very complicated sanitary context!

Indeed, a project involving seventeen partners in ten countries is inevitably impacted by a global pandemic, and this requires a lot of time, reflection and adjustment to continue the work and achieve the initial objectives. But unfortunately, COVID-19 is also a reminder of the importance of carrying out research on emerging infectious diseases. If AMR is not to be the next international health disaster (yet it already is in part), it is imperative that ROADMAP and many other projects continue to find levers for transitions towards prudent and responsible use of antibiotics and other antimicrobials!

ROADMAP will continue its journey to understand why our agri-food systems are still so dependent on antibiotics and to highlight ways in which these systems can move towards sustainable and responsible production modes.

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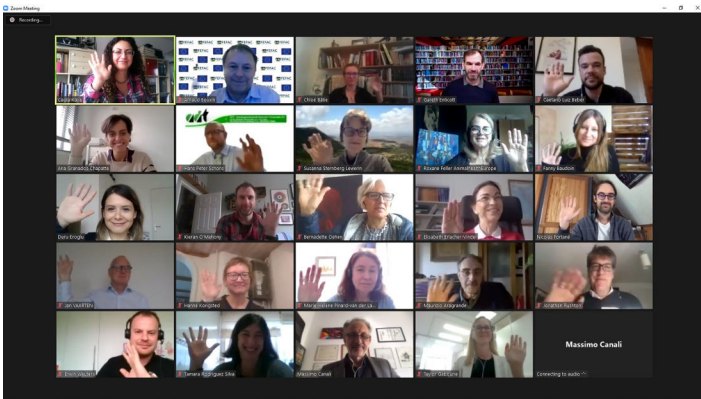
NEWS

ROADMAP MEETS SAB MEMBERS

ROADMAP organized its 1st Stakeholder Advisory Board (SAB) meeting virtually in October 2020. The meeting started with the welcome speech by the ROADMAP coordinator Nicolas Fortané, followed by the introduction of each SAB member and their organisation's activities on antimicrobial resistance (AMR). The progress of each work package in ROADMAP was presented by the Work Package and Deputy Leaders.

The last part of the meeting included an interactive session by bringing ROADMAP partners together with the stakeholders in the breakout rooms dedicated to the ROADMAP pillars. SAB members shared their valuable feedback and great recommendations during the session such as:

- Exchange knowledge between similar projects and transfer the standards into practical tools
- Communication from scientists and legislators to farmers and farmer organisations about AMU is important
- Consider the cultural differences among countries and regions.
- Breeders and nutritionists could be involved in LLs
- Use existing initiatives and other projects to cooperate with them to reach out to end-users
- Engage national stakeholders in awareness-raising activities about the importance of AMR and communicate also in local languages to reach out to a wider audience
- Engage veterinary, animal health and agricultural students and young professionals



5 PRACTICE ABSTRACTS PUBLISHED!

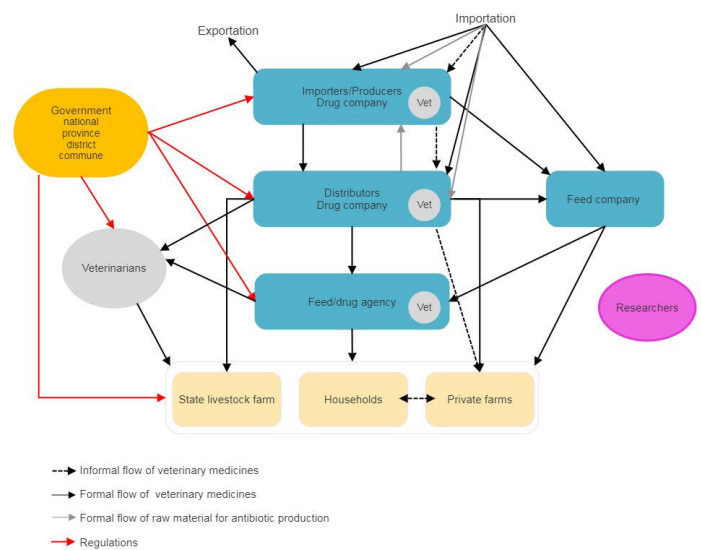
Duru Eroglu (EFFAB)

Having a multi-actor approach, ROADMAP engages with animal health professionals, stakeholders and policy-makers. Practice abstracts are one of the dissemination materials created to deliver the project results to end-users. Practice abstracts facilitate the knowledge flow and enable contacting farmers, researchers and all other actors involved in the project.

