

Food integrity in the food chain: How can the animal production sector contribute?



Animal Task Force & EAAP Special Session
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EAAP Annual Meeting 2017 - Tallinn, Estonia

Session report

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The EAAP and Animal Task Force (ATF) Special Session during the EAAP Annual Meeting aims to bring together animal science with practice of animal production and connect researchers, policy-makers, industry representatives and societal organisations. Every year, a different topic is addressed in this half-day session. This year, with the topic “**Food integrity in the food chain: How can the animal production sector contribute?**”, we want to address the expected and possible contribution of the primary sector, in collaboration with the whole food chain, to support the animal derived food quality approaches and integrity.

Background

The demand, consumption patterns, consumers’ engagement and perceptions of food are **changing and diversifying**. A growing part of consumers become more interested in how their food is grown, processed and brought to market. The consumption of meat and dairy products per capita is decreasing in most European countries, with differences according to countries and species. This consumption may decrease even more as a consequence of the development of radically new technologies (e.g. cultured or vegetable “meat”, vegetable “milk”, insects...) as affordable alternatives and new consumption patterns (e.g. flexitarianism...). Besides a main stream, we see an **increasing segmentation of the market**.

While safety issues remain a priority, the market needs products with new characteristics/qualities and products better suiting the requirements of specific populations (pregnant women, young children, seniors, people experiencing intolerances or allergies...). Beyond the nutritional and organoleptic qualities (“**intrinsic value of food**”), other criterion such as environmental footprint, animal welfare or the production of public goods (open landscape, image of naturalness...) are determining consumption choices. This is also called the “**extrinsic value of food**”. Facing such new challenges and the necessity of attain added value from the export of animal products, food processing companies are now starting to develop husbandry guidelines for the supply chain.

A greater **focus on animal derived food integrity (safety, authenticity and quality of products, but also their extrinsic value)** is needed to **secure Europe’s role as a leading global provider for safe and healthy animal derived products and help European food systems earn consumer trust**. New efforts will require highly inter- and trans-disciplinary cooperation, systems and multi-actor approaches and major contribution by social sciences and humanities to find new tools and innovations along the food chain to improve quality and sustainability of the food systems, understand consumption patterns and consumer preferences.

Taking stock of the preparation of the EC-FOOD2030 strategy, during the year 2017, the Animal Task Force would like to engage a dialogue between farmers, industries, stakeholders from the primary sector and from the food chain, along with decision makers, scientists and citizens to provide input for public policies and contribute to dialogue and communication in order to support the construction of animal derived food integrity.

Aim

The Special Session aims to contribute to:

- Give insights on **changes in consumption patterns** and on the growing demand in terms of **intrinsic and extrinsic qualities of animal products**;
- Address **how research and innovation can help the livestock sector contribute to food quality and integrity**;
- **Engage a dialogue** between research, farmers, industry, decision makers, stakeholders from different backgrounds and citizens;
- **Provide input for public policies** if we want to secure Europe’s role as a leading global provider for safe and healthy animal derived products.

The outcomes of the session will be discussed in more details during the ATF seminar, in Brussels, on Oct. 26th 2017, where a large panel of European stakeholders will be invited.

Programme

14:00 Welcome and introduction

Jean-Louis Peyraud, ATF President & Matthias Gauly, President EAAP

Expectations from public policies

14:15 Diversifying consumption patterns

Ellen Goddard, Professor, University of Alberta, Canada

14:30 Vision in human nutrition

Nathalie Kerhoas, Director, Bleu-Blanc-Coeur

Expectations from the industry as of intrinsic and extrinsic qualities of animal derived food

15:15 Vision from the processing industry

Frédéric Chausson, CEO Sodiaal

15:30 Vision from the retail industry

Benoît Rouyer, Economy & Territories Director, CNIEL

15:45 Coffee break

16:15 A farmer involved in intensive production under a partnership with industry

Christian Fink Hansen, Sector Director, SEGES

Panel Discussion

16:30 Panel Discussion – moderated by Vivi H. Nielsen, ATF Vice-President with all speakers and audience

- *Are we moving to more differentiated products?*
- *How can research and innovation help the livestock sector contribute to food integrity?*
- *What are the business models and tools to improve food integrity and share added value in the food chain?*

17:45 Closing

Jean-Louis Peyraud

Welcome and Introduction

The ATF Chair Jean-Louis Peyraud opened the ATF & EAAP Special session, by introducing the goal of the afternoon, introducing the Animal Task Force, and outlining the programme. The session was introduced by EAAPs president, Matthias Gauly. About 100 participants were counted.

