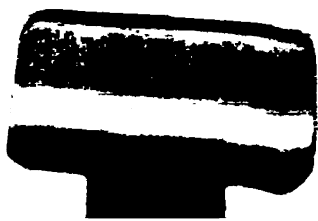
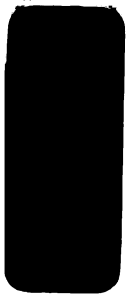




SERIE DOCUMENTOS N°8

PRODUCTION, MARKETS,
REGULATION AND
TECHNOLOGY IN
ORGANIC AGRICULTURE



PROYECTO GLOBAL

Organización y Gestión de la Integración Tecnológica Agropecuaria y Agroindustrial en el Cono Sur



SERIE DOCUMENTOS N° 8

PRODUCTION, MARKETS,

REGULATION AND

TECHNOLOGY IN

ORGANIC AGRICULTURE

*Terry Marsden
Jo Banks
Joek Roex*

ESTE TRABAJO HA SIDO ELABORADO EN EL MARCO DE LA CONSULTORÍA "DINÁMICA DE LA INNOVACIÓN Y DE LAS CADENAS AGROINDUSTRIALES EN EL MERCOSUR AMPLIADO", COMPROMETIDA CON EL INSTITUTO DE ECONOMÍA DE LA UNIVERSIDAD FEDERAL DE RÍO DE JANEIRO, BRASIL.

TERRY MARSDEN ES PROFESOR Y JEFE DEL DEPARTAMENTO DE PLANIFICACIÓN URBANA Y REGIONAL DE LA UNIVERSIDAD DE CARDIFF, GALES, GRAN BRETAÑA. JO BANKS Y JOEK ROEX SON INVESTIGADORES ASOCIADOS DEL DEPARTAMENTO DE PLANIFICACIÓN URBANA Y REGIONAL DE LA UNIVERSIDAD DE CARDIFF, GALES, GRAN BRETAÑA.

00002012

1ª Edición: Abril 2000

Quedan reservados todos los derechos de la presente edición. Esta publicación no se podrá reproducir total o parcialmente sin expreso consentimiento del PROCISUR.

Marsden, Terry [et al.]
Producción, mercados, regulación y tecnología en los rubros orgánicos / Terry Marsden; Jo Banks; Joek Roex. — Montevideo : PROCISUR; BID. 2000
81 p. (Serie Documentos; 8)

ISSN 1510-3307

/PRODUCTOS NATURALES/ /PRODUCCION/ /AGRICULTURA ORGANICA//MERCADOS/ /
POLITICA COMERCIAL/ /CONSUMO/ /COOPERACION INTERNACIONAL/ /CAMBIO
TECNOLOGICO/

AGRIS E 21

CDD 382.3

Las ideas y opiniones expuestas son propias de los autores y no necesariamente pueden reflejar políticas y/o posiciones oficiales del PROCISUR y de las instituciones que lo integran, bien como, del BID o de sus países miembros.

Presentación

El Programa Cooperativo para el Desarrollo Tecnológico Agropecuario del Cono Sur-PROCISUR, creado en 1980, constituye un esfuerzo conjunto de los Institutos Nacionales de Tecnología Agropecuaria-INIAs de Argentina, Bolivia, Brasil, Chile, Paraguay y Uruguay, y el Instituto Interamericano de Cooperación para la Agricultura-IIICA. En el ámbito del PROCISUR los países identifican y priorizan sus intereses comunes y dan respuesta a las demandas tecnológicas que consideran más importantes para incrementar la competitividad del sector agroalimentario y agroindustrial, preservar la salud ambiental de los agroecosistemas predominantes y mejorar el desarrollo y la inclusión social.

El PROCISUR está ejecutando con financiamiento del Banco Interamericano de Desarrollo-BID el Proyecto «Organización y Gestión de la Integración Tecnológica Agropecuaria y Agroindustrial en el Cono Sur», denominado por su papel estratégico el Proyecto Global. Este Proyecto pretende impulsar la cooperación e integración tecnológica y fortalecer la capacidad de gestión del proceso innovativo para dar mejor respuesta a las nuevas demandas agroindustriales, ambientales y sociales que son inducidas por la globalización y la apertura económica, en particular, por la internacionalización y regionalización del Sistema Agroalimentario y Agroindustrial (SAA) en el ámbito del MERCOSUR ampliado (el bloque regional más Chile y Bolivia).

En ese contexto, el Proyecto Global se propuso en una primera fase: a) legitimar un espacio para pensar y actuar sobre el problema tecnológico subregional agroalimentario y agroindustrial; b) comprender las transformaciones del MERCOSUR ampliado y del SAA regional para atender las necesidades tecnológicas del bloque (respondiendo a la integración) y de las economías nacionales (en sus requerimientos de cooperación); c) concretar la articulación con los socios relevantes del SAA, tanto de los sectores productivo y científico-tecnológico como de las áreas privada y pública con la finalidad de identificar y diseñar respuestas para los principales problemas tecnológicos de la subregión y por último; d) establecer una agenda que promueva la integración del Sistema Científico-Tecnológico (SCT) agroalimentario y agroindustrial apuntando a la competitividad sustentable (fortalecimiento conjunto de las bases económica, ambiental y social) del MERCOSUR ampliado y de las economías nacionales. De esta forma, el Proyecto intenta realimentar los cambios estratégicos y organizativos que se están desarrollando a nivel de los Sistemas Nacionales de Innovación (SNIAs), de los INIAs y del propio PROCISUR, en el ámbito del Cono Sur, a partir del proceso de integración tecnológica subregional.

En una segunda fase el Proyecto Global se propone: a) diseñar e implementar mecanismos de gestión que aseguren la interacción de los sectores productivo, científico-tecnológico y educacional para impulsar desarrollos de cooperación e integración tecnológica; b) internalizar en los países del Cono Sur, mediante un programa de capacitación gerencial, conocimientos básicos y modelos de gestión del proceso de cooperación e integración tecnológica agroalimentaria y agroindustrial y c) perfeccionar las vías de información y los mecanismos de comunicación para asegurar un funcionamiento eficiente de la red de innovación subregional.

Para cumplir con los propósitos de la primera fase el Proyecto Global generó diversos estudios que han permitido específicamente: analizar los escenarios tecnológicos más probables; identificar los problemas y demandas tecnológicas que debería resolver actualmente el sistema agroalimentario y agroindustrial, acompañado de un relevamiento de la oferta tecnológica disponible para satisfacer esas demandas. Además, se rescataron experiencias relevantes de reorganización y financiamiento de la investigación agropecuaria a nivel mundial, procurando con ese marco de referencia, analizar los replanteos en las misiones y funciones que están llevando a cabo los SNIAs, los INIAs y el PROCISUR. Estos estudios son dados a conocer a través de la presente Serie Documentos, que hace disponible en su versión completa los trabajos preparados. Anticipadamente ha sido editada y distribuida la Serie Resúmenes Ejecutivos, que tuvo como objetivo sintetizar los propósitos, principales reflexiones y conclusiones de cada documento.

El desarrollo de estos trabajos dio lugar a que el PROCISUR fortaleciera su articulación con los sectores privado y público (tanto del lado de la demanda como de la oferta tecnológica), a través de los directivos, gerentes y profesionales que fueron entrevistados. Un número representativo de los mismos participó a fines de 1999 en Buenos Aires del Seminario-Taller: «Áreas de innovación y cambios institucionales para el desarrollo tecnológico agroalimentario y agroindustrial del MERCOSUR ampliado». Este evento permitió completar el producto de los estudios dando lugar a identificar áreas de investigación de importancia subregional y a consensuar políticas y estrategias que favorezcan el cambio institucional en el Sistema Agroalimentario y Agroindustrial. De esta forma se ha dado inicio a un proceso continuo y compartido de prospección y gestión tecnológica que deberá orientar el desarrollo futuro del PROCISUR desde la óptica subregional. Este nuevo espacio de articulaciones y alianzas permitirá al PROCISUR identificar los proyectos multidisciplinarios e interinstitucionales que

aseguren aportar soluciones concretas a los principales problemas tecnológicos del sector agropecuario y agroindustrial del MERCOSUR ampliado, con garantía de impacto positivo a nivel económico, ambiental y social.

A este apoyo incondicional de las organizaciones y entidades de los sectores privado y público de la región que brindaron sus informaciones y conocimientos, se suman las instituciones que fueron responsables de consultorías: el Instituto de Economía de la Universidad Federal de Río de Janeiro, Brasil, que coordinó el conjunto de los estudios sobre trayectoria y demandas tecnológicas de las cadenas agroindustriales; el Instituto de Industria de la Universidad Nacional de General Sarmiento, Argentina, a cargo de los estudios de oferta tecnológica y replanteos institucionales; el International Service for National Agricultural Research (ISNAR), que recabó la experiencia institucional en el mundo desarrollado; el Instituto Nacional de Tecnología Agropecuaria (INTA), Argentina, responsable del tema ambiental y Consultorías Profesionales Agrarias, Chile, que abordó el problema de la agricultura familiar. En este marco institucional prestaron además su colaboración profesionales pertenecientes a las siguientes instituciones: Universidad Federal de Minas Gerais, Brasil; Centro Interdisciplinario de Estudios para el Desarrollo (CIEDUR), Uruguay; CONICET/CEUR-CEA, Universidad de Buenos Aires, Argentina; Instituto de Economía Agrícola, Secretaría de Agricultura y Abastecimiento del Estado de São Paulo, Brasil; VIAGRO Consultora, Chile; INTA / Universidad Nacional de Mar del Plata, Argentina; Universidad de Cardiff, Gales, Gran Bretaña; Universidad Federal de Santa Catarina, Florianópolis, Brasil; INRA, Montpellier, Francia y CIRAD, Montpellier, Francia.

Es imprescindible destacar la colaboración y el apoyo técnico de los INIAs de la subregión (INTA-Argentina; DGDT-Bolivia; EMBRAPA-Brasil; INIA-Chile; DIA-Paraguay e INIA-Uruguay) a través de sus equipos técnicos y, en forma particular, de los Coordinadores Nacionales del PROCISUR. A la acción de los países se suma la contribución del IICA en los niveles central, regional y nacional, particularmente, en el Cono Sur. La estrategia y coordinación general de este esfuerzo cooperativo estuvo a cargo de la Secretaría Ejecutiva que actuó en estrecha interacción con el Equipo del Proyecto constituido por los Coordinadores Internacionales y el Grupo de Escenarios y Políticas del PROCISUR, conjuntamente con los responsables de Consultorías externas. Fue determinante el aporte del Equipo del Proyecto en la construcción de la visión como así también, en garantizar la coherencia conceptual y metodológica del trabajo. Cupo a la Comisión Directiva del PROCISUR la orientación y el liderazgo político de este proceso de integración tecnológica. Acrecentaron y sustentaron este cuadro institucional y técnico, la División de Medio Ambiente y el Instituto para la Integración de América Latina y el Caribe-INTAL, del BID, con quienes el Programa ha tenido el privilegio de guiar este emprendimiento subregional.

A seguir y sobre la base de los productos obtenidos será convocado un Foro de Integración Tecnológica que se propone articular alianzas estratégicas en el nivel político-institucional para profundizar el proceso de integración tecnológica y fortalecer la red de innovación subregional agroalimentaria y agroindustrial en el marco del MERCOSUR ampliado. Será necesario establecer acuerdos e identificar mecanismos de financiamiento que aseguren al bloque regional desarrollar los programas tecnológicos que mejoren sustancialmente su competitividad en los mercados mundiales, garantizando la salud ambiental y la inclusión social. Complementando este enfoque regional las ideas y aportes del Proyecto Global serán internalizados en los países del Cono Sur a través de seminarios-taller que permitan ajustar y especificar sus propuestas y recomendaciones a los ámbitos nacionales; bien como diseminados a través del Sistema de Información del PROCISUR vía Internet.

Es el deseo del PROCISUR que esta amplia cooperación de ideas y propósitos sirva no sólo para fortalecer la integración tecnológica agropecuaria y agroindustrial en el ámbito del MERCOSUR ampliado, sino que también tenga efecto multiplicador en toda América Latina y el Caribe.

Roberto M. Bocchetto
Secretario Ejecutivo del PROCISUR

Presentación	iii
List of tables and figures	vii
I. Introduction/Definitions	1
A. EU regulation 2092/91	1
B. Inspection	1
C. Labelling	1
D. Certification	2
E. Glossary	2
II. Overview	2
A. Data on trends and projections in production, consumption and trade (c 1985–2005)	2
1. Health and moral concerns are driving the organic market	2
2. Organics will be the strategic focus for manufacturers and retailers in the 21st century	5
3. The development of organic nutraceuticals will be the peak of innovation	5
4. The European market for organic food and drinks will maintain strong growth	6
5. Uptake of organic farming and other agri-environment schemes	7
B. Profile of principal actors: farmers, inputs suppliers, processors, distribution, consumers, NGOs	7
1. Organic farming support under agri-environmental and extensification programmes	7
2. Impacts of mainstream CAP Reform measures on organic farming	7
3. Policy support for marketing and processing	10
4. Regional and rural development policies	10
5. Production standards, inspection and certification systems	10
6. Advice, extension and information	11
7. Training and education	11
8. Research and development	12
9. Integrated national policies to support organic farming	12
C. Forms of market organization	13
D. Tendencies: concentration, investment, strategies of leading actors, niche/mass markets	13
1. Product	14
2. Price	16
3. Promotion	18
4. Distribution	19
5. Interim conclusions	21
6. Comparative production	22
7. Country market comparisons	24
8. Product category comparisons	26
9. Conclusions	32

III. Regulation and market developments	32
A. <i>Patterns of private/NGO/public regulation-certification, norms, monitoring, and enforcement</i>	32
1. Organic farming support under agri-environmental and extensification programmes	32
2. Regulatory framework	33
3. Measures implemented	34
B. <i>Public policies—fiscal incentives, reconversion, trade, legislation</i>	52
1. Public expenditure on organic farming support under agri-environment programmes	52
IV. Technological support and development	52
A. <i>Regulatory framework</i>	52
B. <i>Review of the current situation</i>	53
1. European research co-operation in organic farming	53
2. International co-operation and networks	53
3. National research programmes and co-ordination of organic farming research	56
4. Institutions involved and level of research activities	56
5. Public expenditure on organic farming research	56
C. <i>Evaluation of research projects and research needs</i>	59
D. <i>Summary and conclusions</i>	61
1. Future research	62
V. Conclusions and recommendations - Sustained growth or absorption? The real dynamic for the organic sector	62
VI. Bibliography	64
VII. Annex: Examples of leading product development in the organic sector	69

