

# Review and Summary of the EDP workshop on dairy and meat products for REMTh

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## INTRODUCTION

The report summarises the main outcomes of the second Entrepreneurial Discovery Process (EDP) workshop focusing on the dairy and meat products, which took place at Komotini (Hotel Arcadia) in January 29-30. Minutes from the 4 working groups are the main inputs of the report. Lessons learnt by the implementation of the specific methodology proposed by JRC/IPTS are also stated for the optimization of the design of the next EDP workshops that are going to take place in due course.

This report was commissioned by the Institute for Prospective Technological Studies (IPTS) of the European Commission's Joint Research Centre (JRC) in the framework of a European Parliament Preparatory Action aiming to provide support to the refinement and implementation of the RIS3 in the Region of Eastern Macedonia and Thrace that has been launched in September 2014.

## OVERVIEW

The workshop on the value chain of dairy and meat products was based on the initial approach followed for the set-up of the first EDP focus group (wine industry) with slight changes.

The event would give the opportunity to the participants (representing all the strands of the triple helix) to be exposed on key innovations in the value chain of the selected sectors at the national and European level and at the same time to stimulate idea generation for business development. These objectives would be achieved via plenary sessions for knowledge diffusion and focused parallel sessions that addressed more specific topics.

Over the course of two days, the focus group meeting combined plenary and parallel sessions, with interventions by regional, national, and international experts. Within the dairy and meat products sector, the following a priori themes for discussion were identified:

- 1) Research and Innovation in animal husbandry
- 2) Food processing technologies
- 3) Research and innovation in dairy products
- 4) Organic meat and dairy products and sustainable production

In the opening session, the aims and approach of the preparatory action were set out by JRC-IPTS. Aiming to facilitate the refinement and implementation of the RIS3 strategy in a region heavily hit by the crisis, while also serving as a model for other convergence regions in Greece and Europe, the project centres on the provision of “hands-on” support to the REMTh RIS3 implementation process. In addition to developing the process, the envisaged outcomes include the support for the launch of concrete projects in

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the region and consequent absorption of structural funds. In view of this primary aim, this event represents an important step along this path.

Two concrete concerns for the EDP were emphasised by JRC-IPTS in the introductory session. First was the issue of whether it is best for ideas to match the funding available or whether a more ambitious search for ideas should be undertaken based on potential, for which it is better to then seek appropriate funding. Second, the need to better engage with international networks was emphasised.

In order to fully explore the value chain of wine production, a variety of international and national experts were invited to make presentations centred on each of the four themes identified above. To further examine ideas and opportunities in each of these areas, parallel working groups were organised, following a common participatory methodology. These centred on the generation of ideas, and the selection of the most feasible for further discussion. Moderators and rapporteurs were appointed for each group to oversee the application of the methodology and report the outcomes.

The participation and engagement in the event, in terms of both level and quality, were high. More than 90 stakeholders from within the region and beyond participated. Both the plenary and parallel sessions saw active engagement by both invited experts and stakeholders from the region and beyond.

A key issue identified by the region during the RIS3 preparation was the lack of business involvement. A key positive outcome of this event was the level of business participation: more than half of the participants came from the private sector, and actively engaged in proposal formulations for future collaboration.

This generation and exchange of ideas were key elements of the meeting. The outcomes of the working groups were highly constructive, with a number of feasible ideas, proposed and thought through during the second day. The participatory process used for this worked smoothly, with participants actively engaging in the tasks, and with lessons emerging for its refinement in the subsequent such events envisaged under the preparatory action. The overall perception of participants was highly positive.

A key issue of the meeting was the making and reinforcement of linkages, and the importance of subsequent joint efforts, on both bilateral and multilateral bases. The good levels of engagement between the stakeholders should be followed up.

## **OUTCOMES: PARTICIPATION**

In planning the event, a broad mix of potential participants was identified, based on an initial value chain analysis. The main stakeholder groups included:

- 1) Farmers and animal breeders;
- 2) Dairy and meat product industries.
- 3) Researchers and experts on the primary activities of the value chain (e.g. veterinarians, agronomists, biologists, economists)
- 4) Representatives of other value chains that provide win-win opportunities, i.e. tourism and cultural events.
- 5) Regional Administration officers

The regional members of the above-mentioned groups were identified with the collaboration of the five regional Chambers of Commerce and the regional Managing Authority. Some of the entrepreneurs suggested that additional members of their staff should also attend the workshop, on the basis of their technical skills, competences and functional roles.

The second pool of participants consisted of national and international experts that would share their knowledge and expertise on:

- Value enhancing innovations for dairy products;
- Co-operation projects in the field of animal nutrition;
- Marketing tools in the field of the food industry;
- The selected 4 areas of the EDP.

Totally 11 experts were selected to cover the above issues, 2 international and 9 local/national.

A consolidated list of participants was reviewed by JRC/IPTS and the MA and invitations were sent by JRC/IPTS with an option for e-registration. Overall, 123 participants were recorded in the list and 43 of them used the e-registration tool to confirm their participation. At the same time an open invitation was published in the local press and online by the Regional Government, encouraging any other interested party to attend. The workshop was attended by 93 participants (excluded JRC/IPTS and MA REMTh staff).

In conclusion, stakeholder engagement was a demanding process in terms of time and cost, based on the combined efforts of two organizations (JRC/IPTS and MA/REMTh) with certain pitfalls mainly due to the geographic distance as well as local constraints (motivation, trust issues, etc.) regarding the nature of the event.

## OUTCOMES: PARALLEL WORKING GROUPS

The most important element of the workshop was the Participatory Exercise that took place within the parallel sessions by 4 working groups (WGs). The formation of the 4 WGs corresponded to the 4 thematic areas and was based on the preference expressed by all participants during the e-registration process. The exercise included the following stages:

- An introductory presentation by a local/national expert on the area examined as an ignition for the discussion followed.
- A brainstorming session in which each member of the group was asked to generate an idea under the thematic area of the work group (task 1).
- The presentation of the ideas by each participant to the rest of the group (task 2).
- The discussion and selection of most favourable ideas leading to the formation of “innovation partnerships”, in other words, sub-groups within the main work group (task 3).
- The development of ideas by the partnerships and initial reflections on issues that they had to tackle for the ideas to be transformed into sound projects (task 4).
- The further refinement of the ideas based on a set of guiding questions (task 5)
- The presentation of the ideas within the work group and to plenary session as well.

A detailed presentation of the methodology of the exercise was given to all participants during the plenary session. Prior to the exercise, a moderator and a rapporteur had been appointed and were also provided by instructions towards the effective implementation of the tasks. It must be noted that neither the moderators nor the rapporteurs were involved in the various partnerships.

The basic difference from the first EDP focus group in Drama was that the participatory exercise was split into 2 days. As a consequence the composition of the WGs was changed between day 1 and day 2. In some WGs this created some problems in terms of consistency of the partnerships creation.

Apart from this change the process was followed as described by the methodology. Small changes were made after discussion among WG members without having negative effects to the overall results of the exercise.

The four EDP parallel sessions were attended by 62 participants (excluding moderators and rapporteurs) representing the following stakeholder groups:

- 28 from industry
- 13 from research and/or academic community
- 19 from public administration (national and/or regional)
- 2 from non government organizations

It must also be noted that we had 3 participants from a neighboring region of Bulgaria.

Table 1 presents a summary of the main outcomes of each group, while the remaining sections set out the outcomes, based on the minutes compiled by the rapporteurs during the process.

**Table 1: Main outcomes of the participatory exercise**

<b>Working Group</b>	<b>Idea/Partnership Name</b>	<b>Brief description</b>	<b>Expected results/outcomes</b>
R & I in animal husbandry	Cluster for animal husbandry and agriculture	Production of milk (and meat) in clusters with the aim to produce high quality products at competitive prices and with specific features linked to the local advantages and unique characteristics.	Establishment of a healthy co-operative model based on clustering.  Increase of production and employment of the sector.  Creation of a brand name and image of local products.
	Genetic mapping and genetic improvement	Genetic mapping and genetic engineering aiming at increasing production and resistance to illnesses.	Production of high-quality and safe products and the creation of herds of national / local identify (through creating cores of development of genetic material) for each animal breed.  Development of races that are resistant to animal / human illnesses targeting mainly exports.
	Inter-community supporting farming/production; Short supply chain (from consumer to producer)	Establishing collaboration with neighbouring regions in Bulgaria.	Increase of trans-national sales for animals and products but also the creation of support structures for coaching, mapping and training activities.  To raise awareness about local gastronomy.
	Completion of vertical integration – slaughter houses in small farms	Completion of the vertical integration in animal husbandry by creating slaughter houses in small farms. The costs of the slaughter houses can be shared among groups of small farms by creating for instance producers' cooperatives.	Creation of vertically integrated units that would ensure better value for money.  Increased quality of products based on local unique features as well as certification and traceability of quality of products.
R & I in processing and preservation of meat	Religious Certifications of Meat and Meat Products	Organisation and certification of all the links of the value chain of Hallal-certified meat (breeders, slaughterhouses, meat processing plants), initially to cover the needs of the Muslim population in REMTh and in the longer term to enter other markets abroad (EU coun-	Exploitation of the potential for exports of Hallal-certified meat products in markets with strong Muslim populations.