The Animal Task Force (ATF) promotes a sustainable and competitive animal production in Europe. We are a public private partnership of experts from knowledge institutes and industry representative organisations from across Europe. We work closely together with EAAP on setting the European agenda for research and innovation in the animal domain.

For more information: www.animaltaskforce.eu

Expectations from public policies

Diversifying consumption patterns: consumers and meat

By Ellen Goddard, Professor, University of Alberta, Canada

www.ualberta.ca @EllenGoddard1 @UAlberta

Ellen Goddard is Professor, Co-operative Chair in Agricultural Marketing and Business at the University of Alberta, Canada. Research on public policy, consumer behaviour related to food. She is a member of the Canadian National Steering Committee on Public Trust in Agriculture. Ellen Goddard is involved with a lot of research about acceptance of technology in livestock products. She also works almost exclusively on consumer public attitudes and desires and looks at market level implications.

Besides the FAO projections of a global long term trend of increased meat consumption, we see declining trends of per capita consumption of meat in some countries like US, where meat has disappeared as a major focus in some consumption habits. The meat industry has been responding to a demand for quick energy by developing products addressing a demand for snacking and convenience. Competition is coming from meat substitutes like pulses (India, Canada...), insects, or even “vegetarian butchers”, addressing health and environments drivers. Google searches on the words “vegetarian”, “vegan”, “flexitarian”, “reducetarian” show growing trends worldwide, confirmed by the share of new food products launched in the vegetarian and vegan spaces in some countries. Some alternative products are invested by meat companies. From plant based meat, the offer is enlarging to cellular meat. The “Beyond Burger”, or “animal free meat”, raises the question whether plant based products or cellular products should be called meat.

In Canada, traditional drivers of meat purchasing remain freshness, product flavour, product tenderness, food borne disease, price, leanness, colour... But animal health and welfare, sustainability of production are of increasing importance, paving the way for a plethora of labels and certifications. In US, Canada, Australia, UK, the willingness to buy is increasing with some types of certifications like organic, labelled food, showing different types of concerns according to countries. In Netherlands, UK, dietary guidelines encourage to eat less meat. In China, as they expect people to double their consumption, they are encouraging the population to decrease their meat consumption by about half.

“There are so many issues related to meat consumption that consumers often look for heuristics to combine them”.

[More information in the slideshow](#)

Questions and answers:

Public: Most of the presentation is on meat products, are those trends specific to meat? What about other animal products?

EG: Dairy trends are similar in lots of ways. In Australia, the dairy industry has much problems. The same with fish: Canada has been first country to have GMO fish products for sale. But the industry did bad, it did not label.

Public: Which country will drive the global consumption of animal productions?

EG: The main region will be Asia, China and India will be the major consumers of animal protein. India is investing in a lot research to come up with substitute products and discourage the consumption of meat in dietary guidelines.

Vision in human nutrition: Bleu-Blanc-Coeur approach

By Nathalie Kerhoas, Director, Bleu-Blanc-Coeur, France

www.bleu-blanc-coeur.org @KerhoasNathalie @BleuBlancCoeur

Nathalie Kerhoas is Director of Bleu-Blanc-Coeur. Bleu-Blanc-Coeur is a French farming association gathering farmers, producers, consumers, doctors, health specialists, opinion leaders, chefs... It aims to support farmers in changing their breeding and animal feeding practices and organising a food chain with improved nutritional and environmental quality animal derived food.