List of tables and figures

Tables

1. Glossary of used terms and abbreviations	3
2. Number of certified and policy-supported organic farms and total agreements for agri-environmental measures (end 1996)	8
3. Number of EC Reg. 2078/92-supported organic farms and total agreements for agri-environmental measures (end 1997)	8
4. Area of certified and policy-supported organic farmland and total land in agri-environmental measures (end 1996)	9
5. Area of EC Reg. 2078/92-supported organic farmland and total agri-environment programme supported area (end 1997)	9
6. European organic and non-organic price differentials (US\$), Feb. 1999	17
7. European organic farmland (hectares) 1995-1999	23
8. European organic farmland penetration ('000 hectares), 1999e	23
9. European organic market values (US\$ m), 1995-99	25
10. European organic market values (local currency), 1995-99	25
11. European <i>per capita</i> expenditure on organic food (US\$/head), 1995-99	26
12. European organic market values (US\$ m), 1995-99	27
13. Italy and Spain: overall organic market values (US\$ m), 1995-99	27
14. European organic market penetration (% value), 1995-99	27
15. European organic market values by product category (US\$ m), 1999	28
16. European organic market segmentation by product category (US\$ m), 1999	28
17. European organic bakery market values (US\$ m), 1995-99	29
18. European organic bakery penetration (% value), 1995-99	29
19. European organic dairy market values (US\$ m), 1995-99	29
20. European organic dairy penetration (% value), 1995-99	30
21. European organic fruit and vegetables market values (US\$ m), 1995-99	30
22. European organic fruit and vegetables penetration (% value), 1995-99	31
23. European organic meat market values (US\$ m), 1995-99	31
24. European organic meat and meat products penetration (% value) 1995-99	31
25. European organic juice market values (US\$ m), 1995-99	31
26. European organic tea market values (US\$ m), 1995-99	32
27. European organic coffee market values (US\$ m), 1995-99	32
28. Dates when organic farming support schemes were first implemented (19..)	37
29. Regional variations in application of current organic farming support schemes	37
30. Eligibility to participate in organic farming support schemes	38
31. Organic management and control requirements in organic support schemes	39
32. Size and stocking rate limits on areas eligible for organic support or on level of payments receivable	41
33. Eligible crop and additional environmental or other requirements in organic farming support schemes	42
34. Training and advisory support under EC Reg. 2078/92	43
35. Adjustments made to current organic farming support schemes since implementation	45

36.	Typical 1997 payment rates for land in first two years of conversion (ECU/ha/year)	46
37.	Typical 1997 payment rates for fully (continuing) organic land (ECU/ha/year)	47
38.	Relationship of organic farming schemes to other agri-environmental measures	48
39.	Actual public expenditure in 1996 on organic farming support options and total agri-environmental measures (excluding administration and monitoring costs)	51
40.	Actual public expenditure in 1997 on organic farming support options and other agri-environmental measures (excluding administration and monitoring costs)	51
41.	European research projects in organic farming funded under CAMAR, AIR and FAIR	54
42.	European research projects related to organic farming funded under CAMAR, AIR and FAIR	55
43.	Countries with national research programme(s) and / or national co-ordination of organic farming research	57
44.	Private research institutes for organic farming in Europe	58
45.	Research activities in organic farming in EU and three non-EU countries	58
46.	EC contribution to European research projects in the area of organic farming under the AIR and FAIR programmes	58
47.	Public expenditure for organic farming research and development in the EU and three non-EU countries (k ECU)	59
48.	Inventories of research projects and reviews of research priorities in the EU and three non-EU countries	59
49.	Organic baby food new product launches, 1998-1999	69
50.	Organic bakery new product launches, 1998-1999	69
51.	Organic canned food new product launches, 1998-1999	71
52.	Organic cereal new product launches, 1998-1999	72
53.	Organic condiments new product launches, 1998-1999	73
54.	Organic confectionery new product launches, 1998-1999	73
55.	Organic dairy new product launches, 1998-1999	74
56.	Organic beverages new product launches, 1998-1999	77
57.	Organic frozen ready meals new product launches, 1998-1999	78
58.	Organic juices new product launches, 1998-1999	79
59.	Organic soft drinks new product launches, 1998-1999	80
60.	Organic vegetables new product launches, 1998-1999	81

Figures

1.	High dissatisfaction with food safety provides an opportunity for organic food	2
2.	Development of food and drink in the 21 st century	4
3.	The Swedish organic market will have the highest growth	6
4.	Organic market life cycle and product innovation	14
5.	The dairy market has had the highest variety of product launches	15
6.	The majority of new product launches are range extensions	17
7.	The Austrian organic food market is highly concentrated	19
8.	Spain has a high conversion rate but the retail market is not growing proportionately	23
9.	The Austrian organic food market is the most developed	25
10.	Austria has the highest expenditure per head on organic food	27

I. Introduction Definitions

A. EU regulation 2092/91

In one sense all food is 'organic' because it comes from plants or animals. However, for some fifty years, the word organic has been used to describe food grown without the use of synthetic chemicals in a farming system that avoids the use of artificial fertilizers, pesticides, growth regulators and livestock feed additives. An organic farming system relies on crop rotation and other forms of husbandry to maintain fertility and control weeds, pests and diseases. While there are a number of terms used to describe food that has been produced in a 'traditional' or 'environmentally friendly' way, the description 'organic' is the only one which is subject to EU and national regulation.

Standards for organic farming, horticulture and food processing are subject to EU regulation. In 1991 the EU passed regulation 2902/91, which lays down in detail how food must be produced, processed and packaged to qualify for the description 'organic'. However, it applies only to organic foods of vegetable origin. Organic animal husbandry is still in the development stage. Member states are here given the discretion to apply and set their own standards for animal derived organic products such as poultry, livestock production and honey, not covered by regulation 2902/91.

B. Inspection

In 1993 regulation 2092/91 came into effect. This describes the inputs and practices which may be used in organic farming, as well as the inspection system that must be put into place to ensure the adherence to these. The regulation also applies to processing, processing aids and ingredients in organic food. All foods labelled 'organic' must come from processors or importers who are registered and subject to regular inspection. It is illegal to offer for sale any food as organic unless it has been produced in full conformity with the EU regulation by registered producers.

C. Labelling

A major amendment to the original EU regulation was made in 1995. It divides organic processed foods into three categories, depending on the proportion of organic ingredients present.

● Organic

This label is only used where the product contains a minimum of 95 per cent organic ingredients by weight.

● Special emphasis

These are products that contain between 70-95 per cent organic ingredients by weight and can be labelled 'Made with Organic Ingredients', e.g. tomato ketchup made with organic tomatoes. The total percentage of organic ingredients used in the product must be given on the label. These products are often known as special emphasis products as they are not certified organic but contain a high proportion of organic ingredients.

● Transitional

These are products that contain 50-70 per cent organic ingredients. Since January 1, 1998, organic multi-ingredients food must contain a minimum of 70% organic ingredients to permit any mention of the word 'organic' on the product label.

The term 'organic' has different equivalents within Europe and may be referred to as 'biological' or 'ecological'.

The use of genetically modified ingredients is specifically excluded in organic food. This has recently been a significant selling point for consumers who wish to buy foods which are guaranteed to be free from genetically modified ingredients.

Organic food production is based on the following principles:

- building soil fertility;
- minimal use of non-renewable resources such as chemicals;

- minimising pollution and damage to the environment;
- working with and not against natural systems;
- respect for animal welfare;
- minimal processing or additives;
- elimination of GMOs.

While the term organic has a distinctive definition and is governed by EU regulation, the term 'natural' has no official definition. It is however used to describe products that are not organic but have been produced and processed in ways that enhance their natural qualities and contain no additives.

D. Certification

There are a number of certification bodies in each member state that are responsible for the inspection, control and certification of organic products. In countries such as Sweden and France the certification symbols, KRAV and AB respectively, are important marketing tools and are recognized by consumers as signalling that a product is organic.

Certification bodies often set their own standards for classifying a product as organic and these standards may be higher than those set by the EU regulations. Standards for animal derived products are set at a national level and usually by certification bodies. These result in a different set of acceptable standards for certification across Europe and often within the same country.

However, products may still be sold as organic as long as certification is provided by an EU recognized certification body. Therefore a product carrying the AB logo may be sold in the UK which has different certification symbols.

E. Glossary (Table 1)

II. Overview

A. Data on trends and projections in production, consumption and trade (c 1985–2005)

1. Health and moral concerns are driving the organic market

The market for organic food and drink has developed in response to two key concerns. The first is the concern over health, which is part of an increasingly important trend shaping the overall food and drinks industry. In general, this concern manifests itself in increasing interest in the nutritional content of the daily diet and the rising awareness of the importance of diet to overall wellbeing. In addition, however, it focuses on food safety driven by increases in the incidence of food scares such as BSE and salmonella, which have helped to undermine the European consumer's confidence in conventional foods. This unrest is also reflected in the rising dissatisfaction with modern medicine where the emphasis is on cure rather than prevention. The result is a growing interest in alternative medicine and traditional remedies which adopt a 'natural' approach to the maintenance of health.

Fig. 1. High dissatisfaction with food safety provides an opportunity for organic food

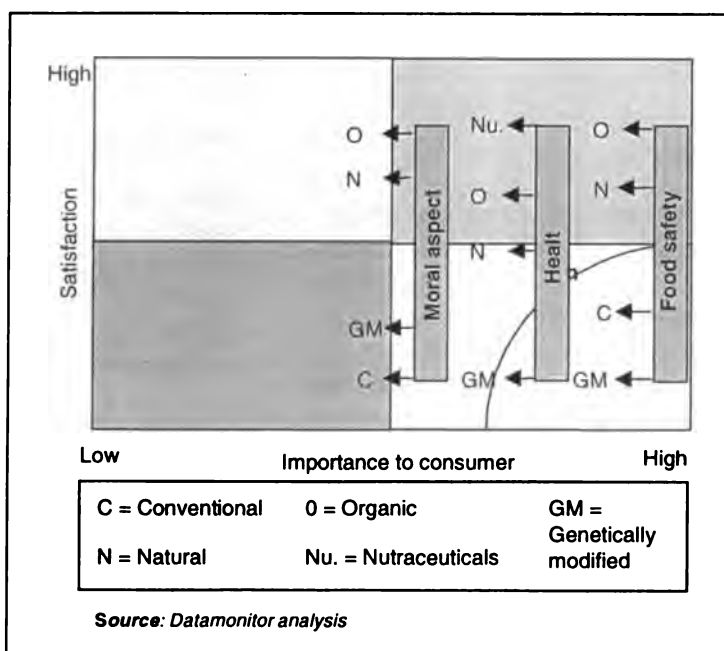


Table 1. Glossary of used terms and abbreviations

Term	Explanation
Antioxidants	Ascorbic acid derived from beta plant extracts and tea. Claimed to prevent cancer and heart disease.
Biological	A term used in countries such as France to denote organic food and drink.
CAGR	The compound annual growth rate (CAGR) is a way of measuring a market's annual growth over a period of several years. It is the constant percentage rate at which a market would have to grow, year on year, to reach its current value (y) from the value in a base year (x). It is not the same as average growth but is a more representative measure of annual growth over a number of years. CAGR is calculated using the formula $((y/x)^{(1/n)})-1$ where '^' denotes 'to the power of', y is the value of the market in the final year of the period covered, x is the value in the first year and n is the number of years included in the calculation.
Convenience	This is a key trend driving the movement for nutrition 'on the go'. It is caused by pressure on time and pertains to something that is useful, available and ready to use.
Ecological	A term used in some European countries to denote organic food and drink.
Exclusive label	A branding strategy especially used by multiples for a product line that is essentially private label but has a different positioning to the retailer's other private label ranges.
Food on the go	The concept of all day snacking outside of the home and outside of foodservice.
Food-service	Channels such as takeaways, restaurants and catering.
Functional and fortified	The use of nutrients, vitamins, minerals, fibres and other ingredients to enhance the health benefits of specific products.
Genetic engineering	A process where the genes and DNA of one organism are transferred to another to create a new organism that would never naturally develop.
GMOs	Genetically modified organisms are the product of genetic engineering.
Natural	A term describing products that fall short of meeting strict organic certification standards, but have been produced in a manner that minimizes the use of synthetic chemicals.
Nutraceuticals	Products which blur the boundary between food and medicine, including fortified products.
Organic	A term that is legally defined by EU Regulation 2092/91. It is used to describe products that are grown without the use of synthetic chemicals in a farming system that avoids the use of artificial fertilizers, pesticides, growth regulators and livestock feed additives. An organic farming system relies on crop rotation and other forms of husbandry to maintain fertility and control weeds, pests and diseases.
Private label	Products that are manufactured, distributed and marketed exclusively for and by specific retailers.
Ready meals	All industrially manufactured frozen, chilled, canned and dried forms of ready meals. Their defining characteristic is that they provide a convenient complete meal or meal centre to the consumer.

Source: Datamonitor

The second core driver is the increasing moralistic approach of consumers to purchase decisions. This is demonstrated by:

- environmental concern—the increased use of pesticides and artificial fertilizers not only impacts upon food safety but also on the levels of toxins in the air and in drinking water;
- animal welfare—the link between animal rearing practices and food scares such as salmonella and BSE raised awareness about the mistreatment of animals and the potential dangers of this treatment.

These moral concerns are a key driver of the demand for organic food and drink. In a number

of European countries, the concern for the environment is so strong that retailers are adopting initiatives to enhance their ecological image. Multiples are supporting farmers to convert to organic production in a bid to promote their image and gain market share.

The preceding graph demonstrates that the dissatisfaction with conventional and genetically modified foods on the factors of food safety, health and moral concerns provides an opportunity for organic foods to gain market penetration. The most important factor is food safety and on this factor consumers are currently highly dissatisfied with both GM and conventional food while being highly satisfied with organic food.

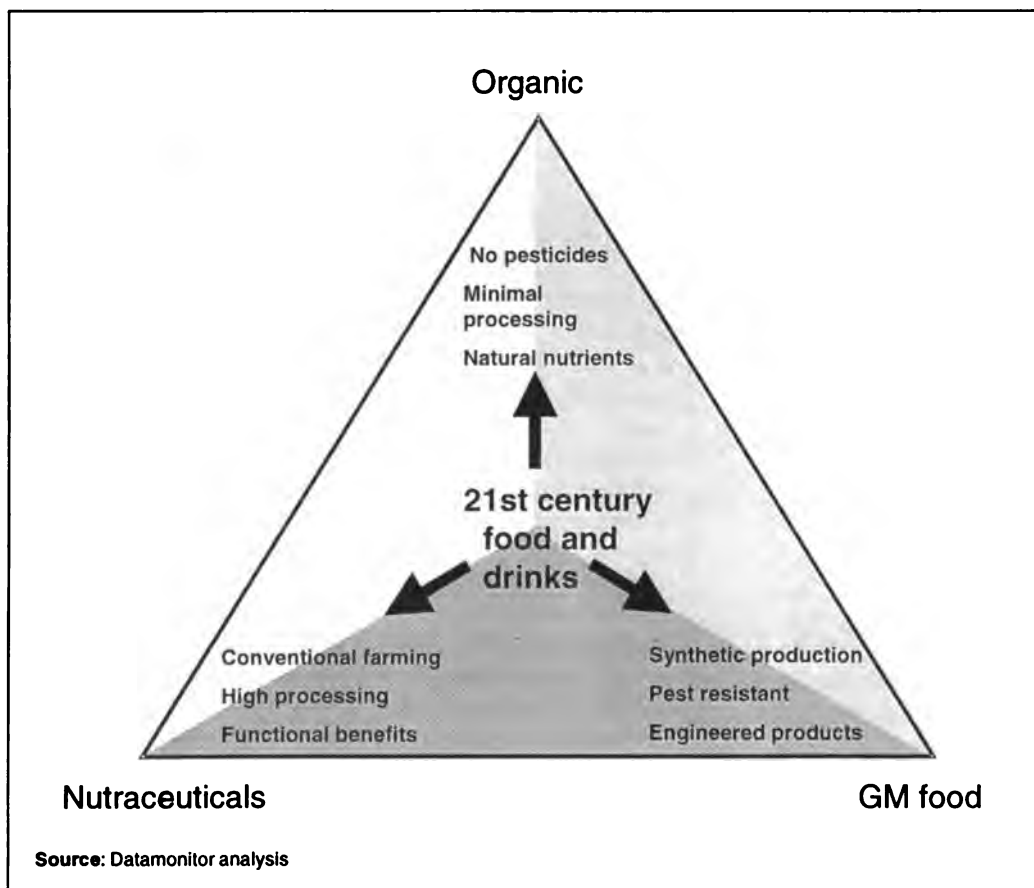


Figure 2. Development of food and drink in the 21st century

2. Organics will be the strategic focus for manufacturers and retailers in the 21st century

The Figure 2 illustrates that there are three key developments that will characterise the food and drinks industry in the 21st century.