Working Group	Idea/Partnership Name	Brief description	Expected results/outcomes
		tries with significant Muslim populations, Turkey).	
	Production of certified traditional meat products and their promotion via marketing innovations	Introduction of a private/proprietary quality certification scheme that would cover traditional (meat) products and guarantee the use of local inputs across the value chain and correlate these products with the historical and territorial context of REMTh.	<p>Part of the certification scheme would be an electronic infrastructure that would provide to end-users traceability-related information on the inputs and value-added information related to the end products.</p> <p>Constitution of a network-type of business model, which is novel to REMTh.</p> <p>Extension of the certification scheme to other categories of primary sector products, foods and beverages and improve exports and mark-ups.</p>
	Innovative technologies in producing local non-pig meat products with improved conservation ability	Development of a series of innovative meat products characterised by improved conservation ability by exploring dehydration or natural antibacterial substances or traditional preservation methods.	<p>Expansion of current product mix.</p> <p>Improved sales of innovative products with higher margins.</p>
R & I in dairy products	Sustained and integrated promotion of local, traditional fermented food systems from authentic microbial cultures	Isolation and identification of the microbial strains from local traditional milk products. It is also refers to probiotic properties standards testing, testing for re-research activation of cytochromes, as well as antibiotic resistance testing.	<p>Experimental application in food products and evaluation of their characteristic organoleptic properties.</p> <p>Set up of a Laboratory Bank of wild isolated strains.</p> <p>Application for international patents and commercialization of the final outputs/products.</p>
	Development of a Certification Scheme for dairy products based on the local quality characteristics (geographic, chemicals and organoleptic properties)	Development of an integrated quality certification scheme system for local products that could guarantee the use of local products and producers within the value chain of dairy products.	<p>Promotion of local quality and functional characteristics of the factors that contribute to the milk and dairy production.</p> <p>Implementation of technology tools for the traceability authentication.</p>

Working Group	Idea/Partnership Name	Brief description	Expected results/outcomes
	Development of functional products based on local dairy products	Research and development of functional products based on local dairy products. The functional products will be enriched with different ingredients (for example carbohydrates from domestic legumes) and will be promoted to special groups of consumers.	The project is closely related to the other 2 ideas of the same WG, especially with the development of local microbial cultures that might boost the functional food sector.  Possible exploitation of by-products should be further investigated, since they present a high market potential.
Organic meat and dairy products and sustainable production	Dairy / Meat Sectors Cluster	Formation of a wide cluster initiative comprised by as many actors of the meat and dairy value chain.	To comprise a regional epidemiological control mechanism.  Establishment of livestock zones / production parks.  To take advantage of shared resources and services (e.g. standardisation, veterinary services, etc). with additional research activities.
	Research and/or implementation of new technologies and methodologies for the production of new value added products	Development of new technologies or implement new production methodologies in order to innovate at traditional production processes (e.g. cheese bags) or new added value dairy products (e.g. ariani with honey).	Exploitation of regional characteristics (e.g. minority traditions, regional natural environment/herbs, regional herds, culinary/gastronomy traditions, etc.).  Implementation of modern marketing techniques to capture niches with recorded price premiums.
	Energy production from animal waste	Biogas (and other forms of energy) production from animal waste and its exploitation.	Implementation of an environmentally friendly alternative method for energy production.
	Development of a network for collecting and management of data on milk and dairy production chain	Creation of a regional network for recording and valorisation of regional data (from soil studies, measurements and mapping) and their management to the local producers' benefit.	Development of an interactive platform designed to assist local stakeholders (meat/dairy production / distribution) in decision making. Assistance of Regional Administration in policy making.

## 1. DETAILED OUTCOMES: WORKING GROUP ON RESEARCH & INNOVATION IN ANIMAL HUSBANDRY

Moderator:	Mr Panagiotis KOUDOUMAKIS
Presentation by:	Mr Anagnostis ARGYRIOU – CERTH / Institute of Applied Biosciences
Industry:	4 representatives
Academic / Research community:	3 representatives
Public Administration:	4 representatives
Non government Organisations:	1 representative
Total participants of the 2 days:	12

Since the process was spread in two days, the composition of the group was change in the second day. More important is considered the absence of 2 of the researchers at the second day (the partnership formation and discussion task). On the other hand the group was enriched with 3 participants from a neighbouring region of Bulgaria and a representative of a local societal organisation.

In the initial brainstorming session the following ideas were generated and presented:

1. Production of milk in clusters;
2. Creation of a brand name for local animal products – traceability of products;
3. Protection of animal health – assessment of impact of illnesses on production and quality of raw materials;
4. Genetic mapping and genetic improvement. Creation of herds of national identity per animal breed;
5. Training of professionals in management, bio-security, use of new technologies, etc.;
6. Development of commercial roots for animals and products with neighbouring areas. Trans-national collaboration supported also by services provision in relation to coaching, mapping, training, mentoring, etc.;
7. Buffalo breeding;
8. Creation of small slaughter houses in cattle farms.

From the above 8 ideas, the participants were asked to express their preference to the ideas in which they considered as more appealing and innovative. The following table shows the results of this process. Each participant (P1, P2, ...P<sub>n</sub>) ranked 3 ideas with one to three asterisks. Table also includes origin of participants in terms of stakeholders group. “I” stands for industry, “R” for research and academic community “P” for public administration and “S” for societal organisation.

**Table 2: Ideas ranking for WG1**

IDEA/PARTICIPANT & STAKEHOLDER GROUP	P1/S	P2/P	P3/I	P4/P	P5/P	P6/I	P7/I	P8,9,10* /I,R,P
1. Production of milk in clusters	*	***	***	***		**	***	
2. Creation of a brand name for local animal products – traceability of products		**						
3. Protection of animal health – assessment of impact of illnesses on production and quality of raw materials				*	*		**	
4. Genetic mapping and genetic improvement.		*	**	**	***			



	P1/S	P2/P	P3/I	P4/P	P5/P	P6/I	P7/I	P8,9,10* /I,R,P
<b>IDEA/PARTICIPANT &amp; STAKEHOLDER GROUP</b>								
5. Training of professionals in management, bio-security, use of new technologies, etc.			*		**			
6. Development of commercial roots for animals and products with neighbouring areas.	***					*		**
7. Buffalo breeding							*	***
8. Creation of small slaughter houses in cattle farms	**					***		

\*Bulgarian Participants

Next step was the discussion on preferred ideas (highlighted rows of the table) according to given methodology. The main outcomes of these discussions are described below.

### 1.1 CLUSTER FOR ANIMAL HUSBANDRY AND AGRICULTURE (IDEA 1)

*Partnership composition: 2 from industry and 1 from public administration*

#### 1. Brief description of the idea-partnership

The idea is about the production of milk and meat in clusters with the aim to produce high quality products at competitive prices and with specific comparative advantages linked to the regional advantages and unique characteristics.

#### 2. Contribution of the different partners

The stakeholders needed in each cluster include farmers (for fodder), breeders (for the livestock), financial institutions (for the capital), education institutes (from knowledge and research), development agencies (for consultancy services).

#### 3. First considerations on framework conditions: legal problems, needs for human capital, capacities, education etc.

Since there is limited experience of how to organise an effective cluster, “THESSACTION” (as presented by prof. Gousios in the plenary session) would be a good example to adjust and transfer from the Region of Thessaly as the supporting structure of the cluster.

#### 4. First financial considerations

It is estimated that the design and creation of the cluster would cost around 100k€.

#### 5. Identification of first “next” steps

A pilot cluster for the production of milk based on the existing examples in the region could be set up. This would need the identification of the cluster participants, then the creation of the needed infrastructure, accounting support, management and evaluation services.

