Session report

Innovative farmers

How farmers use research to innovate in animal husbandry

Animal Task Force & EAAP Special session

EAAP Annual meeting 2014
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ATF Special Session

Innovative farmers - How farmers use research to innovate in animal husbandry.

The ATF Special Session focussed on farmers: how farmers arrange innovation, how research can contribute to innovation on farm, and how farmers can contribute to applicable research. The Session addressed best practices of innovative farmers from across Europe.

With the start of the European Innovation Partnership on Agricultural Productivity and Sustainability (EIP-Agri) in 2014, more emphasize will be paid to multi-actor innovation with farmers in the lead and research in a support role. Bringing research to practice will be more and more important. A key role in this process and in the EIP-Agri is reserved to farmers. With this Special Session the ATF and EAAP intended to contribute to the understanding of the roles of farmers and their interaction with scientists in innovation processes.

Welcome and Introduction

The ATF Chair Martin Scholten 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: Philippe Chemineau. About 70 participants were counted.

The Animal Task Force (ATF) promotes a sustainable and competitive animal production in Europe. We are a 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. The year 2014 is focused on innovation enhancing research, which is the basis for this Special Session.

Successes and failures in bringing innovation to practice – an overview

by *Han Swinkels (HAS Den Bosch)*

HAS Den Bosch is a University of Applied Sciences in the Netherlands, which focuses on Agro, Food and Rural Area. The aim is that the student is in the centre of the educational and applied research program . Han Swinkels connects lectures with the outside world (e.g. farmers, industry, government, universities, NGOs) and facilitates them to become part of a dynamic network in the different livestock sectors.
Han Swinkels: "My definition of innovation is: innovation=something new". He finds that one of the key points of bringing innovation successful into practice, are social aspects. The focus of different farms varies; –e.g. the focus of intensive (animal) farms is on ethical and social issues, extensive farms is on ecological and environmental issues and urban farms is on value chain issues. However, the underlying infrastructure (e.g. logistic, knowledge, food safety) connects all three farmtypes.
He uses the report "innovation renewed in 4 fold" to take the audience through a model for open innovation. Innovation asks for a dynamic network. All stakeholders are needed for a succesfull innovation process. This model shows that four openings are needed for innovation: openings for new opinions, cooperation (=trust = very important), challengers, and surprise. Han Swinkels: "Sometimes surprises in an innovation process can be very annoying. But like to challengers and opinions of others, dealing with surprises is very important for developing and implementing innovations in practice ".
This model works only IF 2 conditions: (I) an innovation plaza, where people can meet and interact and where they can conduct experiments , needs to be created, and (II) there is a need for facilitators.
Han Swinkels takes some projects as example, e.g. the Pro Dromi farrowing crate for loose sows and novel farming from Wageningen as examples for designs that involves all perspectives (farmer, consumer, ngo's, other stakeholders) such as the roundhouse for laying hens. This roundhouse stable provides for excellent welfare; it has three stars in the Dutch welfare rating – like organice farms - and combines this with a trademark of low level emissions. The eggs are sold under an own brand for a much higher price than barn eggs in the leading supermarket of the Netherlands.
While working on succesfull innovations it is essential to anticipate on both trends in local society and (inter)national markets.
Han Swinkels concludes with a request for more support for innovators in the livestock sectors. "Support is very important for innovators. Nobody wants to have the feeling that they have to do it all alone".

Cases of innovative farmers across Europe

Niels Pedersen, Danish Pig farmer.

"As a pig farmer in Denmark, you are crossing the border everyday". Niels Pedersen has a total production of 60.000 pigs/year. He is a member of Dan Avi.

Niels Pedersen talked to a small pig farmer in China about pig production. In China they produce and eat 50% of pig meat. The issue is that there are environment wishes, political wishes, ánd economical wishes. As farmer there is the need to survive, "that is the real world for a farmer". Niels Pedersen: "If you don't cope with all these factors, you cannot be a farmer- and your farm will die".

In several organisations there is interest in genomic selection. If farmers like to survive, they simply have to do something., Niels Pedersen: "Innovation comes under pressure". He says that being a farmer means facing: low paid – high risk. Farmers feel that scientist who say: 'we make innovation', do not tell the truth, as innovation comes under pressure and this is felt more on the farm than in science. As the pressure will keep getting higher in future, the need to innovate will also grow in the future.

Recommendation from Pedersen: "This pressure can be something good. As farmer you are a small wheel in the big whole, scientists need to help farmers. A great goal would be to get commitment from both scientific world and industry to obtain common goal".

