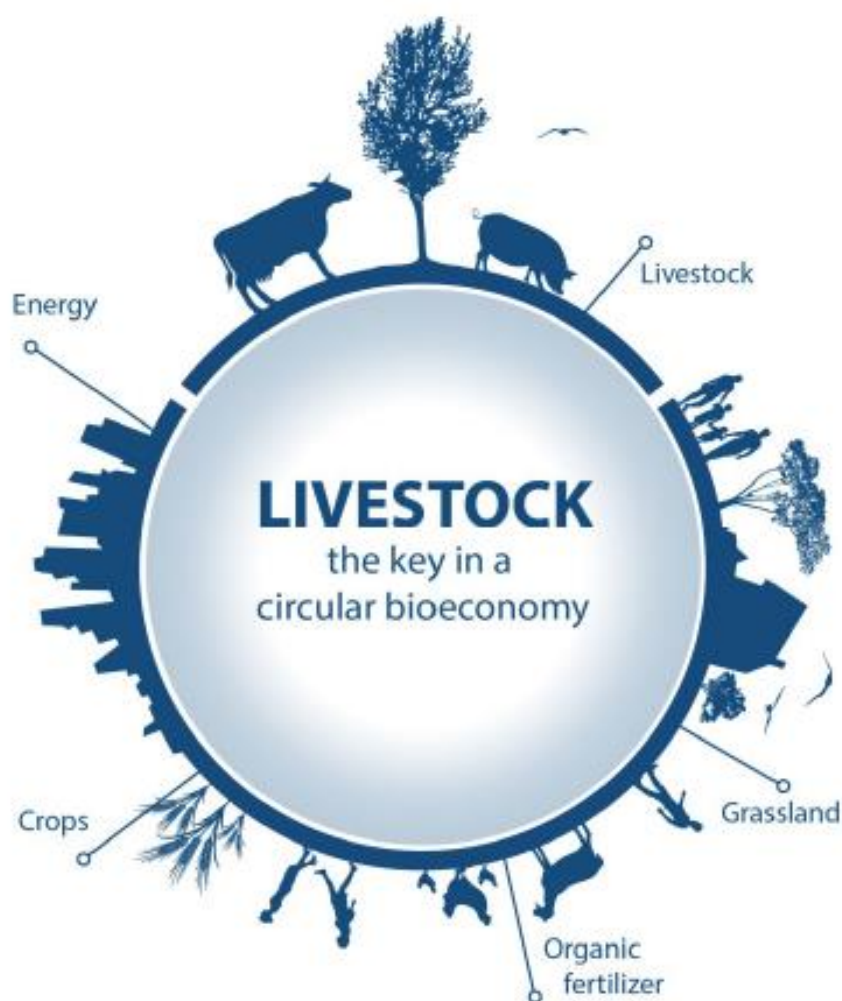


Animal Production, the *Key* in a European Sustainable Circular Bioeconomy



Animal Task Force 6th Seminar
Wednesday 16th Nov. 2016 09:00h - 17:00h
FLAGEY - Place Sainte Croix - 1050 Brussels (Ixelles) - Studio 5

Seminar report

Programme

9:00 Opening and welcome

9:30 **Welcome and introduction (Jean-Louis Peyraud-ATF)**

Session 1: Animal productions and the European Sustainable Circular Bioeconomy

9:45 **Introduction to the European Bioeconomy & outcomes from the SCAR 4th Foresight**
John Bell, EC DG RTD, Directorate F – Bioeconomy

10:10 **A policy maker perspective**
Luc Vernet, Farm Europe

10:35 **Vision from a European NGO**
Marta Messa, Slow Food

10:50 Coffee Break

11:20 **Vision Animal Task Force European Public-Private Platform**
The role of livestock productions in an agriculture which serves a circular bio-based economy.
Jean-Louis Peyraud, President Animal Task Force

11:45 PANEL DISCUSSION
With the speakers and the audience
With Patrick Caron, HLPE
Moderated by Martin Scholten, WUR

Session 2: Animal production contributing to a more efficient agriculture and the provision of safe food and various by-products

14:00 **A farmers' approach on in regulating the ecological cycles:**
Niccolò Benedetti-Panici, Italy
Josef Pellmeyer: Germany

14:25 **Reducing the “feed versus food” competition: valorising food-chain & biorefinery by-products**
Mr Ruud Tijssens, President FEFAC, European Feed Manufacturers

14:50 **Animal products providing protein-rich and safe food for humans** *Beate Kettlitz, Food for Life Technology Platform*

15:15 **Biorefinery, organic fertilisation, pet food and other industrial use of animal by products**
Cécile Crespel-Darcet, Environmental division, Cooperl France

15:40 PANEL DISCUSSION
With the speakers and the audience, moderated by Martin Scholten
Discussion on avenues for improvement and research needs