- Organic food—driven by concern for the environment, animal welfare, food safety and nutritive intake, organic food is becoming increasingly popular across Europe, as demonstrated by a double-digit European organic market value CAGR of 14% between 1995 and 1999;
- Nutraceuticals—driven solely by the concern over preventative nutritional intake, this segment of the market has been tracked by Datamonitor's Worldwide Innovations Network and has found over 350 products launched in the last year (1998–1999), indicating the popularity of nutraceuticals;
- GM foods—while not overtly described as a product category, genetically modified organisms are contained in about 60% of all processed food, ranging from biscuits and breads to frozen ready meals and desserts. The opposition to GM food in Europe may limit the growth of the market, but this is nevertheless an important aspect of the market for food and drink in the long term future, having gained widespread acceptance in the US, Australia and Latin America.

Amongst these three categories, organic food is likely to become *the* major strategic issue for manufacturers and retailers alike as they realize the potential of the market. GMO's may be present in about 60% of our processed foods, but the action by retailers and manufacturers in Europe against these products is likely to limit their potential. Indeed, a recent US\$5m promotional campaign by Monsanto, the company at the forefront of the promotion of GM food in Europe, backfired and created a stronger resistance to the introduction of GM food. In the UK the public outcry has led retailer to exclude all GMOs from private label lines and leading foodservice companies such as Burger King and KFC have banned these products from their restaurants.

3. The development of organic nutraceuticals will be the peak of innovation

In 1999 the market for organic food is still in its growth phase in most European countries. The Austrian market has had the highest organic

penetration of the overall food and drinks industry, at 9.7%. In contrast, organic penetration of the German industry was only at 2.5%, yielding a market value of US\$2.3bn in 1999. Support from the government and retailer push are key to driving the growth of the organic food market. Consumer demand is currently outstripping supply in a number of countries including Germany, the UK and France. This creates an enormous export opportunity for countries where consumer demand is not as high and where production methods need little modification to meet organic standards. Within the EU, Italy and Spain are core export markets as the domestic demand for organic food in these countries is lower. Outside of the EU, the US and South America are key export markets.

The high level of demand has meant that new products have mainly been confined to introducing unprocessed raw products such as fresh fruit, vegetables and milk and to range extensions.

In categories such as fruits and vegetables, new product launches have been confined to introducing seasonal products in larger quantities to meet demand. In product markets such as dairy, where supply is fairly secure, the product development moves to a first generation development which would comprise lightly processed products such as cheese, yoghurt, fromage frais and flavoured milk. Second generation products are processed foods that are usually multi-ingredient products such as ready meals. Second generation products can only be developed when sufficient supply can be secured for multi-ingredients products.

The transition to organic nutraceuticals is a 3rd generation product development that is only achievable when supply is secured and demand is high. Manufacturers will have to develop products with additional benefits to distinguish their product offerings from that of other market players. In addition, this would enable them to gain competitive advantage over manufacturers, who are still developing processed products such as ready meals, which do not have any additional benefits such as those from functional and fortified products.

Processed organic products are difficult to develop as:

- legislation limits the amount of processing that is acceptable for a product defined as organic;
- it is difficult to secure supply in sufficient quantity to satisfy the demand for basic 1st generation products;

- supply of multi-ingredients for organic production of ready meals for example, is difficult to achieve;
- the price premiums on these products must be justifiable to the consumer for the product to achieve success.

4. The European market for organic food and drinks will maintain strong growth

Datamonitor's forecast methodology incorporates issues such as macro-economic and socio-demographic changes to forecast the development of the organic segment. In addition, country specific market drivers and limiting forces are assessed to determine the direction of the segment. These findings are assimilated within Datamonitor's Food and Drinks Database to achieve a market value forecast. The assessment below outlines the potential development of the European organic market.

- The Austrian market will achieve the highest penetration as a result of strong government support, high retailer push and moral concern;
- in France, the high level of Government support and retailer push will enable consumers who are strongly driven by a moral concern to meet their product requirements;
- the German market will be strongly pushed by retailers and will meet the increasing consumer

need for food safety and moral concern. Limiting factors such as availability and appearance of food, will be moderate in strength allowing substantial growth;

- strong limiting factors, including the price premiums, the appearance of organic food and a lack of government support will limit the growth potential of the organic market in Italy;
- despite strong limiting factors, especially the price and limited availability of organic food, the Dutch market has strong growth potential as a result of government support, retailer push and increased consumer demand;
- the Spanish organic market has weak growth potential. There is a low consumer demand while limiting factors, especially price premiums, are strong;
- high levels of consumer demand and government support alongside initiatives by retailers and companies in the food service sector will ensure very strong growth in Sweden;
- while retailers are pushing the market, high price sensitivity impacts upon the potential growth of the UK market.

The Figure that follows shows the relative position of the organic food and drinks market in the European countries covered in this report for the year 2004.

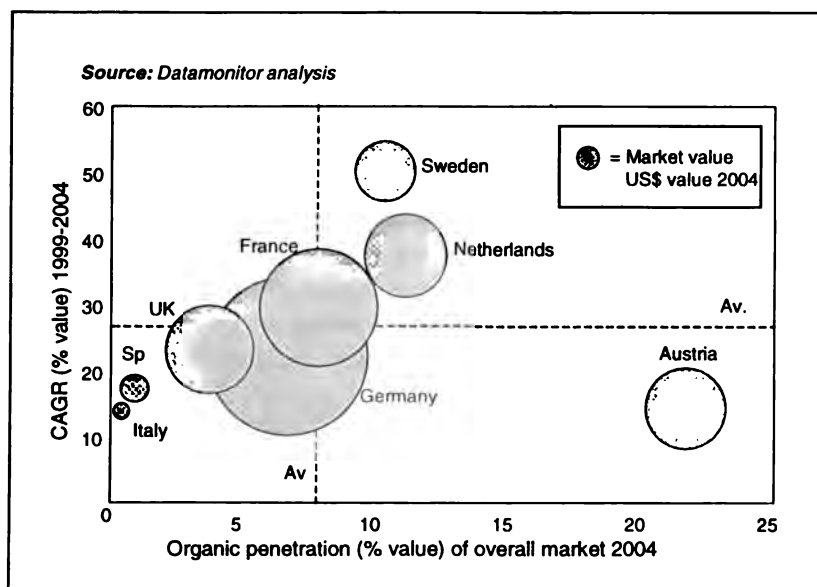


Figure 3. The Swedish organic market will have the highest growth

5. Uptake of organic farming and other agri-environment schemes

As part of this research, data have been collected on the uptake of organic farming support schemes as well as the overall agri-environment programme. Results for 1996 are presented in Tables 2 and 4 and for 1997 in Tables 3 and 5. More detailed time series data for 1993 to 1997 are contained in Foster; Lampkin (1998).

At the EU level, 3.9% of agri-environment scheme agreements up to 1997 related to organic farming (65,400 out of 1.7 million). Organic farming accounted for 5.1% of the land area covered by these agreements (1.3 Mha out of 25 Mha).

Uptake varies widely between countries, from less than 300 organic farming agreements in 1997 in BE, GB, NL and PT to more than 8,400 in Germany, 10 800 in Sweden, 17,000 in Italy and 18,500 in Austria. For organic farming as a percentage of all agri-environment agreements, France and the Portugal were lowest with below 1.0%, whereas in DK, GR, IT, and SE over 10% of the agreements concerned the organic farming option.

A similar pattern of results can be seen from the land area data, with organic farming accounting for nearly half of the land area registered under agri-environment agreements in Denmark in 1997, but less than 3% in FR, GB and PT.

It should be noted that in 1996, 7,596 organic farms (319,485 ha) in Germany were still supported under the old extensification programme (EC Reg. 4115/88). Many of these are expected to transfer to agri-environment agreements as the old agreements expire, as can be seen from the increase in EC Reg. 2078/92 supported organic farming in Germany in 1997.

B. Profile of principal actors: farmers, inputs suppliers, processors, distribution, consumers, NGOs

1. Organic farming support under agri-environmental and extensification programmes

Direct support to organic and converting producers is seen by some governments as a means to meet increasing consumer demand as well as transfer income to farmers for environmental and other benefits.

Denmark was the first country to introduce a national support programme in 1987, Germany used the framework of the EU extensification programme (EC Reg. 4115/88) to introduce a support for conversion to organic farming. In 1996, continuing support under this programme amounted to nearly 60 MECU. By 1996, all EU member states, with the exception of Luxembourg, had introduced policies to support organic farming within the agri-environment programme (EC Reg. 2078/92). Support for conversion to and continuing organic production amounted to nearly 190 MECU in 1996, increasing to more than 260 MECU in 1997.

Despite the common framework of this programme and the regulatory base provided by EC Reg. 2092/91, the payment rates, eligibility and other conditions of the schemes in each country vary widely, particularly with regard to livestock production. Several countries impose environmental requirements in addition to those specified in EC Reg. 2092/91, and in two EU countries (IE and FI) participation in the main agri-environment protection scheme is compulsory. Most countries offer payments for continuing organic production at a lower rate than for conversion, but many exclude payments towards permanent grassland.

Uptake varies between countries and to some extent this can be linked to levels of payment, but this needs further investigation as does the impact of such policies on market development. In seven countries payment rates have been increased since the introduction to encourage higher uptake, whereas in other countries higher than expected uptake of the schemes led to reductions in the rates paid.

2. impacts of mainstream CAP Reform measures on organic farming

In most countries, the mainstream measures are seen as beneficial, at least for arable producers. Set-aside in particular is seen to have potential to support the fertility-building phase of organic rotations during conversion and on arable farms with little or no livestock.

Only in a few cases have significant adverse impacts of the mainstream measures on organic farmers been identified. In some cases, special provisions have been made to reduce these.

The loss of eligibility for livestock premiums as a result of reduced stocking rates following

Table 2. Number of certified and policy-supported organic farms and total agreements for agri-environmental measures (end 1996)

	AT	BE	DE	DK	ES	FI	FR	GB	GR	IE	IT	LU	NL	PT	SE	EU15 ¹	CH	CZ	NO
Number of farms (1,000)	19.43	0.23	7.35	1.17	2.16	4.45	3.85	0.87	1.07	0.70	17.28	0.02	0.86	0.25	2.71	62.19	3.72	0.19	0.95
Certified organic	19.43	0.23	7.35	1.17	2.16	4.45	3.85	0.87	1.07	0.70	17.28	0.02	0.86	0.25	2.71	62.19	3.72	0.19	0.95
Organic farming supported under agri-environment programmes	18.32	0.11	6.51	1.23 ²	0.69 ⁴	4.07	1.18	0.16	0.69	nd	9.30	nd ⁴	0.21	0.17	8.27	53.9 ⁴	3.39	nd ⁴	0.84
Total organic	19.43	0.23	14.11 ³	1.17	2.16	4.45	3.85	0.87	1.07	0.70	17.28	0.02	0.86	0.25	8.27	74.50	3.72	0.19	0.95
Total agri-environment agreements ¹	446.2	1.23	490.0	7.45	25.0 ⁴	89.55	173.8	18.86	1.84	19.85	77.19	nd ⁴	6.82	121.7	71.0 ⁴	1,550.3	38.3 ⁴	nd ⁴	nd
Agri-environmental policy supported	4.11	8.70	1.33	16.83	2.75	4.54	0.68	0.86	37.47	nd	12.05	nd ⁴	3.06	0.14	11.65	3.29	8.8	nd ⁴	nd
Organic as % of total	4.11	8.70	1.33	16.83	2.75	4.54	0.68	0.86	37.47	nd	12.05	nd ⁴	3.06	0.14	11.65	3.29	8.8	nd ⁴	nd
Total organic as % of all farms	7.28	0.30	2.74	1.58	0.16	2.32	0.48	0.35	0.13	0.44	0.69	0.67	0.55	0.05	8.99	0.95	5.74	nd	1.34

¹ Double-counting will exist where schemes are combinable

² Includes 7,596 farms under EC Reg. 4115/88 extensification programme 'avoidance of artificial inputs'

³ Slightly higher value than certified and total organic probably due to different year ends and administrative time lags

⁴ Own data collected direct from CC AA.