#### 6. Regional Strengths / Sources of Uniqueness

The existing livestock is an asset of the region as well as the agricultural production of fodder and alternative cultivations with the gained knowledge and experience.

#### 7. Research / Technology Content

The research capabilities refer to the methods to increase milk and meat production. This knowledge is available in Greece if not in the region itself.

#### 8. New business models

The new business model is the clusters model of organisation and operation.

#### 9. Linkages to other sectors

Increased and high-quality milk and meat production will benefit the tourism sector as well as wine and food production.

#### 10. Mobility issues

*Not answered by the partnership.*

#### 11. A vision for the future

It is expected to increase production and employment in the sector and contribute also to the creation of a brand name for local products produced by the cluster. The aim would be to reduce the deficit in covering the needs in milk and meat at the national scale (currently these are covered at around 70-80%).

#### 12. Opportunities for by-products or suppliers networks for creating new markets

By-products envisaged are for instance biomass or bio-gas which are directly related to energy production. Other by-products of milk and meat would also be relevant here of nutritional value.

#### 13. Capacities needed to implement the idea

Effective communication and collaboration have been acknowledged as key capacities needed for the implementation of the idea.

### 1.2 GENETIC MAPPING AND GENETIC IMPROVEMENT (IDEAS 2,3,4)

*Partnership composition: 2 from public administration*

#### 1. Brief description of the idea-partnership

The idea refers to the degree that genetic mapping and genetic engineering could increase production and resistance to illnesses. The overall aim would be to produce high-quality and safe products and create herds of national / local identify (through creating cores of development of genetic material) for each animal breed.

#### 2. Contribution of the different partners

Capacities and knowledge needed include genetics, and breeders in close collaboration for the experimentation phase as well as regional authorities for support and elaboration of data and results.

#### 3. First considerations on framework conditions: legal problems, needs for human capital, capacities, education etc.

Legal barriers should be lifted in relation to genetic engineering and improvement. Specialised training is also important for breeders and regional authority services for participating in the experiments and monitoring the results. Certain issues about genetic engineering should be addressed and taken into consideration including ethical, legal and social issues affecting social acceptance.

#### 4. First financial considerations

It is estimated that the cost for such a project would be around 800k€.

#### 5. Identification of first “next” steps

First steps include the identification of partners (services, institutes, and breeders) and of the herds to be selected. Selection criteria for the herds could include the different breeds, and the state of the herds; for the partners the selection should be based on the knowledge available, interest and level of collaboration.

#### 6. Regional Strengths / Sources of Uniqueness

The key regional strengths that have been identified refer to the large number of breeders and livestock as well as the relatively good state of existing livestock.

#### 7. Research / Technology Content

Genetic engineering is obviously the basic research discipline for the implementation of the idea. Pool of researchers can be found within the Region (Democritus University of Thrace) as well as the neighboring Region of Central Macedonia (Aristotle University of Thessaloniki).

#### 8. New business models

No direct new business model is expected to be applied. However new activities might be created or developed. The more important are:

- Generators for sale and export;
- Genetically improved cores for sales;
- Breeding of animals resistant to animal / human illnesses for export.

#### 9. Linkages to other sectors

The specific project would also influence and benefit the production of fodder, manufacturing of the equipment needed, but also agro-tourism.

#### 10. Mobility issues

Possible mobility program could include a two side training: of breeders to be trained in how to take part in the experiments as well as of genetic researchers that need to visit the farms and get training on how to conduct and monitor research in the field.

#### 11. A vision for the future

The main evolvement of the project might be the improvement and stabilisation of the characteristics of the local breeds.

#### 12. Opportunities for by-products or suppliers networks for creating new markets

Production of traditional local by-products would also benefit from the specific project. In addition the increased production (in milk, meat and animals) would be channeled to new markets such as those of the Arab countries. The project would also help increase the number of hibernation units in the Region.

#### 13. Capacities needed to implement the idea

Genetics, nutrition and management of herds and statistics have been acknowledged as key capacities needed for the implementation of the idea.

### **1.3 INTER-COMMUNITY SUPPORTING FARMING/PRODUCTION; SHORT SUPPLY CHAIN - FROM CONSUMER TO PRODUCER (IDEA 6)**

*Partnership composition: 1 from industry, 1 from research, 1 from Bulgarian national authorities and 1 from non government organisation*

### 1. Brief description of the idea-partnership

This idea refers to establishing collaboration with neighbouring regions in Bulgaria. The aim would be to increase trans-national sales for animals and products but also to create support structures for coaching, mapping and training activities.

Another aim would be to raise awareness of local communities about local gastronomy. This would be the activity of networks of consumers – users – families – restaurants, etc. These networks would also facilitate exchange of information across the different communities as well as visits to production places or even practice community-based farming (based on the model of community –based agriculture).

### 2. Contribution of the different partners

Partnership would involve the majority of the stakeholders of the value chain. Secondary groups of interest also include network of consumers of the initial meat and dairy products. Networking and trans-regional co-operation is essential for the implementation of the project.

### 3. First considerations on framework conditions: legal problems, needs for human capital, capacities, education etc.

There are barriers in both countries prohibiting small animal farmers from selling their products directly to businesses. To overcome such barriers specific platforms might be created for import-export of small farmers' products at trans-national scale.

### 4. First financial considerations

*Not answered by the partnership*

### 5. Identification of first “next” steps

*Not answered by the partnership*

### 6. Regional Strengths / Sources of Uniqueness

The key regional strengths that have been identified include the high number of well-organised family farms with high level of specialization, the high quality of products, the opportunities to enter new markets and to improve knowledge and awareness in families about food products and consumption. Secondary elements to be taken into account relate to opportunities to support other cultivations depending on demand and create specialisation on food and nutrition.

### 7. Research / Technology Content

Research is needed in relation to breeding (ways of breeding, botanology in breeding, etc.) about production cost reduction methods and international good practice as well as improvement and extend of cultivations.

### 8. New business models

This idea is based on networks of citizens that can be accompanied by producers and consumers cooperatives.

### 9. Linkages to other sectors

The idea will benefit gastro-tourism and the retail sector but also vets and quality assurers.

### 10. Mobility issues

Visits to these structures and animal farms and training can be organised for students, families as well as researchers.

11. A vision for the future

The main evolvement of the project might include trans-national exchanges of experiences, events, mobility strengthening, etc.

12. Opportunities for by-products or suppliers networks for creating new markets

Brand names can be created for the products resulting from this trans-national collaboration.

13. Capacities needed to implement the idea

Farming, marketing, logistics, collaboration, intra-regional complementarities have been acknowledged as key capacities needed for the implementation of the idea.

**1.4 COMPLETION OF VERTICAL INTEGRATION – SLAUGHTER HOUSES IN SMALL FARMS (IDEA 8)**

*Partnership composition: 2 from industry and 2 from public administration*

1. Brief description of the idea-partnership

This idea refers to completing the vertical integration in animal husbandry by creating slaughter houses in small farms. The costs of the slaughter houses can be shared among groups of small farms by creating for instance producers' cooperatives.

2. Contribution of the different partners

The partnership is focused at small farms and producers.

3. First considerations on framework conditions: legal problems, needs for human capital, capacities, education etc.

The existing conditions and costs for creating slaughter houses are disproportionate to the abilities and affordability of small farms.

4. First financial considerations

*Not answered by the partnership.*

5. Identification of first "next" steps

The idea could be placed within a wider framework of longer-term planning leading for instance to the creation of vertically integrated units that would ensure better value for money, increased quality of products based on local unique features as well as certification and traceability of quality of products.

6. Regional Strengths / Sources of Uniqueness

The key regional strength that has been identified is the high quality of livestock in the region.

7. Research / Technology Content

Expertise and knowledge would be needed to ensure quality assurance. This could be set up in collaboration with the local labs and university departments.

8. New business models

In vertically integrated small units, the consumer has the ability to check the quality in each and every step of the process (including breeding, fodder, etc.). This presupposes accessibility to the small farms and opening up to society.

#### 9. Linkages to other sectors

The idea will benefit agro-tourism.

#### 10. Mobility issues

Training programs (including practical exercises) and visits can be scheduled for high-school and university students.

#### 11. A vision for the future

The idea could generate new meat products.

#### 12. Opportunities for by-products or suppliers networks for creating new markets

By – products would include manure and those related to fodder. Thus the energy sector would also benefit.

#### 13. Capacities needed to implement the idea

Not specific scientific capacities are needed to implement the idea. Capital expenditure should be covered by engagement of large group of small farmers/producers willing to invest also time.