The current consumers are seen as more connected, be willing to understand and sensitive to animal welfare, nutritional density and quality, but also looking for social link and transparency. The most frequent response from the market is to provide substitution or “lack of” (GMO, gluten, fat...) products.

Bleu Blanc Coeur wants to provide a positive response to improve nutritional quality of animal products. It has collected science based information that demonstrate that animals can convert protein of poor quality into protein of good quality. From a human health perspective, some clinical studies comparing vegetarian, and omnivorous diets show that avoiding animal products in the diet can be detrimental to human health, provoking allergies, cancers and mental illnesses, pointing the determinant role of animal products as a source of B12 vitamins. Together with INRA, Bleu Blanc Coeur has demonstrated that the nutritional and environmental quality of animal products can be improved via animal feed enriched in Omega 3. This strategy has not only a positive impact on animal health, on human health, but also on CO₂ footprint. A communication strategy involving farmers, producers, consumers, doctors and health specialists, chefs... provides a reassuring guarantee to the consumer.

[More information in the slideshow](#)

Questions and answers:

Public: Which methodology do you use to calculate the environmental impact?

NK: The methodology of measurement is based on French and United Nations methodologies on GHG, fatty acids of meat and LCA analysis.

Public: Where do you buy your linseed used as feed? Do you rely on imports?

NK: We want to foster self-sufficiency. Our linseed and grass are produced in France.

Expectations from the industry as of intrinsic and extrinsic qualities of animal derived food

Vision from the processing industry: Sodiaal

By Frédéric Chausson, Director of cooperative development Sodiaal, France

www.sodiaal.fr

Frédéric Chausson is director of the Cooperative Development at Sodiaal. Sodiaal Union is the main French Milk Cooperative with about 13,200 members, spread out the French regions, 4,8 billion liters of milk collected (main brands: Yoplait, Candia, Entremont...). The main strength of Sodiaal relies in the diversity of its Coops members and products on the market, with fresh milk and about 17 cheeses under DOP.

Their vision for tomorrow is that we are living a revolution, moving from “One Milk” to “My milk”, allowed by smartphone and the revolution in digital technologies. In the future, the consumer will choose which milk he/she wants to consume.

Sodiaals’ milk is structured into a pyramid of several layers. The basis is made of “La Route du Lait connected”, for everybody. Then, options are offered to the clients: “Regional milk” (mountain, DOP...), then “pasture milk”, then “GMO free”. GMO free milk is not a concern for the moment among French consumers. But as German retailers have asked their national industry to produce a GMO free milk, 50% of the German milk is now GMO free, meaning that Sodiaal will have to align. At the upper levels of the pyramid, come “Omega 3, Bleu Blanc Coeur”, and at the top, “Bio” or “Organic” milk. The bonus for farmers is growing along this pyramid. “La route du lait connected” includes 3 steps of improvement, with an external audit. In the future, it will be replaced by a self-assessment, supported by incentives in order to improve transparency and reactivity. Animal identification, health, feeding, milk quality, animal welfare, environment and sustainability issues are included in the basic milk.

[More information in the slideshow](#)

Questions and answers:

Public: Are we moving to more segmented animal products?

FC: We see an increase of the diversity of demands. Sodiaal wants to address more diversified expectations. We observe the same trend in other industries, like cars. This is an on-going trend in the business.

Public: What about animal welfare in “La Route du Lait connected”?

FC: Animal Welfare is included in a Charter of Good Practices (including cleanness of barns, lightness, health prevention, etc...).

Public: How to manage a large diversity of products and productions?

FC: This is a very new and huge question. If we compare to cars industries: should we continue to have big plants or invest in smaller plants? Car production is moving to more flexibility. Sodiaal has more than 70 plants in France. We now considered it as a strength as more flexible towards consumers expectations.

Public: How to ensure the origin of quality as cooperatives?

FC: We are considering a group of farmers.

Public: “My milk”: how to decide what kind of milk is good for people?