⁵ Own estimates based on three Ministry of Agriculture sources (see country appendix)

⁶ Agri-environment programme and organic farming scheme not yet implemented

⁷ Own estimate

⁸ Excluding Ireland (no data)

⁹ Integrated and organic only, no data on other Art. 31b schemes

Source: own data, certification organizations, national agricultural administrations, European Commission

na = not applicable, nd = no data available

Table 3. Number of EC Reg. 2078/92-supported organic farms, and total agreements for agri-environmental measures (end 1997)

	AT	BE	DE	DK	ES	FI	FR	GB	GR	IE	IT	LU	NL	PT	SE	EU15
Number of farms (1,000)	18.5 ²	0.15	8.42	1.45	1.5 ³	4.16	1.55	0.30	0.89	nd	17.12	na ⁴	0.27	0.23	10.87	65.40 ⁵
Organic farming supported under agri-environment programme	18.5 ²	0.15	8.42	1.45	1.5 ³	4.16	1.55	0.30	0.89	nd	17.12	na ⁴	0.27	0.23	10.87	65.40 ⁵
Total agri-environment agreements ¹	440 ²	1.82	559.2	7.98	30 ³	89.33	166.8	22.32	2.40	28.57	121.7	1.91	7.39	132.9	75.0 ⁵	1,687.4
Agri-environmental policy supported organic as % of total	4.20	7.95	1.51	18.21	5.00	4.66	0.93	1.33	37.06	nd	14.07	na	3.59	0.17	14.49	3.88

¹ Double-counting will exist where schemes are combinable

² Own estimates based on 1996 values

³ Own estimates based on three Ministry of Agriculture sources (see country appendix)

⁴ Policy to support organic farming introduced in 1998

⁵ Own estimate

⁶ Excluding Ireland (no data)

Source: national agricultural administrations, European Commission

na = not applicable, nd = no data available

Table 4. Area of certified and policy-supported organic farmland and total land in agri-environmental measures (end 1996)

Land area (1,000 ha)	AT	BE	DE	DK	ES	FI	FR	GB	GR	IE	IT	LU	NL	PT	SE	EU 15	CH	CZ	NO
Certified organic	309.1	4.3	354.2	45.0	103.7	84.6	137.1	49.5	5.3	20.5	334.2	0.6	12.4	9.2	113.6	1,583.1	58.7	17.0	7.9
Organic farming supported under agri-environment programmes	248.4	2.7	156.3	30.2	25.0 ¹	75.9	29.3	23.3	3.3	nd	162.2	na ⁴	3.5	7.3	162.3	929.7 ⁶	54 ⁷	na ⁸	7.9
Total organic	309.1	4.3	473.7 ²	46.2	103.7	84.6	137.1	49.5	5.3	20.5	334.2	0.6	12.4	9.2	162.3	1,754.6	58.7	17.0	7.9
Total agri-environment ¹	3,213	12.9	5,247	86.8	550 ³	1,988	5,658	1,209	12.3	652.3	1,025	na ⁴	36.1	517.1	1,600 ⁵	21,807	775 ⁸	na ⁸	na
Agri-environmental policy supported organic as % of total	7.73	21.03	2.98	34.86	4.55	3.82	0.52	1.92	26.5	nd	15.83	na ⁴	9.80	1.41	10.14	4.26	7.0	na ⁴	na
Total organic as % of all areas	8.96	0.31	2.74	1.70	0.41	3.25	0.45	0.31	0.15	0.46	1.93	0.47	0.63	0.23	4.72	1.31	5.42	0.41	0.79

¹ Double-counting will exist where schemes are combinable

DE ² Includes 317,450 ha under EC Reg. 4115/88 extensification programme 'avoidance of artificial inputs'

ES ³ Own estimates based on three Ministry of Agriculture sources (see country appendix)

LU/CZ ⁴ Agri-environment programme and organic farming scheme not yet implemented

SE ⁵ Own estimate

EU ⁶ Excluding Ireland (no data)

CH ⁷ Projected

Integrated and organic only, no data on other Art. 31b schemes.

Source: own data, certification organizations, national agricultural administrations, European Commission

na = not applicable, nd = no data available

Table 5. Area of EC Reg. 2078/92-supported organic farmland and total agri-environment programme supported area (end 1997)

Land area (1,000 ha)	AT	BE	DE	DK	ES	FI	FR	GB	GR	IE	IT	LU	NL	PT	SE	EU 15
Organic farming supported under agri-environment programmes	246 ²	3.4	229.5	50.3	50 ³	89.4	42.0	29.1	4.3	nd	308.4	na ⁴	4.6	9.9	205.1	1,272.1 ⁶
Total agri-environment ¹	3,200 ⁵	19.0	5,509	107.3	827 ³	1,994	6,870	1,409	34.8	961.1	1,612	94.4	32.8	547.5	1760 ⁵	24,978
Agri-environmental policy supported organic as % of total	7.69	17.94	4.17	46.86	6.05	4.48	0.61	2.07	12.24	nd	19.13	na	14.16	1.82	11.66	5.09

Double-counting will exist where schemes are combinable

AT: Own estimates based on 1996 values

ES: Own estimates based on three Ministry of Agriculture sources (see country appendix)

LU: Policy to support organic farming introduced in 1998

SE: Own estimate

EU: Excluding Ireland (no data)

Source: national agricultural administrations, European Commission

na = not applicable, nd = no data available

conversion is seen as potentially problematic, but this can be mitigated by extensification payments and quota sales or leasing where applicable.

Several countries have made use of investment aids and national/regional measures to provide additional assistance, including special derogations for organic producers.

The potential impacts of changes to the mainstream support measures as a consequence of Agenda 2000 are yet to be evaluated in subsequent phases of this research project.

3. Policy support for marketing and processing

EU support for marketing and processing activities in the organic sector has been identified in at least nine countries with public expenditure in 1996 totalling between 5 and 10 MECU. In Denmark and Germany, specific programmes to support organic farming projects exist and the organic sector has received a relatively high proportion of funding through general marketing schemes in Austria and Great Britain.

Three German *Bundesländer*, have budgeted for organic farming projects within EC Reg. 866/90 programmes. Several countries have Action Plans for the development of the organic sector which include support for market development and three countries have budgeted for marketing activities in organic farming under regional development programmes.

Support for small-scale projects has been particularly successful in Germany in helping develop regional marketing networks, overcoming the problems of a small organic sector and encourage the entry of new operators.

The Danish example suggests that a more market-oriented approach to organic aid schemes can support the development of a diverse marketing structure, provide help in entering into mainstream marketing, and help overcome problems such as discontinuity of supply and lack of widespread distribution.

The apparent limited uptake by the organic sector of funding in some countries can partly be explained by possible gaps in the data, as most ministries do not distinguish between organic and non-organic projects.

Further restrictive eligibility requirements have been identified as a potential barrier to uptake

some schemes, suggesting the need to take the specific requirements of the organic sector, such as reduced as turnover and smaller number of members for organic producer groups, into account when designing support programmes.

4. Regional and rural development policies

Organic farming has in some cases been an integral part of regional development strategies. It can help to meet many of the goals of such programmes, combining a sustainable model of agriculture with the prospect of development of local economies through the encouragement of local production, processing and consumption patterns. Experiences in Ireland suggest that grant aid can have a significant impact on the regional development of the organic sector.

Organic farming projects have received support under Objectives 5b and 1 of the EU Structural Funds in nine countries for a variety of activities, including direct marketing, promotion of regional products, research, technical advice and training. In as many countries, organic projects have received funding through the EU LEADER programme. Total public expenditure in the EU in 1996 has been estimated at nearly 10 MECU. This excludes LEADER funded projects in the organic sector.

Regional development initiatives outside the framework of EU policy, with budgetary provision for organic farming, exist in Switzerland, and in certain regions of France and Germany. Experiences with limited uptake of the scheme in the Rhône-Alpes region of France suggest the need to take the particular situation of the organic sector, often characterized by limited range of products and discontinuity of supply, into account when designing regional support programmes.

5. Production standards, inspection and certification systems

Prior to the introduction of EC Reg. 2092/91, definitions for organic farming existed in all study countries except Greece. Six EU countries had a national legal definition and eleven EU countries had long-established standards set by private and voluntary sector bodies.

National legislation for organic crop production was replaced once EC Reg. 2092/91 was implemented. In most countries previous national definitions are still in operation, mainly because

of the lack of standards for livestock production in the regulation.

Standards defining organic production have largely been developed by the private sector (mostly by producer organizations). They are varied and adapted to the conditions, resources and requirements of specific countries and regions.

Producer involvement in the development of organic standards can be positive as consumer and producer confidence in the Danish State regulation indicates. The Danish experience also suggests that the development of common logos can improve the consumer recognition of organic produce.

Most EU countries have designated one government body (usually within the Ministries of Agriculture) as the Competent Authority to oversee the inspection and certification of organic farms under EC Reg. 2092/91. The other countries have appointed two or three bodies each responsible for different operational areas and in Austria, Germany and Spain, Competent Authorities are designated at regional level.

Licensed private sector bodies, partly operating their own standards, carry out the actual inspection and certification of organic producers in most countries. Only in four countries are central or regional government bodies directly involved.

Financial support is currently provided to inspection/certification bodies in eight countries and directly to producers in six countries. These provide recompense to private bodies for their involvement in regulatory activities and may provide an effective way to overcome cost barriers for smaller operators undergoing the certification process.

6. Advice, extension and information

Organic extension work has the aim to provide farmers with information about organic farming, particularly during the period of conversion. This is achieved through various measures, such as direct advice to individual farmers or groups of farmers (organic and conventional), as well as demonstration farm networks and other information services.

Organic advisory services further fulfil an important role in providing a link between researchers and farmers and help to ensure the

relevance of research undertaken and subsequent dissemination of results.

In all countries organic farmers and growers and their organizations are a very important source of information to organic producers, the producer organizations receive public support in recognition of their role in seven countries.

National and regional extension programmes providing demonstration farm networks and/or direct advice to farmers exist in eleven countries, seven of which are included in the national agri-environment programmes under EC Reg. 2078/92. The regional co-ordination of organic farming groups received support under Objective 5b in three countries. Most programmes have the aim to increase the uptake of organic farming.

In eleven countries organic extension services receive public support, the total public expenditure in the EU for various extension activities dedicated to organic farming in 1996 is estimated to be in the range of 15 MECU.

A national network of organic advisors exists in nine countries, but the lack of experienced personnel and further training and support for an increasing number of organic advisors, particularly during periods of rapid growth of the organic sector, appears to be a weakness. The delivery of advice could further be improved through enhanced national and international co-operation of the various providers.

7. Training and education

The training opportunities in organic farming in the countries studied range from short courses for farmers, courses at high-schools (agricultural colleges), specialist technical and academic qualifications, optional modules at colleges and universities, and various other courses. Most training in organic farming is offered either through schools and colleges that have specialized in the subject and offer particular courses and qualifications or is part of the mainstream agricultural training.

Teaching of organic farming was introduced as part of the national curriculum in high schools in five countries. Switzerland has published desirable learning outcomes for this type of training.

Training courses for farmers have received funding under EC Reg. 2078/92 in seven countries. In Belgium the programme is funded

from government sources. Some courses for technical/vocational and academic qualifications have received funding from the European Social Fund. A co-operation of ten agricultural universities for curriculum development under the SOCRATES/ERASMUS programmes resulted in a joint BSc degree in Ecological Agriculture.

Public support for training in organic farming is difficult to identify as several countries have no special budget and spending on courses would be part of a larger agricultural training budget. The total expenditure in EU for specialist vocational and practical training (including short courses for farmers but excluding academic courses in most countries) for 1996 is estimated to be in the range of 5 to 10 MECU.

The development of guidelines and common curricula at all levels of training in organic farming could improve the training opportunities for organic farming, both within and outside of mainstream agricultural education.

8. Research and development

In the past farmers have been the main driving forces in developing organic farming, but today research involvement is considered as vital. However, there is a need for research to maintain links with the industry and ensure effective two-way communication of research needs and research results.

Organic farming has been included as a topic for further research in the second, third and fourth Framework programme of the European Union. A total of ten projects funded under the three programmes (1 under CAMAR, 8 under AIR, 1 under FAIR) were identified, including two concerted actions aiming to improve the co-ordination and documentation of organic farming research (ENOF and DOCEA).

In most countries research activities in organic farming are increasing. In seven of the countries studied research on organic farming is part of a national research programme, in a further two activities are co-ordinated nationally.

Research is mainly carried out by private and public bodies that specialize in organic farming work, but an increasing number of institutions of mainstream agricultural research get involved.

Organic farming research receives public support in nine countries. Total spending on organic farming research (excluding university chairs) in

1996 in the EU and individual countries is estimated to be in the range of 15 MECU.

Research work falls in the broad categories of applied short term projects ('problem solving'), long term studies of farming systems, research to support policy making and application of the results of conventional work.

Commonly mentioned research priorities include various aspects of animal and horticultural production; the evaluation of inputs; organic seed production and breeding new concepts of sustainable land use with organic methods and their environmental impact; improved understanding of the self-regulatory mechanisms for pest and disease control and socio-economic implications of organic farming and widespread conversion.

Limited research funding has been identified as a major barrier for future work. Shortcomings lie in the lack of quality of some of the current research as well as dissemination of the results. Research priorities of public funding bodies should be set after consultation with the industry as well as researchers. The research activities could be further improved through more national and international co-ordination and co-operation, 'organic' peer review to improve research methods and multi-disciplinary projects.

9. Integrated national policies to support organic farming

Support for the organic sector falls into four broad categories: payments to producers, marketing and regional development, legal definitions, and information provision. The commitment to support organic farming varies widely between countries.

The review presented in this report suggests that in the future more integrated programmes in all four areas are needed, if organic farming is to be supported. Examples for countries with integrative policies or 'action plans' for the development of organic farming are the Nordic countries, the Netherlands and France. These countries also set clear targets for conversion rates (between 3 and 10% by 2000).

The Agenda 2000 rural development proposals have significant parallels to these action plans, by integrating most of the measures discussed in this report into a single regulation. Countries will be allowed to combine agri-environmental measures and less-favoured areas with investment aids, processing and marketing support, and training and advisory initiatives.

C. Forms of market organization

Since the introduction of the agri-environment programme in 1994, all EU member states have introduced policies to support organic farming, but payment rates and conditions vary widely. By 1997, organic farming schemes supported more than 65,000 farms and 1.27 Mha at a cost to member states and the EU of over 260 MECU, representing around 5% of the uptake and 10% of the expenditure on agri-environmental measures.

Unlike some previous schemes, most countries (with the exception of GB and FR) allow existing organic producers to participate. Staged conversions are permitted in all countries except DE and IE, and all but 5 countries permit partial conversions. All schemes require organic management to be maintained for at least 5 years, otherwise payments have to be repaid.

Certification of crop production according to EC Reg. 2092/91 is required in all countries except Sweden. The requirements for organic management or certification of livestock are less strict, even though eight countries require management according to mostly national standards and half of the countries impose stocking rate limits around 2 LU/ha. Several countries operate maximum and minimum limits on size or payment, but the actual limits vary widely.

Many schemes exclude payments towards permanent grassland. Some countries impose environmental requirements in addition to those specified in EC Reg. 2092/91 and in Ireland and Finland participation in the main agri-environment protection scheme is compulsory. Special provisions for training that are included in the Regulation are not taken up in many programmes, although Austria, Portugal and Finland have compulsory training programmes.

Most countries have modified their original organic farming schemes – in seven countries rates have been increased, whereas in Finland, Spain and some German regions rates had to be reduced because of higher than expected uptake of the schemes. Payments rates vary widely, from 100 to 1,200 ECU/ha for the first two years of conversion, depending on crop type and country. In most countries the payments for continuing organic production are lower, recognising the costs of conversion and income forgone. However, some countries have chosen not to offer higher payments, so that entrants that are not

interested in organic production but only the higher conversion rates are discouraged. Austria, Great Britain and one region in Germany have included some payment towards the costs of certification in the schemes. Uptake also varies between countries, from less than 300 producers in Belgium to 18,500 in Austria. To some extent levels of payment can be linked to rates of uptake, but no clear relationship emerges.

