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D 6.1 & 6.2 Identification and prioritisation of collaborative R&D

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I - INTRODUCTION

This is the final report of WP6.

- 1. The objectives for WP 6 set out in Annex 1 "Description of Work", are:
 - 1) To identify and prioritise possible topics for future research which are of common interest to all or some of the ERANET partners.
 - To identify research areas where increased cooperation between national or regional programmes could bring major synergies and progress.
 - 3) To assess the level of interest amongst the ERANET partners in cofunding projects.
 - 4) To provide recommendations to the ERANET on how legal, organisational and administrative barriers for joining activities between national and regional research programmes could be addressed.
 - 5) To make recommendations on best practice within research programmes.
 - 6) To assess opportunities for specific joint research programmes and utilisation of common research facilities.

2. Our work in meeting these objectives complements WP4, which is led by the Ministry of Agriculture and Forestry in Finland. WP4 seeks to identify research areas where an increased cooperation between national or regional programmes could bring major synergies and progress based on existing partners' research portfolios. In identifying research themes of common interest to all or some ERANET partners and by providing recommendations on best practice within research programmes, this report fulfils the WP6 objectives.

II – BACKGROUND

3. In June 2005, Defra (the UK partner) proposed that to further the key objectives of WP6, partners' current R&D strategies, research needs and investment plans could provide evidence for the identification of future research investments which are of common interest to all or some of the ERANET partners. Defra wrote to all partners in November after receiving confirmation of the agreement of the Management Board. Partners provided relevant documents until 1st April 2006. Documents were provided in their original form – a range of Defra staff members with relevant scientific expertise analysed documents in French, Swedish, German and Danish. In March 2006, a workshop between partners' representatives was conducted with the aim of collecting further information on research needs common to at least three partners. Groups of three partners were asked to provide themes, topics or researchable questions common to at least three partners.

4. This report sets out research themes of common interest to at least three partners and quantifies the extent of partners' interest in these themes,. The report responds also to all other WP6 objectives, listed in the introduction.

5. This report is based entirely on the written material provided by partners (Annex 1), the outputs of the WP6 workshop organised, 2nd March 2006 (Annex 2), and the other evidence provided by partners up until 1st April 2006.

III - DOCUMENTS PROVIDED BY PARTNERS ON RESEARCH NEEDS AND STRATEGIES

6. The Federal Ministry of Agriculture, Forestry, Environment and Water Management **BMLFUW** (Austria)

A range of documents ⁽¹⁾ detail the BMLFUW research needs and how they were identified. They comprise high-level themes e.g. "*Optimisation of crop production*" and more detailed needs within these themes e.g. "*The principles of plant breeding for organic production*". The documents from the BMLFUW are detailed enough to inform the identification of common specific themes of interest.

7. The Ministry of Food, Agriculture and Fisheries **DFFAB**, (Denmark) Relevant information is provided in documents ⁽²⁾ and the CORE Organic Country report, with information on how research needs identified under eight broad themes. Documents are detailed enough to inform the identification of common specific themes of interest.

8. The Ministry of Agriculture **MAAPAR**, (France)

Documents ⁽³⁾ outline the broad research areas of interest and the CORE Organic Country report provides an understanding of the process of how research needs are identified.

9. The Ministry of Agriculture and Forestry MMM, (Finland)

A strategy document ⁽⁴⁾, the CORE Organic Country report ⁽⁴⁾, and personal communication provide information on how research needs were identified and the high-level themes covered.

10. The Federal Ministry of Consumer Protection, Food and Agriculture **BMVEL**, (Germany)

A range of documents ⁽⁵⁾ describe the research needs and how they were identified. The research needs are presented in detail. They comprised high-level themes and more detailed needs within these themes. The documents from the BMVEL were detailed enough to inform the identification of common specific themes of interest.

11. Ministry of Agriculture and Forestry **MiPAF**, (Italy)

The CORE Organic Country ⁽⁶⁾ report has been used to gather information. From the Core Organic Country Report, it is possible to establish how research needs are identified but not what these needs are.

12. The Ministry of Agriculture, Nature and Food Quality **MinLNV**, (The Netherlands)

A policy document ⁽⁷⁾ sets out the national policy targets on organic farming and the CORE Organic Country Report ⁽⁷⁾ indicates how research needs are identified but not what they are. Further correspondence has established what are the research needs.

13. The Research Council of Norway **RCN**, (Norway)

Documents ⁽⁸⁾ provide details of national programmes which are not specific to organic but integrate the work within all food and land use research. From these documents it is not clear how research needs are identified. The research needs for Norwegian food and land use in general are included. These needs are high-level themes for all agriculture with more detailed needs within these themes. General research themes for organic farming are identifiable. Further correspondence and input have established what are the research needs.

14. The Swedish Research Council for Environment, Agricultural Science and Spatial Planning **FORMAS**, (Sweden)

A range of documents ⁽⁹⁾ describe the process of how the research needs are developed and present details on research needs. They comprise high-level themes and more detailed needs within these themes. The documents from FORMAS were detailed enough to inform the identification of common specific themes of interest.

15. The Swiss Federal Office for Agriculture **FOAG**, (Switzerland)

Information is presented through a range of documents ⁽¹⁰⁾ on how research needs are identified. Specific organic research needs are not identifiable from the documents but the aims of federal research programme for the agricultural policy sector are. These are high-level themes.

16. The Department for Environment, Food and Rural Affairs **Defra**, (UK) Documents ⁽¹¹⁾ outline the programme's strategy and research objectives. The draft recommendations of the Defra organic farming research advisory committee provide evidence of Defra's future research investment needs. The documents from Defra were detailed enough to inform the identification of common specific themes of interest.