FC: In front of shelves, we see a multiplication of products. We will propose new products to consumers, and test them directly on the market.

Public: Are farmers ready to take part in such a system?

FC: This is a matter of incentive. When farmers say “*The consumer will not tell us what we should do*”, we tell them they have to address the demand.

Differentiation strategies in the dairy industry: focus on retail

By Frédéric Chausson, replacing Benoît Rouyer, Economy & Territories Director, CNIEL, France

www.maison-du-lait.com/fr/les-organisations/cniel @cniel

Frédéric Chausson is replacing Benoît Rouyer, “Economy and Territories” Director at CNIEL. CNIEL is the French Dairy Interbranch Organization and was created in 1973 by producers and processors to facilitate their relations and promote the image of milk and dairy products.

The price of dairy products has been stagnating in France since 2018, showing that value creation via supply differentiation has become vital for the sector. We see two main types of differentiations: public and private initiatives, and different types of private initiatives: some on animal welfare (grazing, livestock farming practices...) or cows fed without GMO with hay (Eastern part of the EU: Germany, Switzerland, Netherlands, Austria...), some on regional, joint initiatives with the upstream, proximity with the final consumer (like in France), or on nutritional / health issues (Danone, Bleu-Blanc-Coeur).

In France, many regional/national or joint initiatives with the upstream are developing. Among them, the most interesting initiative is “*C’est qui le patron?*”, or “*Who is the boss?*”. Before processing the milk, consumers were asked on a website “*What do you want in your milk?*”. Answers were mainly: fair value, pasture milk, local feed, non GMO products and readiness to pay a bonus for the product. On the market, the bonus is impressive: around 0.3 euros per liter. This has become a real success, the trend is very active. The head of the initiative said this was the end of marketing.

On cow feed, we see an interesting differentiation initiative on GMO free feeding, driven by retailers: LIDL has launched the trend, other retailers have followed, resulting in 50% of the drinking milk in Germany without GMO feeding. On animal welfare, Germany is far beyond France, with public certifications, claims on the product.

[More information in the slideshow](#)

Questions and answers:

Public: Where does this end? What about milk with no antibiotics, no soya, no dehorning, etc... If you offer the choice, how to get value from your milk?

FC: This is the big issue. I do not know the answer. The GMO free milk example is interesting. In France, nobody wants it at consumer level. But once a processor agrees to deliver, others have to follow. We need to collectively share a vision, otherwise, in the mess, the more flexible business will take advantage of the situation.

Public: Asking what consumers wants is also marketing. Very often, background assumptions of consumers are based on opinions.

FC: CNIEL has financed many surveys about trends and dedicates a large budget on promotion. But the trend is a drop in consumption in drinking milk: the consumer belief currently *"milk is not good anymore"*. NGOs are not aligned with people in this room.

Public: The competition is very hard among retailers in Germany. Animal welfare is still lacking some objective criteria. This situation is induced by competitors, not consumers.

FC: This is a tough battle. To fight with this trend, you have to be collectively strong and based on science.

Public: We also need to export commodities. How to manage?

FC: What is a commodity? There is no commodity anymore. Now, even on the Chinese market, we see a demand for GMO free products. All large companies want to be Carbon neutral by 2030, they ask their suppliers to comply.

A farmer involved in intensive production under a partnership with industry

By Christian Fink Hansen, Sector Director, SEGES, Denmark

www.seges.dk/en

Christian Fink Hansen is Sector Director at the Danish Pig Research Center, SEGES, financed by Danish pig farmers. This center is responsible for research and development programmes and knowledge transfer to the Danish Industry.

The decrease in meat consumption that we see worldwide is also present in Denmark. A majority of the Danish production is exported. What is critical to get is a "License to produce" in a situation where home prices are always better than on exports markets, where the competition is tough. The Danish production is divided into two standards: the "Standard pig", representing more than 95% of the market, and "Special brands" with less than 5%. In the standard pig, price is the main driver. Volumes, incomes and employment are higher, products and even piglets are exported. Under "Special brands", producers invest for a license to produce to get acceptance by society. There we see the development of new markets, pertaining added value and cost, home market oriented. "Organic" and "raised without antibiotics" pigmeat are exported. The differentiation creates the willingness to pay for higher standards.