D. Tendencies: concentration, investment, strategies of leading actors, niche/mass markets

This section covers the four elements of the marketing mix by looking at the market as a whole. References are made to specific characteristics of segments within the organic food industry such as bakery and dairy, so as to provide a comparative analysis where appropriate. It compares the overall conventional food category with the market for organic food. The new product launches in this category over the last year are examined. This chapter has four parts:

- product; examines the new product launches over the last year and highlights recent packaging trends;
- price; pricing strategy for organic foods is compared to that for conventional food;
- promotion; defines the key target audience for organic food and examines promotional activity;
- distribution; differentiates between distribution for organic and conventional food.

The key findings are as follows.

- New product launches in the organic food industry are primarily focused on range extensions. These include products such as sweet biscuits, yoghurts and fromage frais. Organic nutraceuticals signify the development of the market and are as yet an underdeveloped category;
- price differentials vary across country and product category markets. Price is a key determinant in the purchase decision of the mainstream consumer. Obstacles relating to supply and distribution must be overcome to reduce prices;
- certification symbols are important marketing tools and this could limit trade activity where

consumers perceive a particular symbol such as the KRAV label to reflect quality and safety;

- while multiples are playing a key role in driving the market for organic food and are beginning to dominate sales, new formats such as box schemes and organic supermarkets are initiatives that are aimed at defending the share of smaller market players. Organic supermarkets pose a strong competitive threat to multiples.

1. Product

a. NPD

There have been a large number of new product launches in the organic food industry. A majority of these are fresh produce such as organic fruit and vegetables. No new meat product launches have been noted for the reason that any launches are likely to be limited to fresh meat products and not processed products such as ready meals. For this reason they have not been included in the NPD analysis.

The Figure 4 illustrates the general development of new product launches in the market for organic food and drink. It illustrates that in the introduction

phase, most of the products are unprocessed. There have been a large number of launches in this category indicating that the market is indeed in the introductory phase.

There have, however, been product launches that comprise range extensions, differentiation and diversification. In the dairy market particularly there has been a proliferation of launches to fit all manufacturer strategies. Ice creams, chilled desserts and functional milk drinks have all featured as new products over the last year. This indicates that there is a huge potential in the market for organic dairy. These products are offered as true alternatives to conventional products. The conventional dairy market is at a phase of maturity due to the established nature of the market, demonstrating that the needs for differentiation and diversification are heightened in the latter two stages of the market life cycle.

The food and drinks industry is not likely to conform to the traditional life cycle model as the increasing population results in an increased demand for food and drink. However, manufacturers who wish to enter the market must use differentiation or diversification strategies to gain share. As a result, while the organic dairy market has seen product launches in the form of plain milk, signifying the launch phase of the

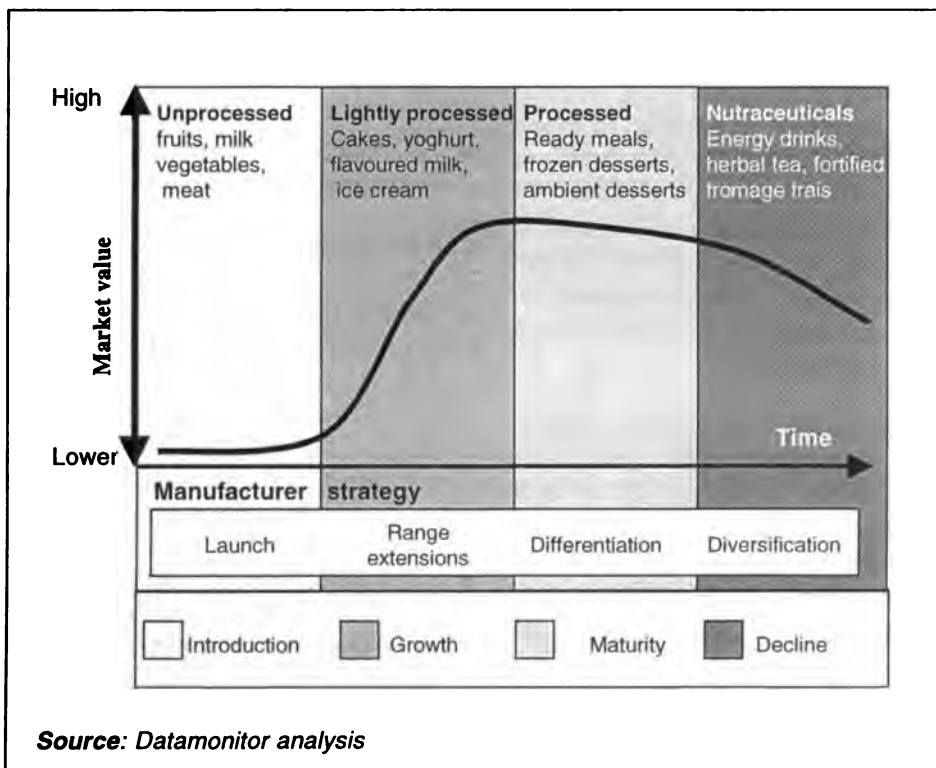


Figure 4. Organic market life cycle and product innovation

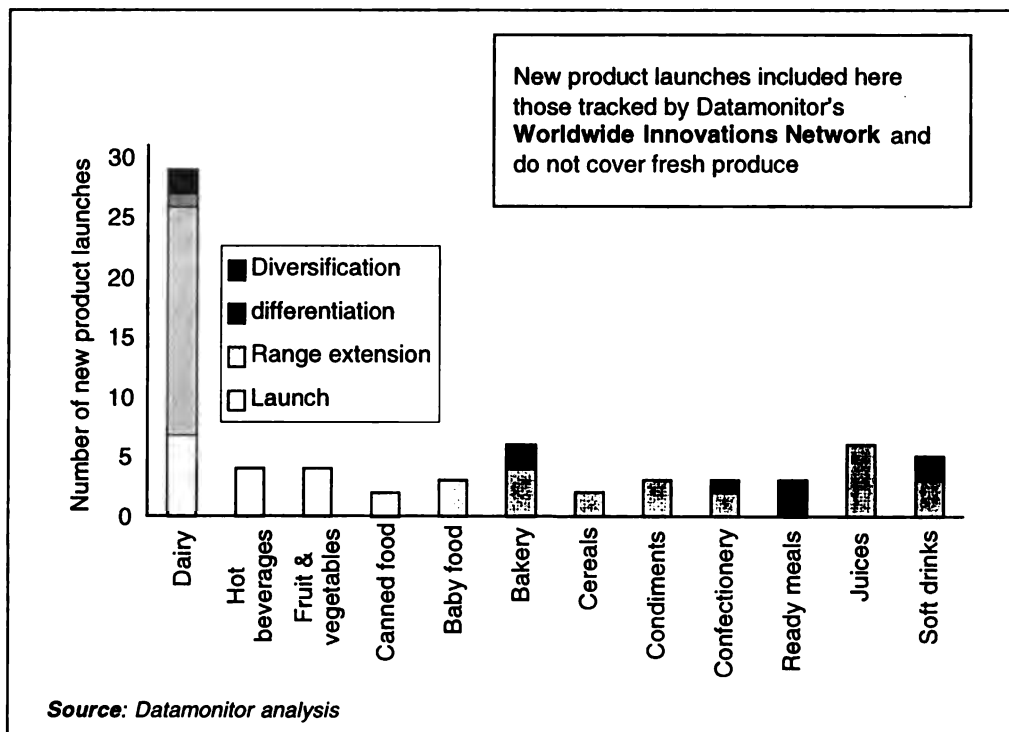


Figure 5. The dairy market has had the highest variety of product launches

market, there have also been a number of manufacturers who have adopted a more innovative approach to new product development. The ability to secure supply is a crucial element for the successful launch of new products. The supply of organic milk is generally well secured across Europe. Product launches in the dairy market have ranged from plain milk to functional oat milk drinks in the same country. For instance, in the UK West Country Creamery has launched a line of skimmed and semi-skimmed milk and Scâne dairy has introduced a range of Mill Milk drinks.

This pattern of the diversity of new product launches in the organic food industry is observed in segments such as fruit and vegetables, bakery and beverages. While there are a large number of product launches in the introductory phase such as organic fruits and vegetables, milk and meat, there are also a variety to fit the diversification strategy. This strategy is usually used when the manufacturer's market is in decline and it needs a new product to gain competitive advantage. Manufacturers who are launching new products in the organic market are innovative with the product launches. For

instance an organic fortified fromage frais competes well in the trend towards healthy food and appeals to both consumers of conventional and organic products.

Products are categorised according to the manufacturer strategy employed in the development of the product. Therefore the launching of unprocessed fruit and vegetables, milk and meat signifies the launch of the product in a market that is still in its introductory phase. Due to the innumerable new products in this launch phase, only those that have been covered in the new product tables and tracked by Datamonitor's Worldwide Innovations Network have been included.

This factor aside, most of the new products launched between 1998 and 1999 are range extensions. These would include products such as yoghurts, ice creams, biscuits and juices. The manufacturers of these products tend to be active in the relevant conventional product markets and simply extend their ranges by sourcing organic ingredients. New product launches have included a multitude of products such as fromage frais, natural and fruit flavoured yoghurts. These can

be classified as range extensions because the products are not differentiated or diversified in terms of the product offerings of other manufacturers. Diversified products include those such as Mill Milk Oat Drinks by Scâne Dairy, as the products offer true alternatives to conventional and existing organic products. Other range extensions include canned vegetables where a canned organic carrot line is added to existing product lines such as organic canned kidney beans.

The tables that follow outline the scope of the new product launches by product category.

b. Packaging

The EU regulation 2092/91 has guidelines governing the description of organic food. It stipulates that all foods labelled 'organic' must be derived from producers, processors and importers that are certified and conform to the standards outlined in the regulation. A detailed description of the labelling of organic products is included in the introduction chapter of this report that discusses definitional issues.

In terms of the marketing of organic products, the packaging is varied by product and country market. In Germany and Austria exclusive labels such as Naturking, Fulhorn and Ja! Natuerlich have been developed by the multiples to achieve brand recognition. Both German and Austrian multiples promote these exclusive labels as premium brands and use high quality packaging to reflect this. The packaging is distinctive from conventional brands and uses brighter colours and more informative ingredient labels.

Another unique trend to the organic market is the environmentally friendly nature of the packaging. In a number of countries such as Sweden, Austria, Germany and France, the perceived environmental impact of organic farming is as important as the health issue in terms of consumer drivers. Organic food and drink manufacturers are responding by marketing their products as healthy and environmentally friendly. A good example of the integration of packaging within the overall environmentally friendly image is the use of biodegradable packaging. Danone for example, has launched a range of yoghurts that are packed in tubs made from sugar beet which are 100% biodegradable. A number of other manufacturers use returnable glass bottles for the packaging of milk, juices and other beverages. Triballat uses glass containers for its desserts. These can be re-used or recycled.

2. Price

The price premium on organic products varies by product category, distribution channel and country market. Generally, organic products are more expensive than conventional products for the following key reasons.

- Lower yield per square metre in organic farming than conventional farming;
- costs of production are affected by constraints on use of fertilizers and pesticides. As farmers do not use synthetic herbicides to control weeds, weed control costs are higher on organic farms;
- costs of sustained losses are recovered by increasing the price on the marketable yield;
- limited domestic supply results in a high level of imports. The costs of importation are fed into the pricing formula;
- packaging costs are different and these affect end prices;
- organic products adhere to stricter production standards governing systems such as growing, harvesting, transportation and storage, all of which are time and labour intensive and, therefore, more expensive.

The Table 6 compares some products across countries and demonstrates that the price differentials are varied. For products such as milk the price of organic is sometimes lower than that of conventional products, although this is due to manufacturer and retailer pricing strategies rather than the true cost of production. A system of price parity and discounting is sometimes used as a means to promote organic products. Fruits and vegetables that are in season may be cheaper than conventional products but this is a seasonal dependent factor. The differential could be anything from 0% to 100% depending on the season and the channel used. Therefore organic oranges that are imported from Spain or Italy may be more expensive than the conventional products while domestically produced organic apples may be cheaper than conventional apples.

a. Acceptable price premiums vary by country market and consumer profiles

While price was not as important a limiting factor about ten years ago, it has gained importance as a result of the change in the consumer profile of

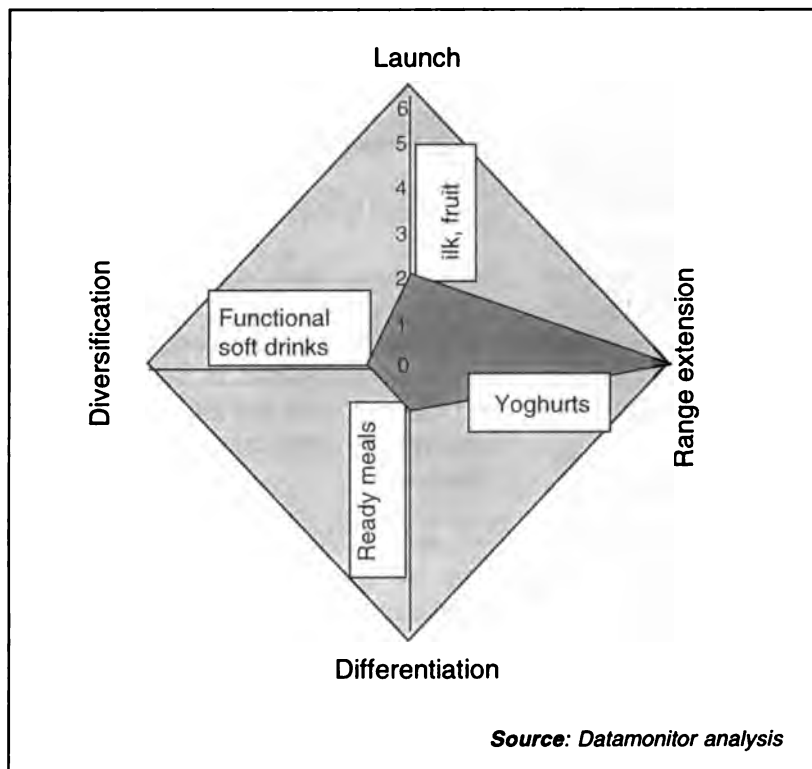


Figure 6. The majority of new product launches are range extensions

Table 6. European organic and non-organic price differentials (US\$), Feb 1999

Product	Store	Country	Pack size	Organic brand	Price of organic (US\$)	Non-organic brand	Price of non-organic (US\$)
Carrots	OBS (multiple)	Sweden	1 kg	Sunda	1.44	Sandberg	1.32
Carrots	Billa	Austria	1 kg	Ja! Natuerlich	1.55	Billa	1.23
Chilled poultry	OBS (multiple)	Sweden	1 kg	Kronfågel	9.60	Torsåsen	8.40
Chilled poultry	Billa	Austria	1 kg	Ja! Natuerlich	9.89	Titz	6.59
Plain milk	OBS (multiple)	Sweden	1 litre	Arla	1.20	Arla	0.72
Plain milk	ICA (multiple)	Sweden	1 litre	Arla	0.96	Arla	1.08
Plain milk	Julius Meinl	Austria	1 litre	Meinl	0.98	Meinl	0.82
Plain milk	Billa	Austria	1 litre	Ja! Natuerlich	0.98	Nöm	0.82
Plain milk	Tengelmann	Germany	1 litre	Naturkind	1.04	Sud Milch	1.10
Potatoes	ICA (multiple)	Sweden	2 kg	Mat potatis	3.60	Björke	1.44
Potatoes	Billa	Austria	1 kg	Ja! Natuerlich	2.47	Billa	1.23
Potatoes	Tengelmann	Germany	1.5 kg	Naturkind	2.90	Erntegold	2.32
Tea	ICA (multiple)	Sweden	50 g	Lipton	1.32	Ängamark	1.32
Tea	Tengelmann	Germany	100 g	Naturkind	2.32	A&P	2.20

Source: Datamonitor Storechecks

organic food purchasers. The group of consumers that buy organic food out of conviction and are not deterred by price are declining in proportion to the consumer base that is in search of a healthy alternative and is deterred by price.

