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EUROSHELL Spanish regional forum

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PROGRAM OF THE DAY

9.00 – Welcome

9.30 – Presentation of Euroshell project and of the day

9.45 – Vision on the shellfish sector and debate on the needs for research and development

11.30 – Coffee break

12.00 – Debate continues

2.00 – Lunch

3.30 – Presentation of the FLAG (Fisheries Local Action Group) « Costeira d'Arousa »

3.45 – Debate on the establishment of an extension network for the shellfish sector

5.00 – End of the day

PRESENTATION OF EUROSHELL

After the welcome of participants, Angeles Longa Portabales thanked them for attending the Spanish national forum within the European project, Euroshell. She then presents the project with its objectives, organization and tasks, as well as the program of the day (see annex 1) and briefly informs on the tools created within the various workpackage of Euroshell (map of the sector, knowledge database...). The forum is organized with a single group of debate, moderated by Angeles Longa, to allow all the participants to jointly discuss on the various subjects and to comment on all the questions and contributions expressed.

DISCUSSION ON THE VISION OF THE SHELLFISH SECTOR AND THE NEEDS FOR RESEARCH AND DEVELOPMENT

Angeles Longa introduces the discussion with a short presentation of the most important characteristics of the national shellfish sector, by underlining the contribution of the shellfish farming to the European aquaculture in general and the Spanish aquaculture in particular. Shellfish farming is a 100% natural activity with positive impacts for the environment and which plays an important socio-economic role at the local level (see annex 2).

In this context, it is indicated that Euroshell is an opportunity for the shellfish sector to define, with the assistance of science and local development representatives, a common vision and priorities of research to achieve the goals. A scheme on the issues of the sector is proposed to initiate the debate (see annex 3).

This scheme was sent to the participants a few days before the event to enable them to analyze it and prepare comments and contributions. This vision was examined and adopted by the representatives of mussel breeding during the preparatory meeting of the day before.

The participants of the academic world agreed with this vision and made the following comments:

- one of the missions of the European mollusc producers must be to provide at the maximum the markets of the European Union, thus improving the trade balance of the Union. It is therefore necessary to produce more.
- economic profitability is a requirement to ensure the future of this activity.
- it is necessary to develop molluscs more because they are unique food products (universal in culinary, natural, nutritive, adaptable to multiple commercial presentations...). It is thus important to set up promotional campaigns which inform the consumers on these values.
- the R+D is necessary to develop this objective. The various aspects of the shellfish farming must be improved and supported by science (in the broadest sense) to seek solutions.
- it is necessary to conduct research to determine the moment when it will be necessary to diversify mollusc species produced in the EU, since diversification as well as non-diversification can lead to risks which must be studied and analyzed.
- it is necessary to improve the harmonization at the European level of the quality standards relating to the environment and the product.

Table 1 - Vision adopted during the Euroshell national forum in Spain

OBJECTIVE 2030:

Maintain and improve the contribution of the shellfish farming activities to:

- the local society: thanks to its socio-economic dynamism with strong historical and territorial anchoring,
- the society in general: the best way of producing in harmony with the natural environment and producing positive ecosystemic services,
- consumption: it provides quality, natural, healthy and diversified food and guarantees food supply of the European Union for molluscs

The discussion then opened, to identify measures of R & D necessary to achieve the objective 2030. The proposed scheme on the needs for R & D (see annex 3) was sent to participants a few days before the forum. It has led to a long debate.

THEME 1: PRODUCT/PRODUCTION

1. Technology and Innovation (boats, machinery, offshore production, purification, processing, packaging, diversification of species ...)
2. Life cycle of species (including breeding and genetics)
3. Seed supply (natural collection, hatcheries)
4. Pathology and shellfish health

The industry has made significant progress in the development of technologies to improve working conditions. However, this development did not take sufficient account of the needs and expectations of consumers about the qualities and characteristics that our products require. We must examine these issues in order to define strategies, technologies and production tools that improve producers' response to market demands.