16:40 Closing remarks

Animal production

the Key in a European sustainable circular Bioeconomy

Animal Task Force 6th Seminar
Brussels, November 16th, 2016

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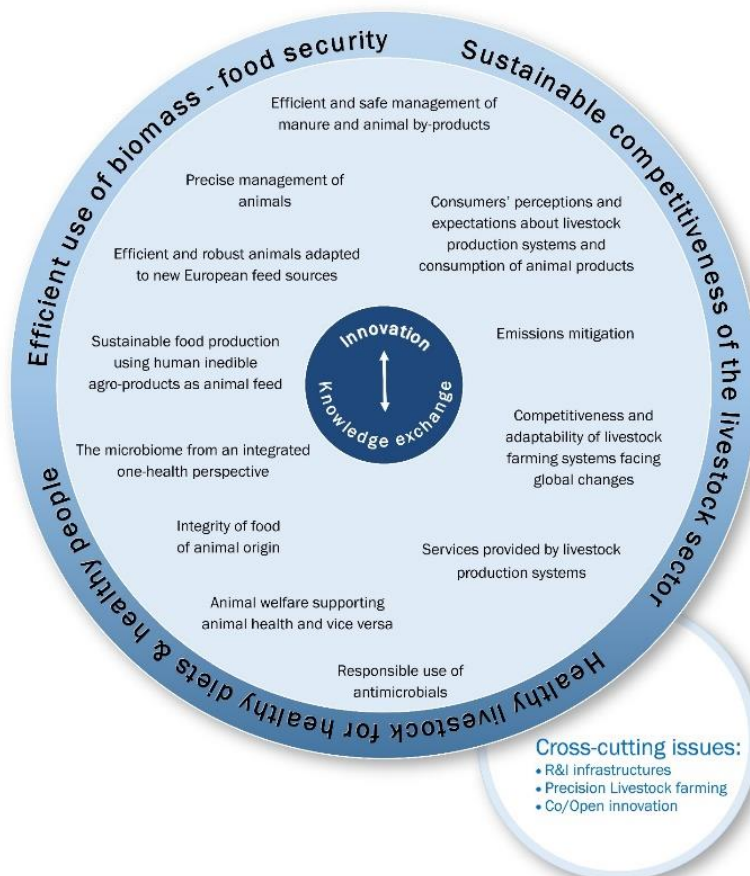
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Welcome and introduction

Jean-Louis Peyraud (President of Animal Task Force) welcomes all participants of the 6th Animal Task Force Seminar. The Animal Task Force (ATF) has been working since 2011 to promote the research and innovation needs for a sustainable and competitive animal production in Europe. Societal challenges in the animal domain are the starting point for defining knowledge development and research needs that should lead to innovations to overcome these challenges. Members and partners of the Animal Task Force are research institutions, European farmers and industry organisations of the whole animal production chain.

Animal Task Force's Strategic Research and Innovation Agenda, Second White Paper



In 2013, the ATF published a White Paper with research and innovation priorities for the animal sector for Horizon2020. In Nov. 2014, it was completed with an Addendum.

During the year 2016, the ATF has developed a Second White Paper including suggested priorities for research for the Horizon2020 2018-2020 Work Programme to enhance innovation and sustainability in the livestock production sector of Europe's food supply chains. The ATF has identified three key societal challenges that we think need to be addressed. The ATF develops and promotes priority topics for knowledge development in these three key areas.

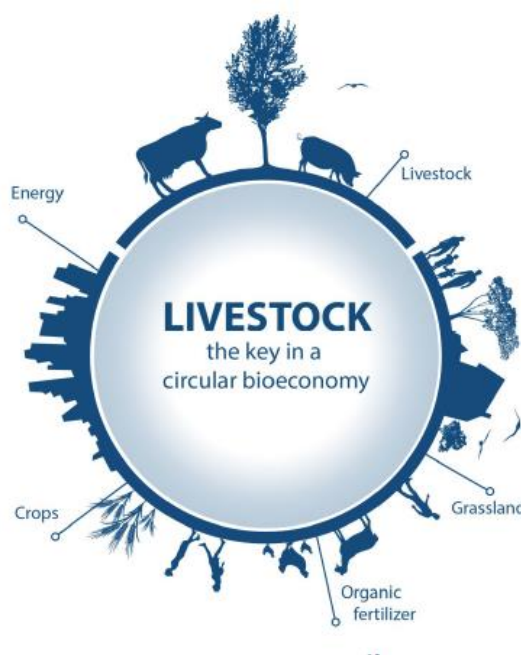
The figure shows the 12 priority topics presented in the Second White Paper that can be found [on our website](#).

Animal Production, the Key in a European sustainable circular bioeconomy

With an increasing global population and consequently, food demand, the livestock sector is a key actor to address the challenge of global food and nutrition security. Animal productions can contribute efficiently to the European Bioeconomy for a sustainable food-chain, providing multiple benefits. Still, the sector is strongly questioned for its environmental impacts, inefficient use of resources, animal health and welfare and supposedly human health issues linked to the consumption of animal products.

Since January 2016, and also at the ATF-EAAP Special session, on August 29th, 2016, in Belfast, the Animal Task Force has engaged a dialogue between research, farmers, industry, decision-makers and European stakeholders. The aim is to provide input for public policies on the role of livestock in realising a Sustainable Circular Bioeconomy for Europe and to share on avenues for improvement and research needs.

During the ATF seminar, November 16th, 2016, in Brussels, policy-makers, sector representatives, politicians, NGOs, researchers and industry experts were invited to join the discussion.



Session 1: “Animal productions and the European Sustainable Circular Bioeconomy – Public policy perspective”

Speaker: John Bell, EC DG Research and Innovation, Directorate F – Bioeconomy

Title: “Introduction to the European Bioeconomy & outcomes from the SCAR 4th Foresight”

John Bell, is the Head of Directorate F-Bioeconomy at the European Commission (EC), Directorate General Research and Development (DG RTD).

We are at a turning point for food and nutrition systems worldwide and in the way we work with biological resources. There is a growing political momentum raise ambition for Food and Nutrition Security Research and Innovation. We need to reconnect food systems and agriculture to the consumer and vice versa, reduce emissions, engage in a circular economy to reduce waste, etc. With the visionary FOOD2030 initiative ([-link](#)), the EC wants to look at research and innovation challenges across the food systems in a structured way. Our aim is to have people think in terms of “food systems” and consider resources from land and see in an integrated way. We also aim to stimulate investment from public and private actors in agricultural research. With the FOOD2030 priorities, we want to connect, re-structure and scale-up research and innovation to have a better impact in tackling our global societal challenges, looking from 4 basic windows: Nutrition, Climate, Sustainability & circularity, Innovation.