## 2. DETAILED OUTCOMES: WORKING GROUP ON FOOD PROCESSING TECHNOLOGIES

Moderator:	Mr Vasileios PITSINIGKOS
Presentation by:	Prof. Ioannis AMVROSIADIS – Aristotle University of Thessaloniki
Industry:	10 representatives
Academic / Research community:	2 representative
Public Administration:	8 representative
Total participants for the 2 days:	20

Three participants from the government sector are affiliated with the Managing Authorities of the Regions of Thessaly and Western Macedonia; although they initially considered themselves as observers, they actively joined the conversation. Most of the participants attended both sessions of the working group that were divided in two days.

The following 11 ideas were initially generated and presented (tasks 1&2):

- 1) Technology improvements on non-pig meat products (halal);
- 2) Establishing technical requirements and certification of traditional meat products;
- 3) Shelf-stable meat product technology;
- 4) New protein production technology;
- 5) Mobile applications for promotion of meat products;
- 6) Re-using rabbit meat as by-product of fur-producing rabbit farms;
- 7) Promotion of local meat products via networks of interested consumers;

- 8) Production of new meat products using honey;
- 9) Canned chicken-based foods;
- 10) Pre-cooked foods without preservatives;
- 11) Religious certification (ie, halal, kosher) of meat and meat products.

Of the initial set of individual ideas, seven candidate partnerships were agreed through dialogue and consensus building. They were put into a vote to select three partnerships to be further elaborated. The table below summarises the results of the vote process. Each participant (P1, P2, ...P14) ranked 3 ideas with one to three asterisks. Table also includes origin of participants in terms of stakeholders group. "I" stands for industry, "R" for research and academic community and "P" for public administration.

**Table 3: Ideas ranking for WG2**

IDEA/PARTICIPANT & STAKEHOLDERS GROUP	P1/I	P2/P	P3/I	P4/I	P5/P	P6/P	P7/P	P8/R	P9/R	P10/I	P11/I	P12/P	P13/P	P14/I
1. New Protein Production Technology							*							
2. Re-using rabbit meat as by-product of fur-producing rabbit farms							**						*	
3. Canned, chicken-based, ready-to-eat foods			***	***					**			**		*
4. Religious certification of meat and meat products	*		*	**	***						**	***		**
5. Production of certified traditional meat products and their promotion via marketing innovations	***	***		*	**	***	***	***	***	***	*			
6. New dairy and meat products using honey		**			*	**		*	*	*		*	**	
7. Innovative technologies in producing local non-pig meat products with improved conservation ability	**	*	**			*		**		**	***		***	***

Next step was the discussion on preferred ideas (highlighted rows of the table) according to given methodology. The main outcomes of these discussions are described below.

## 2.1 RELIGIOUS CERTIFICATIONS OF MEAT AND MEAT PRODUCTS (IDEA 4)

*Partnership composition: 1 from industry and 3 from public administration*

### 1. Brief description of the idea-partnership

The idea is about organising and certifying all the links of the value chain of Hallal-certified meat (breeders, slaughterhouses, meat processing plants), initially to cover the needs of the Muslim population in REMTh and in the longer term to enter other markets abroad (EU countries with significant Muslim populations, Turkey).

### 2. Contribution of the different partners

The following key partners are needed to implement the idea:

- One or more meat processing enterprises to co-ordinate the partnership, to produce and to market the end products;
- One or more slaughterhouses to be hallal-certified, or new investments in hallal-certified slaughterhouses by the meat processing enterprises (vertical integration);
- Animal breeders; contract breeding can be considered;
- A hallal certification consultancy;
- Support from the local veterinary services of the regional administration in terms of licensing and permits;
- A research organisation specialising in food science / technology to support product development.

### 3. First considerations on framework conditions: legal problems, needs for human capital, capacities, education etc.

The regional administration would review the regulatory framework with respect to the criteria for hallal certification. In terms of skills required most of them are already in place. Finally, there are no issues regarding the availability of human capital to support the concept.

### 4. First financial considerations

Initial assumptions regarding financial aspects of the project are the following:

- A new slaughterhouse would cost something in the range of €1m; it would break even within five years;
- Investments in new capacity or equipment to be added within existing meat processing plants cannot be quantified at this time;
- Outsourced research for new foodstuff development is a minor cost when compared to capital expenditure.

### 5. Identification of first “next” steps

These include: an initial audit by a hallal certification consultancy to identify gaps; the elaboration of a feasibility study (including market research, budgeting of capital expenditure, contributions by partners); identification of funding opportunities, especially for capex.

### 6. Regional Strengths / Sources of Uniqueness

The partnership builds on a source of uniqueness of REMTh vs the other Greek regions, namely its strong Muslim minority, which is considerably underserved by industrially produced hallal foods. The Muslim minority provides not only an initial customer base to test hallal-certified products, but also a strong tradition in skills to produce them and cultural networks that can be transformed into economic assets..

### 7. Research / Technology Content

The proposed partnership is essentially an organisational innovation that might require at some time in the future technological support in terms of food science / technology. These research inputs would probably be sourced either in Kentriki Makedonia (Aristotle University of Thessaloniki, CERTH) or in Attiki (Agricultural University of Athens and others).

### 8. New business models

*Not answered by the partnership.*



### 9. Linkages to other sectors

Animal breeding (cows, sheep, goats) constitutes a strong regional specialisation in terms of gross value added and employment. This partnership builds on this strength.

### 10. Mobility issues

Both inward and outward mobility of food technologists could be considered.

### 11. A vision for the future

Capturing the potential for exports of Hallal-certified meat products in markets with strong Muslim populations.

### 12. Opportunities for by-products or suppliers networks for creating new markets

*Not answered by the partnership.*

### 13. Capacities needed to implement the idea

In the long term, market watch, marketing and distribution networks in markets with strong Muslim populations will be needed.

## 2.2 PRODUCTION OF CERTIFIED TRADITIONAL MEAT PRODUCTS AND THEIR PROMOTION VIA MARKETING INNOVATIONS (IDEA 5)

*Partnership composition: 1 from industry, 1 researcher and 2 from public administration*

### 1. Brief description of the idea-partnership

The idea is about introducing a private/proprietary quality certification scheme that would cover traditional (meat) products and guarantee the use of local inputs across the value chain and correlate these products with the historical and territorial context of REMTh. Part of this certification scheme would be an electronic infrastructure that would provide to end-users traceability-related information on the inputs and value-added information related to the end products.

### 2. Contribution of the different partners

The following key partners are needed to implement the idea:

- A significant mass of actors throughout the meat value chain, willing to comply with the proprietary certification scheme;
- A trusted third party organisation (public or private or public-private partnership) to act as network orchestrator, i.e. to co-ordinate certification criteria, to verify conformity, to deploy and manage the supporting IT infrastructure, and to promote the certification label to national and international markets.

The key partners above can be supported by research organisation on various certification/compliance issues, the Exports Promotion Organisation (OPE) on accessing international markets and ICT companies in building value-added services to their core certification scheme.

### 3. First considerations on framework conditions: legal problems, needs for human capital, capacities, education etc.

Most needed skills are already in place. No legal / regulatory issues are foreseen in the near future.

### 4. First financial considerations

A very rough estimation on initial capital needed for setting-up the network is in the range of €100k.

#### 5. Identification of first “next” steps

- 1) Promote the certification scheme to the regional value chain that leads to meat products;
- 2) Assess the marketing potential of a regional certification scheme with international markets;
- 3) Bridge the certification scheme to other relevant regional initiatives (e.g., wine, gastronomy, etc.).

#### 6. Regional Strengths / Sources of Uniqueness

This partnership builds on the strong, in terms of GVA & employment, primary sector in the region and also a very strong food processing sector

#### 7. Research / Technology Content

The proposed partnership is essentially an organisational innovation. The use of ICT to support the certification scheme by providing traceability information to final consumers is already acknowledged. Some technological issues related to verifying the locality of inputs require scientific support that cannot be further elaborated in this time.

#### 8. New business models

This partnership constitutes a network-type of business model, which is novel to the region.

#### 9. Linkages to other sectors

There are linkages with wine clusters and gastronomic tourism.

#### 10. Mobility issues

*Not answered by the partnership.*

#### 11. A vision for the future

Extend the certification scheme to other categories of primary sector products, foods and beverages and improve exports and mark-ups.