In most cases, while there is an interest in wholesome, natural and healthy foods, consumers are not willing to pay a price differential for a product that has the virtue of being organic but has a lower quality than a conventional counterpart. Organic fruits may often be bruised and have a shorter shelf life, thereby affecting the quality of the product. Some consumers would rather buy products that have reduced treatments and lower residues, still look and taste good and are lower priced.

While it is difficult to pinpoint the average price differential across Europe, it is fair to say that organic products are more expensive than conventional products due to the costs of production, processing and transportation. The impact of price on consumer demand again varies by the consumer profile. The manufacturer and retailer must justify the price premium on the product to the consumer depending on the core audience profile. For instance, where the target group has a high concern for the environment and is prepared to pay a premium for this, elements of the marketing mix must be adapted to portray this image as demonstrated by Danone's packaging.

b. Hidden costs

A factor that is often ignored when comparing prices of organic to conventional is the hidden costs of conventional farming. If elements such as air and water pollution, eroded soils and health care costs were factored into the price of produce, organic produce would be the same price or even cheaper than conventional products.

Conventional farming methods use pesticides and fertilizers to gain a higher yield per square metre. For example, in the UK farmers spray approximately 25,000 tons of chemicals, much of this comprising harmful organophosphates, every year. These are washed off farmlands and into streams, rivers and reservoirs. Converting the water and making it safe to drink is a huge cost and one that is hidden. There are also incidences such as leakage of toxic waste into streams and reservoirs that harm the wildlife, environment and could contaminate drinking water. These costs are often hidden and passed on to the State or directly to the consumer.

The enactment of more stringent environmental regulation and the increases in inspection and taxes or levies for pollution may increase the level of this cost and make manufacturers directly accountable for these costs.

3. Promotion

a. Target group

Target groups vary in each country. However, as the market for organic foods moves towards a more mainstream position it is the mass market that is being targeted. In Sweden, manufacturers and retailers state that the target group for organic food differs little from the average Swedish consumer.

Retailers in all countries studied report that the most loyal consumer and the most frequent purchasers of organic products tend to be well-educated, social grades AB with a bias towards females. Another common feature was the targeting of young families with parents between the ages of 30-45. These consumers buy organic products quite frequently for the safety aspect but are affected by price premiums. In all countries examined, the 60 + age group was not a core target market.

A study by a retailer in the UK found that males between the ages of 40 and 60 were the least enthusiastic about organic foods. A more detailed examination of target groups and segmentation is given in each country chapter where this is analysed in a country specific manner.

b. Certification symbols are a key marketing tool

Certification symbols are viewed as important marketing tools in a number of countries, most notably the Netherlands and Sweden. In the Netherlands, the EKO symbol is viewed as an important marketing tool for organic food products. Studies indicate that only 5% of Dutch consumers purchase organic foods on a regular basis. However, a further 40% are familiar with the EKO quality symbol and can be viewed as potential consumers. The EKO symbol guarantees that the product is organic and provides a degree of assurance to the consumer about the safety of the product.

Similarly in Sweden, all organic products are certified by KRAV and the label is recognized as

indicating that the product is organic. Indeed, more consumers are familiar with the KRAV label than the term 'ekologisk' which is the equivalent of the term organic. The KRAV label is an indispensable marketing tool in Sweden. KRAV ensures that the label is promoted in the media so that it gains wide awareness. In addition it implements programmes in schools to educate children about the benefits of eating organic food.

Country chapters detail how manufacturers, retailers and the government promote organic produce using media such as TV, radio, posters and in-store promotion.

4. Distribution

Across Europe there has been a proliferation of stores selling organic foods whether this is a result of new stores opening or established stores introducing organic product lines. The general and most important trends observed across the European organic market are discussed below.

a. Multiples dominate sales in Austria, UK and France

The organic food retail market has traditionally been confined to sales in specialist and health food stores. However, the recent interest in

organic food and drink has altered the face of this market. In countries where the market is not driven by consumer demand or by government push, retailers have had a key role in promoting the organic food retail market. For instance, in the UK, the level of government aid is relatively low and multiples have been especially active in driving the market by supporting farmers through the conversion process.

The Austrian market is highly concentrated with Austrian multiple Billa dominating the market with an 80% share of organic food retailing. In the UK and France where multiples have about 50% of the organic retail market, this share is divided between the biggest multiples. For instance in the UK, Sainsbury, Waitrose, Tesco and Safeway all command a reasonable share of the market. In Austria, Billa dominates sales of all organic produce.

In the other European countries, the legislative environment impacts upon the retail structure of the market. These factors and their impact are detailed in country specific chapters.

b. Specialist stores and emerging formats

Specialist stores for organic food are typically small scale and cannot match the volume of sales that go through supermarkets. In most European countries, the general consensus is that multiples

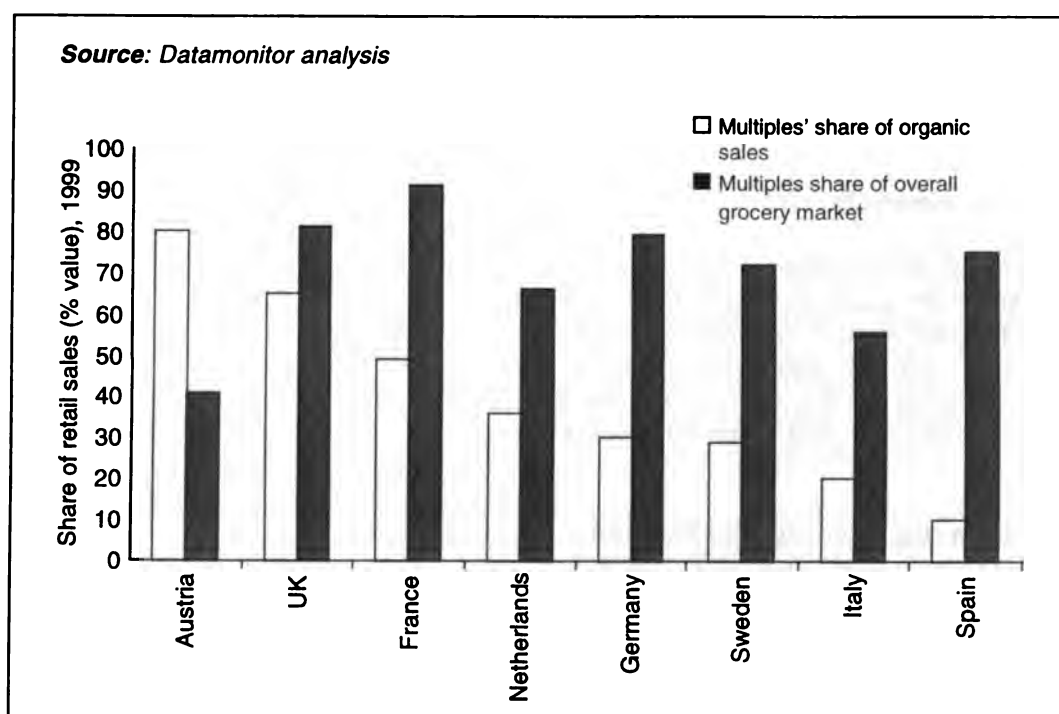


Figure 7. The Austrian organic food market is highly concentrated

cannot take the majority share at this stage in the development of the organic food retail market. They remain a major competitor however, and are introducing new product lines each day. To respond to this competitive threat, specialist stores are competing on the quality of product and information services by recruiting in-store advisers who have detailed knowledge about the products and the traceability.

Studies by retailers in the Netherlands and the UK have shown that consumers value the service aspect offered in specialist stores even though the fast pace of the average consumer's life makes supermarkets more convenient. Building upon these results, the Dutch distributor Nieuwe Band, is working on an initiative with specialist stores that it supplies to change the format of the stores. The aim is to make the stores more accessible and open plan to match supermarkets.

There are to be wider aisle spaces and better lighting that makes the store more appealing to a consumer and allows them to find a product with relative ease. In addition, the consumer is able to consult an in-store adviser who can provide information on the production and processing of products as well as trace the origin of the product to assure safety levels.

Another innovation in the Dutch market is the introduction of a shop-in-shop concept by Natuurwinkel. Natuurwinkel is a chain of specialist stores and has introduced this concept in its larger stores, which is adopted from supermarket formats. These shop spaces are dedicated to organic butchers, for example, and have been successful so far.

c. Organic supermarkets

A new venture by Planet Organic, the UK's only organic supermarket, could pose a threat to the dominance of multiples such as Waitrose, Tesco and Sainsbury in the UK organic retail market. The store is planning an aggressive expansion scheme and aims to open 30-40 stores nationwide.

Planet Organic has the advantage of a large range of organic foodstuffs that are not available in multiples. It has 8,000 product lines, including dried pot snacks and soups to fit the convenience trend, organic wines, champagnes and 30 varieties of cheese. The supermarket has a large range of products to cater for dietetic, diabetic and allergy suffering consumers. For instance,

soya, oat, almond and rice milks are offered as alternatives to plain milk for consumers who have lactose intolerance.

Multiples are not able to match the range and variety of products available at such stores partly due to the large volumes that would be required to serve their consumer base. However, as the trend towards organic food rises, and supply is better able to match demand, multiples may have to increase their private label ranges or give more shelf space to manufacturer brands to cater for the needs of the mainstream consumer. Multiples are usually able to charge a lower price than specialist stores, therefore the ability to match the range and variety of products at specialist stores will provide multiples with a competitive advantage over specialist stores.

d. Direct sell and box schemes

Factors such as price premiums still affect consumer purchase decisions and this is giving rise to direct selling schemes by farmers. Consumers are ensured a lower price if the produce is bought directly from the farm, due to savings on intermediaries, and they are also offered traceability adding to the appeal of direct sell schemes.

The importance of convenience is also giving rise to home delivery services and box schemes. Sales through box schemes have a high potential for success where the consumer does not want to invest time in finding organic produce and for those who are looking for an economical option. Box schemes supply produce that is in season and are therefore able to keep the costs of organic products low.

However, as home delivery is confined to fresh produce, consumers wanting processed foods such as cheese, ice cream, juices and the like still have to go to a supermarket or a specialist store. The increase in the ranges available at multiples will limit the potential for success of box schemes. In addition, a number of multiples are already experimenting with home delivery schemes which could include organic products.

e. Imports

European sales of organic food over the last five years have grown steadily at double-digit figures, increasing the potential of the market for both intra- and extra- EU trade. Intra-EU trade is fairly

well established with Spain and Italy being the key export markets for citrus fruits, grains, cereals, olives and products that cannot be grown in other EU member states.

The European market is attractive for exports from the US as the European organic food sector is increasingly following the same trends found in the conventional market. Key export countries are the UK, which has a low level of self-sufficiency, Germany, the Netherlands and Sweden. Germany is a lucrative market due to the population size while Sweden has a high per capita expenditure on food. The Netherlands has an advantage in being a key port in Europe. A large number of organic products are distributed via the Netherlands, allowing local players access to a wide range of exotic products such as pesto, salad dressings, olive oil and the like.

The demand for organic food in Europe generally outstrips supply, creating a high market potential for exports from the US where organic production is well established. The export of convenience, snack and processed foods would achieve a high level of success in Europe as manufacturers in the EU are unable to secure the supply of the multitude of organic ingredients required for processed foods such as ready meals.

There are, however, a number of limiting factors that exporters from the US would face. These include the issue of certification, as the standards in Europe are different to those in the US. Certification bodies would have to be satisfied that production, processing and packaging of products comply with EU Regulation 2092/91. In addition, while a manufacturer or exporter may be able to gain certification in one country such as SKAL in the Netherlands, these products may not comply with the standards of a certifier in another EU member state. In addition, in a country like Sweden where the KRAV certification symbol acts as an important marketing tool, the potential for success may be limited. Exporters may have to work closely with retailers in the member states targeted for exports to ensure success.

Another increasingly important issue is that of GM crops. EU Regulation bans the certification of organic products that may contain GMOs while no ruling has yet been passed in the US.

Finally, the issue of price must be addressed. The average European consumer is deterred from the purchase of organic products because of the high price premiums on these products. Importing products from the US would add to the cost

formula and the product is not likely to succeed if the premium is not justified to the consumer.

In sum, while the European market offers a vast potential for exporters from the Americas, there are a number of obstacles which must be overcome before entry.

f. Food service

This is a relatively underdeveloped market segment in the European market for organic foods. However, the rise in the demand for organic food in a number of countries provides opportunities to players in the food service channel. In Sweden, recent developments in this sector demonstrate the popularity of organic food. Meaning Green, an organic vegetarian restaurant, has set up three branches around Stockholm and Malmo and has enjoyed immense success. The company aims to open three further restaurants in Central London in 1999 and 100 branches altogether throughout Western Europe and the US in the next five years.

Another significant development in Sweden is McDonalds' use of organic coffee and milk in all its outlets. McDonalds has also attempted to secure the supply of organic meat for its burgers but supply shortages have limited plans. The entry of such multinational companies in the food-service arena is set to boost the market for organic food.

In other EU member states, plans have been enacted for government municipals to serve organic food on the menu. Schools and hospitals are the primary beneficiaries.