Marc Havermans, dutch dairy farmer.

Marc Havermans farms dairy cattle and owns a heavily automated farm where the cows can freely walk. He uses milk robots and feeding robots.

The goal of Marc Havermans is to keep his farm economically healthy. The questions he works with is: How can you have a bigger farm but not being a 'megafarm' (negative word in Dutch). Havermans: As a farmer I want to work with healthy animals". He always wonders how he can improve. In order to accomplish improvement, he searched on the intenet, started travelling and visiting other farms? . By doing so, he found a stable system in Isreal that looked very nice to him, and he tried to implement the system in his farm. Marc Havermans: "There is no need to innovate when there is no trouble, enough money and when everything is okay. So as farmers, we indeed need to innovate when things are not okay. So we innovate under pressure".

"People are watching and they do not like barns that are closed". Marc Havermans first started with a compost pack as floor bedding. This winter he added straw because it seemed that compost affected the quality of milk, so he needed to cooperate with Wageningen University. He is very open, and people can come and visit the farm. Havermans: "Innovating is trying out and talking to a lot of people about the experiences. Innovation = struggle, during innovating you deal with a lot of motivation but also with enough frustrations". He finds it hard that there is only a small group of people that believe in you. The farming system Havermans built does not fit the Dutch regulations, which makes it hard to keep innovating. He also states that therefore the risk management is very important. The existing regulations (for conventional farms) do not allow to innovate freely. Another struggle is that the financing is always too small.

Havermans says that the difference between an entrepreneur and scientist is speed. Entrepreneurs needs to be fast. They do need the help, but do not have the time to wait for the outcomes of research. When Havermans was working together with researchers from Wageningen UR, he needed to pull on them to come with information. According to the rules it is: regulations first and then innovation. However, this gives too little freedom to actually innovate. If you want to innovate, you need to try things and see how it works out. If it does not work, you need to change fastly!

Recommendation Havermans: communication with the government is difficult as farmer. We need researchers in this role. Innovation could go much faster if the regulations would be open (/broken) for a period, while being watched and checked by scientists.

Daniela Nieddu, Italian sheep farmer

Daniela Nieddu is Farm manager at Tanca Ilde; an Organic Sheep farm (dairy) in Sardinia. She is also a graduating student in Veterinary Medicine

Sardinia is one of the most important regions in Europe for sheep dairy farming. The main incomes from the farm of Nieddu comes from production and selling of lambs and dairy products, as Pecorino PDO. Her company started with help from EU. Besides farming she studies veterinary medicine. At the moment Daniela Nieddu is doing a thesis on nematodes (parasites), and tests if and in what size these worms influence the production on her farm. The Sardinian farm Tanca Ilde takes part in more researches; like a study into echinococcosis. They have been used an innovative monitoring system on the sheep, which is of an ultrasound probe who identifies the cysts thus permitting the in vivo diagnosis. They have found that rotational grazing of pastures prevents eggs of worms being spread. On top of this, they are experiencing the sensitivity of nematodes to certain molecules (e.g. moxidectin) and their morphological evolution.

Recommendation Nieddu: It is useful to provide farmers with good information and free classes to get the farmers aware of research and research results and innovation available. The benefit for researchers is that they can execute their study on a real farm and therefore gain useful insights.

Richard Fuller, UK cattle farmer

Richard Fuller was a cattle farmer for a big part of his life, and is now Technical director Beef Improvement Group.

Richard Fuller has retired of farming since five years. The biggest challenges he sees that needs to be dealth with in farming:

- Reduce costs
- Increase output

The balance between cost an output need to be right in order to be able to run a farming business. In the future input from the genomics area could help to further improve farming. Genomic production traits are already increasing. Fuller: " We made multiple innovations on farm without government subsidy support. The beef breed we now have is the largest type of breed and we are still growing". Even without subsidy, they developed a (niche) market for young bulls. According to Fuller, innovation is also creating an outstanding product (e.g. more tender meat than regular supermarket beef). Fuller: "Innovation is identifying methods to improve production".

Recommendation Fuller: It is important to select adequeate partners, and to draw and keep milestones.

How National farmer organisations anticipate on the EIP

Dirk Bruins

Board member LTO (agricultural organisation for Dutch Agricultural entrepreneurs), and dairy farmer.