ROADMAP Work Package Leaders and Case Study Leaders from Italy, France, Mozambique and Vietnam have produced 5 practice abstracts. The 5 documents include the main results/outcomes of the activity (expected or final) and the main added value, benefit and opportunities to the end-user if the generated knowledge is implemented. The list and the links of the practice abstracts are provided below:

- [“Antibiotic-free labelled poultry meat”](#) – UNIBO
- [“Antibiotic-free labels in the French pig industry”](#) – IFIP
- [“Antibiotic reduction schemes in the French poultry industry”](#) – ITAVI
- [“Designing a good practices guideline for a prudent use of antibiotics in the poultry sector in Mozambique”](#) – CIRAD and University Eduardo Mondlane
- [“Mapping of stakeholders of veterinary medicine products’ value chain to analyze their interactions and position regarding changes in AMU policy in Vietnam”](#) – CIRAD and UMR ASTRE

Veterinary Medicine Products value chain and interactions between key stakeholders in Vietnam from focus group discussion, 2020



Value chain chart from the Vietnam practice abstract

You can visit [ROADMAP's website](#) to read the full versions of the practice abstracts, which are also available in Italian and Spanish. More practice abstracts from the partners will be published on the website in the upcoming period.

NEWS

ROADMAP 2nd ANNUAL MEETING

ROADMAP's second annual meeting took place virtually on 20-22 April 2021. The first day of the meeting involved the interactive Stakeholder Advisory Board (SAB) session and the joint project session with [HealthyLivestock](#), [AVANT](#) and [DISARM](#) projects.

The SAB session started with the follow-up of the SAB recommendations from the 1st SAB meeting. The 2 new SAB members from ENOLL (European Network of Living Labs) and STAR-IDAZ introduced themselves and their organisation. The SAB discussion was based on the topics below:

- the concerns on the implementation of The European Veterinary Medicines Regulation;
- the main challenges regarding concerning ban/controls of antibiotics as growth promoters;
- main concerns for the animal feed industry regarding the Medicated Feed Regulation;
- the ways to encourage more bottom-up and participatory forms of engagement to include all actors in change;
- the contribution of the new breeding techniques on reducing antibiotic use,
- the environmental component of OneHealth

After the interactive SAB discussion, the Annual Meeting continued with the joint project session. The coordinators of HealthyLivestock, AVANT and DISARM projects discussed the issues on the main social, economic and institutional drivers for transition in AMU, the priorities in terms of technical innovation to foster a more preventive approach in animal health, the type of methods and tools proved to be efficient to engage stakeholders in transition and innovation towards prudent AMU.

The 3-day meeting ended with the great participation of all partners, SAB members, coordinators from other projects and interesting workshop sessions.

JOINT PROJECT SESSION - CONFERENCE PARTICIPATION

Duru Eroglu (EFFAB)

ROADMAP joined its forces with AVANT, HealthyLivestock and DISARM projects in the joint project session on 8 June 2021 at the 5th International Conference on Responsible Use of Antibiotics in Animals. The project session titled "Socio-economic, technical and regulatory dimensions of sustainable change in antimicrobial use in animal production" was composed of 3 themes:

Theme 1: Social, economic, and regulatory factors of transitions

Theme 2: Promising technical innovations to reduce AMU

Theme 3: Stakeholder engagement and impact

5th International Conference on Responsible Use of Antibiotics in Animals

ROADMAP SPEAKERS

- 
Dr Nicolas Fortané
ROADMAP project coordinator
INRAE, FR
- 
Dr Mette Vaarst,
Department of Animal Science,
Aarhus University, DK
- 
Bernadette Oehen
Research Institute of Organic
Agriculture, CH

Logos for ROADMAP, AVANT, HealthyLivestock, and disarm are shown at the bottom.