A pool among Danish consumers on the willingness to pay for food that promotes a high level of animal welfare shows that those products are very often too expensive, the labelling is not understandable or consumers cannot afford them. At present, the key parameters to define good animal welfare are not clear to consumers and we still need science in this field. The Danish market implements 3 national levels, ranging from 1 heart (+20 % cost) to 3 hearts level (+100% extra cost). Raised without antibiotics is a megatrend. In the near future, environmental impacts (GHG emissions) will be an important factor to take into consideration. Innovation, science based information and multi-stakeholders approach will be essential in the future to find market opportunities.

[More information in the slideshow](#)

Questions and answers:

Public: Animals raised without antibiotics is a megatrend driven by the US, now taking place in EU. How to fortify animals?

CFH: Separating animals in smaller groups allows good success rates.

Public: Is piglet mortality considered in animal welfare criteria?

CFH: Total piglet mortality is 21.3% in Denmark

Public: In the near future, EU will ban castration of pigs. Have you found a solution to that issue? What is the latest status of research?

CFH: Immunocastration and anesthesia pose the problem of public acceptance of technologies. In the short term, we will use anesthesia and see if we could get market acceptance for this sort of technology.

Panel discussion

The panel consisted out of four panellists:

- Ellen Goddard (EG), University of Alberta
- Nathalie Kerhoas (NK), Bleu-Blanc-Coeur
- Frédéric Chausson (FC), Sodiaal
- Christian Fink Hansen (CFH), SEGES

Vivi H. Nielsen (VHN) moderated the discussion and opened the panel session with a slide [-link](#).

VHN: First, do we see some specific trends related to the demand for animal products?

EG: Commodity livestock industry products is history, because of the complexity in solving environmental issues, animal welfare issues, that led to differentiated products. The non-consuming public is often pushing harder the political agenda (e.g. eggs from cages in California). People have valid concerns about food and limited time to look at what they should buy, they need to find the information more quickly, looking for products reflecting their own values. There are apps in the US asking you what your priorities are.

CFH: In Denmark, one of the major retailers said they would stop selling cages eggs within 6 months. This forced the entire Danish retail industry to ban cage eggs. Market driven animal welfare is very strong, which is much better than legislation. In Australia, quick transformation in pork industry from confinement into loose systems in just 5 years. It took 20 years in Denmark.

- FC: The most important megatrend is “It’s now or never”. The speed of transformation is huge. The second is “Personalisation”. Big players on the internet, like Amazon and Alibaba, will change the way we buy our food. “Transparency” is another megatrend. Has we got the choice to be transparent. I don’t think so. We have to open our farms and plants. We need to train people to social communication, invest money in science and use collective approaches, in front of people on social media who become very aggressive.
- NK: We have to offer an individual benefit to consumers. While they may face difficulties to choose between animal welfare and sustainability, they will find easier to choose a benefit for themselves. The capacity for people to measure the nutritional quality of products will come with new technologies (infrared, spectroscopy...). Science has to work on the measurement of products quality.
- Public: Looking at the complete value chain, we are all (feed compounders, etc...) squeezed between big commodity suppliers at the one hand, and retailers at the other end. In this situation, it’s difficult to make margins.
- Public: Scientists make decisions on the basis of data, not consumers. What we need is social engineering and social sciences to help us communicate, teach, educate. We are not addressing issues correctly if we want to produce data only to feed our arguments.
- VHN: We need to know the drivers that push the development of the trends influencing the consumer - : are they coming from research, NGOs, public authorities, doctors, sales parameters in retail...?**
- Public: As a scientist in this room, I am also a consumer.
- EG: Retailers aim to differentiate themselves to attract a new market. We all agree that transparency is critical. But the more transparent the industry will be, the less convinced the consumer will be. Things looking common sense to agricultural professionals are not understood by the general public. We see for example we need a discussion now on vaccination, now facing less acceptance.
- NK: We have created communities of livestock farmers, chefs, consumers in order to showcase the work of professionals and explain how our products are processed.
- FC: Concepts brought by social engineering are interesting: young people are making their opinion using media, videos posted on YouTube. Being squeezed in the chain is not original, it’s a matter of bargaining power. Some consultations in the industry show that investment in innovation allows to get more added value. Like in the beer sector, on the way to big differentiations. It will be the same for butter and dairy products.
- Public: No doubt we have to make our food integer, preserve animal welfare, produce in a sustainable way and fulfil minimum standards. But when we talk about products differentiation, on the one side we have to listen what consumers are saying, on the other to what retailers are saying. And in the framework of the next CAP, farmers will trigger to get a revenue from the products. The issue is how to decrease the gap? How do we educate consumers? I’m blaming the total livestock industry not to join forces together with scientists to address the general public’s mis-conceptions.
- FC: I agree with you. In the French dairy sector, the CNIEL is dedicating an annual budget of 40 M€ aiming to develop pre-competitive surveys to promote the dairy business. On GMO, there has been a consensus inside the CNIEL community not going to “GMO free milk”. The problem