IV - RESEARCH NEEDS OF PARTNERS COLLATED FROM PARTNERS' INPUTS

17 Crop production

- The improvement of production efficiency through reduced costs and/or increased yield.
- The improvement of rotations and nutrient management, particularly in stockless systems.
- Crop management technologies, e.g. mixed or intercropping systems, and engineering developments in cultivation and harvesting.
- The improvement of production in horticulture and viticulture.
- The improvement of the impact of crop production on the environment (e.g. replacing copper based pesticides)

18 Plant breeding, varieties and seeds

- The selection of varieties for organic farming.
- The development of appropriate plant breeding techniques for organic farming.
- The development of new varieties for organic farming.
- The production of high quality organic seed, including the control of seed borne diseases.

19 Pest, disease and weed management

- The development of mechanical weed control.
- Understanding the role of biodiversity in crop management and protection.
- The management of pests and diseases.
- Understanding and addressing the impact of reducing the use of copper based pesticides.

20 Livestock production

- The improvement of production efficiency through reduced costs and/or increased outputs.
- The development of improved production systems, e.g. in poultry production.
- The improvement of product quality (e.g. milk and meat).

21 Livestock breeding

- The improvement and extension of animal genetic resources appropriate to organic farming systems.
- The identification of breeds that are appropriate for organic farming.

22 Animal health and welfare

- Disease and parasite management. Various approaches to preventing health problems and therapeutic concepts, particularly to reduce reliance on antibiotics.
- Animal behaviour.

23 Animal feeding and nutrition

- Research to support local feed production.
- The improvement of the quality of forage/feed production.

24 Farming and agricultural systems.

- Linkages and communication between livestock and non-livestock producers (feed, nutrients).
- Development of stockless crop production systems.
- Organic farming in marginal areas.
- Role of organic farming in multifunctional agriculture systems. How the various elements of the farming system, farmed areas, non-farmed areas, production, marketing etc. contribute to the farming system as a whole.
- Contribution to sustainable development.
- Economically and environmentally sustainable production systems.

25 Environment and natural resources.

Pollutants

• Understanding the impact of reducing the use of copper based pesticides.

Nutrients resources

- Technologies for dealing with farmyard manure and other organic waste.
- Rotations and nutrient cycling.
- The improvement of soil and nutrient management and the maintenance of soil fertility.
- Resource recycling within systems (at a range of scale e.g. farm, region).

Energy resources

- Improving energy efficiency and the exploitation of solar energy inputs.
- Understanding the factors affecting the use of energy in food manufacturing and distribution.

Biodiversity

• The protection of biodiversity.

• Understanding the impact of farmed species and genotypes on biodiversity.

Understanding the impact of organic farming on the environment

- Life Cycle Assessment of products and systems.
- The impacts of organic farming on the environment (including biodiversity). Understanding how different production systems impact on the environment, including the marine environment.
- Minimising the environmental impacts of organic farming.
- Reducing reliance on non-renewable resources.
- Understanding the impact of organic conversion on the environment

26 Socio-Economics.

Economic and social

- The development of economic and social outcomes.
- Supporting the integrity of organic farming with respect to economic and social objectives.
- Understanding the contribution of organic farming to social outcomes in rural areas.
- Socially acceptable development of the agricultural sector

Marketing of organic food.

- Understanding consumers' attitudes, drivers and demands.
- Identifying and informing successful marketing strategies.
- Understanding the size of the market for organic products.
- Knowledge of the size of the organic production sector.
- Understanding the impact of large scale change to organic production consequences for the market.

Supply chain.

- Understanding the balance of supply/demand.
- Improving recording and Quality Assurance systems.
- Improving local food systems.
- Macroeconomic effects of integrating crops and livestock on farms and changed stocking densities.

Organic conversion

- Impact of organic conversion on practice, economy and the environment.
- Determinants of farm success in conversion.
- Understanding the impact of large-scale conversion to organic farming. Drivers and barriers.

Rural development

- Improving services provided by organic farming in the rural economy and society.
- Understanding the role of organic farmers and farming families in rural society.
- Knowledge management within society.

27 Food

Food quality.

The improvement of storage and processing.

Understanding the impact of the food chain on product quality, risks and consumption.

Understanding the integrity of non-organic inputs and processing aids.

Knowledge on the nutritional quality of organic food and food health safety. The development of holistic food quality measurement methods.

Food Safety

Safety of organic farming methods, i.e. manure use, and impacts on food safety.

28 Legal and Standards

- Integrity of non-organic inputs and processing aids.
- Regulation, trade and product quality
- Research to support the EU organic regulation and organic standards.
- Organic standards and their impact to international trade.
- Contribution to national and international principles and codes

V - POSSIBLE TOPICS FOR FUTURE RESEARCH WHICH ARE OF COMMON INTEREST TO ALL OR SOME OF THE ERANET PARTNERS.

29. This objective is met with the publication of the initial report in February 2006. This output was augmented with outputs from the WP6 workshop in March.

30. The information on research needs presented by partners, through comments on the initial report, country reports and the WP6 workshop in March in Florence has been further analysed. Table 1 lists those themes that are evident in the material provided by 3 or more partners together with the totals of prioritisation scores allocated by partners. Individual prioritisations, made by each partner are presented in Annex 3. The themes which were original supported by three or more partners were individually prioritised by each partner (except MiPAF) on a scale of 1 to 3, 3 being the highest score. Formas (SE) provided two prioritisations, one for its own projects and one for the research needs that Formas would like to see developed transnationally. The Formas scores for transnational projects were used here.