Nicolas Fortané presented "ROADMAP: What can social sciences say about change and transition? Behavioural and structural drivers of antimicrobial use (AMU) on socio-economic drivers of AMU and alternatives to AMU". Fortané expressed that ROADMAP focuses on structural factors of AMU change and the project considers multi-level transitions rather than technical innovation. In the session, Mette Vaarst (AU) and Bernadette Oehen (FiBL) presented their experiences with Living Labs as an approach towards prudent AMU in different contexts. Overall, the session reached out to 75 participants from different countries and stakeholder groups. The recording of the joint project session can be watched [here!](#)



Photo credit: Cows at a Danish farm - Mette Vaarst (AU)

NEWS

FIRST SPANISH ROADMAP STAKEHOLDER FORUM AT EUGREENWEEK

Tamara Rodríguez (FEUGA)

On the 9th and 10th of June 2021, FEUGA organised an online conference framed in the European Green Week under the title “Zero pollution society: citizens & industry to climb on a circular strategy” where ROADMAP was presented to potential stakeholders. Both national and European projects shared the stage to show their contribution to the objective set by the European Commission on achieving zero pollution.

Following the first presentation including the main ROADMAP objectives, involved partners, and planned activities, expectations from stakeholders were introduced and an interactive discussion was held through the Klaxoon tool. Stakeholders were asked about their profile, the main barriers and alternatives identified towards AMU, identification of countries with less or more AMU interventions and their future expectations regarding our interactions with them.

The majority of the participants were veterinarians, technicians and journalists, who identified the main barriers to achieve AMU reduction as economic issues with 86% and political reasons with 57%. Alternatives emerged as prevention and animal welfare, and participants identified Sweden and Denmark as countries with the least antibiotic use versus Italy and Great Britain as the most abusive. The participants shared that for the future, they would like to have more direct, personal training and discussions about the project.



At the event, other relevant initiatives for the European Green Deal were discussed such as climate initiatives, the future Strategy on Chemical Substances, and initiatives dedicated to energy, industry, mobility, agriculture, fisheries, health and biodiversity. You can watch the English translation of the ROADMAP presentation at the event [here](#). The original presentation in Spanish is also available [here](#).

ROADMAP STAKEHOLDER COMMUNITY PAGES

Tamara Rodríguez (FEUGA)

The ROADMAP regional stakeholder’s communities continue to take form. In order to increase our engagement with the stakeholders, we encourage our Country Leaders to create regional pages on the official ROADMAP website in their own language. In these regional pages, news, minutes of the meetings, images and leaflets will be shared. Some Country Leaders have decided to create private pages for each of their Living Labs depending on the species (pigs, poultry...) They use these pages as a repository to share confidential information with their members via restricted access. On the other hand, some regional pages such as the ones for [Spain](#), [Sweden](#) and [Denmark](#) are open to the public. The links for these public pages are available on the [Regional Stakeholders Community](#) page.

FEUGA has developed easy guidelines to create and edit these pages on the website and shared the guidelines with Country Leaders. In addition, EFFAB provided access and editing rights to the country leaders and their teams for developing the pages. We expect to have at least one public page per region, and as many private pages as Country Leaders decide to keep confidential interactions with key members (as members of the different Living Labs for instance).

It is planned to have a webinar with all Country Leaders and members with editing rights in October 2021 to analyse how to improve the impact of these regional pages and start sharing news through the project channels. Currently, the preparation of other regional pages is still ongoing and FEUGA and EFFAB are providing support to Country Leaders via email or short online meetings.

ESPAÑA

En esta página puedes encontrar los informes y resultados del proyecto ROADMAP, así como las fechas de los próximos eventos regionales, y noticias sobre el proyecto ROADMAP y otros proyectos relacionados.

Spanish public page on ROADMAP's website

ARTICLES

THE ROADMAP 'LIVING LABS' GAIN EXPERIENCE IN MANY CONTEXTS

Mette Vaarst (ANIS, AU, Denmark), Florence Bonnet-Beaugrand (INRAE, France), Bernadette Oehen (FiBL, Switzerland), Heleen Prinsen and Annick Spaans (ZLTO, The Netherlands)

The twelve ROADMAP Living Labs (LLs) are at different stages and work in different ways – all attempting to find ways and take up issues which are relevant and interesting in their specific context.

