Stakeholder-based innovations in poultry meat production

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Abstract

“Sustainable poultry meat production systems” was initiated by the Dutch Ministry of Agriculture, Nature management and Food safety to stimulate chain innovations in animal production systems in The Netherlands and to develop sustainable livestock production systems for the future.

Interviews and discussions with stakeholders from the regular and organic meat production chains and from NGO’s dealing with animal welfare, environmental issues and nature protection have enabled us to identify several opportunities for sustainable poultry production systems. Life Cycle Analyses (LCA) were carried out to identify possibilities to improve sustainability. In our analyses, different types of consumers (classified based on their decision making and behaviour) have been included.

Powerful new concepts and initiatives have been developed with stakeholders. As a result two concepts were designed: the “High Tech, large-scale, environment-friendly and efficient poultry production chain” and the “Welfare-friendly poultry production chain”.

During the project, several stakeholders started a short producer-owned poultry meat production chain. This chain should enable the producers to take full responsibility for the quality of poultry meat end-products. Furthermore, concentration of the whole production process (from hatching egg to slaughtered bird) on a single farm should increase the quality of chain and end-product, as it e.g. improves animal welfare, prevents transport of living animals and cross-contamination at the slaughterhouse.

The project triggered new initiatives of the sector to develop other sustainable poultry meat production systems, and stimulated the communication between the urban consumers and the rural producers.

Some long-term predictions for global and local developments affecting the Dutch poultry production systems

GLOBAL CONSUMPTION

The meat consumption in The Netherlands and other European countries have reached its peak. However, the FAO predicts that meat consumption in developing countries will increase drastically. For poultry meat a 7-fold increase is expected within the next 20 years (FAO, 2001). This development will have an effect on the availability of scarce feedstuffs on the world market and will probably lead to an increase of animal feed prices. The current Dutch poultry production system is highly dependent e.g. on animal feed import which is based on world-wide transport, the limiting potential local application of poultry manure in areas with intensive livestock production and the risk for spreading animal diseases. Increasing prices of feedstuffs such as soybeans and maize will have effects on the Dutch poultry export and would stimulate the use of regionally produced crops.

LOCAL PRODUCTION

The Netherlands is heavily populated and thickly-ruled based, with competing claims on land and water resources, a complex build landscape and uncertain environmental future.

For livestock production, the Dutch government focuses on improved animal welfare, environment and social aspects, and stimulation of initiatives for innovation by adapted legislation and financial support. Intensive livestock production must be market-oriented with high-value products, whereas organic farming is stimulated. (Van Marrewijk, 2003).
Current poultry meat production and consumption in The Netherlands

In the Netherlands approximately 435 million broiler chickens are kept for meat production per year (PVE, 2001). The total poultry meat production in The Netherlands was fairly constant over the past 5 years at around 700,000 metric tonnes per year. 90-95% of this poultry meat was chicken meat (FAO, 2001). The total meat consumption in The Netherlands is around 90 kg/person per year, approx. 20 kg of this consumption (20-25%) is poultry meat (FAO, 2001; PVE, 2001). The Netherlands is clearly an exporting country as it produces 60% more poultry meat than is consumed (FAO, 2001).

Outline of the project

In 1999 the Dutch Ministry of Agriculture, Nature management and Food safety initiated the program "Future Livestock Production Systems". The aim of this program was to develop desirable and sustainable livestock production systems for the future. To generate such long-term system innovations, the "Sustainable Technological Development-Approach" (the so-called STD-approach) was used. A desirable vision for the future (with a time horizon of about 40 years), to be generated by a group of stakeholders, is leading in this approach. The large time span was chosen to enable a definition of an ideal future, not affected by the current financial position of the sector, the current chain design, or a reluctance to participate by current competitors. This vision is used to formulate innovation goals and define short-term actions to reach this goal. Based on analyses of various trends in our society and intensive discussions with a wide variety of both non-agricultural as well as agricultural stakeholders, a vision document for the Dutch livestock industry was prepared. This vision document “Turning point and future of the livestock industry” presents visions of a sustainable animal industry including long-term innovation goals (see: www.vsys.nl). Important long-term innovation goals include e.g. maximal transparency in the chain, significant reduction of pollution and increase of animal welfare and food safety, obtaining products with added value.

The project "Sustainable poultry meat production systems" was one of the projects within this research program. The aim of this project was to translate the long-term visions and innovation goals, generated for the Dutch livestock industry, to short-term actions for the Dutch poultry meat production systems. The stakeholders were selected from different parts of the whole production chain (from breeder to retailer and from regular to organic production systems) and from organisations dealing with animal welfare, environmental issues and nature protection. Most stakeholders knew each other from different poultry production organisations, but the setting within this project was new. These stakeholders and scientists from several Dutch research institutes and universities participated in this project. Researchers coordinated the process and organised discussions. Due to the new concept, it was a learning process for stakeholders and scientists.

Stakeholders were interviewed to give their view on the future. What would the future of poultry meat production be like in 40 years time without intervention and what do we want it to be? How can we intervene, and how can we stimulate innovations in the poultry meat production chain? What are the current drawbacks? Based on the results of these interviews several workshops were organised by a reference panel, which contained a variety of stakeholders: The first workshop focussed on problems and opportunities for various parts of the whole chain. The composition of discussion groups was changed to discuss different subjects. A video presentation of an innovative pig production system was showed as a mind-set, and finalising the discussions, innovative ideas were evaluated and selected in a plenary session.

Some producers felt restricted in their freedom to speak in presence of other interested chain parties. For this reason a second workshop was organised with producers, to enable open discussions and exchange of ideas and opportunities for the future.