To avoid saturation of cultures in some areas, some participants suggested a strategy of diversification of species, but supported by a better knowledge of the productive characteristics of the production sectors and new species to develop. All agree that the development of new cultivated species should be done if it is compatible and will not endanger the cultures already in operation. It must not reduce or substantially alter the value and safety of our products. Another point of agreement is that any diversification should be based on local indigenous species to avoid risks.

We need to better understand the variables and factors that determine the growth and fattening of different shellfish species of commercial interest. Research is primarily oriented in fish feed and food preparation, and does not consider feeding sources of shellfish in different sectors of production. We need to study the plankton communities as a basis for feeding molluscs.

We need to know more about the life cycle of cultivated species and its variation in the different sectors of production. There are very old studies that have mostly been conducted in laboratory conditions and not in the specific natural conditions of each sector of culture.

Concerning red tides (HABs), studies must, in addition to look for improving their control, seek the causes of this phenomenon (both natural and anthropogenic) to decrease it. We must also develop predictive models for red tides in order to improve harvest and production management.

We also need predictive models of production conditions that optimize cultivation practices (densities, spat collection ...) and harvest.

This type of model uses two types of data: data on environmental variables (abiotic and biotic) and production data. For the former, there are usually temporary series more or less long and of sufficient quality. These series are managed by oceanographic and marine research centers. As for the second (those relating to production), there is no temporary series of sufficient scientific quality. Professional organizations should establish standardized monitoring programs of their crops, which would provide quality information required for the implementation of predictive models of production. Continuity in data collection is essential and it would be wise to develop good practice

guides which would define how the data should be collected and how to develop monitoring systems of production.

The availability of quality spat is critical for the development and the ability to support sustainable operations of our cultures. In some cases we must make an effort for hatcheries, but the availability and sufficient spat collection in the natural environment is the best guarantee of robustness and genetic diversity of cultivated populations. This natural seed has the greatest capacity to adapt to changing environmental conditions in the cultivated areas. For this reason, we must give priority to natural collection through: improving systems and equipment for spat collection, understanding and prediction for the optimal management of collectors, a greater knowledge for better management of natural deposits... another point to remember is that the dependence on hatchery spat may present a risk for producers, the industry losing control on spat supply.

Another topic of interest is the organization of the production. We must study the cost structure of farms to determine unnecessary and inefficient costs and define the economic synergies needed to exploit them. We must conduct economic studies that allow a more efficient use of resources and means of production. Innovation in production management is necessary in a perspective of cooperation.

We must also intensify knowledge on the health status of natural populations and have rapid diagnostic tools that can detect early outbreak of diseases in both cultivated and wild populations. And identify and assess the various sources of risk of introducing pathogens in production sectors.

We also need to know and recover the unproductive areas, determine the causes of their condition and seek solutions to address them.

THEME 2: ENVIRONMENT/TERRITORY

1. Water quality
2. Health monitoring, development of tools for prevention, forecasting and remediation
3. Adaptation to environmental changes (climate change ...)
4. Ecosystem services
5. Environmental protection measures
6. Access to coastal areas, interaction with other activities
7. Social and territorial anchorage

It is necessary to have a continuous knowledge on water quality and production areas. We must determine the sources of pollution (both isolated and diffuse) and degradation of production areas. We need to study the effects on shellfish populations, of actions such as fillings, changes in coastal morphology, dredging, etc. that alter currents, sediment and affect natural shellfish deposits.

The issue of water quality remains out of reach of producers and it is asked to officials in the field to make a real effort to reduce the degradation of shellfish waters. Since molluscs are the direct result of environmental conditions (water quality), it is necessary that shellfish farming waters are especially protected in order to achieve the stated objective.