The EC has supported and still supports many successful projects on most areas of animal research. Among the most promising areas: animal

*FOOD2030:
our aim is to have
people think in terms of
'food systems' and
consider resources in an
integrated way*

microbiomes, animal manure as a value chain of the European circular bioeconomy, smart farming and data use/availability... Animal health and welfare are particularly big challenges: AMR is a major threat but also a major opportunity to reduce the veterinary drugs use, explore biosecurity, understand users' habits. In the field of research and innovation, we need to bring everybody into the conversation: farmers, industry, citizens, to work across disciplines with DG Agri, DG Sante, enlarge to actors like FAO and to countries like China. I also see the issue about proteins keeps coming up and a demand for alternative sources of proteins, partly due to changing consumption patterns. Research and innovation can bring a set of tools to policy makers.

In 2015, the EC has worked with member states to publish a 4th Foresight report of the SCAR "Sustainable agriculture, forestry and fisheries in the Bioeconomy, A challenge for Europe" -[link](#). 60% of the world's biomass is used by animal feedstock. The future Bioeconomy strategy will build on the three elements drawn as the core of the 4th Foresight exercise: "Sustainability, cascading, circularity" to stimulate investment at regional level. The stakeholders' consultation on the FOOD2030 strategy is still on-going. We will talk to the parliament, make sure our voices are heard on the importance of research and innovation in agriculture.

Find the presentation [here](#).

Speaker: Luc Vernet, Farm Europe

Title: "A policy maker perspective of European Animal productions"

Luc Vernet is a Public Affairs and Communication expert. Farm Europe is a multicultural think tank that aims to stimulate thinking on rural economies. Farm Europe has recently conducted a study on the future of beef production in Europe (-link).

Looking back at the last 10 years in the agricultural sector, we see that the beef production has been stagnating. What happened? We lost farmers, jobs and are now facing a stagnation of the meat sector in terms of production, incomes, a -11% loss in productivity, associated with a decrease in public support (main driver of farming income in the EU). However, today, all indicators are green in terms of growth opportunities, due to an increasing global demand that is a massive opportunity for EU food systems. The European livestock sector has the capacity and the knowledge to supply those markets, making use of innovations like smart farming tools.

Key questions are around EU's ambition: "Does EU want to contribute to the global food security?", "Do we want to keep farmers all across the EU?" Does the EU want to tackle both the economic and environmental sustainability challenge?" On the economic side of sustainability, the biggest challenge of the meat sector is the structuration and viability of the supply chain and ways to increase cooperation. We need appropriate support from the CAP, allowing the meat sector to develop (help producers invest and get revenue from their work, build efficient supply chains), cope with the challenge of market volatility, promote our model, better valorise the products, develop further the sustainability of EU production systems through innovation (economic, environmental, health challenges), smart policies and consumer awareness.

*"What is EU ambition?
Does EU want to
contribute to global
food security
and keep farmers all
across the EU?"*

Speaker: Marta Messa, Slow Food

Title: *“Animal production, the key in a European sustainable circular Bioeconomy, the Slow Food perspective”*

Slow Food is a global movement involving millions of people in over 160 countries, working to ensure everyone has access to good, clean and fair food.

“The EU should revisit its place in the global economy: Does it need to feed the world?”

“Europe has to feed the World” backs a couple of questions. The EU should revisit its place in the global economy and develop another understanding of the food systems, using new assessment tools. The Slow Food Presidia has set up a model of sustainability assessment including several parameters like development, efficiency, production, energy, local area, biodiversity, culture, external and internal relations. Marta Messa also refers to the report *“Sustainability Now! A European Vision for Sustainability”*, of the European Political Strategy Centre (2016) that analyses the lock-ins and raises awareness on *“the high concentration of livestock in big specialised farms”*.

Purchasing food implies voting for a food system, where local is opposed to intensive farming. Slow Food calls for a radical change in the organisation of production and supports projects and initiatives of people implementing new food systems like medium-scale producers supported by local universities, implementation of circularity on the farm (on farm feed production and reuse of manure, increase of soil fertility). An evaluation from Slow Food of the Carbon footprint of meat in those novel production systems showed -26% less Carbon emissions for meat than in other EU conventional systems. The booklet *« Too much at steak »* explains the challenges and tips in terms of individual people can do, summed-up in: *“Slow meat, eat less meat of better quality”*.

Find the presentation [here](#).

Speaker: Jean-Louis Peyraud, Animal Task Force

Title: *“Animal production, the key in a European sustainable circular Bioeconomy”*

The transition to a circular Bioeconomy is inevitable if we want to achieve a sustainable development and cope with the increasing demand for safe food and for non-food biomass, while making agricultural systems climate and environment friendly.

Animal productions provide protein-rich and safe food bringing several essential micro nutrients with a better bioavailability than in products of plant origin (iron, Ca, Vit, specific fatty acids...). The nutritional assets should be considered when comparing efficiency of production of animal and plant protein. Indeed, we would need larger amounts of crop proteins to replace animal proteins and meet our nutritional requirements.

Livestock contributes to a more efficient agriculture by valorising food-chain by-products thanks to efficient and robust animals adapted to new European feed sources. Feed efficiency assessments should consider animal productions which can maximise the production of human edible proteins, optimising biomass and improving crops/livestock synergies at local and more global level. A simulation of the share of animal proteins in the diet and associated land use shows that we need more land when the proportion of animal products in diet decreases under 15-20%. Livestock is often criticised for the low efficiency of proteins (and energy) production (ref. SCAR 4th Foresight report). But calculations depend on production systems and often overlook grassland, forage, by-products as inedible feed sources.