In the meantime LCA was carried out to identify "unsustainabilities" in the chain (Bruins et al, 2003) Finally, the third workshop was organised with a wide representation of stakeholders and started with an overview of consumer behaviour and different types of consumers. In selected groups the new concepts of poultry production chains were discussed regarding: the chain, organisation, farmer and product. And at last the group discussed the needs to make these concepts desirable and successful.
Results
In interviews some stakeholders highlighted ideas of their company that appeared to be contradicted by their own ideas. These ideas were often more innovative because they weren't limited by practical or economical aspects. The first part of the discussion in the workshop was to determine the most important problems and limitations, whereas the second part was focussed on innovative solutions for those problems. Because each stakeholder was selected to discuss that part of the chain different from the one in which he was directly involved, stakeholders were free to create innovative ideas.

In contrast to our expectations, representatives from both the regular and organic production chains showed that they had more or less identical problems and came up with similar solutions. Both were satisfied by the fact that researchers are facilitating these actions. It was a challenge to raise consciousness among stakeholders that problems can be solved more effectively by collective action rather than individual efforts.

The evaluation in the first workshop learned that stakeholders prefer a shorter production chain with less transport and improved animal welfare. The plan was submitted to the reference panel and the most enthusiastic stakeholder was invited to act as the main stakeholder.

The second workshop, with producers only, learned that producers want more responsibility and want to be the spill in the production chain.

From the results the network created two different poultry production chains:

1. **Large-scale, environment-friendly and efficient poultry production chain; the poultry grower is the vital link in this chain**
   In this system the currently used chicken lines are appropriate. No alternative strains need to be developed. Technical solutions for environmental problems are necessary, e.g. systems for feeding according to the chickens needs. When robotizing the microclimate in the animal houses can be attuned to the needs of the animals. Alarm systems, camera observation of animals, removal of dead animals and catching can be robotized. In this chain transparency, equal spread of costs and revenues and explanation to consumer (what happens in the production chain) is of great importance.
   The government must stimulate further development and adapt regulation and legislation (or grant exempt from both for pilot projects)

2. **welfare-friendly poultry production chain the poultry grower is responsible for one aspect of the chain.**
   This concept needs a robust animal (slow growing) with genetic resistance to animal diseases. This robust chicken needs more uniformity between individuals (weight and sizes)
   It is important to demonstrate the production system to the consumer. Design of housing systems (light, space), maintenance of covered outdoor areas, transport and handling, parents and chicks on the same location, regional production of feed are crucial items. All these aspects can show the consumer this chain is animal friendly.
For the producer the consumers demand and development of new legislation are not clear and therefore planning is difficult and investment in new systems is too risky.
Communication with the producer is of vital importance, the producer needs the support of other parties in the production chain.
Attention must be paid to communication with the consumer and stimulation of demand, so that consumers buy poultry meat from environmental friendly, sustainable, organic and under animal welfare condition produced chicken meat.

(Van der Klis et al, 2003)
With transparency in the chain and adapted legislation by the government progress in innovation will be possible.

During the project a website was available for stakeholders only, with programs of the meetings, text of the interviews and reports of the workshops. Months after finishing the project this website was closed.

Discussion

The scientists in this project were trained for the Sustainable Technology Development approach as working according to this approach was rather new. At the same time that innovative ideas came up, the stakeholders again rejected them. Their knowledge of legislation, practical and economic benefits, provided the arguments why the innovation was unsuitable. They also feared that real innovations might be forced upon them by new regulations. This confirms the idea that in a knowledge based society the correct way to resolve problems is to “get the stakeholders round the table” is a simplification. The organizations have hierarchical structures, different resources and management systems. Therefore, a stakeholder had to discuss items from other parts of the chain.

For the researcher this approach sometime was frustrating, because his colleagues were sceptical about the project. Scientists are hardly able to work in a science field, which is evident from their social disinterest. They are trained to work with facts, not to contemplate about opinions. Perception by the public is not necessary identical to economic realities. In bilateral contacts the method of Sustainable Technology Development was explained with success. Some researchers working in the project team even feared to loose contact and credibility of their customers, because they felt they would not be taken seriously anymore. Unfortunately, some stakeholders (NGO, retailer) were reluctant to participate in the discussions for different reasons; they don’t want to take responsibility for the results or don’t want to look ahead more than five years.

The discussions about all these problems in the team were open and of good quality. In time, discussions during the workshop and the contacts with the stakeholders took away most objections.

Conclusions and future plans

The project "Sustainable poultry meat production systems" was investigating how the future developments and demands for the Dutch Poultry Meat Industry could be met with innovative sustainable production systems.

Until now, knowledge was produced by researchers, i.e. people specialising in the production of scientific knowledge, people who control the experiments. The results were published and disseminated so they may be of use to potential users.

In this project, both problem definition and the formulation of the research questions arise within the multi-stakeholder group, so interpretation of research results, and assessment of the action implications, is the shared responsibility of the stakeholders.

Based on interviews and intensive discussions with stakeholders from the regular and organic meat production chains and from NGO’s dealing with animal welfare, environmental issues and nature protection we have been able to identify several opportunities for sustainable poultry production systems.

The Dutch Poultry Meat producers will in future have to focus on quality instead of quantity. Optimal animal welfare, food safety and integration of the production industry in the rural setting are essential for achieving a high quality poultry meat production system. High quality sustainable systems require the stakeholders to be aware that good and direct communication between the producer and the consumer is vital. Furthermore, the producer should be responsible for the quality of the product on the consumer’s dish. The latter is only possible if the producer regains the control over his own product.
For the future of the poultry meat production chain it's necessary to build multi-stakeholder networks. Most stakeholders were aware that we need to act here and now, but we must be able to take today's action to realise the future we want to build. For this, we need to be aware that things are dynamic and constantly change just as the world we live in.

References
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