In ROADMAP, we use LL as one of our core methods to reach our aims: to foster transitions towards prudent use of antimicrobials (AMs) in animal production in different contexts. Altogether, the team around LLs works hard to identify and describe how LLs best function in a combination of innovating new ways to reach this goal. On the other hand, another aspect analysed in the LLs is how to change and break down routines and practices, which have been relying on the use of antimicrobials. We focus both on technical and social measures, innovations, and changes, acknowledging that there is no “one-size-fits-all” solution to improve AMU.

Twelve Living Labs at different stages of establishment and action

The twelve ROADMAP LLs are working at different stages, and a few still await the possibility to meet physically to take up the issues, which they commonly identify to be the most pressing in their context. Others have worked since late summer or autumn 2020 despite Covid-19. Five LLs focus on pig production (CH, DK, NL, BE, IT), two on poultry production (IT and NL), and one covering pigs and poultry in the same LL (FR). Two focus on dairy production (DK, FR), and three focus on different aspects of calves: veal calves or calves in and from dairy herds (CH, BE, UK), and the Danish LL on dairy farming also work with the calves at and beyond dairy farms.



Photo: Groupwork at Danish LL on pigs

Working with stakeholders to change patterns of AMU

In ROADMAP, we have established LLs with stakeholder members, e.g. from the veterinary sector, companies, farmer groups and retailers. All stakeholders influence AMU at different places in the sector or value chains. Each stakeholder member in the LL is represented by members, who have committed themselves to participate. This means that each LL is a functional group, which takes up issues, potentially containing conflicts and tensions in the field.

Whilst some practices related to current AMU are questioned in the light of AMR, we acknowledge that some of them are based on what previously was considered to be ‘best practice’ under the conditions of animal farming. These are changes, which not only involve and affect many stakeholders, but are also deeply dependent on new common understandings of future needs for and directions of change. With an exchange across all LL, innovations can be shared during the project.

Each LL has set out to bridge different interests between actors, some of whom may receive the LL idea with scepticism. In addition, the representatives from the stakeholders have a big task in balancing the dialogues in the LL with the interests and standpoints of their diverse stakeholder organisations. Whilst some find this relatively easy and fitting with their direction and agenda, it seems to present severe challenges for others. Our research steps into these fields and investigates how dialogues and pathways for establishing new solutions can be fostered in the best way. With regularly held meetings we learn together with all partners about LL.

Different actions and trials taken on in Living Labs

LLs are about labs, meaning that they follow actual tests of changes and new initiatives in the field, both technical and social. Some LLs develop and test technical issues, such as new feed supplements or practices of keeping animals in sections, or supportive tools in terms of benchmarking or animal welfare assessment schemes. Others focus on social actions such as stable schools or experience exchange and support groups between vets or international farm workers, or the development of teaching material for agricultural colleges on AMU.

We are hopeful that the opening for fieldwork now happening after the Covid-19 crisis will make it possible to work with these innovations in the field, and expect that many new insights will emerge over the coming phase in the project. The research team is furthermore currently working to establish methods for data collection, which can be helpful for each LL, and at the same time allow the project as a whole to evaluate the effect and learnings from the different forms of Living Labs.

ARTICLES

REDUCING ANTIMICROBIAL USE AND DEPENDENCE IN LIVESTOCK PRODUCTION SYSTEMS: A SOCIAL AND ECONOMIC SCIENCES PERSPECTIVE ON AN INTERDISCIPLINARY APPROACH

Fanny Baudoin (ILVO), Henk Hogeveen (WUR) and Erwin Wauters (ILVO)

Antimicrobial resistance (AMR) has been recognized as a threat to human health as it can render minor bacterial infections lethal. In Europe, this is already the case for 33000 patients every year, which exceeds the number of deaths from road accidents (+- 23 000 in 2019). While AMR results from the natural ability of bacteria to adapt to their environment, its occurrence has been favored by human factors and actions such as the intensive clinical and agricultural use of antimicrobials worldwide. If left unaddressed, it has been estimated that AMR may result in 10 million deaths per year worldwide, with a cost comparable to the losses caused by the 2008–2009 financial crisis.