5. Interim Conclusions

- a) New product launches in the organic food industry have primarily been confined to launches of unprocessed products or range extensions comprising lightly processed products. Manufacturers are currently involved in trying to match conventional product lines so as to develop the organic retail market;
- b) product differentiation and diversification strategies have only been used significantly in the dairy market while there are some diversified soft drinks. Innovation in the dairy market is enabled by more secure supply than in other product categories;
- c) price premiums are more important now than a decade ago due to changing consumer

profiles. The move to mainstream positioning has necessitated a cut in price premiums. While consumers are prepared to accept a small price premium, which has to be justified on the basis of food safety or a moral angst, in most cases, the price premium acts as a major deterrent in the purchase decision;

- d) a notable packaging trend in the organic food and drinks market is the use of recyclable, reusable and biodegradable packaging. In some countries such as Sweden and France, the organic certification symbol acts as an important marketing tool. Manufacturers wishing to trade with such countries may well encounter packaging as an obstacle and re-certification by a national body may be necessary to gain success;
- e) the rest of this sector deal with market developments:
- analyse the developments in the overall organic market;
 - compare and contrast the developments amongst the eight European countries covered in this report;
 - compare and contrast the developments in the seven organic product categories;
- f) the key findings are the following.
- The Austrian market has by far the highest organic penetration of the overall food and drinks market. Per capita expenditure is much higher in Austria at US\$102.63, than any other European country examined. Germany has the second highest per capita expenditure at US\$27.75;
 - the Spanish and Italian markets are still underdeveloped and the Italian market is growing especially fast, at a CAGR of 250% between 1995 and 1999. The market segmentation in these countries is difficult to assess due to the unstructured and fragmented nature of distribution;
 - the dairy food, bakery & cereals and fruit & vegetables markets are the most developed markets in all the countries examined. However, the precise market segmentation varies in each country depending on factors such as price premiums and domestic supply;
 - the market for meat and animal derived products shows vast potential in all countries, but will depend heavily on farmers' willingness to convert and thereby increase domestic supply.

6. Comparative production

a. Background

Organic food has been available in the European market for well over a decade. However, it has only achieved a broader based popularity in the last five years. Different country markets have varying levels of development with some countries having attained high levels of penetration as the market moves from a niche position towards the mainstream. In other countries it is still a novel concept that has yet to achieve any mainstream recognition. The objective of this chapter is to compare and contrast developments in the countries examined for the product categories selected. The industry dynamics chapter will subsequently outline the reasons behind the varying levels of development.

b. Conversion is on the increase

An indicator of the rise in the popularity of organic produce is the amount of land that is dedicated to organic agriculture. While this cannot consistently be used to signify a simultaneous rise in domestic consumption, it indicates the status of the overall demand for organic foodstuffs in Europe.

While Germany has the highest amount of organic farmland, its 1999 penetration level of 2.1% is well below Austria's 8% penetration. The country with the lowest proportion of organic land is the UK. However, the UK market is growing rapidly and is served by imports. In 1998, 70% of all organic food sold in the UK was imported as domestic supply could not meet the high level of consumer demand. Similarly, while the proportion of organic farmland in Spain grew the fastest between 1995 and 1999, the market is one of the least developed in terms of retail value as production is geared towards exports.

It is therefore apparent that the amount of land dedicated to organic cultivation is not an accurate indication of the level of development of the retail market value.

The Figure 8 shows that Germany has the largest market in value terms while penetration of land and growth in conversion to organic farming are average. Austria on the other hand, has a high proportion of land dedicated to organic farming but its market size is smaller than that of Germany. These indicators cannot therefore be assessed independently as they do not accurately represent the industry development, which is affected by import and export movement as discussed earlier.

Table 7. European organic farmland (hectares), 1995-1999

	1995	1996	1997	1998	1999e	CAGR 1995-99
Austria	98,050	147,075	205,905	234,000	297,304	32.0%
France	82,003	132,750	172,575	215,055	235,000	30.1%
Germany	204,680	240,800	301,000	354,100	400,000	18.2%
Italy	58,216	72,770	90,963	129,948	133,280	23.0%
Netherlands	9,013	11,267	16,095	18,500	24,050	27.8%
Spain	24,078	103,735	152,105	200,475	221,333	74.1%
Sweden	98,936	108,721	118,175	127,000	135,890	8.3%
UK	48,185	50,798	68,572	78,833	89,027	16.6%
Total	623,161	867,916	1,007,215	1,357,911	1,535,883	25.3%

Source: European Trade Organizations

Table 8. European organic farmland penetration ('000 hectares), 1999e

	Total farming land	% penetration	Organic farmland
Austria	3,449.0	8.6	297.3
France	29,375.0	0.8	235.0
Germany	18,644.0	2.1	400.0
Italy	8,330.0	1.6	133.3
Netherlands	1,981.0	1.2	24.1
Spain	25,093.0	0.9	221.3
Sweden	3,438.0	4.0	135.9
UK	17,372.0	0.5	89.0
Total	107,682.0	1.4	1,535.9

Source: European Trade Organizations & Datamonitor analysis

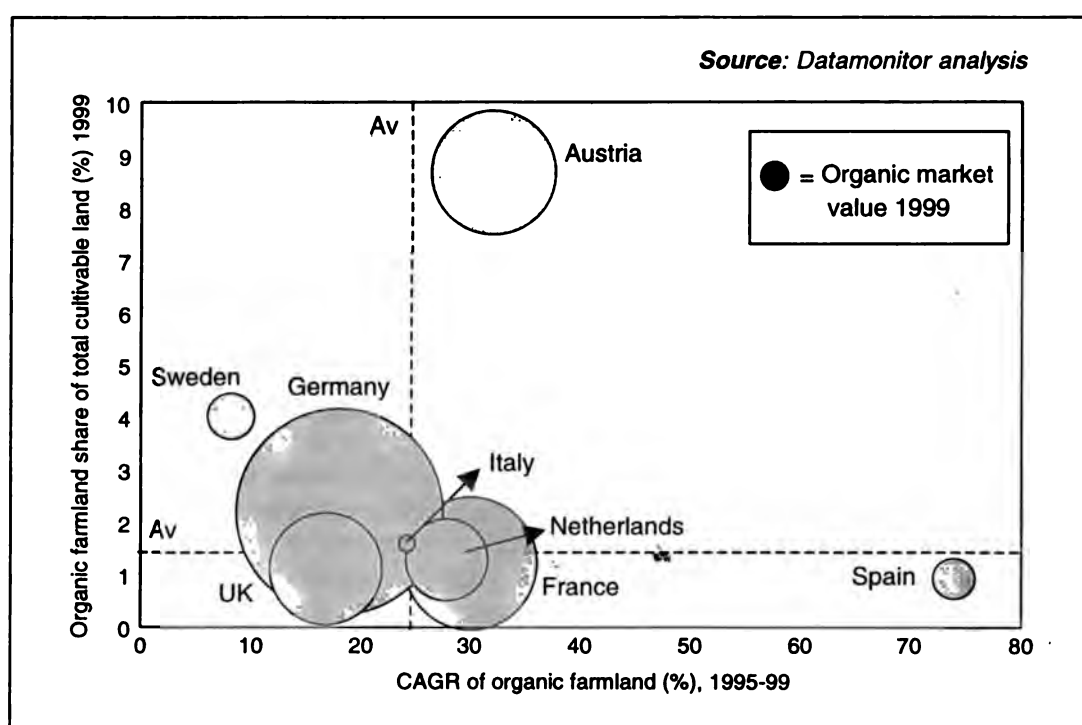


Figure 8. Spain has a high conversion rate but the retail market is not growing proportionately

A more detailed analysis of the developments in each country is given in the country chapters in this report.

It is more valuable here to trace overall developments in the market. The tables indicate that the overall organic penetration of total cultivable farmland across the European countries examined is 1.4%. This indicates the organic trend in Europe is still in its infancy in terms of mainstream development. While the fact that a large amount of organic food is imported from countries outside of Europe cannot be ignored, the current level of penetration in Europe signifies that farmers are still hesitant to convert to organic production.

The scepticism on behalf of farmers could be related to the levels of subsidies provided. As long as farmers are not assured that they will be able to recoup the amount invested, conversion to organic production will remain slow. Nonetheless, the amount of organic farmland conversion is growing steadily, at a CAGR of 25% for the period between 1995 and 1999. This rapid rate of conversion, enabled by government and retailer support, is a move towards increasing the domestic supply of organic products and will bring down price levels in the long term.

c. Government support plays a crucial role in aiding conversion

Sweden has had the lowest growth in the conversion of farmland. However, this should not be misconstrued as representing a lack of commitment to organic farming. Indeed, the Swedish Government announced plans in 1994 to achieve a 10% organic penetration of overall farmland by the year 2000. Plans for conversion have been made and this target should be met pending inspection. The amount of land dedicated to organic farmland should double between 1999 and 2000. Furthermore, the slow rate of growth depicts a more gradual rise in the amount of organic land. Swedish farmers have been involved in a movement towards ecological farming since 1984 before any EU legislation was implemented to encourage this movement.

In Austria, the high level of penetration has been achieved as a result of government backing and the traditional extensive farming methods that have always been used in Austria. The extensive farming methods meant that the conversion to organic farming was achievable in a shorter period of time due to a lower level of toxins. The high level of subsidies provided by the Austrian Government and aid by Austrian multiples such

as Billa, have encouraged farmers to make the move towards organic farming.

In the UK, the demand for organic farming is necessitating a high level of imports. In 1998, 70% of all organic food sold in the UK market was imported. Subsidies for conversion are low and farmers are already struggling to produce conventional products economically. Support from multiples such as Waitrose, Sainsbury and Tesco is set to increase the amount of land that will be dedicated to organic cultivation.

d. Spain is responding to demand in other European countries

The total area dedicated to organic production in Spain is 0.9% of all cultivable land, still far from the penetration levels observed in Austria and Sweden. However, the rate of conversion of land to organic farming has shown phenomenal growth, at 74% for the period between 1995 and 1999.

The surge in the amount of land being converted to organic production can be attributed to demand from Spain's key export markets in Europe. Organic citrus fruits, tomatoes and olive oil are Spain's key exports to countries where these products cannot be domestically cultivated. Spanish organic production is export oriented and has often been supported by retailers in other European countries that have shared long-standing supply relationships with Spanish farmers. A multiple that has sourced conventionally grown oranges from the Valencia region for example, could aid or encourage farmers to convert to organic production for the same product category.

7. Country market comparisons

a. Overall retail market developments

Germany is by far the largest market for organic food, at a market value of US\$2.3bn. However, it has a far lower penetration of the overall food market in comparison to Austria. While the value of the Austrian organic market is much smaller than that of Germany, it has achieved the highest penetration and continues to grow at double-digit figures. This rate of growth is lower than that of the Italian market but perhaps more notable. The growth in the Italian market stems from the low base it is growing from, while in Austria, the market has already achieved considerable penetration and continues to grow. The UK market has also grown at a CAGR of 30%, from US\$227.8m in 1995 to US\$ 668.7m in 1999.

Table 9. European organic market values (US\$ m), 1995-99

	1995	1996	1997	1998	1999e	CAGR 1995-99
Austria	340.1	474.3	546.0	718.9	839.3	31.6%
France	611.0	673.4	703.2	814.8	935.8	15.9%
Germany	1,528.9	1,797.9	1,789.8	2,088.3	2,313.3	16.1%
Italy	0.2	11.6	17.4	22.6	28.3	249.7%
Netherlands	282.1	278.7	281.7	329.2	344.2	10.2%
Spain	35.1	47.5	58.4	70.2	83.4	24.1%
Sweden	76.4	95.9	98.7	98.5	110.6	16.0%
UK	227.8	310.3	419.4	544.3	668.7	29.6%
Total	3,101.6	3,689.5	3,914.6	4,686.8	5,323.6	14.5%

Source: Datamonitor Food and Drinks Database

Table 10. European organic market values (local currency), 1995-99

	1995	1996	1997	1998	1999e	CAGR 1995-99
Austria Aus m	3,390.9	5,086.4	6,781.9	8,477.3	10,172.8	31.6%
France FFr m	3,000.0	3,469.1	4,162.9	4,579.2	5,408.8	15.9%
Germany DM m	2,192.4	2,740.5	3,150.0	3,500.0	3,978.8	16.1%
Italy ItL m	3.0	175.0	300.0	375.0	483.0	256.2%
Netherlands NeG m	282.1	278.7	281.7	329.2	344.2	5.1%
Spain SpP m	4,263.0	6,090.0	8,700.0	10,000.0	12,218.5	30.1%
Sweden SKr m	508.6	635.8	748.0	800.0	921.4	16.0%
UK GB£ m	147.0	198.5	260.0	328.0	414.6	29.6%

Source: Datamonitor Food and Drinks Database

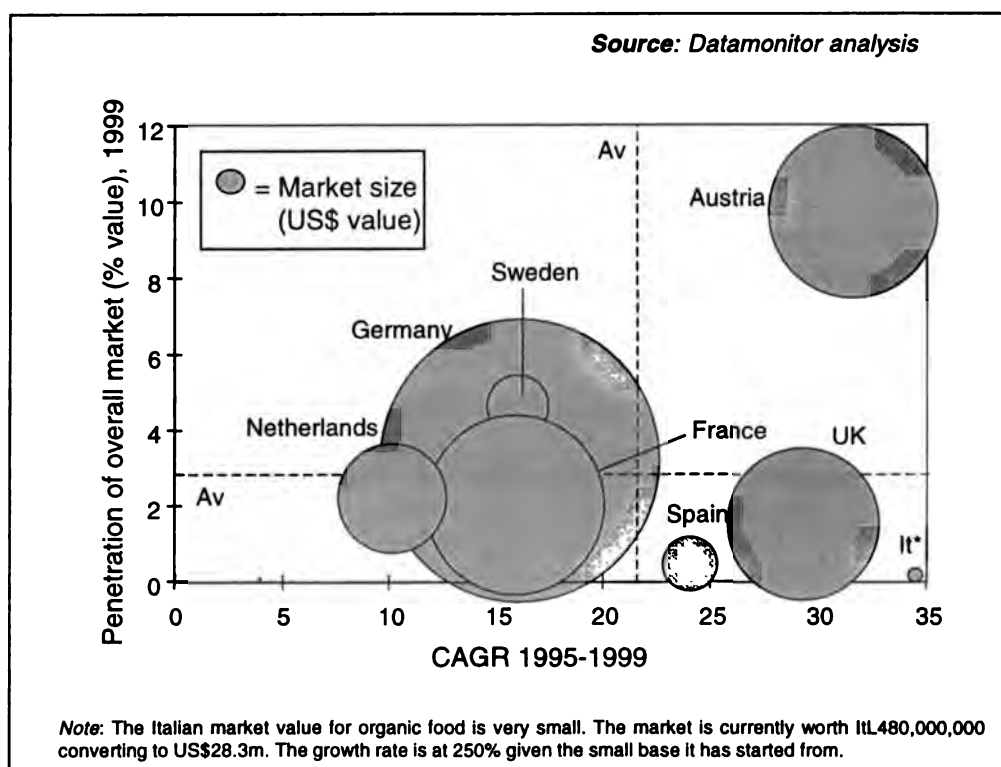


Figure 9. The Austrian organic food market is the most developed

b. Expenditure on organic food

Expenditure per head on organic foodstuffs has grown at a CAGR of 17%, from US\$103.66 / head in 1995 to US\$194.29 / head in 1999. Austria has consistently had the highest expenditure per head on organic food since 1995. Italy has the highest increase in the amount spent per head but is currently the lowest of all the countries studied.

It is perhaps surprising to note that the expenditure in the UK is amongst the lowest in Europe given the high level of consumer demand. However, as the organic market only has a penetration of 1.5% of the overall food retail market, the expenditure per head is perhaps reasonable. Another factor to remember is that the market is still confined to a limited consumer group willing to pay the price premiums on organic food. In countries such as Sweden, the overall market may be smaller in value but retailers' attempts at maintaining price parity translate into higher per head expenditure.