Research needs common to at least three partners	Comments	Prioritisation (maximum of 30)	Number of interested partners	Number of high scores
Crop production				
Improving crop production	Due to the geographical and cultural differences in which crops are grown and used, and partners' need for their research activity to remain close to their research users, crop management research might not be a priority for transnational research activity.	10	8	0
Building and maintenance of soil fertility.	Previous partners' research on the type of soil and crops used might help in developing a relevant transnational project.	18	9	3
Soil nutrient management in horticulture and its impact on the environment	Transnational research would need to be able to accommodate large scale variation in soils and variation in climate.	13	7	1
Weeds, pests and diseases management	Further work to identify the specific targets for transnational research is required on the part of collaborating partners if an effective research investment is to be made. According to WP4, a lot of work has been done and it would be necessary to have further details on what is required and has been done.	21	10	4
Intercropping systems: Crop protection, weed control, engineering improvement, nutrition management, ensuring adequate yields.	Due to the geographical and cultural differences in which crops are grown and used, and partners' need for their research activity to remain close to their research users, crop management research might not be a priority for transnational research activity.	19	7	6

Research needs common to at least three partners	Comments	Prioritisation (maximum of 30)	Number of interested partners	Number of high scores
Developing and identifying varieties that are suited to organic conditions.	This could potentially be developed as a collaborative project; but there are other current projects as SUSVAR that need to be taken into account	19	8	3
Organic seeds: identifying and developing breeding methods acceptable to organic farming, which could then be applied for seed production	This could potentially be developed as a collaborative project.	13	7	2
Animal production				
Health and welfare.	This is another area where differences in husbandry and farm practice between countries, and the need for research activity to remain close to research users. Nevertheless, because animals regulate their own physiological environment, there is more common ground between animal production related problems compared with crop production. According to the WP4 report, a lot of work has been done and further details on what is required and what has been done should be taken into account.	19*	8	4
Feeding livestock for meat with 100% organic fodder.		18	8	4

Formas (SE)* : If focus on goal conflict aspects

Research needs common to at least three partners	Comments	Prioritisation (maximum of 30)	Number of interested	Number of high scores
Identifying suitable animal	This could be progressed in a way similar to that for		partitore	000100
breeds / crosses for organic	crop production.			
production, that also improve		15	Q	2
animal welfare (particularly free-		15	0	2
range conditions for animal, and				
animal for meat consumption).				
Identify breeding methods				
acceptable to organic farming to				
be identified and subsequently		11	7	1
applied to produce breeds				
specific to organic production.				
Animal disease and parasite	Transnational research fostering the transfer of			
management, including	technology and knowledge between partners could be		_	
preventative health and	considered. This has the additional merit of fostering	26	9	8
improving therapies to reduce	common standards and animal welfare aspirations in			
reliance on antibiotics	the future.			
Quality of meat products and		14*	7	1
economic impact.			•	•
Farming and agricultural system				
Multifunctional organic systems,		16	8	3
including non food products		10	0	0
Development of organic				
systems, such as stockless		17	9	2
farming systems				

DFFAB (DE)* = more interested if interdisciplinary – Formas (SE) * = If quality of products in relation to production methods and health aspects

Research needs common to at least three partners	Comments	Prioritisation (maximum of 30)	Number of interested partners	Number of high scores
Integration between different, complementary production systems (e.g. livestock and crop production). Understanding of what the barriers are prohibiting these linkages.	This could be developed as a potential transnational project. However, it may be necessary to take into account geographical and cultural difference in production systems, differences in husbandry and farm practice between countries, and the need for research activity to remain close to research users.	16	8	2
Production efficiency / identification of successful practices		17*	8	4
Environment and natural resour	Ces			
The management and optimisation of nutrients within organic systems	According to WP4, some country have procured specific research on this and more details on what has been done and what is required are necessary	21	9	5
Impact of organic farming on the environment (positive and negative), including biodiversity. Identification of agricultural practices that maintain biodiversity.	With the differing countries, regions, landscapes, and farming practices, it would be necessary to clarify what outputs are expected by each partner undertaking the funding of a collaborative project. According to the WP4 report extensive work might have been already done and might be relevant on this issue. It would be necessary to gather further details on what is required and what has been done.	24	10	5
Impact of conversion on the environment.	Due to the geographical and cultural differences this research area may not be a priority for transnational research activity	16	8	2

Formas (SE)*: If focus on broader aspect on the concept of efficiency, ie use of renewable resources and ecosystem services

Research needs common to at least three partners	Comments	Prioritisation (maximum of 30)	Number of interested partners	Number of high scores
Organic farming and GHG mitigation.		14	8	2
Cycling and recycling of natural resources. Nutrient, water and energy management. - Energy use. - Energy efficiency. - Production.		16	7	3
Socio-economics				
Market research and consumer attitudes.		16	8	3
Innovative marketing strategies. Identification of successful marketing methods. Local markets.	Several partners seek a greater understanding of marketing and the food chain. A collaborative project, with a national and regional approach, to inform the improvement of national and local markets could be delivered through transnational investment.	24	10	5
Characteristics of the organic market.		18	9	4
Supply chain management / economics.		15	7	2

Research needs common to at least three partners	Comments	Prioritisation (maximum of 30)	Number of interested partners	Number of high scores
Conversion: drivers and				
barriers to conversion		10	10	3
(problems related and market		19	10	5
prospective)				
Research on the effectiveness				
and scale of national policies		24	10	6
and instruments				
Food				
Quality of organic food – health	Further information on the research outputs sought by			
and safety.	partners would help in the initiation of a transnational research project in this area. According to the WP4 report, a lot of work has already been done and it would be necessary to gather further details on what is required and what has been studied.	25	10	6
Quality of organic food –				
processing.		17	8	3
Improving new storage and preservation for organic fresh products		10	7	0
Development of holistic food quality measurement methods		13	7	2

Research needs common to at least three partners	Comments	Prioritisation (maximum of 30)	Number of interested partners	Number of high scores
Legal issues and standards		•	•	
Consumers trust (process				
quality of organic goods,				
consumer related research)		16	7	3
Regional aspects				
Risks of conventionalisation				
The impact of organic				
standards on trade, both for				
domestic producers and for		14	7	3
those wishing to import into the				
EU				
Understanding how standards			_	_
have an impact on		10	7	1
International trade				
Knowledge Transfer		-		
How are methods perceived by				
the different target groups?				
How to communicate				
effectively? (organic eprint		15	7	3
e.g.) Channels of				Ŭ
communication optimisation of				
communication to target				
groups				



VI - RESEARCH AREAS WHERE INCREASED COOPERATION BETWEEN NATIONAL OR REGIONAL PROGRAMMES COULD BRING MAJOR SYNERGIES AND PROGRESS.

31. Based on partners' inputs, themes that could benefit from a transnational approach are identified in Table 1. WP4 reports will provide further information on research facilities in partners' countries and information on previous research projects.