#### 12. Opportunities for by-products or suppliers networks for creating new markets

*Not answered by the partnership.*

#### 13. Capacities needed to implement the idea

More importantly to understand and manage network-type business models. Additional requirements include international marketing and software development.

### 2.3 INNOVATIVE TECHNOLOGIES IN PRODUCING LOCAL NON-PIG MEAT PRODUCTS WITH IMPROVED CONSERVATION ABILITY (IDEA 7)

*Partnership composition: 2 from industry, 1 researcher*

#### 1. Brief description of the idea-partnership

The idea is about developing innovative meat products characterised by improved conservation ability by exploring dehydration or natural antibacterial substances or traditional preservation methods.

#### 2. Contribution of the different partners

The following key partners are needed to implement the idea:

- Several meat product manufacturers interested in developing new products with improved conservation ability; they would provide experimentation test-sites, materials and equipment and exploitation paths for the methods developed through the partnership;
- A research organisation specialising in food science / technology that would provide their expertise in food conservation technology;
- Suppliers of meat production equipment to implement the process at an industrial scale.

### 3. First considerations on framework conditions: legal problems, needs for human capital, capacities, education etc.

Compliance with existing regulations on production of food is a must and should be embedded in any novel process resulting from the partnership. The existing human capital will be used; additional training on the process will be required on site.

### 4. First financial considerations

Initial assumptions regarding financial aspects of the project are the following:

- A collaborative research project in the range of €300-500k with 2-4 industrial partners and a research lab is needed;
- A new 800 m<sup>2</sup> plant with a capacity of 4000 kg/day is expected to cost around €1m.

### 5. Identification of first “next” steps

The project would be in place if a relevant call for proposal was identified and application for funding was made.

### 6. Regional Strengths / Sources of Uniqueness

This partnership builds on the strong food sector in REMTH, which is characterised by considerable installed capacity, know-how (especially on lamb and cow meat) and export orientation.

### 7. Research / Technology Content

The proposed partnership is research-oriented, aiming to explore options for creating novel meat products that do not require refrigeration by combining antimicrobial barriers (e.g., pH, dehydration, natural conservatives).

### 8. New business models

*Not answered by the partnership.*

### 9. Linkages to other sectors

*Not answered by the partnership.*

### 10. Mobility issues

Inward (research > enterprise) mobility of food scientists is applicable.

### 11. A vision for the future

Successful implementation of the partnership might lead to improved sales of innovative products with higher margins.

### 12. Opportunities for by-products or suppliers networks for creating new markets

*Not answered by the partnership.*

### 13. Capacities needed to implement the idea

Food hygiene and food safety as well as Food science.

### 3. DETAILED OUTCOMES: WORKING GROUP ON DAIRY PRODUCTS

Moderator:	Mr Petros SOUKOULIAS
Presentation by:	Dr George SAMOURIS – Veterinary Research Institute of Thessaloniki
Industry:	7 representatives
Academic / Research community:	5 representative
Public Administration:	2 representative
Total participants for the 2 days:	14

Group composition was rather stable during the 2 days of the exercise (only two participants did not take part in the second day but another two joined the working group). The following 11 ideas were initially generated and presented (tasks 1&2):

- 1) Production of feta cheese with LAB bacteria from raw material coming from Greek-bred animals;
- 2) Production of yogurt from cow's milk coming from Greek-bred animals;
- 3) Development of a new standard for the certification of milk aiming to the increase of the value added of the raw material and the differentiation of the final dairy product, therefore its entrance to international value chains;
- 4) Development of functional products based on local dairy products with the enrichment of carbohydrates from domestic legumes.
- 5) Production of milk and products based on milk with certified health claims, targeted to special groups of consumers;
- 6) Production of domestic LAB adapted by type of dairy product and regional distribution;
- 7) Development of methodology and toolkit for the support of verification and certification of dairy products;
- 8) Research and development for the revival and promotion local traditional dairy products (for example "rysogalo");
- 9) Checking of the effectiveness of probiotic foods coming from traditional probiotic strains and detection of residues of antibiotics as well as cytochromes activation. Production of probiotic products based on whey;
- 10) Research for new forms of packaging of dairy products towards the expansion of their with-drawn period;
- 11) Technical support for the development of a Certification Scheme for dairy products based on the local quality characteristics (geographic, chemicals and organoleptic properties).

Of the initial set of individual ideas, three candidate partnerships were agreed through dialogue and consensus building. They were considered as “umbrella-ideas” in the sense that they integrate the initial ideas

into three main concepts: (a) production of unique dairy products based on local characteristics (ideas 1,2,6,9), (b) certification scheme to guarantee the production of local dairy products (ideas 3,7,8,10,11) and (c) exploitation of by-products for the development of functional food (ideas 4,5).

The next stage was the expression of interest for forming potential partnerships according to the specific needs of the participants and the benefits that they would gain from a positive outcome. The participants were asked to express their preference to the ideas by answering a simple question: “rank the ideas that you like most”. The following table shows the results of this process. Each participant (P1, P2, ...P12) ranked the 3 ideas with one to three asterisks. Table also includes origin of participants in terms of stakeholders group. “I” stands for industry, “R” for research and academic community and “P” for public administration.

The table shows the ranking of the initial ideas and the sub-groups for partnerships formation.

**Table 4: Ideas ranking for WG3**

<b>IDEA/PARTICIPANT &amp; STAKEHOLDERS GROUP</b>	<b>P1 / I</b>	<b>P2 / I</b>	<b>P3 / I</b>	<b>P4 / R</b>	<b>P5 / P</b>	<b>P6 / R</b>	<b>P7 / R</b>	<b>P8 / R</b>	<b>P9 / R</b>	<b>P10 / I</b>	<b>P11 / I</b>	<b>P12 / P</b>
1. Development of a Certification Scheme for dairy products based on local quality characteristics (geographic, chemicals and organoleptic properties)	**	**	***	*	**	**	***	*	*	*	**	*
2. Sustained and integrated promotion of local, traditional fermented food systems from authentic microbial cultures	***	***	**	***	***	***	*	**	***	**	***	***
3. Development of functional products based on local dairy products	*	*	*	**	*	*	**	***	**	***	*	**

Next step was the discussion on the above ideas/partnerships according to given methodology. The main outcomes of these discussions are described below.

### 3.1 DEVELOPMENT OF A CERTIFICATION SCHEME FOR DAIRY PRODUCTS BASED ON LOCAL QUALITY CHARACTERISTICS (GEOGRAPHIC, CHEMICALS AND ORGANOLEPTIC PROPERTIES) – (IDEAS 3,7,8,10,11)

*Partnership composition: 2 from industry, 1 researcher and 1 from public administration*

#### 1. Brief description of the idea-partnership

The idea is about the development of an integrated quality certification scheme system for local products that could guarantee the use of local products and producers within the value chain of dairy products. Expected outcomes of the idea would be the promotion of local quality and functional characteristics of the factors that contribute to the milk and dairy production as well as the implementation of technology tools for the traceability authentication.

#### 2. Contribution of the different partners

The core of the idea is to build relations of different stakeholders of the local value chain of dairy products. Therefore for its effective implementation the participation of the following groups is required: Research Institutes with scientific knowledge and integration of applied ICT, public bodies with technical skills, local producers (animal breeders) & manufacturing of dairy products for the adoption of local/regional characteristics and social bodies that they will contribute to the identification and promotion of local/regional characteristics.

### 3. First considerations on framework conditions: legal problems, needs for human capital, capacities, education etc.

There are several issues that should be taken into account:

- Review and exploitation of policy tools of EU regarding classification of food products (Protected Designation of Origin-PDO, Protected Geographical Indication-PGI, Traditional Speciality Guaranteed-TSG, local products, biological products, etc.);
- Human capital for the implementation of the project for instance technicians, researchers, ICT experts, etc.;
- Education and training to final beneficiaries (producers) and to developers;
- Public bodies should be responsible for the design and monitor of new integrated processes.

### 4. First financial considerations

There were some early estimations according to the development stage of the project.

1. The initial stage refers to the research on various issues (flora, herbs, etc.) and building related know-how (800k€);
2. The next stage would include small-scale projects for the evaluation of the chosen methodology (10k€ per project – 100 small projects in total);
3. The final step would be the full deployment and integration of the Scheme with an estimated budget of 250k€.

### 5. Identification of first “next” steps

- 1) Development of a structure for the co-ordination of the Scheme under the aegis of the Regional Authority with the support of the Democritus University, EMTh Institute of Technology and other relevant stakeholder organizations;
- 2) Definition of the objectives of stage 1 (see above);
- 3) Analysis of the necessary procedures for the implementation of the small scale integration projects of stage 2 (see above);
- 4) Development of the integrated Scheme of stage 3 (see above).