“Animal productions are essential in an agriculture which serves a circular bio-based economy”

The role in regulating the ecological cycles by recycling biomass from humanly inedible resources and maintain soil organic matter content and fertility, grassland acreage, using manure as a bio-resource is also important. Animal manure is a huge source of carbon sequestration, nitrogen and phosphorus for crop production and of organic matter necessary to soil fertility. But in intensive livestock production systems, manure is often seen as a residual burden rather than a valuable resource and there are significant losses. Soil territories exclusively devoted to crops production have low levels of organic matters, which may partly explain the problem of stagnating yields. A better use of this resource is a win-win strategy that will reduce the environmental impact of livestock farming and imports of energy and phosphorus. Technologies would help improve manure refinement and extract high value ingredients, minerals and energy.

Besides providing renewable energy such as biogas from manure, animal productions offer ecosystem services linked to the vitality of territories, employment in rural area, landscape and biodiversity preservation, cultural heritage. Whether novel foods (rape seed, algae, grass, by-products, insects, in vitro meat...) are an alternative to livestock, it has to be looked at considering the time for innovations to enter market generally.

To conclude, animal productions are essential in an agriculture that serves a circular bio-based economy. Avenues to enhance their role in a circular bio-based economy are: 1/ development of integrated agro-systems approaches (crops/livestock synergies) and new technologies, 2/ development of public policies and market signals to stimulate, promote and support innovations, 3/ Research and innovation, investment and governance.

Find the presentation [here](#).

PANEL DISCUSSION



The panel consisted out of four panelists:

1. Louis Mahy (LM), European Commission, DG Agri – Unit H.5. Research and Innovation
2. Luc Vernet (LV), Farm Europe
3. Marta Messa (MM), SLOW FOOD
4. Jean-Louis Peyraud (JLP), President Animal Task Force

It was moderated by Martin Scholten (MS), WUR with some statements and slides ([link](#)).

- MS **First statement: “A sustainable bioeconomy needs animals”.** A study from Wageningen University showed that a sustainable diet should be composed of a mixture of plant and animal proteins produced in an integrated, circular food production system. Thus eating less animal products is not by definitely better with regards to land and resource use, there is an optimum in the protein transition from animal to plant proteins that offers opportunities to better use plant biomass by livestock in a smart biobased economy.
- LM This is an interesting statement, referring to a hot debate. Livestock can definitely play a valuable role in the bioeconomy: with feedstock based on by-products from agriculture or food; or better valorised grass and herbs in mountainous areas. Also other ways of producing feed can be developed, like insects based on manure and other by-products from the bioeconomy.
- MS According to John Bell, the livestock sector should be a valuable part of a biobased economy and society. The “cascading” approach should lead to prioritise animal food production other uses of by-products. However, it seems that livestock is not fully considered in the bioeconomy, nor integrated on technical and business model level. Some livestock systems are linear (special feed-animal-manure/waste), but R&I has to be done to move from linear to more circular systems based on

efficient use of alternative feedstocks available in the biobased economy and producing valuable manure as raw material for agriculture and the biobased industry.

- LV Talking about efficiency, there is a huge debate on land use and land use change. Main land use changes in EU are not reflecting a competition between food vs non-food use, but food vs forest and buildings. This is in the background of the debate on food systems. It leads to the conclusion that we have to increase the profitability of our food systems, then we can invest in the biobased economy. But above all, we need additional demand for our producers and an economic perspective.
- MM We are advocating for a transition of food systems. If we go vegan, this will be the end of the food culture in EU. Yes, a sustainable economy needs animals, of course. But the question is: what kind of animal farming can make sure the bioeconomy is sustainable? We should avoid setting up mechanisms leading to overproduction of waste and make sure that waste are also reintegrated into the system.
- JLP After the Second World War, Western Europe agricultural development policies have neglected the importance to produce workload and manure. The Bioeconomy enables to recover this evidence. We need to have more regional focus, to valorise diversity and find solutions for different situations. Technologies in biomaterials can help increase the use of biomass.
- Public I'm missing a reference point on nutritional recommendations: I found that FAO recommends 50g of animal proteins per adult per day, which is one third of what we consume in EU.
- JLP Recommendations are around 40% animal proteins in the diet of an adult. Today, Western countries consumption is about 50-60%. 40% animal proteins seems a suitable ratio both in terms of resource efficiency and also for a balanced diet.
- LM Some vegetarians claim they are able to get all the necessary micronutrients from plant products instead of animal products. Proper education on suitable diets and awareness raising among consumers may show reasonable avenues for diet diversification.
- MM Pasture-fed animals provide meat that has higher nutritional values. The nutritional quality of food should be better taken into account.
- Public How to estimate accurately what consumers eat in terms of animal products? How to consider the diversity of European diets?
- MS The two JPI's HDHL (Healthy Diet Healthy Life) and FACCE (Climate Smart Agriculture and Forestry) explore the ways towards a healthy and sustainable diet, knowing that agricultural science and food science have to work together on this perspective. A common denominator is diversity: the diversity of livestock systems to address sustainability, also in connection to a diversity of consumption patterns to address healthiness.
- LM Assessing quantity and how animal products are produced becomes very complex. We should not forget that even if the consumer has a high role, the work has to be done by the livestock sector.
- MS **Second statement: "Animal productions will be reframed. What are the game changers driving the transition?"** 1/ Consumer patterns, trust; 2/ Disruptive innovations in agri-business, variety of new business models; 3/ Future farmers are educated and entrepreneurs; 4/ Care for land, soils and resources, climate change; 5/ Disruptive technologies, big data, NBTs, precision farming...
- Public In what world do you live? The picture shows farmers who seem not to have changed for many years. I'm happy the conference has not been webstreamed, I'm not sure people on the ground would understand. Indeed, farmers had to change, to become entrepreneurs, to live with the end of milk quotas. Treating manure is being done for many years, but it's difficult to compete with fertilisers. We

are now more than self-sufficient in EU, but a growing part of people outside Europe is requiring meat and milk products. We should be careful not to have harmonised and uniform farms. Maybe animal productions will have to be reframed, but not all the systems have to be changed.