32. The information in Table 1 is however indicative and further details on facilities and relevance of the projects need to be discussed by perspective partners to transnational projects. Some of research themes identified are also too general and might have been lower scored as a result. These need to be refined in order to increase their chance in developing into a relevant collaborative project. Considering these limitations, we put forward the following themes, which are suited to the first transnational projects. These need further work following the input on prioritisation by partners.

33. The effectiveness and scale of national support instruments

This is potentially useful to a wide range of partners and illustrates the potential for research that addresses partners needs directly. It would could inform a rationalisation or levelling of national support programmes.

34. Crop varieties

The identification of crop varieties that are better suited to organic conditions, depending on further input from partners could potentially be developed as a collaborative project, led possibly by a study of partners' current cultivar assessment methodologies, and the statistical basis behind current assessments. This would inform the optimisation of any subsequent transnational research. Other relevant work needs to be taken into consideration, such as the COST action 860 (SUSVAR = Sustainable low-input cereal production: required varietal characteristics and crop diversity) might cover a great deal of this topic. There is also on-going collaboration between COST 860 and the European Consortium for Organic plant breeding (ECO-PB).

35. Animal health and welfare

Animal health and welfare particularly with respect to disease and parasite management, including preventative health and improving therapies to reduce reliance on antibiotics is highlighted. Transnational research fostering the transfer of technology and knowledge between partners could be considered. This has the additional merit of fostering common standards and animal welfare aspirations in the future.

36. Production systems

Much of the research needs in farming and agricultural systems cuts across other themes, such as crop and animal production, as well as environment and resources. Much could be learnt from the experiences of partners within a transnational project but national programmes would probably still need to invest in the translation of such transnational research into usable outputs. There is



common need for the development of organic farming systems, such as stockless farming systems.

37. Integration between production systems

The integration between different, complementary production systems (e.g. livestock and crop production) is seen as important. Transnational research could be undertaken to improve our understanding of what the barriers are prohibiting these linkages. However, it may be necessary to take into account geographical and cultural difference in production systems, differences in husbandry and farm practice between countries, and the need for research activity to remain close to research users.

38. Socio-economics

Socio-economic research is a common research need, with emphasis on the economic side. Partners seek a greater understanding of marketing and the food chain. A collaborative project, with a national and regional approach, to inform the improvement of national and local markets could be delivered through transnational investment.

39. Product quality

A number of partners seek to improve the quality of produce from primary production and also seek to improve the impact of storage and processing on organic food quality. This includes research on the appropriateness of additives and processing aids used within organic processing. This could be undertaken through transnational research. It potentially has the additional merit of fostering a common approach and common aspirations.

40. Food safety

Partners identified food safety as a research theme, in particular, the risks of the use of manure related contamination, and of mycotoxins in organic produce. Further information on the research outputs sought by partners would help in the initiation of a transnational research project in this area.

41. Standards and trade

The impact of organic standards on trade is an important issue common to partners, both for domestic producers and for those wishing to import into the EU. Several partners are also interested in understanding how standards have an impact on international trade. These needs could be undertaken under transnational research.

42. Livestock nutrition

There is strong interest in the nutrition of livestock for meat. Since local environment is a relatively minor factor, this is an area worth developing into a transnational project.

VII - INTEREST AMONGST THE ERANET PARTNERS IN CO-FUNDING PROJECTS.



43. All partners are interested in participating in transnational projects. Each partner has individually prioritised the themes listed in Table 1 (Annexe 3), analysis of partners' interests is provided in Table 1.

44. The interest in co-funding projects cannot be evaluated as most partners can only fund their own projects with their own national based research providers. Thus, the goal of establishing a joint pool of at least 3 million Euro per year cannot be achieved. However some partners are interested in separately funding research nationally on issues agreed by several partners as part of a series of national projects making up a transnational effort.

45. Based on Table 1, three categories of priority research needs can be identified, the highest (>20), the medium (between 16 and 20), and the lowest (<15). Most of the partners are interested in most of the research needs listed, the number of partners interested in one topic is always between 7 and 10.

46. Seven topics have reached a high score of 21-26:

• Animal disease and parasite management, including preventative health and improving therapies to reduce reliance on antibiotics.

This particular topic has the highest score: 26 and has been scored high by 8 partners out of the 9 interested.

- The management and optimisation of nutrients within organic systems
- Impact of organic farming on the environment (positive and negative), including biodiversity. Identification of agricultural practices that maintain biodiversity.
- Quality of organic food health and safety.
- Innovative marketing strategies. Identification of successful marketing methods. Local market.
- Research on the effectiveness and scale of national policies and instruments.
- Weeds, pests and diseases management

One research need has also reached a high interest with a total score of 19, it has been scored as a high priority by 6 partners, out of the 7 interested:

• Intercropping systems: Crop protection, weed control, engineering improvement, nutrition management, ensures adequate yields.

47. A total of 16 topics fell into the medium priority category and 13 in the low priority category. Two particular topics did not have any high interest scored against them:

- Improving crop production
- o Improving new storage and preservation for organic fresh products



VIII - RECOMMENDATIONS TO THE ERANET ON HOW LEGAL, ORGANISATIONAL AND ADMINISTRATIVE BARRIERS FOR JOINING ACTIVITIES BETWEEN NATIONAL AND REGIONAL RESEARCH PROGRAMMES COULD BE ADDRESSED.

48. With the exception of two partners, national funding can only flow nationally to partners' own national research establishments. There are also other constraints. This has implications for partners' input into both prioritisation and implementation. Despite these constraints, investment by partners in pursuit of common research outputs remains possible through mutual alignment of partners' national investment in national projects. We recommend that this be the principal means of pursuing transnational research. This would essentially be a bottom-up approach with partners themselves clustering around themes common to them on a case-by-case basis, and individually funding projects nationally to meet the common objective. This means there would be no jointly funded projects, as the procurement of each national component would be a matter for the relevant partner. The administration and organisation of each project will be managed at national level. Joining activities therefore will involve mainly extensive communication between the relevant partners and between the research providers each partner chooses. This approach avoids legal barriers as the partners involved will conduct their part of the project in their own country following their normal way of procuring research.