To address the challenges posed by AMR, countries have been advised to monitor AMR and to reduce the prevalence of AMR in both human and veterinary medicine. In veterinary medicine, strategies for a reduced AMR prevalence are focused on reducing antimicrobial use (AMU) and dependence, mainly through information and technological innovations such as vaccination and other alternatives to antimicrobials. While this is part of the answer, there is another equally important aspect that is often not considered, namely the behavioural character of AMU and AMR. This lack of knowledge about decision-making processes regarding AMU and animal health hinders the establishment of sustainable AMU for several reasons:

- Therapeutic alternatives to antimicrobials are currently not sufficiently developed to effectively replace antimicrobials (1). Strategies to reduce AMU must therefore also aim to reduce reliance on antimicrobials by changing the way they are used, not simply by replacing them.
- Over time, bacteria will also develop resistance to therapeutic alternatives to antimicrobials. This stresses the need for reduced reliance on antimicrobials or substitutes through structural and behavioural changes.
- Alternatives and technological innovations are not always adopted by farmers (1). Studies cut across many disciplines have shown that the adoption of new technologies can be influenced by numerous factors. Gaining insights into such factors may help to increase the adoption rate by developing strategies adapted to a certain context.
- In livestock production, antimicrobials are not only a therapeutic but also an economic asset (2). Alternatives must thus be as profitable as antimicrobials.
- The behaviour of farmers might be indirectly influenced by other actors who may voluntarily or involuntarily create physical (e.g., land appropriation) or social structures (e.g., norms) that restrict, or enlarge, farmers' opportunity space (3). Acquiring knowledge in this area allows adapting this opportunity space by involving the relevant actors.

It is thus clear that the success of sustainable AMR strategies and policies relies on whether these are technically, economically, behaviorally, and politically feasible in a certain temporal and spatial context, hence the importance of social sciences to better understand farmers' behaviour and the system in which they operate.

In order to develop such strategies and policies, we addressed three questions that are used to develop control policies and strategies for agricultural pollution problems (4) in the light of AMR, being:

Who to target?

In addition to farmers and veterinarians, other actors upstream or downstream a value chain or even within a system can be targeted by policies and strategies as they have the potential to (indirectly) influence farmer's decisions. To visualise this, Figure 1 presents a simple representation of a value chain integrated with a bigger societal system and environment. Systemic approaches such as value chain approaches or analytical frameworks can be used to characterize production systems and their relevant actors.

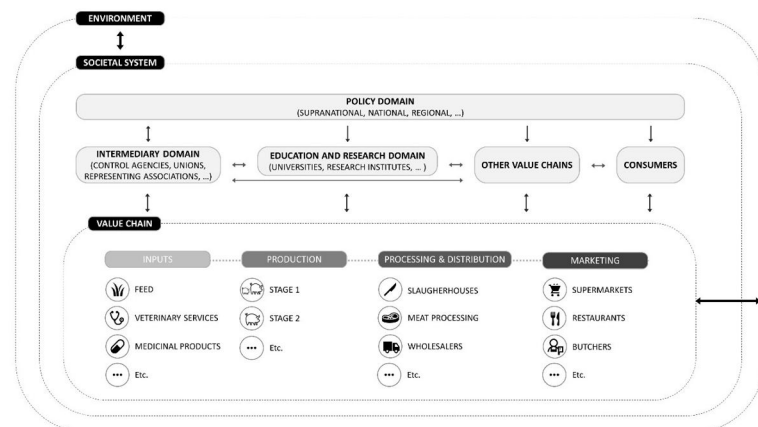


Figure 1: Value chain integrated in a bigger societal system and environment

What to target?