- MS “Animal productions have to be reframed”, this is one of the statements we hear in the European arena. We need to support a balanced opinion: negative sentiments against livestock production are false, livestock production is needed to ensure a sustainable food production; that requires innovation, not completion. We want to bring your opinion in the debate of EU policy-makers. Very often, regulation hinders progress and brings in problems in practice. Basic regulations are needed, but uniform prescribed systems are not flexible and do not give room to entrepreneurs.
- LV I’m missing the political will and strategy in your point. “What do we want?” We do not have one single path. How to build a strategy and a policy to develop a market, whatever global, European, regional, or local market? We need a paradigm shift in policy: CAP and EU policies for long have promoted one single model. We need a policy allowing a diversity of models without excluding any. We have the capacity to be present on every single market. But this is difficult to handle for policy-makers.
- LM The question of regulation and uniformity is a big challenge. We should move from a regulation based on practices to a regulation based on results and to open ended regulation that allow farmers to be entrepreneurs.
- MS Innovation supporting regulation is a part of the research required. Innovation in regulation is an essential topic for research as well.
- MM I agree that farmers have been changing, but we need a transition, including a policy providing time, support, flexibility. Many farmers see little flexibility, eg. local food safety regulations are hindered by criteria created for industrial food systems that are not really applying for local farmers. We need to promote and encourage synergies. Innovation is good, but it should be accessible to all.
- MS Farmers are generally distrusted, they need to be retrusted and to get the time to adjust to societal changes and challenges.
- Public Coming back to the original question on whether animal productions will be reframed. I don’t believe reframing will help solve all the problems we observe. We will have productivity increases, efficiency increases, but we have to discuss about the quantity of animal production we want in EU. This is much dependant on whether our sufficient production in EU will be produced for ourselves or contribute to feeding the world.
- MM Reframing is already happening. Local communities are reframing their own production systems, reinventing innovation in their own food systems.
- MS How to connect practice at local farm level to innovation and research at national and European level?
- JLP We should better link Innovation and governance; both can support and stimulate each other. We also need disruptive technologies and social innovation. Today, farmers endorse all the shocks of the food chain. We need to develop better practices and reconcile the livestock sector and citizens. We can involve citizens in research, for example through new initiatives such as living labs, to stimulate open-innovation that may include territorially-suited objectives and pathways.
- Public Innovation adoption is too slow in the EU due to too many barriers for uptake. We need a better assessment system for innovations.
- Public Where to find new entrepreneurs in farmers and to overcome barriers entering into farming?

- MS More and more students choose education in the agricultural and food domain. Initiatives like the Youth for Food Movement may inspire young people not coming from farming parents, to become an active in food production.
- MM One of the big problems is access to land. A higher concentration of land is in the hands of fewer farmers. We are observing many initiatives on the way round and a lot of creative thinking and innovation to address those questions.
- MS **Third statement: “Animal products will be died out in the new Biobased society”.** New food alternatives can replace livestock products in the market, how do you see that future?”
- LM We should not overestimate innovation. And I don’t think animal productions will disapper.
- LV The draft shows a certain vision of innovation, from the angle of the end-product, such as in vitro meat. But we should consider innovation as a much broader topic, including cooperation between actors. In vitro meat is a food product that might be on the market one day, it is not my vision for the world. I can see the EU policy is moving to allow people to choose and develop opportunities. This should allow to switch from a single policy to a policy taking into account diversity.
- JLP We need to think globally and take into account possible drawbacks. I’m not sure we will progress in developing legumes, as we may use even more pesticides. What are the optimal scenarios? We have to define the optimum for our wellbeing and how we can achieve it?
- MS The draft also underlines that technologies have a long way to go into the market in EU. Consumers of the next generation want nature based food.
- Public The point with this slide is: are we pushing our European way of thinking to the rest of the world? The rest of world eats insects, by-products, and wants to move to more animal derived diets. Diversity makes a resilient and robust system. Do not isolate EU.
- MS Wrap-up: do not isolate EU. Animal production is needed for a sustainable food production avoiding food waste, for that: livestock production need to be better integrate in the whole food system. There is room for accomodating game changers with the adoption of innovations. Animal products should de a respected in a European circular biobased society. We need more pathways, using diversity, focus on quality, not in isolation but connected to the big world.

Session 2 – Animal production contributing to a more efficient agriculture and the provision of safe food and various by-products

Speaker: Niccolò Benedetti-Panici, farmer (Italy)

Title: *“A farmer’s approach in regulating the ecological cycles”*

Niccolò Benedetti-Panici is a farmer located at the South of Rome. Main activities: 300 ha crops, conservation agriculture, breeding of 1,300 buffaloes for meat and dairy (short chain and mass retail) and production of renewable energy.

The farm has implemented a virtuous circle, using registration as key to monitor all operations on farm. This provides useful data allowing to understand where margins are. It focuses on careful management practices that lead to higher production and lower greenhouse gas emissions, in particular on animal welfare (a healthier animal provides more kg of fat and protein, generating more income), customised management, precision farming, genetic improvement. The family has chosen to develop short production chains, giving the farmer a lot of independence. Quality products are giving added value and more income to people.