occurred with competitors leading the market coming up with GMO free claims, Lidl asking providers to GMO free products...

CFH: Education and be transparent are important, but the market always wins.

EG: Fairness may be facilitated by new technologies.

Public: Mega stables raise concerns: consumers are worried by the way we produce, hence you have to address what is the license to produce in the place you have your farms.

FC: The issue of "license to produce" is important. Look at France, where a unique 1,000 cows farm, established by a successful businessman has generated a public scandal, as big farms in France are not usual.

Public: It is also difficult to show the downsize of the farms, when there is a dead cow, or when it is sent to the slaughterhouse. Transparency is important but being too much transparent opens to controversies. Social media promote headlines, bad stories, fake news.

FC: Transparency includes emotions.

NK: Bleu-Blanc-Coeur organises the communication on social networks. NGOs are very good at it.

JYD: Are we moving to more differentiated products? The production is already differentiated. What is new are the criteria for differentiation? Connection between producer and consumer is also different. Improving the connection with consumers is very important.

VHN : How is the segmentation of the consumers? What fraction and which parts of the population demand increased segmentation of the ,market?

CFH: Fake news, as scientist, we have to communicate science better. In DK, we call KKK "critical women in Copenhagen, a pretty small part of the population is driving the debate (around 10% of the population) on sustainability, animal welfare.

Public: I'm from the dairy industry in Finland: we are changing as consumers, also in the way we teach our children.

Public: In Norway, we have improved productivity and efficiency so much, that the price of food has decreased a lot (we spend 11 to 20 % of our income on food, which is much lower than before) leading to several scandals and side effects of those improvements in efficiency. In reaction to an extreme development, we see a growing demand for values, products produced in a slow way.

FC: We have to be modest, there are fashions. 10 years ago, we used to say that butter was unhealthy. Now, it is back on top in nutrition recommendations. We have invested a lot of money on pre-competitive surveys to discover how good milk was for health, but this strategy proved to some extent to be inefficient, as we see a decrease of milk consumption (-5 to -10% per year in France).

CFH: Where does science shows that increased performance equals lower levels of animal welfare? There is this perception, but is it true?

Public: If you select for increased productivity only, then animal welfare will decrease. That's why slow growing animals are perceived as of better animal welfare. Then comes the perception that birds should not grow fast. In the long run, science will win, but in the short run, it's a difficult story to tell. And at the end, the market wins.

Public: What can the sector do to accommodate the gap in communication?

CFH: We can improve significantly animal welfare for a small proportion of the animal population, that will bring a huge benefit to a small numbers of animals, or improve at a lower level the benefit for many animals. Same in Denmark and Holland with “Better Leven”, for a small premium, more people can contribute. Do you want a small population to drive a Porsche or a larger population driving Toyota? In any case, it is difficult to get an extra premium on the global markets.