In this section, we explore how systemic approaches may help to identify possible variables that AMR policies and strategies intend to change. In the case of antimicrobials, AMU is often the target of policies and strategies. However, other inputs (e.g. cross-contaminated feed, infection status of animals), technology/production practices (e.g. biosecurity status), outputs and proxies can be used as compliance bases.



ARTICLES



How to target?

Once it is defined who and what should be targeted, the next step is to determine the mechanisms through which the intended actor(s) and variable(s) can be targeted. For this, we introduced a taxonomy of AMR interventions based on Van Woerkum's exhaustive classification of interventions into five possible routes (5), as shown in the figure below:

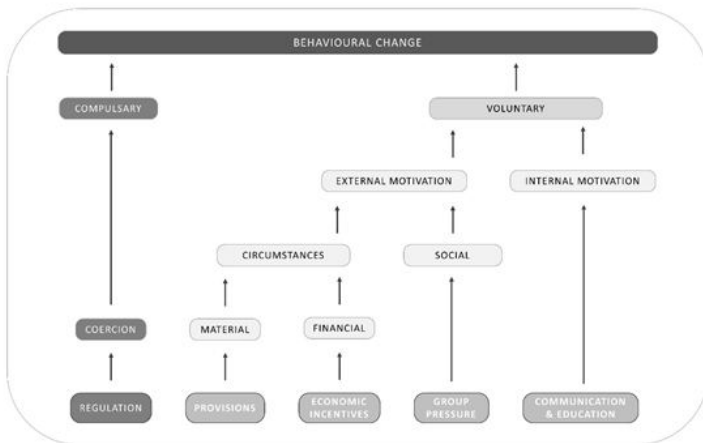


Figure 2: Possible routes to induce behavioural change [adapted from Van Woerkum, published in Leeuwis (5)].

Finally, we also argue that effectiveness, efficiency, and fairness (equity) should be used when evaluating, both ex-ante and ex-post, the performance of policies and strategies and suggested identifying the best combinations of behavioural strategies through cost-effective analyses since economic and time resources are limited.

ANTIBIOTIC FREE LABELS IN THE FRENCH PIG AND POULTRY INDUSTRY

Christine Roguet and Anne Hémonic (IFIP), Jonathan Hercule and Nathalie Rousset ITAVI

Antibiotic resistance has been a major public health problem and a growing societal concern since the early 2000s. This has led to decisions and regulations at the European Union level (recently the new Veterinary Medicines Regulation 2019/6 and the Farm to Fork Strategy), and to the French national action plan Ecoantibio which set targets for reducing antibiotics (AB) use in veterinary medicine (-25% between 2012-2016) and a reduction of the use of critical antibiotics. Several French broiler companies started to communicate on their antibiotic reduction schemes and stakeholders of the French pig industry have developed AB free private standards to meet market demand, provide financial support and communicate on the efforts made by farmers.

What is done in the ROADMAP project?

Within the ROADMAP project, an analysis was conducted on the AB free supply chains in the French pig sector. A part of the interview was devoted to the description of the AB free scheme of companies. In addition, interviews were conducted with 18 breeders to understand their motivation towards AB use and AB free labels.

Conclusion

Our approach aims to promote the use of systemic approaches as well as knowledge from different disciplines in order to better understand farmers' behavior and the system in which they operate to design sustainable AMR policies that are technically, economically, behaviorally, and politically feasible. We also introduce a taxonomy for AMR interventions and suggest to identify the best combinations of behavioral strategies through cost-effective analyses.

References

1. Woolhouse, M., Ward, M., Van Bunnik, B. & Farrar, J. Antimicrobial resistance in humans, livestock and the wider environment. *Philos. Trans. R. Soc. B Biol. Sci.* 370, 20140083 (2015).
2. Kirchhelle, C. *Pharming animals: a global history of antibiotics in food production (1935–2017)*. Palgrave Commun. 4, 96 (2018).
3. Feola, G. et al. Researching farmer behaviour in climate change adaptation and sustainable agriculture: Lessons learned from five case studies. (2015) doi:10.1016/j.jrurstud.2015.03.009.
4. Shortle, J. S. & Horan, R. D. *The Theory and Experience of Economic Development*. Journal of Economic Surveys vol. 15 (Routledge, 2012).
5. Leeuwis, C. *Communication for rural innovation: rethinking agricultural extension*. (2004).