The farm is using organic fertilisation to improve soil bacterial flora, a good amount of organic matter, thus improves soil fertility and cutback in chemical fertilizers. It is associated to an important spreading of biogas digestate. In addition, the farm is producing electricity and hot water from biogas and photovoltaic panels. The biogas is making a productive use of bedding, manure, slurry, discard of food ration, agricultural by-products. One part of this energy is used on farm. In the future, it is considering using solar panels on sheds and stables to produce electricity, harvest rainwater from sheds and stables as irrigation water or to maintain clean pools for buffaloes and cows, and generating hydrogen from photovoltaic panels for use at night (expecting an investment return after 15 years).

Find the presentation [here](#).

“With more than 15 megawatts per day produced from renewable sources, our farm produces 11 times the energy it uses”

Speaker: Josef Pellmeyer, farmer (Germany)

Title: *“A farmer’s approach in regulating the ecological cycles”*

“Worldwide, billions of tons of organic waste are still buried in landfills and are thus lost to the agricultural sector as a nutrient”

The farm includes 38 ha forest (sales of Christmas trees and fire wood) and 186 ha agriculture land (winter wheat, winter barley, maize silage, clover grass, grassland). Livestock farming includes 90 cows, 85 young cattle and females, 65 fattening bulls, 1 breeding bull. Milk production of 9.000 kg per cow per year.

The farm has built a biogas plant for waste (liquid manure from the livestock and waste from food industry), a biogas plant for energy crops (silo maize and grass), a composting plant (garden waste, leaves, wood, bough, shrubs). It is demonstrating those options at international level (Japan). A part of the gas production is sold to the city of Munich.

Applying organic fertiliser (compost) on cropland and fermentation residues on cropland and grassland has increased humus content, resulting in improved soil fertility, water

holding capacity and savings in mineral fertilizers and natural resources. This solution is however more difficult to handle than mineral fertilizer as the flow of nitrogen cannot be precisely monitored. The major disadvantages of organic fertilizers are: low nutrient content per ton of green mass, high application costs compared to mineral fertilizers, soil compaction due to the use of heavy transport vehicles. About 75% of the nutrient from composting and biogas plant for waste are sold to other farms having no livestock fertilisation.

Joseph Pellmeyer is in the opinion that the organic waste should remain in the cycle of the agriculture farms management, in order to bring back the corresponding nutrients and humus loads into the circulation. Worldwide, billions of tons of organic waste are still buried in landfills and lost to the agricultural sector as a nutrient.

Find the presentation [here](#).

Speaker: Mr Ruud Tijssens, President of FEFAC, the European Feed Manufacturers

Title: “Reducing the “feed versus food” competition: valorising food-chain and biorefinery by-products”

Ruud Tijssens introduces shortly FEFAC, representing the animal feed industry. This industry is necessarily close to the farmers, nutritional requirements being at the interface of feed ingredients and nutrition. Fifty percent of EU-28 feed industry is composed of primary crops, all other products are secondary products (co-products from food and bioethanol industries, cakes and meals, oils and fats, minerals, additives, vitamins, dried forage, pulses...). But the economic value of primary and secondary products can be very different. Animal nutrition science aims to discover the feed value in the unconventional, like brewer’s grain, Dried Distillers Grains, citrus pulp... Its role regarding circular economy is thus quite obvious, with a primary function focusing on increasing nutrient efficiency to reduce the losses. We are at the forefront of a new quantum leap in the feed conversion ratio. A healthy animal is an efficient animal, we have to reduce feed conversion.

“In a circular biobased economy, the new frontier is former food stuffs, the food industry by-products.”

In a circular biobased economy, the new frontier is former food stuffs. This is not what is ending up in the waste bin. They are unintentional and unavoidable food, eg. broken cookies, chips, changing recipes for different markets or incorrect packaging, seasonal products removed from the human consumption market. They provide very high nutritional value raw materials suitable for animal feeding, mainly pigs. But their use as feed ingredients raises a certain number of issues like risks and their predictability. But regenerating former foodstuffs into feed is costly and needs financial incentives. In terms of research, we need to identify nutritional and risk profiles of potential new feed ingredients like insects, algae and increasing the efficiency and

effectiveness of feed ingredients use in terms of reduction of GHG emissions of the livestock sector, reduction of nitrogen, phosphates, veterinary medication through new animal nutrition strategies. National legislations are not yet harmonised on former food stuffs.

Take home messages are: 1/ feed and food are complementary, not competitors; 2/ safety is a key driver to understand possibilities and risks; 3/ feed outlet should never be a disposal route; 4/ Innovation is needed.

Find the presentation [here](#).

Speaker: Beate Kettlitz, Director of Food policy, science and R&D, Food for Life Technology Platform

Title: *“Animal products providing protein-rich and safe food for humans”*

Beate Kettlitz is working for FoodDrinkEurope, the European branch organisation of the food sector and for the European Technology Platform (ETP) “Food for Life”. The food sector is the biggest employer in EU, with a huge turnover, heavily dominated by small and medium enterprises (SMEs). The EU branch is gathering membership from 20 big companies, 25 national federations and 27 sector associations grouping SMEs.

“We will not become all vegetarians!” Meat and dairy source products represent 25% of employments and a turnover of 34% of the total EU food sector. Animal source food provide essential nutrients with high-bioavailability: iron, Ca, vit. B12, Zn”. They will continue to play a high role.