49. The main research management challenge is the definition of the research outputs that each partner will fund, and the co-ordination of the resultant procurement so that the suite of national projects are mutually complementary. We suggest that the imposition or presumption of a common procurement method (e.g. open calls) should be avoided leaving the investment route open to each partner. The focus of joint planning should be on what each partner procures and when it will be delivered, not how the investment would be made.

50. Further details are available from WP7 and WP5.

IX - RECOMMENDATIONS ON BEST PRACTICE WITHIN RESEARCH PROGRAMMES.

51. Informed by WP5 analysis, and additional analysis, WP7 has delivered recommendations on how a call and subsequent activities would be undertaken. These recommendations follow standard best practice and should be expanded and adopted.

52. Further details are available from WP7.

53. In the longer term, most partners could give consideration to removing the constraints on where they fund research so that they can fund research jointly and pro-actively to meet a common partners' research agenda.

54. With respect to best practice within research programmes and in the context of the long-term effectiveness of ERANET based R&D, we recommend





that the role of partners (i.e. the Ministries and Research Councils) in the definition of research targets and longer term research outcomes be strengthened. A stronger 'intelligent customer function' within partner organisations will help Core Organic partners set the research agenda together and direct common research activities. This will complement the input from research establishments. Without this increased capability to drive the research agenda, ERANETs can be only partially successful. A stronger internal research management capability will also allow ERANET partners use a wider range of procurement options without compromising the effectiveness of research spending enabling more strategic managed programmes and long term commitments to be made than is possible through open competition calls.

55. External stakeholder engagement can inform partners' development of their individual research strategies and needs. Stakeholders are defined here as anyone outside the partner Ministry or Research Council that is affected by the research investment decision. We have presented our experience of using stakeholder engagement in developing research needs, to inform others partners. A report on our project 'Stakeholders issues and aspirations to inform future public funded research in organic farming (OF0350) is available on the Defra website and on the orgprints website:

http://www2.defra.gov.uk/research/Project_Data/More.asp?I=OF0350

X - OPPORTUNITIES FOR SPECIFIC JOINT RESEARCH PROGRAMMES AND UTILISATION OF COMMON RESEARCH FACILITIES.

56. Facilities listed in the WP4 report show common research facilities where collaboration might be encouraged. There are many common facilities that can cover common research topics and fewer in some more marginal research area as for example the study of specific crops (i.e. olive). However, work can be undertaken where there is a clear need identified by three or more partners. It is also important to remember that most partners can provide funds for their own institute only, and therefore will participate to the project if relevant national research facilities are available.

57. To support the Core Organic project and any other transnational agricultural research efforts, Defra funded a project that will deliver a tool to help identify common production conditions across the EU. Results have not been included in this report but should be available on the Defra website and on orgprints, when the project ends (http://www2.defra.gov.uk/research/Project Data/More.asp?I=OF0355&M=KWS &V=Crops) Depending on the common research themes identified in this ERANET, this provides partners with the opportunity to systematically look at the use of agro-ecological and other spatial data to inform the prioritisation of organic farming transnational research in Europe.







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Partners	Process on how research needs / interests and strategy are developed (More details in the	ess on how Research needs and interests arch needs /							
		Crop production	Animal production	Farming and agricultural systems	Environment and natural resources	Socio-Economics	Food	Legal and standards	R&D methods
BMLFUW Austria	Overaching annual discussion on further directions in OF each year (Bio-Enquete). Scientific and policy maker consultation. Stakeholder conference to discuss all agri-science priorities. Organic R&D are part of a broad programme	 Development of holistic production systems which consider that reflects site, nutrition, crop protection, cultivation, ecological factors, resistance and tolerance Increase in production diversity - rotations, varieties and breeds appropriate to site. Use of varieties and biotype with respect to careful use of energy and materials Organic production of special crops. Additional work in the horticultural and viticultural sectors Improvement of the biological crop protection, alternative fertilisation systems. 	 Profitability of organic animal husbandry together with animal welfare considerations Composition of specific feeding rations. Suitability of breeds for organic agriculture Development and testing new housing systems in connection with guidelines studies on the design of facilities to give the animals space to move (surfacing, cleanness, hygienic safety, labour economics, possibility for the animals to root and grub) Development of suitable therapeutic agents for organic animal husbandry 	- Closed material cycles (farm and region)	- Energy efficiency and exploitation of solar energy - productivity.	- Strategies for the conversion of enterprises, model farms and aspects of labour economy, further development of organic farming	- Unified quality standards and production guidelines for organic food with an emphasis on health, product quality and quality of life	- Influence of statutory norms and standards (especially VO 2092/91) on the development of organic farms and organic farming in general	



Partners	Process on how research needs / interests and strategy are developed (<i>More details in the CR</i>)	w research Research needs and interests							
		Crop production	Animal production	Farming and agricultural systems	Environment and natural resources	Socio-Economics	Food	Legal and standards	R&D methods
DFFAB, Denmark	Strategy for research in O F& F Stakeholder consultation - expressions of interest. Organic R&D are part of an Organic R&D programme	- Integrity and efficiency in organic crops	- Integrity and efficiency in organic livestock	- Multifunctional ity and different production systems significance for sustainable development	- Bio energy, biodiversity and Nutrient management Organic aquaculture	- OF in a global perspective - The effect of different policies for promoting O F & F	 Nutrition, health & safety Processing, Integrity, quality and consumption 	- Regulation and trade	Strategy for research in O F& F Stakeholder consultation - expressions of interest.
MMM, Finland	The ministry appoints an Advisory Board for Agri-Food Research (experts/stakeholders). The Advisory Board is for the overall research program. In addition, ReNOAF (Network of organic researchers) is consulted especially for OFF. Ministry funded programme with the following priority areas (2003-2005). Organic R&D are part of a broad programme	 Maintenance of soil fertility. Improved production of seeds. 	 Improved production of organic milk and meat. Animal welfare and organic farming. 	- Role of organic farming in multifunctional and pluri- active agriculture.	 Maintenance of soil fertility. Safe recycling of organic waste. 	 Consumer oriented product development. Local food systems. 	- Quality and risks of organic food.		