As for the broiler sector, six interviews were conducted within the broiler sector and the aim was to understand how the private standards work and what their roles are in the reduction of antimicrobial use (AMU).

Outcome of the survey/interviews

The AB free claim in France has been always included in a more global valorization approach including GMO-free, welfare, social and environmental criteria. AB free labels are a technically and economically feasible solution to reduce the use of antibiotics. They encourage and promote better farming practices, satisfy consumer demand and secure outlets and supplies. However, the result of the survey in the French pig sector shows that AB free market is considered mature today. Producing without AB in the long term requires constant rigour, diligence and technicity by the farmers. Pig health has always a very fragile balance and antibiotics remain irreplaceable to treat some infections.



ARTICLES



As for the poultry sector, there are several types of claims concerning AB use in the French broiler sector such as:

- “Raised without antibiotic treatment” labels from national brands aiming at the retail market.
- Producers' organisations (PO) committing to reach 90% of untreated flocks for the retail brands.
- PO committing to the removal of critical antibiotics aiming at the catering market.

Similar to the pig sector, the survey results show that there won't be a development of antibiotic-free claims in the near future as the poultry market is mature. A generalization of AB-free labels is often ruled out by stakeholders given the high health risks in conventional systems and the high price competition on poultry products at the EU level. Nevertheless, action plans implemented to reduce AB use have resulted in higher than expected results which are confirmed by the sharp decrease of AB use at the national level following the first EcoAntibio plan.



Figure 1: Example of labels



Figure 2: Each retailer or meat processor has its "antibiotic-free" specifications

Recommendations for the sector

Regarding the French pig sector, there is a need to simplify the multiple claims for a better understanding by the consumer and to provide more freedom to pig producers. This could be achieved by;

- promoting a legal definition of the “AB free” claim like “G free” and,
- simplifying the pork market segmentation into four classes: standard, Product Conformity Certificate, Label Rouge and organic.

For the French poultry sector;

- The level of investment in biosecurity and buildings seems to play a big part in reducing AB use in conventional systems. In the case where farmers can switch between AB-free and conventional production, co-benefits of the “AB-free label” investments (training, biosecurity...) has been reported for conventional production by one stakeholder.
- Training of the farmers and technical advisors and increasing their experience regarding the implementation of action plans or AB-free labels are very important.
- The results of the farmers' interviews show that a high level of technicity is required to raise AB-free birds with Ross 308 breeds in conventional systems. Therefore, it should be noted that AB-free labels don't address all farms and involve financial risks in some production systems.



MEET ROADMAP

ROADMAP Pillar 2 Team



Mette Vaarst, Aarhus University
Pillar 2 and WP3 Leader

Mette Vaarst, DVM, PhD, master in health anthropology, is a senior scientist at Aarhus University, Department of Animal Science. Working with practices, perceptions, communication and social learning related to agriculture and animal farming, veterinary services and food systems, mostly in organic farming and sectors, and often through action research approaches. In ROADMAP, Mette is leading Pillar 2 and WP3, which aims at setting up Living Labs, and researching the potentials and challenges of using multistakeholder Living Labs to foster prudent use of AMU.



Bernadette Oehen, FiBL
WP4 Leader

Bernadette Oehen is a senior scientist in the department of socio-economic science at FiBL with the tasks food systems and supply chains. Since March 2020, she is the deputy Co-Head of the Department of Socioeconomics. Her research interests are the transformation of the food systems behavioural changes of farmers, consumers and other actors in value chains, the satisfaction of farm managers, and development of value chains. In ROADMAP, Bernadette leads WP4 that relies on incentives and on existing technologies, knowledge and strategies to co-design and develop solutions which will combine socio-economic and technical innovations to foster prudent AMU.