Food for Life has developed a 2016 Strategic Research and Innovation Agenda (SRIA) aiming at the 2nd half of Horizon2020. The consultations have associated 50% industries to identify pre-competitive research items oriented to innovation and bring more multidisciplinary. It has produced a vision for food systems by 2030 and analysed current trends in consumption. It shows that European markets are moving from collective to individual demand in a more flexible, dynamic and sustainable food system where consumers play a more active/dominant role, increase their engagement/involvement in consumption. This implies a radical change from collective classical industrial food supply routes to a more personally-relevant and customised food supply, from mass marketing to personalisation and customisation. This create huge challenges for the industry and a need for precompetitive research. Some consumption patterns will require a closer collaboration between the primary and secondary sectors, improved anticipation and understanding of consumers needs. The ETP has identified priority measures on each new R&I target:

- 1 - Increasing the engagement and involvement of consumers: we need a realignment of consumers and the food chain. Consumers have a voice, we should promote what we are doing, look into new communication pathways and find how to regain trust, like by bringing people to factories to show what we are doing.
- 2 – Providing the basis for a more personalised and customised food supply: laboratory science and social sciences approaches will help understand consumers’ behaviour and interaction of food with our bodies. Diversity is a major trend, with completely different eating habits.
- 3 – Developing a more flexible, dynamic and sustainable food system: exploration and use of new sources for sustainable, safe and healthy foods.

Find the presentation [here](#).

*“We will not become all vegetarians!
Animal source food provide essential nutrients with high-bioavailability: iron, Ca, vit. B12 & Zinc”*

Speaker: Cécile Crespel-Darcet, Environmental division, Cooperl France

Title: *“An example of circular bioeconomy in the pig industry”*

Cooperl Arc Atlantique is a French pig production cooperative with activities at every step of pig production highly concentrated in Brittany region: from farming, building and equipment, producer groups, animal nutrition and feed procurement, meat industry, curing industry to retail... The environmental strategy started to adjust to strict environmental regulations on manure spreading in fields. New technologies, such as a technology to collect manure under pigs, were developed to create added value to compensate the cost of environmental measures. The company has set up a pig manure valorisation chain (producing high standard

“The central position of Cooperl has allowed to set up a business model and share costs, constraints, benefits between the farmers’ and industries”

fertilizers from pork by-products, manure by-products, slaughterhouses slurries), an industrial and farm by-product valorisation chain (producing renewable energy and added value products like petfood and aqua feed ingredient, smell management, recycled water...), and smell management from farm and industrial products.

This has been possible thanks to a strong integration and complementarity between pig industry and farms. 80% of industrial heat is produced out of biomass. 60% of the waste water is recycled and used for external use and non-food industry. In addition, the company will soon establish a biogas plant that will partially feed Lamballe city. The central position of Cooperl has been a solution to control costs, stay independant and comply with sanitary regulations by setting up a business model and

share costs, constraints, benefits between the farmers and industries... resulting in a pig industry and farms with almost zero environmental impacts!

Find the presentation [here](#).

PANEL DISCUSSION

The panel consisted out of four panellists:

1. Niccolò Benedetti-Panici (NBP), farmer
2. Ruud Tijssens (RT), President of FEFAC, the European Feed Manufacturers
3. Beate Kettlitz (BK), Director of Food policy, science and R&D, Food for Life Technology Platform
4. Cécile Crespel-Darcet (CCD), Environmental division, Cooperl France



It was moderated by Martin Scholten (MS), WUR with some statements and slides ([link](#)).

MS **First statement: “Is there a “Feed versus Food” or a “Feed versus Fuel” competition or nexus?”**

RT It is too simple to speak about feed versus food versus fuel. If you really want to benefit from the bioeconomy, you need concentration to scale up and allow for investments and professionalism, eg. In former foodstuff. Note that technology development is just starting in the European bioeconomy.

MS The biobased society will need a lot of biomass. Will it generate a scarcity for feed?

RT Sure. We have to find solutions.

MS Niccolò Benedetti-Panici, what is the perspective for farmer to act in a biobased society?

NBP My farm is already implementing closed cycles. But the farms that are not able to use most of the by-products should be supported in a transition towards less waste of raw materials.

MS For a farmer, does the biobased society imply new business relationship with suppliers and buyers? Italy is among the front runners in the biobased economy, with the emergence of local food clusters. Do you see if new alliances are building up with new biobased companies?

- NBP Yes, it offers new opportunities for cooperation between industries and farming. Yes, but the by-products market is not linear, it needs to be supported to be better implemented.
- MS Cécile Crespel-Darcet, what can we learn from your expertise in terms of cooperation with farmers?
- CCD We are a cooperative, our goal is to make our pig farmers have a living. We want to create opportunities to help our farmers to develop, eg. we see some on microalgae. We have to be clever, find new ideas and new sources of revenue. In Brittany, there are a lot of biogas projects, a lot of competition for feed and waste, there is sometimes not enough biomass on the territory.
- MS The food industry is usually seen as a buyer from the farmer. This afternoon, it is seen as the supplier to the farmer. Biomass is broad, there are a lot of competitors. How to implement a cascading and “food first” approach? Each actor has a place, in a biobased society, new alliances are needed. We have close cycles at farm level and locally, but also need larger scale cycles. The food industry bringing former food to the feed industry, the feed industry feeding back the primary sector and then the food industry.
- RT There can be a consumer’s demand for regionally-produced products that you have to deliver. The discussion about the circular economy maybe partly dangerous and have consequences on the environmental footprint. We should be much aware of the possible consequences, produce products in the place where there is an optimum. The EU needs a food security and feed security strategy.
- CCD At regional level, food should come first, but some solutions cannot be applied everywhere. We see some croplands are now used for energy instead of feed.
- NBP From a farm’s perspective, it’s not easy to understand what is right or wrong, nor what is the impact of the local production of crops for energy vs transportation to other countries. The more farmers will be independant, the more the cycles will be ecological.
- RT Food security, feed security, fuel... we have to let the economy work, be careful with incentives that disturb that too much.
- Public Cooperl is perhaps enjoying economies of scale. Are there some problems in linking the different sectors? Is it the economy that makes the links between the sectors?
- CCD Yes, at the beginning, environmental measures were the key drivers. Pig farmers were paying to use the system. 5 years ago, we implemented a big change by searching new opportunities for a better system that is profitable. Of course, this offers huge economies of scale. Our motivations have also changed: 10 years ago, environmental measures were seen as a constraint, now they are really a source of income. We have gained in expertise.
- RT Key is to implement first the environmental regulation you have to fullfil. If you are in an environmental hot spot, you have to get rid of it.
- MS ***Second statement: “Animals produce more than healthy food, but also organic material that’s is important for soil quality and a wide range of ecosystem services associated to that (biodiversity, plants, microbes, animals, air, water, minerals) from which human being do benefit... is it something that can be seen as and turned in commercial production?”***
- NBP A farm should support ecosystems.
- MS Solving a societal problem can generate a new economy. Is a contribution to the biobased society something you have in mind when thinking about ecosystem services?
- CCD Yes, note that we are also working on reducing the use of antibiotics.