### 6. Regional Strengths / Sources of Uniqueness

This partnership builds on the existence of competent research institutes within Democritus University and EMTh Institute of Technology, the existence of multiple common products within the Region and the existence of young and ambitious animal breeders and entrepreneurs within the dairy products sector.

### 7. Research / Technology Content

The proposed partnership is essentially an organisational innovation. The use of ICT to support the certification scheme by providing traceability authentication to final consumers is already acknowledged. The non-technological aspects of the project relate to the promotion of local quality and functional characteristics of the factors that contribute to the milk and dairy production. The latter is the core of the second partnership that has been formed within the working group (see below).

### 8. New business models

This partnership constitutes a cluster-type of business model, which is novel to the Region.

### 9. Linkages to other sectors

Integration with tourism value chain is obvious as well as other sub-sectors of the agrofood complex.

#### 10. Mobility issues

Different forms of mobility could be applied during the implementation of the project. These include:

- Industrial PhD programmes;
- Recruitment of highly qualified workforce;
- Workplace development projects;
- Learning networks.

#### 11. A vision for the future

Possible evolvement of the project would be the enlargement of the Scheme after the assessment of the results of the initial implementation of the integrated system of quality control, certification and traceability. Successful results would lead also to incorporation of new producers and manufacturers with increasing rates.

#### 12. Opportunities for by-products or suppliers networks for creating new markets

Niche market characteristics should be assessed first to come up with a solid approach.

#### 13. Capacities needed to implement the idea

More importantly to understand and manage network-type business models (management and monitoring of the process), since the whole model is based on the exploitation of the synergies that should be created among various bodies and groups (researchers, entrepreneurs, local administration, etc.).

### 3.2 SUSTAINED AND INTEGRATED PROMOTION OF LOCAL, TRADITIONAL FERMENTED FOOD SYSTEMS FROM AUTHENTIC MICROBIAL CULTURES (IDEAS 1,2,6,9)

*Partnership composition: 2 from industry, 2 researcher and 1 from public administration*

#### 1. Brief description of the idea-partnership

The idea refers to the isolation and identification of the microbial strains from local traditional milk products. It also refers to probiotic properties standards testing, testing for research activation of cytochromes, as well as antibiotic resistance testing. Main expected outcomes are:

- Experimental application in food products and evaluation of their characteristic organoleptic properties;
- Set up of a Laboratory Bank of wild isolated strains;
- Application for international patents and commercialization of the final outputs/products.

#### 2. Contribution of the different partners

The following key partners are essential to implement the idea:

- Research Institutes, Universities;
- Local small and medium scale producers (animal breeders) & manufacturing of dairy products;
- Public Bodies – Regional Administration of Agriculture and other similar bodies.

#### 3. First considerations on framework conditions: legal problems, needs for human capital, capacities, education, etc.

There is an obstacle regarding national legal framework regarding the production of ripening dairy goods from raw milk. It is expected to change because of the pressure of the cheese producers. Human resources that are needed include HEI researchers with skills to the relevant fields and disciplines, local animal breeders, industrials and producers. Education to final beneficiaries (breeders and dairy producers) is essential for the necessary changes of the production methods and finally financing of the project would supplement public spending on the implementation of the actions needed.

#### 4. First financial considerations

Estimated cost is 1m€ with an expected duration of 18-24 months.

#### 5. Identification of first “next” steps

- 1) Initial contacts with potential stakeholders;
- 2) Presentation of the project and its goals;
- 3) Establishment of necessary commitment;

#### 6. Regional Strengths / Sources of Uniqueness

This partnership builds on the existence of a great variety of local/regional traditional dairy products.

#### 7. Research / Technology Content

The project is based on the creation of indigenous microbial cultures for disposal to produce local traditional milk products. Therefore HEI's Research Institutes in national and international level are needed to contribute to the research part of the project.

#### 8. New business models

The idea could be better implemented to cluster-type forms of co-operation due to the small size of the local producers.

#### 9. Linkages to other sectors

The project practically controls the whole value chain of dairy products, therefore integrates with primary sector, animal husbandry and meat / meat products. It has a serious effect on origin, locality and nutrition of the productive livestock. Integration with tourism value chain is also strong.

#### 10. Mobility issues

Different forms of mobility could be applied during the implementation of the project. These include:

- Industrial PhD programs;
- Workplace development projects;
- Learning networks.

Possible Programs to be targeted are Erasmus, Erasmus+ and Erasmus Mundus.

#### 11. A vision for the future

After the completion of the project, application for international patents and commercialization of the final outputs/products would be the next step. As explained before, there is a strong link with the Certification Scheme of the partnership No 1.

#### 12. Opportunities for by-products or suppliers networks for creating new markets



Possible exploitation of by-products should be further investigated since it is not very obvious for the moment.

### 13. Capacities needed to implement the idea

The main capacities needed relate to technical competencies and research capacities within REMTh and elsewhere. Other important aspects include engagement of investors and regional key industrial players.

## 3.3 DEVELOPMENT OF FUNCTIONAL PRODUCTS BASED ON LOCAL DAIRY PRODUCTS (IDEAS 4 AND 5)

*Partnership composition: 1 from industry 2 researchers*

### 1. Brief description of the idea-partnership

The idea is about the research and development of functional products based on local dairy products. The functional products will be enriched with different ingredients (for example carbohydrates from domestic legumes) and will be promoted to special groups of consumers. The project is closely related to the other 2 partnerships of the same working group, especially with the development of local microbial cultures that might boost the functional food sector. Possible exploitation of by-products should be further investigated, since they present a high market potential.

### 2. Contribution of the different partners

There is a need for engagement from different stakeholders groups. The most important are:

- 1) HEI Research Institutes (for example department of Molecular Biology or Environmental Engineering).
- 2) Local small and medium scale SME's of manufacturing of dairy products
- 3) Specialised consultants..

### 3. First considerations on framework conditions: legal problems, needs for human capital, capacities, education, etc.

There is no issues national legal framework regarding the production of functional food products. Human resources that are needed include HEI researchers with skills to the relevant fields and disciplines (food technologists, molecular biologists, microbiologists, veterinarians, agriculturists, etc).

### 4. First financial considerations

Initially small scale projects could be set-up with an estimated duration of 18 months and a respective budget of 200k€ per project. According to the results it is possible to develop larger scale project with the assumption of the participation of more SMEs for a common targeted product.

### 5. Identification of first “next” steps

- Use of innovation vouchers to define objectives and possible intervention areas;
- Identification of small scale projects.

### 6. Regional Strengths / Sources of Uniqueness

Agro-food has been set as the top priority of the RIS3 strategy of REMTh. Within agro-food complex dairy production is a serious in terms of GVA and employment value chain.

### 7. Research / Technology Content

Local producers have inherited knowledge on products and methods of production. This can be re-enforced by scientists and researchers within the area of bio-sciences. The main opportunity that derives from the external environment is the high concerns on valuable substances on human health and need for addressing health claims to sustain healthy food.

#### 8. New business models

The idea could be better implemented to cluster-type forms of co-operation between producers and HEIs. The latter could enhance research - entrepreneurship schemes by promoting spin-offs creation.

#### 9. Linkages to other sectors

The project could assist the development of “open-to-public” innovative producers of functional food products. Integration with tourism value chain is also possible.

#### 10. Mobility issues

Different forms of mobility could be applied during the implementation of the project. These include:

- Visiting post-Docs from abroad
- Workplace development projects for local post graduate students

#### 11. A vision for the future

The project is closely related to the other 2 partnerships of the working group, especially with the development of local microbial cultures that might boost the functional food sector.

#### 12. Opportunities for by-products or suppliers networks for creating new markets

Possible exploitation of by-products should be further investigated, since they present a high market potential. Existing supplier networks are useful for the introduction of the functional products to the market.

#### 13. Capacities needed to implement the idea

Academic and research competencies especially within the disciplines of Molecular Biology and Food technology are necessary for the implementation of the project. Sources of milk supplies within REMTh in order to minimize reverse marketing cost are also essential. Technical competencies and know-how of regional key industrial players as well as specialised consultants to support project deployment are considered as valuable elements of the action.