Annick Spaans,
ZLTO



Heleen Prinsen,
ZLTO

Annick and Heleen are working for the Southern Dutch Agriculture and Horticulture organisation (ZLTO). Around 15,000 farmers and producers in the South Netherlands are members of this organization. ZLTO supports green entrepreneurs in their daily operational business and is also their connection to other sectors and organizations for creating new opportunities for sustainable economic growth and social welfare. In ROADMAP, they work on poultry and pigs and are especially focusing on involving stakeholders and help to participate farmers in their antibiotic reduction and making a connection between science and farming practice. ZLTO also has a role as a co-leader in WP4. Heleen and Annick both have a background in Animal Science at Wageningen University. They both are specialized in animal health and welfare and work in different projects and on animal health and welfare policy. Annick is also specialized in communication and Heleen is currently working on her PhD on antibiotic reduction in pig farms.



Florence Beaugrand,
INRAE, Oniris-Nantes

Florence Beaugrand is an associate professor in management science at Oniris, based in a research unit BIOEPAR funded by both INRAE and the vet school. Her work focuses on change of practices in animal health, especially prudent use of antimicrobials. She is currently carrying out a national project on improving vet-farmer relationship in organic dairy farming and is taking part to participative design projects on animal health and welfare management. She is co-leader of WP3 in ROADMAP and will follow French living labs on pigs and poultry on the one hand and cattle on the other hand.

PUBLICATIONS

Here are the recent publications and articles relevant to ROADMAP. You can check [our website](#) for more publications and poster presentations.

- Baudoin F., Hogeveen H. and Wauters E., [Reducing Antimicrobial Use and Dependence in Livestock Production Systems: A Social and Economic Sciences Perspective on an Interdisciplinary Approach](#), Front. Vet. Sci. 8:584593 (2021)
- Bonnaud, L., Fortané, N., [21st-century vets: professional dynamics in the era of One Health](#), Rev Agric Food Environ Stud 102, 121-124 (2021).
- Towards a Better and Harmonized Education in Antimicrobial Stewardship in European Veterinary Curricula, (2021)
- Third joint inter-agency report on integrated analysis of consumption of antimicrobial agents and occurrence of antimicrobial resistance in bacteria from humans and food-producing animals in the EU/EEA, (2021)
- Grundin J., Blanco-Penedo I., Fall N. and Sternberg Lewerin S. - ["The Swedish experience" - a summary on the Swedish efforts towards a low and prudent use of antibiotics in animal production](#), (VH) Department of Biomedical Science and Veterinary Public Health, (2020)
- Fortané N. and Gautier A., [ROADMAP Project: Thinking transitions in agri-food systems towards a "prudent" use of antibiotics](#), (2020)

VIDEOS

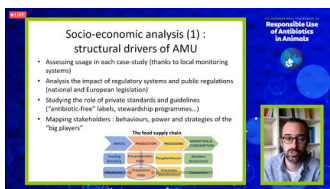
Click the images below to watch new interviews and recordings of presentations from recent events and meetings! You may subscribe to [ROADMAP H2020](#) on YouTube to receive notifications when a new video is published. The videos are also available on the ROADMAP website under ["MEDIA - ROADMAP YouTube Channel"](#).



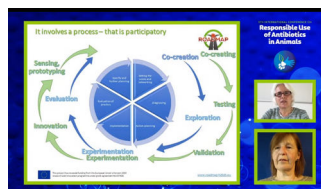
Anja Byg WP2 Leader in the ROADMAP project



Joint project session at the Conference on Responsible Use of Antibiotics in Animals



Nicolas Fortane explains the aim and structure of the ROADMAP project



Mette Vaarst and Bernadette Oehen explain the experiences with LLs



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EVENTS

Due to the COVID-19 pandemic, some events in 2021 have been postponed to a later date. Below is the list of the upcoming international conferences and events in 2021-2022.

EAAP: 30 August - 3 September 2021
Davos, Switzerland

ISESSAH: 17-18 November 2021
Universiti Putra Malaysia

World's Poultry Congress:
7-11 August 2022
Paris, France

ECPLF
29 August - 2 September 2022
Vienna, Austria

CONTACT

For more information about the ROADMAP project, visit [our website](#) and follow us on our social media accounts!

You can also [subscribe to our emailing list](#) to receive our newsletters and updates about the project.