Microbiological and viral contamination of production areas by urban wastewater is very worrying. It requires that Waste Water Treatment Plants function properly. The systems of wastewater treatment must also be improved (designs, methodologies, equipment ...). But this is useless if the planning and execution of wastewater purification systems are not in compliance with the concrete conditions of the different sectors. One must take into consideration rainfall characteristics, the profile of pollutants from storm water, etc. to avoid situations of untreated water overflows.

We know that much of the pollution of shellfish farming areas also comes from diffuse sources (agriculture, livestock, forest fires ...). We must strengthen the control of such pollution and define and promote the implementation of best practices for those activities that contribute to water pollution through diffuse sources.

Another issue concerns herbicides and pesticides ... which are widely used for example on roadsides and on intensive, conventional farms. These substances come by water flow to the shellfish farming areas in unlimited quantities. We must study this type of pollutants and their effects on phytoplankton, on shellfish and generally speaking, on the aquatic ecosystem.

If we want a future as described in the vision, with a promotion of European molluscs, the quality of shellfish water must be under the control and supervision of producers. The sector must therefore have a continuous knowledge on the pollution (state of the cultivated areas) and on the product itself (its hygienic condition, etc.).

In Galicia, the industry has long been accused, without foundation, to be responsible for the pollution of estuaries. This created among producers themselves a feeling of fault that prevented them, on several occasions, from fighting to obtain the full remediation of estuaries. To prevent this from happening again, we must consider the impact of our culture on the environment, in order to reduce any negative impacts and especially to determine and assess the positive ecosystem services they provide.

In summary, to address the issue of loss of quality of shellfish waters, it is necessary that the sector puts pressure on all environmental issues with a good knowledge of the situation. It is therefore a priority for the sector to make itself controls and research, which will enable it to assess the real situation of pollution (sources and contribution of different activities to this degradation, including the role of its own activity).

Various participants from the academy informed further that, for the specific case of shellfish areas in Galicia, there are many studies on pollutants and their sources, and more generally on the status of estuaries, that are unknown by the sector. Although governments are aware of these problems, often there is no will to solve them.

Participants agree that there is a lot of information on environmental issues, but the shellfish industry does not have access to it , which demonstrates once again that there is no transfer of scientific knowledge to professionals.

Another point is raised: it is necessary that the academic and scientific world coordinate to avoid duplication, maximize resources and increase the efficiency of research.

It is necessary that professional organizations have their own R & D services, which will not replace the university researchers but which can be coordinated and establish synergies with external R + D .

On the other hand, it is recognized that we have little knowledge about invasive exotic species and that it is necessary to deepen knowledge on these species: entrance sources, risks for native species...

We must study the effects of climate change on our cultures to define adaptation and remediation strategies. Predicting the medium-term evolution of environmental variables is important for the production and it also relates to economic variables.

THEME 3: MARKET

1. Quality of shellfish, consumption and human health
2. Promotion on other markets
3. Business diversification and definition of new products
4. Establish a level playing field within and outside Europe
5. Improved marketing (transport, packaging,...)
6. Communication, commercial advertising
7. Better match between production and consumption (market research ...)
8. Traceability / labeling

THEME 4: MANAGEMENT / GOVERNANCE

1. Socio-economic data
2. Knowledge management
3. Training
4. Public communication and improving the sector's image

5. Assistance for companies (entrepreneurship, administrative support, insurance...)
6. Relationship with other local players (government, public authorities, markets, consumers, producers ...)
7. Promote and develop human capital

We must promote aquaculture mussel as an image of Galicia. Generally speaking, we must promote the image of shellfish as a symbol of the identity of the regions where it is practiced. Shellfish farming is a set of activities to be developed and highlighted.

We must promote gastronomic routes related to shellfish products, not only as activities generating income but also as an identity value in the development of activities that are complementary to the shellfish sector (tourism...), since these activities lead in turn to new potential customers for our products. These types of activities help to enhance our productions.

We should encourage local marketing of fresh mussel products and other molluscs. We do not know how to communicate the benefits of our products, we have a problem of education / information though very important for our potential customers. We are often reactive and not proactive in communication. The sector lacks a common communication strategy that would help us to enhance our productions.