The goal of LTO is to help farmers with questions. Innovation starts with entrepreneurs, but also with all other contacts in the the whole dairy chain, so also e.g. the advisors and government. To motivate farmers: critical factors as trust, enthousiasm, willingness and persistance are needed. Dirk Bruins finds that the gap between practice and research is too large. Bruins: "With the EIP we have an instrument to connect practice and research together". EIP helps from bottum up: the farmer is challenged to articulate questions. EIP stimulates cooperations by combining budgets. Joint cooperations challenge all actors to review the projects. At first they considered the EIP as a large challenge. But now: by using a knowledge question, a group of people from the contact list is contacted to think about the question. The idea is that members of a operational group are all the same. They are all actors and not stakeholders. Results, experience and knowledge should be shared and must bring added value for farmers.
An important factor to keep in mind is: is the farmer still in lead?
Some examples from the shortlist of topics from opertional groups:
-Soil fertility
-Dry sand soil
- Expensive hectares
- Free loose stables (for cows these stables give excellent results on animal welfare)
- Nutrient cycle farmers

Related to increase skill and size farms based on regulations NL.
Bruins: "EIP means that farmers questions are the basis of good research"

Charlotte Johnston

Works as a Livestock Specialist for the Royal Agricultural Society of England since November 2012, and is a part-time shepherd.

Charlotte Johnston tells that the organisation notices that the agrifood industry is growing a lot, however pre-farm gate growth has remained static. "The EIP is a good way to increase agricultural productivity", Johnston says. IfA (Innovation for Agriculture) is set up to pull all innovative developments together, which are now organised as loose points. The IFA is there to prevent that the same innovations are developed multiple times, so the IFA should save time and energy. The EIP concerns a wide range of people, there is more benefit with everyone involved. Charlotte Johnston: "The EIP works as a online warehouse for innovation across Europe". It could be pulled together by a consortium all over Europe, with as main purpose: online discussion, debate all over Europe over EIP subjects.
At the moment, the network in the UK is quite small according to Johnston, and what is exciting about EIPs is the opportunity to connect innovative farmers together across Europe. An example of an innovative farmer from the UK is Mike King: He uses prooactive treatment for lame cows, as well as a bolus to measure the pH in rumen. Although his cows were already healthy and productive, he found that the pH in the rumens could be improved. This lead to an even better production of his animals. Charlotte points a second example. Farmer Mike Powley who uses heat detection collars on his outdoor herd. This collar checks the heat of the animals, and this technique seems quite successful for his farm. Charlotte Johnston: "Of course as with any innovation process, a lot of trial and error are involved during implementation". Another farmer which is an example for innovating on farm, is David Speller.
Mr. Speller owns a poultry farm. He is using microphones and cameras to pick up animal behaviour. Johnston: "He is a farmer that loves technology and numbers, so is very joyded with all information that can be gatherded about his animals". One of the barriers of innovations, is the duplication of

research, which can be a frustration for farmers; development is not always known in all countries so there should be more sharing of information as it is a waste of time to do twice (or even more) the same research.

How the EC intend to arrange the EIP

Jean-Charles Cavitte

European Commission, DG Agri

The EIP is not direct a solution for ALL problems that farmers encounter, but it surely is a start.
Cavitte: " We hope to put solutions quicker into practice". Operational groups are groups of people working together to create actual results on a specified topic/problem. Everybody is welcome to join these operational groups. An example of an operational group in Ireland: the Burren life project: improving preservation of a priority habitat area with particular farming (more information in powerpoint on ATF website). The EIP works with operational groups, but also the EIP network. The network is to collect and review information from all over the operational groups. The plan is to start with the networks in 2015. The approach of Focus Groups is working bottom up to identify prospect for operational groups. This EC publishes certain topics, to which the idea is to form 5-6 focus groups every year. Multiple problems and opportunities will be listed, according to identification of needs from practice. The implementation of the EIP takes place via rural development programmes. In the end, the eventual research activities are not funded by the EIP but will be included in the H2020 calls. Link of EIP to H2020: EIP thus links rural development to H2020. Multi actor projects are scored also for need of end-users. Timing is an issue.
Thematic networks are coordinate and support projects. Themes can be linked to products and sectors (cross-cutting, custom services, social services). Thematic networks help to connect (see pp).