Partners	Process on how research				Research needs	and interests			
	needs / interests and strategy								
	are developed (More details in the CR)	Crop production	Animal production	Farming and agricultural systems	Environment and natural resources	Socio-Economics	Food	Legal and standards	R&D methods
MAAPAR France	Priorities set on the basis of a survey / workshop carried out in INRA and ITAB. Organic R&D are part of a broad programme / Organic R&D are part of an Organic R&D programme	 Seeds: p&d, natural defence, disinfection Vineyards: Flavescence doree Impact of copper reduction Fertilization in organic farming. Better use of fertilisers, impact of soil and climate Wood diseases in vineyards 	- Integrated control of herbivorous parasites using cattle management and landscape		 Impact of copper reduction Fertilisation in organic Genotype environment interactions Impact of OF on environment 	- Impact of Organic conversion practices and economic	 Quality of wheat proteins, impact on organic bread value and quality Control of organic products quality 		
BMVEL, Germany	Federal Organic Farming Scheme (FOFS) 2002 - 2008: Themes and priorities established through extensive stakeholder participation and consultation. Researcher orientated?? Organic R&D are part of an Organic R&D programme	 Plant breeding methodology Copper substitution Predators Fodder production and animal feeding Improving organic viniculture from production to marketing potential of herbs and spices for veterinary medicine 	 Animal production and food quality Feeding in relation to health and veterinary medicine Economic survey of appropriate rearing systems Aquaculture Emissions from animal rearing 	 Biogas Stockless farms Monitoring farm economics Climate change and agriculture Phosphorus and Sulphur in organic systems Soil additives Use of Computer models Improving and adapting agricultural machinery 	 Renewable resources Functional biodiversity Agroforestry systems Effects of soil management on the production systems 	-Effects of consumer approach in marketing - Economic and social framework circumstances - Contribution to societal aims - Quantification of societal benefits	 Storage, handling, recording and processing of produce (food chain management) Food culture and education Parameters indicating health value of organic food Food and risk 	- Legal and policy framework - Inter- national certification	Knowledge transfer: methods, ways, multiplication - Publication possibilities with impact factors on scientists



Partners	Process on how research needs / interests and strategy	Research needs and interests												
	are developed (<i>More details in the CR</i>)	Crop production	Animal production	Farming and agricultural systems	Environment and natural resources	Socio-Economics	Food	Legal and standards	R&D methods					
MiPAF, Italy	Wide range of consultations are undertaken with stakeholders, regional governments, farmers and industrial associations, academia and public and private research. Permanent consultation groups with farmers, agro-industry associations, scientific community and region government. Organic R&D are part of an Organic R&D programme													
RCN, Norway	The OFF research is included in the general food and farming research programmes. Research needs of these were developed during a process where stakeholders, especially research users, were involved both from agriculture in general and from the organic side. Most research programme instruments include research users as co-funders and co- authors of the proposal, to ensure high relevance of research outputs. See country report, chapter 6 and Norwegian report to WP5, December 2005. Organic R&D are part of a broad programme	Production- and process oriented technology and logistics Competitive production of raw materials	Production- and process oriented technology and logistics Competitive production of raw materials	Production- and process oriented technology and logistics Competitive production of raw materials	Societal concerns/benefits	 Market research and consumer science Innovative and market-adjusted products and entrepreneurship National and international framework conditions 	 Food related to health, quality and quality of life Innovative and market-adjusted products and entrepreneurship Production- and process oriented technology and logistics 	- Innovation in public sector /food administrati on Industrial policy in agriculture, aquaculture etc						



Partners	Process on how research needs /				Research need	s and interests			
	interests and strategy are developed (<i>More details in the</i> <i>CR</i>)	Crop production	Animal production	Farming and agricultural systems	Environment and natural resources	Socio-Economics	Food	Legal and standards	R&D methods
Formas, Sweden	Triennial direct stakeholder engagement. Both direct consultation and workshop. Organic R&D are part of an Organic R&D programme	 Crop systems and plant protection Turnover of plant nutrients and nutrient cycles. 	 Optimising production systems including livestock (is livestock). Animal health and animal welfare (goal conflicts and needs for new ecological problem solving, goal conflict between ethical values and economical value) 	- Multifunctional farming systems - Increase efficiency at farm level (use/miss- use of plant nutrients, recycling from societies, parasitical problems in free range animal systems, goal conflicts on efficient economy and efficient ecosystem design, machinery efficiency and collaboration, holistic design and optimisation	 Turnover of plant nutrients and nutrient cycles. Resources dependency (energy?) of the food system. Increased efficiency as energy (agriculture without fossil fuel), water and capacity for ecosystem services 	 Large scale change to organic ecological production - driving forces and barriers, and consequences for the market. Increase economic efficiency Implement global equity and social sustainability (special and time scale perspectives) Consumers perspectives on safety, values and "quality" (including value and goal conflicts, e.g. in infectious disease control and scales – means for risk reductions and means for efficient control) 	 Food quality and health. Communication in the food chain (including tighter feedback between consumer and producer, as well as logistical problems and goal conflicts – as between bigger for saving money and smaller for increasing sustainability in general and resilience in special) 	- Rules settings and implementation in certified organic production (goal conflicts, societies means for control, social power structures and values in rule settings – who have a say, and from what basis?)	- Experimental farms and technical development projects