Third countries compete to our production of molluscs in relation to price. We need to work on branding, enhancing product differentiation through their quality attributes, including the origin linked to exceptional environmental conditions. Good traceability must also be added. In this sense the Galician mussel should be seen as seafood and we should evaluate and strengthen the label of Protected Designation of Origin.

One of the characteristics of the shellfish sector is that it is robust and this is demonstrated in times of crisis, where employment is maintained. Since this sector has a strong local presence, it must be defended through its social and cooperative characteristics, and as a creator of employment in rural areas. The problem is that we often lack data updates on the socio-economic importance of our activity. In addition, both society and the government do not know our reality. This is why it is important to develop scientific studies to determine the socio-economic weight and the situation of the shellfish sector in times of crisis in comparison with other economic sectors. This can also be used as a tool to evaluate our activities.

We must conduct studies that show the job creation and the link with other activities and sectors that, without shellfish farming, would not exist. But these studies should be carried out continuously and regularly updated.

All this information must also be used in the communication strategy of the sector, highlighting our strong social and territorial anchorage.

We need to conduct comparative studies on the carbon footprint of our local productions compared to third countries as well as other food production and forms of aquaculture.

It is necessary to compile information on the destination markets and the needs and tastes of the consumer to be able to adapt our production to demand. Market studies are needed, as well as the

establishment of an appropriate marketing strategy for production. We need to develop good practice guidelines for marketing and highlighting mussels and other shellfish.

It is necessary to develop and use robust and fast tracking tools to monitor and verify the labeling of products that are on the market, to prevent fraudulent practices and unfair competition.

Issues of traceability and health control of our productions are priority topics, and are also tools for the market. It is necessary to know our markets, our customers and our current and future competitors.

We need to know more about the characteristics of our products, as healthy food products, and determine the "emotional" and culinary attributes of our seafood.

We need to create, develop and deepen the emotional connections between products and consumers so that the image and consideration of our products will improve their evaluation.

We need to improve the organization of the sector, not only in the production process but also in marketing. It is necessary to have strong and larger structures and foster cooperation throughout the chain.

When the industry will be strongly organized, it will be more profitable and the prices will be improved.... We need to find answers to these questions: what are the factors that allow for better organization and what are the factors that, on the contrary, hinder this level of organization? We must seek the link between cooperation and competition. We must determine the strategies being followed by the different groups and determine if there is a problem of trust between them, as knowing the root of the problem will help find solutions. Therefore in addition to knowing our competitors, we need to know ourselves.

It is necessary to conduct "sociological" studies on the sector itself by proving that structures or collaboration tools are the most appropriate to deal with the different problems. It is also necessary to improve the training of the various stakeholders and the management of knowledge for it serves to improve the sector.

Another important issue is that we work with perishable products and thus need to market them to very specific times, which determines the price. We need more coordination between the various stakeholders to better address this issue. It is essential that the administration is involved in this issue by promoting cooperative strategies and helping the organizations of the sector.

In summary, the sector will perform better when organized. In this moment of crisis, it reaches the highest levels of organization, so when things will get better, everyone will act according to its personal interests and the organization will be reduced. We need to help professional organizations to strengthen when the organizational level of the industry is at its maximum and not wait until it slows down. For this, more missions must be attributed to organizational structures (producer organizations, associations, organizations for quality-origin management...), including the transfer of scientific knowledge, training of producers, access to R + D, etc.

DISCUSSION ON THE ESTABLISHMENT OF AN EXTENSION NETWORK

The purpose of the debate of the afternoon was to define the problems which block the transfer of scientific knowledge towards the shellfish farmers and to bring ideas for the development of an adequate extension system. A few days before the forum, a document (see appendix) containing several questions was sent to the participants so that they could prepare the workshop.