### 4. DETAILED OUTCOMES: WORKING GROUP ON ORGANIC MEAT & DAIRY PRODUCTS AND SUSTAINABLE PRODUCTION

Moderator:	Mr Yiannis KESANLIS
Presentation by:	Prof. George ARSENOS – Aristotle University of Thessaloniki
Industry:	7 representatives
Academic / Research community:	3 representative
Public Administration:	6 representative
Total participants for the 2 days:	16

Group composition was changed significantly during the 2 days of the exercise. From the 16 participants of the first day only 10 were present in the second day of the participatory exercise. The following 13 ideas were initially generated and presented (tasks 1&2):

- 1) Dairy / Meat Sectors Cluster to comprise (indicatively): gelded goat meat, regional epidemiological control mechanisms, milk from local / Greek herds for quality product diversification;
- 2) Recording and valorisation of regional data - innovative quality control methods (e.g. vision-based inspection quality control);
- 3) Biogas from animal waste with research collaboration and thermal energy production - co-funding to be sought from the National Strategic Reference Framework and commercial exploitation;
- 4) New technologies or new production methodologies to innovate traditional production processes (e.g. cheese bags) or new added value dairy products (e.g. ariani with honey);
- 5) Livestock zones / production parks. Producers' cluster to take advantage of shared resources and services (e.g. standardisation, veterinary services, etc.) with additional research activities;
- 6) Revert to operation for past structures (e.g. ELGO) to support research in agriculture and veterinary science;
- 7) Innovation in fodder (e.g. sorghum animal feed) with reduced hygiene risks in contrast to existing solutions (e.g. aflotoxins in corn). - Branding of regional/national varieties/herds;
- 8) Usage of tranquilizers in animal culling for reducing meat toxins;
- 9) Education and training in animal farming, dealing with human resources regional constraints;
- 10) Soil studies, measurements and mapping;
- 11) Goat and sheep animal shows/marketplaces;
- 12) Regional characteristics exploitation (e.g. minority traditions, regional natural environment/herbs, regional herds, culinary/gastronomy traditions) and marketing;
- 13) Smart wastes management / separation of organic from inorganic waste to support sustainability.

The participants identified obvious connections between proposed ideas and felt it was more productive not to rank differently very similar proposals. Instead they produced a more compact version of the initial ideas, as seen in the following table, wherein all initial ideas are accommodated; leaving unranked ID 6.

ID	Original idea(s) ID(s)	Integrated Idea
1	1, 5	Dairy / Meat Sectors Cluster to comprise Regional Epidemiological Control Mechanisms  Livestock zones / production parks. Producers' cluster to take advantage of shared resources and services (e.g. standardisation, veterinary services, etc). with additional research activities.
2	1, 4, 12	New technologies or new production methodologies to innovate traditional production processes (e.g. cheese bags) or new added value dairy products (e.g. ariani with honey). Regional characteristics exploitation (e.g. minority traditions, regional natural environment/herbs, regional herds, culinary/gastronomy traditions) and marketing. Milk from local / Greek herds for quality product diversification.
3	7, 8	Innovation in fodder (e.g. sorghum animal feed) with reduced hygiene risks in contrast to existing solutions (e.g. aflotoxins in corn). Branding

ID	Original idea(s) ID(s)	Integrated Idea
		of regional/national varieties/herds.
4	3, 13	Biogas from animal waste with research collaboration and thermal energy production - co-funding to be sought from the National Strategic Reference Framework and commercial exploitation. Usage of tranquilizers in animal culling for reducing meat toxins.
5	2, 10	Recording and valorisation of regional data. Innovative quality control methods (e.g. vision-based inspection quality control). Soil studies, measurements and mapping. Sharing data and services based on data.
6	9	Education and training in animal farming, dairy and meat industries

Next step was the creation of partnerships based on selection of the most appealing integrated ideas. The working group decided not to form different partnerships but rather to act as a larger partnership and elaborate on integrated ideas 1,2,4 and 5. The main outcomes of these discussions are described below.

#### 4.1 DAIRY / MEAT SECTORS CLUSTER (IDEAS 1 AND 5)

*Partnership composition: 3 from industry, 1 researcher, 5 from public administration and 1 from non-government organization*

##### 1. Brief description of the idea-partnership

The idea is related to the formation of a wide cluster initiative comprised by as many actors of the meat and dairy value chain. The idea's main goals are:

- To comprise a regional epidemiological control mechanism;
- To establish of livestock zones / production parks;
- To take advantage of shared resources and services (e.g. standardisation, veterinary services, etc.) with additional research activities.

##### 2. Contribution of the different partners

Different partner groups include animal farmers, slaughterhouses and local/regional authorities.

##### 3. First considerations on framework conditions: legal problems, needs for human capital, capacities, education, etc.

Increased infection risks is a very critical issue. Secondary considerations include handle fragmentation of animal farming and accessibility issues.

##### 4. First financial considerations

Hard to estimate. It is size dependent.

##### 5. Identification of first “next” steps

- 1) Location study;
- 2) Setting/updating of institutional framework;
- 3) Consensus building among producers and regional authority services support;
- 4) Infrastructure support (access, electricity, water).

#### 6. Regional Strengths / Sources of Uniqueness

Main regional strengths are considered to be the regional livestock capital (sheep/goat primarily), the proximity of natural farmlands and previous relevant experience.

#### 7. Research / Technology Content

Research to optimize yield based on animal feed needs (requiring agriculture, veterinary science support) is foreseen as the main technology to be implemented within the project.

#### 8. New business models

The idea could be better implemented to cluster-type forms of co-operation among producers with a possible shareholding form. Other aspects of business models to be implemented include:

- Agro-food collaborative entities with multi-stakeholder participation;
- Incorporation of processing capabilities within farming;
- Waste processing within business units;
- Certification and traceability;
- Contracted farming.

#### 9. Linkages to other sectors

Sectors that could be influenced by the project are tourism, culture, agriculture, processing industries, logistics networks and educational/research sectors (e.g. in measurements/certification, technology support).

#### 10. Mobility issues

Different forms of mobility could be applied during the implementation of the project. These include:

- Good practices transfer from other regions/countries;
- Low technological-intensity education needs (extended in time);
- Training in certification/quality assurance/control for end and intermediate products.

#### 11. A vision for the future

Integration of additional business and supply chain entities, scaling with new units and higher quality assured products are some of the possible positive effects by the implementation of the project.

#### 12. Opportunities for by-products or suppliers networks for creating new markets

No opportunities for by-products. However collaborative exhibitions, animal products and animal shows and consumers networks might present interesting marketing aspects.

#### 13. Capacities needed to implement the idea

Entrepreneurial spirit down to the animal farmer level and collaborative entrepreneurship culture are perceived as the main capacities to implement the idea.

### 4.2 RESEARCH AND/OR IMPLEMENTATION OF NEW TECHNOLOGIES AND METHODOLOGIES FOR THE PRODUCTION OF NEW VALUE ADDED PRODUCTS (IDEAS 1,4,12)

*Partnership composition: 3 from industry, 1 researcher, 5 from public administration and 1 from non-government organization*

### 1. Brief description of the idea-partnership

The idea is about the development of new technologies or implement new production methodologies in order to innovate at traditional production processes (e.g. cheese bags) or new added value dairy products (e.g. ariani with honey). The idea's main goals are:

- The exploitation of regional characteristics (e.g. minority traditions, regional natural environment/herbs, regional herds, culinary/gastronomy traditions, etc.);
- The implementation of modern marketing techniques to capture niches with recorded price premiums.

### 2. Contribution of the different partners

Different partner groups include gastronomy/culinary professionals, actors of the tourism sector (hospitality professionals, restaurants) food producers, certification support service providers, cultural organisations and of course producers (individual, collaborative, companies).

### 3. First considerations on framework conditions: legal problems, needs for human capital, capacities, education, etc.

Some early considerations include certification and organic branding/certification.

### 4. First financial considerations

Hard to estimate. It is size dependent.

### 5. Identification of first “next” steps

- 1) Organizational design and planning;
- 2) Networking/dissemination;
- 3) Creation of collaborative schemes.

### 6. Regional Strengths / Sources of Uniqueness

Main regional strengths are the rich regional/historical/ethnic background, the regional characteristics, the local micro-climate and the quality of raw materials.

### 7. Research / Technology Content

Search for, transfer and adoption of best practices is foreseen as the main “technology” aspect for the implementation of the project.

### 8. New business models

The idea is based on integration between producers and consumers networks and on fostering of strong business chain among different stakeholders (restaurants, accommodation providers/hotels, local distribution networks). Branding of products with regional characteristics and regional 'myth' associated with them is also an important element for business modeling within the project.