Partners	Process on how	Research needs and interests												
	research needs / interests and strategy are developed (<i>More details in the CR</i>)	Crop production	Animal production	Farming and agricultural systems	Environment and natural resources	Socio-Economics	Food	Legal and standards	R&D methods					
FOAG, Switzerland	Foresight and evaluation of current RTD: No official platform for stakeholder engagement. Researchers are in contact with stakeholders at an individual level. Organic R&D are part of a broad programme			- Closed material cycles (farm and region)	 Economically efficient agriculture sector. An ecologically responsible agricultural sector. 	- Socially acceptable development of the agricultural sector.	- Food and health, product innovation	- Early warning; quality standards vs flows of food	 Knowledge transfer and knowledge management Transdisciplinary research. 					
MinLNV, The Netherlands	Bioconnect (KNOS) work out what needs to be done - representatives of OF stakeholders. Preferred supplier Wageningen. A consultative conference each year with stakeholders and ministry officials. Organic R&D are part of an Organic R&D programme	- Weed, pests and disease management - Crop production - Crop resistant variety breeding	- animal welfare versus animal health, animal welfare versus human health, animal welfare versus environmental criteria. - Animal health alternative treatments (antibiotic free) -Improving dairy farming	- Production efficiency / identification of successful practices	 Impact of organic farming on the rural environment, including regional aspects. (this may be covered partly in theme "Local markets"; Impact of Organic Farming on the environment Integration of production and conservation to maintenance of biodiversity Using 100% manure Limitation of greenhouses gases 	 Function of organic farming at the periphery of urban conglomerates. Identification of successful marketing methods / innovative marketing strategies Market research and consumer attitudes / characterisation of the organic market Conversion drivers and barriers related to market prospective Communication, Education Economic evaluation of large scale price- experiment 	- Food quality, safety and human health - Food processing: Improve new storage and preservation for organic fresh products	- Simplification of legislation for organic agriculture - Research in national policies and instruments	- Knowledge transfer and knowledge management					



Partners	Process on how research needs / interests and				Research need	Is and interests			
	interests and strategy are developed (<i>More details in the</i> <i>CR</i>)	Crop production	Animal production	Farming and agricultural systems		Socio-Economics	Food	Legal and standards	R&D methods
Defra, UK	On-going input from an advisory committee informed by stakeholder consultation. Investment and decision are then made jointly by Defra scientists and policy makers. Organic R&D are part of an Organic R&D programme	 Effective weed control Pest and disease control Development of varieties suitable for OF Fertility building, especially in stockless and horticultural systems Improve seed production 	- Health and welfare planning - Animal nutrition - particularly poultry - Improvement of breed suitable for OF	- Production efficiency - Identification of successful and efficient practices	- OF and environment - soil function, management, health and fertility - Impact of climate change on and from OF - Biodiversity impact of OF - Effect of conversion on the ecology - Energy and pollution used in OF	 Conversion – economics, barriers Conversion - is organic production viable Data on current market development Market supply per region Socio-economic impacts of OF Identification of successful marketing methods Increase access to marginal groups 	- Storage and preservation methods	 Defining what is considered as organic CAP reform on OF 	



ANNEX 2 - OUTPUTS FROM THE GROUPS DISCUSSION DURING THE WORKSHOP IN FLORENCE, ON RESEARCH NEEDS WHICH ARE COMMON TO AT LEAST THREE PARTNERS

Common research area	Researchable issue/question common to three / four partners:
	Market research and consumer attitudes
	Environmental impacts (positives and negatives) Integration of production and conservation for maintenance of biodiversity
	Research in national policies and instruments (efficiency in off-money to promote OFF
Food	Food quality and human health (nutritional and safety)
Process food	Improving new storage and preservation for organic fresh products
Crops / Environment	Soil nutrient management in horticulture including the impact on the environment
Environment	Impact of OF on the environment
Market	Characteristics of the organic market
Crops	Discovering new varieties and identify other suitable European varieties
Intercropping systems (holistic approach)	Plant protection, weed control Engineering improvement Nutrition management Yield assurance
Meat production	100% organic fodder Quality of products / economics Suitable breeds / hybrids for organic production
Animal welfare Animal health	Refer to point 6. in the report
Food	Chain management / economics Improvement of storage and processing Food safety Development of holistic food quality measurement methods



ANNEX 2 - OUTPUTS FROM THE GROUPS DISCUSSION DURING THE WORKSHOP IN FLORENCE, ON RESEARCH NEEDS WHICH ARE COMMON TO AT LEAST THREE PARTNERS

Common research area	Researchable issue/question common to three / four partners:
Environment and natural resources	Nutrients, water and energy (diff types0 - Energy using - Energy efficiency - Production
Environment and resource	How can OFF contribute to reduce greenhouse gas
Food quality and safety	Food quality, safety and health for human, does organic food improve human health
Farming and agricultural systems	Multifunctionality in OFF, including non food products
Socio Economic research	Innovative marketing strategy
Sustainability and interpretation of organic values	Consumers trust (communicate process quality, consumer related research) Regional aspects Risks of conventionalisation
Food safety, quality and human health	
Knowledge transfer	How are instruments perceived by the different target groups? How to communicate effectively? (organic eprint e.g.) Channels of communication optimisation of communication to target groups
Farming	Production efficiency / identification of successful practices
Socio-economic	Conversion: drivers to conversion and barriers (problems related and market prospective)
Crops	Pests and diseases management
Food	Food safety
Market	Identification of successful marketing methods Local market



Research needs common to at	BMLFUW AT	DFFAB DK	MMM FI	MAAPAR FR	BMVEL DE	MiPAF IT	RCN NO	Formas SE	FOAG CH	MinLNV NL	Defra UK	Total
least three partners												
Crop Production						I		I	I			
Improving crop production	2	1	1	1	?	-	1	1	2	0	1	10
Building and maintenance of soil fertility.	3	1	2	2	3	-	1	1	3	0	2	18
Soil nutrient management in horticulture and its impact on the environment	2	3	2	1	2	-	0	2	0	0	1	13
Weeds, pests and diseases management	2	1	3	3	2	-	1	1	3	2	3	21
Intercropping systems: Crop protection, weed control, engineering improvement, nutrition management, ensuring adequate vields	3	?	3	3	3	-	0	3	3	0	1	19