By considering that the GAC (Coastal Action groups = FLAGS) can ensure and/or finance this kind of initiatives, the discussion was introduced with a short presentation of the GAC of Ría de Arousa, its nature, objectives as well as some of the actions which have been financed until now through GACs. During the previous debate, there was agreement on the lack of dialogue between scientists and producers, due as much to the producers as to the researchers. Various causes of the lack of transfer of the scientific knowledge towards the shellfish sector have been identified:

- use of a different language;
- lack of confidence between the professionals and the researchers, which constitutes one of the principal values of extension;
- absence of real platform of transfer of knowledge by the universities and the research centers, allowing to transmit adequately the scientific knowledge in our sector, since Offices for Research Results on Transfer Activities are not directly dedicated to sectors such as the shellfish farming;
- researchers are usually not able to determine the appropriate interlocutor in the sector;
- researchers themselves are not coordinated enough, which can induce duplications in their work.
- researchers do not know how the professionals articulate the knowledge which they acquire by the experiment. This empirical knowledge should be centralized in order to make it available for the technico-scientific world;
- the researchers do not have the possibility to get information on the needs of the shellfish sector since the sector itself never defined its needs. The sector must take the initiative and require from scientists to look for solutions to their concrete problems;
- the sector is usually not trained to understand the limits and the time that research requires;
- in many RTD projects, the last phase consisting of technology or knowledge transfer to the companies is not financed. This is why it exclusively depends on the financing by the sector itself.
- the transfer or the transmission of information to the sector is not taken into account by the administration when the work of the scientists is evaluated.

The experience accumulated during these years teaches us that universities, research centres, etc. are not able to transfer knowledge adequately. At the institutional level, experiments of extension towards the shellfish sector were also a failure. When certain researchers or certain people of the administration transferred knowledge of their own initiative, this was successful.

If the sector wants to benefit further from the R+D, it is necessary that it defines and determines itself its requests and problems (possibly in dialogue with researchers) and that universities and research centres answer these requests with studies which are adapted to answer the problems of the sector.

Concerning the tools for transferring knowledge, the bulletin published by the CRMG is a good example of technological antenna which uses an adequate language for the sector. Other forums can also be organized to transfer to the professionals what researchers are working on. A course is perhaps not the most effective, if one compares it with more informal meetings which are better appropriate to the professionals. But in any case one needs an actor of the industry which could be the CRMG and other big sectorial organizations (producers' organization, trade unions...).

To improve the dialogue between researchers and professionals of the shellfish farming, it is necessary that the two parts are involved. To facilitate comprehension between the two groups, a “translator” could translate the scientific knowledge in a language accessible to the producers. This “translator” should be hosted by the professional bodies which are best placed to exert this mission of diffusion and to encourage dialogue.

To make the transfer function, a certain continuity is necessary as occasional meetings do not have much impact. The contacts must be maintained in time, the search for a better transfer must be a constant objective. Moreover, confidence is required, and professional bodies do have the confidence of their associates.

GACs, thanks to the local development funds, can help to improve the channels of information so that the sector has more useful information for the development of its activities. The GAC can help to establish the link with universities and research centers.

In the GAC, actions are implemented following an initiative which presents a project, consequently the actions of knowledge transfer (discussions, forums, bulletins...) can be financed by the GAC only if they are proposed by the sector itself.

In short, the solution is at the collective level and with the financial support of the administrations. It is necessary to reinforce the professional organizations so that they can reinforce the links with the academic and scientific world. The data must also be compiled and constantly followed at the collective level by the organizations, since they are better able “to translate” the scientific knowledge in a language adapted to the professionals.

Therefore, it is necessary that the organizations have technical staff which helps them to define the problems and to require that research and concrete actions are conducted to solve these structural problems. In addition, research centers must approach professionals, and their projects must be adapted to the sector’s requests.

The day closes with thanks to the CRMG and to the participants for their comments which enriched the debate and one wishes that meetings as those are renewed regularly.