EG: We have to make sure the trade-offs are more explicit.

Public: Regarding the mortality of piglets, we know that the species have different strategies, some produce a large number of individuals for maximum survival. We should go back to those characteristics of the species.

Public: On Tuesday, the EFFAB session will focus on communication with the general public. We should not consider the consumer is wrong. We have to admit there is a problem, then hope you can start communicating.

VHN: To conclude, we need a much better communication between farmers, consumers and the whole value chain. Research and Innovation can help to do that.

Now, how do we see the production systems in EU in the future? We need a great diversity of products, relying on different production systems and regional differentiation.

Public: In the future, we have to make sure innovations are used to support the differentiation of products, and addressing the need of the society, in a context of lower consumption. GMOs entering EU are safe, but there is a misperception about GMO being transferred to milk or meat, that comes from the responsibility of many actors.

Public: When we talk about fairness, we should not consider the EU in isolation. The issue is on the world scale. We should pay attention to the growing population outside of the EU. We should try to help them to be fair.

Public: Research and innovation should continue to support the improvement of the integrity of food. Social studies could help address the communication challenge.

Public: When we look at solutions, we have to do it in an integrated manner and take up the trade-offs. Have a close look at where the losses are. Circular bioeconomy is the base word; we have to look at farming in the region/world with a circular perspective.

VHN: Last year, our topic was circular bioeconomy, and we showed that livestock production is crucial for a circular bioeconomy. This year, it has become clear that livestock production is essential for a healthy diet. We can end up with the conclusion that European diversity is the way forward: a diversity of products produced in a diverse production systems in a range of diverse European regions. We need research and innovation to support this diversity.

Closing remarks

By Jean-Louis Peyraud, ATF President

He thanks the speakers and the audience for the fruitful discussion. He briefly summarises the session.

We have covered the whole food chain, from farmers to consumers, via suppliers, food processors, retailers. **On the consumers’ side**, we have acknowledged the changes in consumers’ expectations. Consumers are more and more engaged, they want to know how food is produced. They are also more

and more informed and educated. Their rationality is sometimes different from the rationality of researchers in animal science. This is leading to conclusions like “meat is bad for health”, “organic systems are always better for the environment”, “local food is better”, that have not been proven by science. At present, the contribution of a very small part of the population, but very active, has a huge impact on consumers and decision makers.

We have had a lot of crisis due to unscrupulous actors that changed the sector’s image and the consumer perception, like during this summer. The speed of social transformations is very rapid and we have fashions. The status of meat in our diet has also changed: 20 years ago, it was a sign of wealth. Now, we see changes in habits that also bring opportunities, like snacking. Behind the vegan movement, antispecism promotes a totally different vision of the role of animals and humans in our societies. We’ve had a lot of discussions about the new drivers of consumption of milk and meat: organic, GMO free, green, carbon neutral, animal welfare, no antibiotics, no hormones, local.

What are the responses from the **industry**? Innovation is the responsibility of the industry, with the support of research. We see an increasing segmentation, on intrinsic or extrinsic qualities of the products. The type of segmentation can be different between countries, but the strategies of the big players can align on the global market. Products segmentation happens at different scales: on nutritional value (omega-3 content for example), animal welfare, non GMO fed animals, new structuration of the offer, local and/or short chains, internet (short) food retail, organic food... The question is how to create added value through differentiation, using which kind of contracts. Technology is part of the response from the industry, with meat substitutes and the new technologies for communication and information. At the end, price is and will remain a very important criteria.

We need **research** to innovate for better transparency, using new technologies and to provide science based information to the value chain (like valid criteria for animal welfare assessment). We also need to co-design research programmes with stakeholders and the society, including the society at the very beginning of research process, to foster social acceptance.

He invites all participants to continue the discussion during the ATF Seminar of October the 26th, 2017, in Brussels, where policy makers and European stakeholders are invited [–link to the programme](#).