- MS Beate Kettlitz, in the food industry, how do we consider non-food services of animal productions?
- BK In food systems, you have everybody. Having everybody can guarantee food security. Business operators can make profit when a new system is introduced. If we do not invest in this, our reputation goes down. It will not automatically mean higher prices. If we invest, this creates a segment for higher prices and quality products.
- RT What are we doing to produce food and have mankind to survive in the long run? FAO relates billion of people are living by producing food. We are all aware of ecosystems importance. But there are limits to what you can ask to industries, they need incentives and governance.
- Public How to maintain vital rural networks without farmers, especially livestock farmers? When there will only be big fields of crops, we will have less life in villages. Vital rural networks mean jobs in mechanics, schools, life in villages and rural areas, recreation and tourism. How to maintain this without animal productions? Seven years ago in Netherlands, it was decided to make an attraction park to demonstrate to city people that farmers are gardeners of the landscape. If farmers disappear, will processors stay? I don't think so.
- MS John Bell mentioned the food industry is number one in the EU, and Beate Kettlitz emphasised the importance in terms of employment.
- CCD We have to improve our environmental and health footprint, our competitiveness, and this may have positive impacts on rural networks.
- NBP We have only 2 employees on the field in my farm. We work in cooperation with other farms and via a cooperative, direct sales are also able to maintain a vital rurality and keep people live in nature.
- .
- JLP In its White Paper, the Animal Task Force has considered livestock as key for the vitality of EU territories and our economical and social systems. We need livestock not only in intensive areas (employment), but also in more marginal areas (note that nobody can leave in forests).
- MS It seems that livestock is playing an important role in the biobased society.
- MS **Last statement: “Animals are key in circularity”.**
- BK It's clear that animal productions have an important contribution. But I want to see the role of the different players. In plant proteins, we never have retailers, whereas they may play an important role.
- NBP How to close the circle without animals? Animal productions are not a problem if everything is done in the right way, provided that there is cooperation. This morning, Luc Vernet was mentioning the huge demand for meat from outside Europe. We should participate. Marta Messa had a different view, saying we should first produce safe products and high value of sustainability and cultural respect. Both models can live together without any problem.
- CCD Consumers and citizens are a key point for circularity. We are working in animal productions, we know what we are doing, we can produce safe food with low prices. We have to communicate better, there is a huge step between all efforts done and the consumer's perception. If we want to have a loop that is working, the consumer has to understand what is done at production level. We have to regain trust. But how to communicate? It is not easy.
- MS Value of food and circularity, we learnt this morning from John Bell that this is one of the pillars of the FOOD2030 strategy. This is new and important to realise for people working in animal productions.

- RT Animal production farming has a legitimacy, they have a social function in EU and abroad. In the graph made by Prof. De Boer on the use of land and marginal land, we see a logic for this legitimacy. Animal productions are key in circularity: former foodstuff should be better used as feed instead of incinerated, which increases CO2 emissions. In addition, the EU has a dependency in rock phosphate. We could find some savings in efficiency increases and in the application of manure. We often lose phosphate. In certain regions, we do not know how to use manure. Animal productions play a key role that has to be balanced vs food, feed, fuel productions.
- Public How to educate the consumer? In the Netherlands, there has been a tradition to teach kids in elementary schools on how cheese is prepared. In addition, with migration of people and animals, we see emerging pathogens, which is a big issue.
- BK 10-15 years ago, we had huge microbiological problems in plant-derived food. This situation has changed. Education at school can help. People do not know what efforts are done in farms and industries. We are not good enough to communicate to the outside world and we should also better deliver the raw material needed.
- MS This is actually the “antimicrobial resistance week” in EU. We can be proud that animal productions have reduced the use of antimicrobials.
- Public Today, I heard a lot on communication, environmental performance livestock systems, but I’m missing scientific production on how modern animal productions can be sustainable.
- MS Scientific papers exist, but they are not as much referred as papers produced by food scientists in the media. I fully agree that the efforts of Animal Task Force have to end up with coherent publications of studies that can underline the sustainability of modern animal productions.

Conclusive remarks

Speaker: Jean-Louis Peyraud, Animal Task Force

Circularity may create added value at different stages. A circular bioeconomy may reinforce the links between crops, livestock and soil. We should reinvent the link between animal productions and the society.

Looking at **different scales**: at larger scales, we need public policies; at local scale, food systems also exist and new technologies can help (consumption via internet).

We need **safety** for production systems and for food.

Diversity of production systems is bringing a part of the resilience of the sector globally. Diversity of food, different habits, cultural heritage, we need food diversity, including in the way to produce food.

Rural vitality should be preserved, and animal productions may be a key lever, but it needs incentives.

Animals are also able to produce proteins with parts of plants that are **not edible** for humans to avoid competition between feed and food.

The Animal Task Force has produced a Second White paper including suggested priorities for research and innovation and wishes to bring a more holistic and comprehensive picture of the roles of livestock.