### 9. Linkages to other sectors

Sectors that could be influenced by the project are tourism (in terms of gastronomy) and culture.

### 10. Mobility issues

Experiential learning placements / support is the most likely form of mobility that could be applied during the implementation of the project.

### 11. A vision for the future

Established regional branding, increase of exports, escalation of the collaborative model based on human capital attraction, further linkages with other sectors and development of new products are some of the possible positive effects by the implementation of the project.

#### 12. Opportunities for by-products or suppliers networks for creating new markets

No opportunities for by-products. However strong consumer networks, enhanced local cultural organizations, internet presence/promotion and cross regional synergies and networking might present interesting marketing aspects.

#### 13. Capacities needed to implement the idea

Entrepreneurial spirit down to the animal farmer level and collaborative entrepreneurship culture are perceived as the main capacities to implement the idea.

### 4.3 ENERGY PRODUCTION FROM ANIMAL WASTE (IDEAS 3 AND 13)

*Partnership composition: 3 from industry, 1 researcher, 5 from public administration and 1 from non-government organization*

#### 1. Brief description of the idea-partnership

The idea is about the production of biogas (and other forms of energy) from animal waste and its exploitation. The idea's main goal is the implementation of an environmentally friendly alternative method for energy production.

#### 2. Contribution of the different partners

Different partner groups include animal farmers, environmental/energy technical companies/professionals and energy producers.

#### 3. First considerations on framework conditions: legal problems, needs for human capital, capacities, education, etc.

Some early considerations include environmental / energy legislation and normative issues.

#### 4. First financial considerations

Hard to estimate. It is size dependent.

#### 5. Identification of first "next" steps

Next step is the establishment of critical mass for ensuring viability of the project.

#### 6. Regional Strengths / Sources of Uniqueness

Existing farming is good basis for establishing sufficient critical mass.

#### 7. Research / Technology Content

Optimisation studies should be elaborated with the implementation of multiple criteria like financial, energy and environmental in order to prove sustainability. Additional study for the exploitation of by-products is also required.

#### 8. New business models

The idea is based on the development of a stakeholders network for the supply of raw materials (farmers, slaughterhouses, restaurants/hotels). Possible new investment schemes will also be incorporated based on MoU for supply/demand pre-agreements.

#### 9. Linkages to other sectors

Obvious linkages with energy sector (multi-sourcing in energy production, for example in greenhouses).

#### 10. Mobility issues

Energy and environmental management training is the most likely form of mobility that could be applied during the implementation of the project.

#### 11. A vision for the future

Successful results might lead to higher levels of resources exploitation and sustainability. Significant improvement on environmental impact and innovative entrepreneurial synergies are also major future options.

#### 12. Opportunities for by-products or suppliers networks for creating new markets

New marketing models of consumer/producer networks are foreseen.

#### 13. Capacities needed to implement the idea

Energy and environmental engineering as well as chemical and biochemical processes are some of the key competences required. Entrepreneurial spirit is necessary for the exploitation of the initial concept.

### 4.4 DEVELOPMENT OF A NETWORK FOR COLLECTING AND MANAGEMENT OF DATA ON MILK AND DAIRY PRODUCTION CHAIN (IDEAS 2 AND 10)

*Partnership composition: 3 from industry, 1 researcher, 5 from public administration and 1 from non-government organization*

#### 1. Brief description of the idea-partnership

The idea is about the Creation of a regional network for recording and valorisation of regional data (from soil studies, measurements and mapping) and their management to the local producers' benefit. The idea's main goal is the development of an interactive platform designed to assist local stakeholders (meat/dairy production / distribution) in decision making. The platform would also assist Regional Administration in policy making.

#### 2. Contribution of the different partners

Different partner groups include stakeholders from different stages of the production chain (animal farming, meat/dairy processing industries), regional/local authorities, businesses offering data processing services or decision/planning support services based on data.

#### 3. First considerations on framework conditions: legal problems, needs for human capital, capacities, education, etc.

Some early considerations include data management and safety issues.

#### 4. First financial considerations

Hard to estimate. It is scale dependent.

#### 5. Identification of first "next" steps

- 1) Networking;
- 2) Measurements;
- 3) Technological infrastructure;
- 4) Dissemination/Awareness campaign.

#### 6. Regional Strengths / Sources of Uniqueness



*Not answered by the group.*

#### 7. Research / Technology Content

Soil studies/measurements and Information and Communication Technologies (ICT) are key technology factors for the successful implementation of the project. Decision support, innovative quality management/control (e.g. image processing) might be considered as supplementary ones.

#### 8. New business models

The concept of the project is based on service model provision (web services mainly).

#### 9. Linkages to other sectors

There are clear linkages with measurements and ICT sector.

#### 10. Mobility issues

Training in measurements technology and ICT are the most likely forms of mobility that could be needed during the implementation of the project.

#### 11. A vision for the future

Successful results might lead to open data and relevant platform for exploitation by all stakeholders in meat/dairy production / distribution / consumption chain within the Region.

#### 12. Opportunities for by-products or suppliers networks for creating new markets

New marketing model of co-sharing of data and services is foreseen.

#### 13. Capacities needed to implement the idea

Measurements and ICT are the key competences required.

## ASSESSMENT

*This section provides an initial assessment of the outcomes of the first EDP focus group drawing on the opinions expressed by participants and recorded by the four working group rapporteurs.*

The overall exercise was carried out as planned. The blend of participants was quite balanced, thus allowing various perspectives to emerge. Initially, the entrepreneurs thought that this process would help solve their individual issues, the need for generalisation and partnership formation was not understood in the beginning of the exercise. Overall, all participants said that they enjoyed the process and expressed positive comments.

The methodology applied was improved since the first workshop in terms of allowing more time for creative discussion. However, the EDP process was spread over two days. This resulted in 'loosing' some of the participants from one day to another. More specifically:

- For WG1 all the researchers were absent on the second day. This may have led to less qualification of the ideas in relation to the research component;
- For WG4 the group capacity felt from 16 participants on the first day to 10 in the second one.

In addition the start of the second day was considerably delayed to allow for farmers and businesses to attend. Given that their presence is essential in this process we may need to consider carrying out next workshops in two half days with the presentations not that much relevant to businesses taking up the

morning. Another option would be to organise the event on week-end time. Of course this depends on the sector specificities.

Civil society organisations were again largely missing, even though 2 participants from non governmental organisations were present. This is particularly important given also the sensitivity of the food sector to social and cultural considerations. There are several societal organisations that can be invited in following the ideas that resulted from the workshop. These include for instance Philadelphia (<http://philadelphieia.blogspot.gr/>, Slow Food Thrace (<https://www.facebook.com/slowfood.thrace>, WWF, Greenpeace, etc.).

As in the previous workshop time keeping was again a difficult task. The next events can benefit from less presentations and more time for deliberation. The first day can be dedicated for example to scheduled presentations and also ad hoc interventions from the audience of people who want to present their cases. The second day can be devoted to the actual work. If more time was available discussions might have gone further to actual building an action plan that would commit at least the people in the specific groups.

Moreover a final session where a mixing of initial working groups takes place may lead to improved synergies and better processing of ideas leading to ideas spillover / cross-fertilisation between different working groups.

It is important that the attendants are clear about what they will be asked to do in the next workshops. If an invitation is sent out clearly stating that attendees will actively contribute to developing ideas for support by the regional authorities, attendance from business may be increased. In addition, the opportunities offered by the networking character of these events should also be highlighted. Certain collaborations were already established as side-effects of the formal activities of the workshop.

Another important point is to how to stimulate innovation element during ideas contribution. Best practices by innovative professionals and non-academic innovation-oriented contributions from research and academic communities can be further pursued.

In some working groups there were a lot of initial ideas proposed. Therefore it was decided to first discuss upon them and try to “cluster” them into more generic ones and then try to rank and to proceed to the formation of partnerships.

Despite some shortcomings, the positive mentality, real interest and willingness of people was also present in this workshop. This made them engage in discussions and produced useful input for designing the next steps in the follow up activities of the project. A momentum is created that the Regional authorities should build on for the benefit of the specific project as well as more generally in designing and facilitating bottom-up governance structures that include all key stakeholders in generating ideas, building networks and collaborations and translating these into concrete policy measures and even research and business strategies action plans. The continuation and follow up of the discussions is not only desired but also necessary so that this project is not discarded (as many others in the past) because of no/limited impacts.