Research needs common to at least three partners	BMLFUW AT	DFFAB DK	MMM FI	MAAPAR FR	BMVEL DE	MiPAF IT	RCN NO	Formas, SE	FOAG CH	MinLNV NL	Defra UK	Total
Developing and identifying varieties that are suited to organic conditions.	2	3	2	2	2	-	0	2	3	0	3	19
Organic seeds: identifying and developing breeding methods acceptable to organic farming which could then be applied for seed production	2	2	1	3	3	-	0	1	1	0	0	13
Animal production												
Health and Welfare.	3	2	2	1	?	-	3	3*	3	0	2	19
Feeding livestock for meat with with 100% organic fodder	3	2	2	1	3	-	0	3	1	0	3	18

Prioritisation: 1= Low; 2= medium; 3= high - ?= need clarification - Formas (SE)* : If focus on goal conflict aspects



Research needs common to at least three partners	BMLFUW	DFFAB DK	MMM FI	MAAPAR FR	BMVEL DF	MiPAF	RCN NO	Formas, SF	FOAG CH	MinLNV NI	Defra UK	Total
Identifying suitable animal breeds / crosses for organic production, that also improve animal welfare (particularly free-range conditions for animal, and animal for meat consumption).	2	2	1	1	3	-	0	3	1	0	2	15
Identify breeding methods acceptable to organic farming to be identified and subsequently applied to produce breeds specific to organic production	2	1	1	3	2	-	0	1	1	0	0	11
Animal disease and parasite management, including preventative health and improving therapies to reduce reliance on antibiotics	3	3	3	3	3	-	2	3	3	0	3	26
Quality of meat products and economical analysis.	2	?	2	2	2/3*	-	2	1*	3	0	0	14
Farming and Agricultural syst	tems											
Multifunctional Organic systems, including non food products	1	3	1	1	3	-	2	2	3	0	0	16
Development of organic systems, such as stockless farming systems	3	2	3	2	1	-	1	1	2	0	2	17

Prioritisation: 1= Low; 2= medium; 3= high - ?= need clarification - DFFAB (DE)* = 3 if interdisciplinary; if not = 2 - Formas (SE) * = If quality of products in relation to production methods and health aspects



Research needs common to at	BMLFUW	DFFAB	MMM	MAAPAR	BMVEL	MiPAF	RCN	Formas,	FOAG	MinLNV	Defra	Total
least three partners	AT	DK	FI	FR	DE	IT	NO	SE	СН	NL	UK	
Integration between different, complementary production systems (e.g. livestock and crop production). Understanding of what the barriers are prohibiting these linkages.	1	1	2	3	2	-	0	2	2	0	3	16
Production efficiency / identification of successful practices	3	1	3	1	1	-	2	3*	3	0	0	17
Environment and Natural F	Resources			•								
The management and optimisation of nutrients, soil and soil fertility within organic systems	3	3	3	3	2	-	1	1	2	0	3	21
Impact of Organic Farming on the environment (positive and negative) including biodiversity. Identification of agricultural practices that maintain biodiversity	2	3	2	2	3	-	3	3	3	1	2	24
Impact of conversion on the environment	2	?	2	1	1	-	3	1	2	1	3	16
Organic Food and Farming and GHG mitigation	3	3	1	1	2	-	0	1	2	0	1	14

Prioritisation: 1= Low; 2= medium; 3= high - ?= need clarification – Formas (SE)*: If focus on broader aspect on the concept of efficiency, ie use of renewable resources and ecosystem services



Research needs common to at least three partners	BMLFUW AT	DFFAB DK	MMM FI	MAAPAR FR	BMVEL DE	MiPAF IT	RCN NO	Formas, SE	FOAG CH	MinLNV NL	Defra UK	Total
Cycling and recycling of natural resources. Nutrient, water and energy management (diff types) - Energy using - Energy efficiency - Production	3	2	2	3	1	-	0	3	2	0	0	16
Socio-Economics	•			•								
Market research and consumer attitudes.	2	?	1	1	1	-	3	2	3	3	0	16
Innovative marketing strategies. Identification of successful marketing methods. Local market.	1	2	3	2	3	-	3	2	3	3	3	24
Characteristics of the organic market	1	?	2	1	3	-	3	1	3	1	2	18
Supply chain management / economics	1	?	2	3	2	-	0	2	3	0	2	15
Conversion: drivers to conversion and barriers to conversion (problems related and market prospective)	2	1	1	3	2	-	2	3	1	3	1	19



Research needs common to at least three partners	BMLFUW AT	DFFAB DK	MMM FI	MAAPAR FR	BMVEL DE	MiPAF IT	RCN NO	Formas, SE	FOAG CH	MinLNV NL	Defra UK	Total
Research of the effectiveness and scale of national policies and instruments (efficiency in off-money to promote OFF	2	3	1	3	1	-	3	3	2	3	3	24
Food												
Quality of organic food – health and safety.	2	3	3	3	3	-	3	2	3	2	1	25
Quality of organic food – processing.	2	?	3	2	3	-	1	2	3	0	1	17
Improving new storage and preservation for organic fresh products	2	?	1	2	1	-	2	1	1	0	0	10
Development of holistic food quality measurement methods	3	?	2	1	3	-	1	1	2	0	0	13
Legal and Standards												
Consumers trust (process quality of organic goods, consumer related research) Regional aspects Risks of conventionalisation	2	?	1	2	3	-	2	3	3	0	0	16



Research needs common to at least three partners	BMLFU W AT	DFFAB DK	MMM FI	MAAPAR FR	BMVEL DE	MiPAF IT	RCN NO	Formas, SE	FOAG CH	MinLNV NL	Defra UK	Total
The impact of organic standards on trade, both for domestic producers and for those wishing to import into the EU	1	3	2	3	1	-	0	3	1	0	0	14
Understanding how standards have an impact on international trade	2	?	1	3	1	-	0	1	1	0	1	10
Knowledge transfer												
How are methods perceived by the different target groups? How to communicate effectively? (organic eprint e.g.) Channels of communication optimisation of communication to target groups	3	?	2	2	3	-	1	1	3	0	0	15