Panel discussion

The panel consisted out of four panellists:

1. **Jean-Charles Cavitte,** (J-C.C) European Commission, DG Agri
2. **Matthias Daun** (M.D), dairy farmer and vice president CEJA (CEJA= European Council Young Farmers, "*the voice of farmers to European Institutions*")
3. **Dirk Bruins** (D.B), dairy farmer and Board member LTO (agricultural organisation for Dutch Agricultural entrepreneurs)
4. **Han Swinkels** (H.S.), Lector sustainable livestock chains HAS Den Bosch

Martin Scholten (M.S.) moderated the discussion and opened the panel session with the following question:

"What do you expect from the EIP as instrument to accelerate innovation in farm practice, and what role researchers can play in the local multi-actor operational groups?"

M.D.: important to put research an farmers togheter. Idea to be innovatove for farmer is to make life more easy, gain more money.

Public: Gap of knowledge about EIP. Part of problem about interest of reserachers; not lack of interest about joining in, but it is the infermation about the whole process that seems to be missing,

Public: "As a researcher: some of the best ideas come from farmers" the challenge we have: farmers are really busy people, under a lot of pressure. Farmers and innovators are frustrated by the time process. Scientists need to talk realistic to farmers; that administratal processes take time. But scientists need to speed it up.

Public: Identified two isssues: (I) huge gap between nice good research prototype that works on small scale and being picked up by the industry to be developed further. Huge gap of time and funding between research and commercial stage. (II) 5-10% of very good farmers=ambassador farmers that take up knowledge easily and are interested. At the same time we also need to ask how we bring the information to the large group of non-ambassador farmers. Need to reach majority

Public: (INRA) need to organice synergy to exchange knowlegde. How to match your constraints and constraints

Public: What does success look like?

H.S.: Tried to model innovation process: very complicated and dynamic process. I am very happy that the EC tries to anticipate both bottum op and top down on innovation. Challenge will be to keep coming up with better models and inovations and bringing them into practice. Innovators and ambassadeurs are sometimes the same, but also sometimes different people. True challenge is on WHOLE sector. Happy that EIP tries to work on this.

M.S: How do we interconnect and make sure we not operate in small groups

D.B. : I think: cooperation. In early stadium. Really important. Enthusiasm of famrers, good absed knowledge what i proven and what is objective is needed. That is with what researchers can help with.

M.S. : EAAP lot of energy on young scientist; innovation more of interes tin young scientist than old – CEJA a strategy to connect with young scientist?

M.D. : No not a strategy. Very expensive testing in animal production. Young scientist less money than older ones. But think young ones will be more inovative.

They have to know that they can earn money with the new system. The 10 is more risky (more risk than being innovative) Other groups stays a bit more safe.

M.S. : EIP new for scientist

J.C.: Eplanation lack of information: unit was not excisting before january this year. And was more pointed towards agriculture than animal production. Certainly more needs to be done. This kind of initiative of today is very welcome. EIP researchers and scientist are welcome, to share information and to gain research.

People working for industry.

M.S.: Challenge panel with your reflection, whats in EIP for you?

Public: working for breeding industry. We are delevering products for the farmers. Just heard about new instrument. Headlines I understand. But more in detail: finance. Innovation broker is a good idea. Who is paying the innovation broker? In the end, money should be o nthe table.

J.C: challenging question. Amount of money depends on what is put in. Administrative burden. Do not know how the rate of succes of candidates of opertional groups selected, do not know number of applicants. Multi actor participation has advantage above less actors (really advantage i nthe selection progress).

D.B.: rural development rograms: there is serious money. That is why we invited the local government/counties. LTO wnats to have a service point where all stakeholders are in. If it is not fitting in the EIP framework, maybe someone else IS interested in it. This point could help to connect them.

Q.M.S.: industries, are they welcome in the multi actor?

M.D. Yes they are certainly welcome. It had to be in the whole food chain together.

H.S. : let students participate in operational groups and not only in the discussion but in whole project/process. Funding: innovative process in itself. Each partner in group has to come up with funding.

J.C.: Exploitation fase right now.

Closing remarks

b*y Philippe Chemineau*

Science can really be useful to provide speed to develop tools to be able to innovate on-farm. We need to provide more with less input. Philippe Chemineau: " I believe that farmers need to play in the future a role: in (a) asking to research technological solutions –to be able to "Produce more with less" (quote Niels Pedersen), (b) to adjust and adapt technological condition to local conditions, and (c) it is absolutely evident that farmers are leaders for groups of farmers to manage the process of interaction between them and researchers".

Development of innovation can be concluded do work if people/stakeholders get together, are personally motivated and resist to frustration, are open minded, and have trust in each other.

Philippe Chemineau: "Does innovation require pressure to develop? I think the answer is probably yes. But if subsidies are negative for innovation? I will leave this as an open question".