While expenditure per head is a general indicator of the development of the market for organic food, it cannot be used to represent the growth of the trend. For instance, the Netherlands has a higher *per capita* expenditure on organic food than the UK but the overall market is growing at a rate well below that of the UK. Both the Netherlands and the UK, have high premiums on organic food but the impact of logistics on price affects the end price to the consumer. In the Netherlands, organic food is still sold primarily through specialist shops that tend to charge higher prices than supermarkets.

In the UK supermarkets are beginning to dominate sales of organic foods and tend to secure supplies directly from farmers. They are able to use their established distribution systems and therefore do not incur additional costs of middlemen. In the Netherlands, specialist shops often obtain

supplies from wholesalers and distributors of organic food. These companies may co-ordinate the supply and distribution of organic products from a number of small farmers who are not able to bring their products to the market in any other way.

Box schemes and direct sell in the UK represent a significant share of the overall organic retail market while in the Netherlands this is a small if not negligible part of the market. These schemes have proved popular in the UK for the reason that prices are lower as a result of the seasonal content of the box. This concept has not proved popular in the Netherlands perhaps due to small farmers' reluctance to take on the task of marketing and distributing the products to consumers.

8. Product category comparisons

The EU regulation 2092/91 harmonized the standards for the production of organic foods of vegetable origin in 1991. This standardisation has aided the growth of the fruit, vegetables, bakery and cereals product markets by providing a set of standards that farmers, manufacturers and retailers alike can work towards. However, standards for the production of animal derived products have not been set at the EU level. Member states have had to develop their own standards and this task is usually delegated to individual certification bodies that set differing standards. This hinders the development of the market in that certification becomes difficult and the standards are subject to change. In general therefore, the bakery, cereals, fruits and vegetable markets are likely to be more developed and established than the dairy or meat markets. However, market conditions in each country impact upon levels of production, as will be explained.

Table 11. European *per capita* expenditure on organic food (US\$ / head), 1995-99

	1995	1996	1997	1998	1999e	CAGR 1995-99
Austria	42.7	59.1	67.6	88.5	102.6	24.5%
France	10.5	11.6	12.0	13.9	15.9	10.8%
Germany	18.7	21.9	21.7	25.2	27.8	10.3%
Italy	0.0	0.2	0.3	0.4	0.7	278.6%
Netherlands	18.2	17.9	17.9	20.8	21.6	4.4%
Spain	0.9	1.2	1.5	1.8	2.1	23.9%
Sweden	8.7	10.9	11.1	11.1	12.4	9.2%
UK	3.9	5.3	7.2	9.3	11.4	30.5%
Total	103.7	128.0	139.3	170.8	194.3	17.0%

Source: Datamonitor Food and Drinks Database

Figure 10. Austria has the highest expenditure per head on organic food

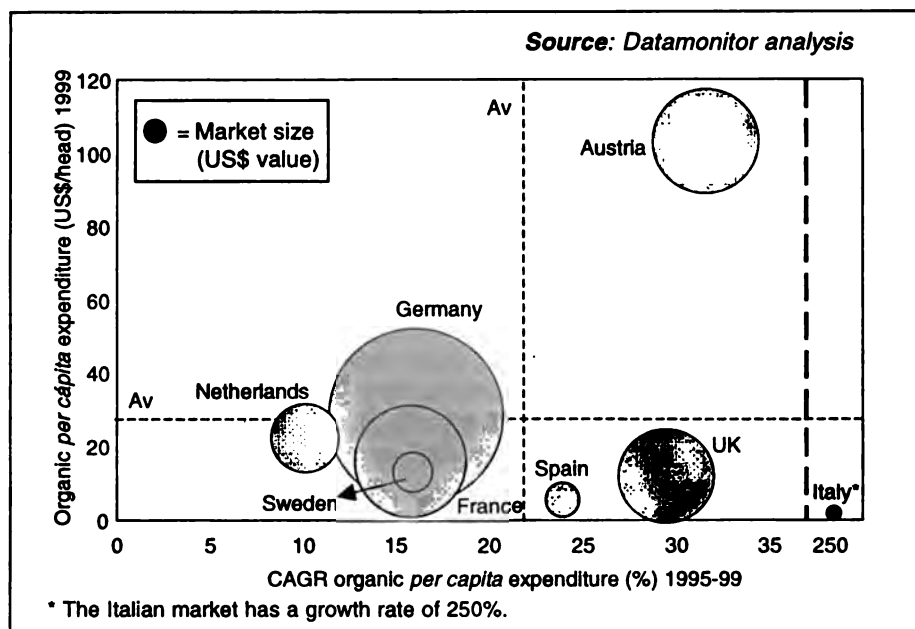


Table 12. European organic market values (US\$ m), 1995-99

	1995	1996	1997	1998	1999e	CAGR 1995-99
Bakery & Cereals	936.4	1,119.3	1,171.2	1,397.5	1,579.4	14.0%
Dairy Food	728.6	933.0	999.7	1,206.0	1,420.2	18.2%
Fruit & vegetables	1,135.5	1,223.6	1,292.7	1,544.2	1,702.0	10.6%
Meat	89.0	145.6	149.3	176.0	210.7	24.1%
Juices	71.5	89.5	89.2	104.1	116.8	13.1%
Tea	20.4	24.9	31.1	36.0	39.4	17.9%
Coffee	95.3	116.9	125.2	148.3	163.3	14.4%
Total*	3,076.6	3,652.8	3,858.5	4,612.2	5,231.7	14.2%

* Note that Tables 11 and 12 do not include values for the Italian and Spanish markets due to the undeveloped nature of these markets. Retail sales audits have not been conducted for these markets as a result of the fragmented and unstructured nature of the markets. The table that follows shows the overall value of the organic food retail market in these countries. For a detailed discussion of the organic market in Italy and Spain, please refer to the relevant country chapters in this report.

Source: Datamonitor Food and Drinks Database

Table 13. Italy and Spain: overall organic market values (US\$ m), 1995-99

	1995	1996	1997	1998	1999e	CAGR 1995-99
Italy	0.2	11.6	17.4	22.6	28.3	249.7%
Spain	35.1	47.5	58.4	70.2	83.4	24.1%

Source: Datamonitor Food and Drinks Database

Table 14. European organic market penetration (% value), 1995-99

	1995	1996	1997	1998	1999e	CAGR 1995-99
Bakery	1.3	1.6	1.8	2.0	2.3	15.1
Dairy	1.0	1.2	1.4	1.6	1.9	19.0
Fruit and vegetables	1.5	1.6	1.9	2.1	2.3	11.8
Meat	0.2	0.3	0.4	0.4	0.5	26.8
Juices	0.6	0.8	0.9	0.9	1.0	13.6
Tea	0.4	0.4	0.6	0.6	0.7	18.9
Coffee	0.4	0.5	0.7	0.7	0.8	18.5
Total	1.0	1.2	1.4	1.5	1.8	15.7

Source: Datamonitor Food and Drinks Database

The markets for organic fruits, vegetables, bakery and cereals have been larger in values since 1995. However, the European dairy and meat markets are growing at a much higher rate. This indicates that while the markets have started from a low base, the demand for animal derived products is high. Food scares such as BSE and E-coli have been linked to animal derived products and are a key driver of demand for these products.

The fast growth indicates that the number of conversions to organic farming for animal derived products is also on the increase. Indeed, as the period of conversion for organic farming, where the products are derived from animals, is higher, the enactment of national legislation signals the start of a movement towards certification. The actual conversion period is generally about three years and there is therefore a significant time lag before the current organic production is translated to actual supply. Even so, it is evident that more farmers have been able to achieve organic certification for dairy farming than for meat. This may be a result of waiting for the animals to grow to the correct size and could also be related to the high costs of production.

Demand for organic meat is certainly high in all European countries that have been affected by the BSE crisis or similar food scares. However, the price premium may not be justifiable to a consumer who may take more precautions, for example by avoiding beef on the bone, or turn to vegetarian products. The case of dairy products is different in that while costs of conversion are high, the breakeven point for the production of milk is lower than for organic meat as investment costs are recouped earlier. The premiums on dairy products are much lower than for meat products and there may sometimes be little price differential between organic and conventional dairy.

a. Cross country category comparisons

Table 15 that follows shows that Germany has by far the largest market in terms of value. The organic penetration of the overall market in Germany is 2.5%, much lower than Austria's 9.6% in 1999. However, the Austrian market is smaller in value terms due to the smaller population.

Table 16 shows that while bakery, dairy and fruit and vegetables are by far the biggest product markets in terms of value share, the share of total sales they account for differs from country to country.

Table 15. European organic market values by product category (US\$ m), 1999

	Bakery	Dairy	Fruit & veg	Meat	Juices	Tea	Coffee	Total
Austria	303.9	221.3	202.2	29.9	29.9	24.0	42.2	853.3
France	354.2	247.3	291.2	12.7	12.7	0.2	23.5	941.9
Germany	699.8	537.4	810.1	127.0	58.7	2.2	78.1	2,313.3
Netherlands	92.9	120.4	103.2	10.3	8.2	3.4	5.6	344.1
Sweden	25.4	44.2	32.9	4.4	1.1	0.5	2.1	110.4
UK	103.0	249.5	262.5	26.5	6.2	9.1	11.9	668.7
Total*	1,579.4	1,420.2	1,702.0	210.7	116.8	39.4	163.3	5,231.7

Source: Datamonitor Food and Drinks Database

Table 16. European organic market segmentation by product category (US\$ m), 1999

	Bakery	Dairy	Fruit & veg.	Meat	Juices	Tea	Coffee	Total
Austria	35.6	25.9	23.7	3.5	3.5	2.8	4.9	100
France	37.6	26.3	30.9	1.3	1.3	0.0	2.5	100
Germany	30.3	23.2	35.0	5.5	2.5	0.1	3.4	100
Netherlands	27.0	35.0	30.0	3.0	2.4	1.0	1.6	100
Sweden	23.0	40.0	29.8	3.9	1.0	0.4	1.9	100
UK	15.4	37.3	39.2	4.0	0.9	1.4	1.8	100
Total	30.2	27.1	32.5	4.0	2.2	0.8	3.1	100

Source: Datamonitor Food and Drinks Database

b. The bakery and cereals market in the UK is enjoying strong growth

While the UK market value for organic bakery and cereals is smaller than that of Austria, France and Germany, it has the highest growth rate amongst the countries examined. The French organic market is the most strongly focused on bakery.

c. The dairy market in Sweden dominates organic food sales

The dairy market in Sweden takes up a 40% share of all domestic organic retail market sales. Organic dairy has dominated Sweden's organic food sales throughout the development of the market. It has the lowest CAGR of all countries examined, indicating that the market is fairly well established. All the major Swedish dairies have organic lines and the retailers are actively

subsidising this product market. For example in some stores, retailers operate a price parity policy for organic and conventional milk. Therefore organic milk is almost at the same price or perhaps marginally higher than conventional dairy and consumers are attracted to the organic product offering which ensures traceability, animal welfare and also environmental benefit.

Dairy also dominates organic food sales in the Netherlands and has a significant share of the UK market as well. The popularity of organic dairy is related to the fact that food scares such as BSE affect the dairy market as much as the meat market. As conversion to organic dairy is faster and easier than conversion for meat, the supply of dairy products is closer to the demand whereas for meat, demand far outstrips supply. In addition, the price premiums on organic dairy may not be as high and therefore consumers are able to afford organic dairy products.

Table 17. European organic bakery market values (US\$ m), 1995-99

	1995	1996	1997	1998	1999e	CAGR 1995-99
Austria	121.8	169.8	195.5	257.4	303.9	25.7%
France	244.4	269.4	281.3	325.9	354.2	9.7%
Germany	444.6	539.4	536.9	626.5	699.8	12.0%
Netherlands	76.2	75.2	76.1	88.9	92.9	5.1%
Sweden	17.6	22.1	22.7	22.6	25.4	9.6%
UK	31.9	43.4	58.7	76.2	103.0	34.1%
Total	936.4	1,119.3	1,171.2	1,397.5	1,579.4	14.0%

Source: Datamonitor Food and Drinks Database

Table 18. European organic bakery penetration (% value), 1995-99

	1995	1996	1997	1998	1999e	CAGR 1995-99
Austria	4.5	6.7	8.7	10.6	12.9	29.9
France	2.2	2.5	3.0	3.3	3.6	14.0
Germany	2.2	2.7	3.0	3.3	3.7	14.4
Netherlands	2.5	2.4	2.9	3.2	3.4	7.7
Sweden	0.5	0.6	0.7	0.8	0.9	14.3
UK	0.2	0.3	0.4	0.5	0.6	28.9

Source: Datamonitor Food and Drinks Database

Table 19. European organic dairy market values (US\$ m), 1995-99

	1995	1996	1997	1998	1999e	CAGR 1995-99
Austria	75.0	108.9	125.0	172.8	221.3	31.1%
France	98.6	159.3	169.2	196.1	247.3	25.8%
Germany	341.4	414.2	412.3	481.1	537.4	12.0%
Netherlands	98.7	97.4	98.6	115.2	120.4	5.1%
Sweden	30.6	38.4	39.5	39.4	44.2	9.6%
UK	84.3	114.8	155.2	201.4	249.5	31.2%
Total	728.6	933.0	999.7	1,206.0	1,420.2	18.2%

Source: Datamonitor Food and Drinks Database

Table 20. European organic dairy penetration (% value), 1995-99

	1995	1996	1997	1998	1999e	CAGR 1995-99
Austria	3.8	5.7	7.4	9.0	10.6	28.7
France	0.6	1.0	1.2	1.3	1.7	28.7
Germany	1.4	1.7	1.9	2.0	2.2	11.8
Netherlands	1.7	1.7	2.0	2.1	2.2	7.1
Sweden	0.8	1.0	1.1	1.2	1.3	14.3
UK	0.8	1.1	1.4	1.8	2.2	29.4

Source: Datamonitor Food and Drinks Database

d. Fruits and vegetables have the largest share of the UK market for organic food

Organic fruit and vegetables take up the largest share of the UK market for organic food and drink. This market has grown at a CAGR of 29.3% from 1995 to 1999. Fruit and vegetables also have the largest share of the organic food retail market in Germany but the growth rate there is much lower than that of the UK market.

e. Organic meat has a strong growth potential

Organic meat has grown strongly between 1995 and 1999. Supply limitations have so far restricted the growth of this market but as the number of conversions increases, the market has a strong growth potential. Another limiting factor is that of price. The price premiums on organic meat are between 50% to 100% more than the price of conventional meat, a deterrent for many consumers.

The organic meat market in the UK has had the highest CAGR at 37.8%. This growth is mainly

fuelled by the BSE scare. This prompted a number of farmers to convert to organic farming methods, in a number of cases aided by multiple retailers.

f. Beverages

Austria has the largest market for organic tea while Germany has the largest market for organic coffee and juices. However, the market share of organic coffee, tea and juices is highest in Austria as a result of the development of the overall market for organic food.

The market for organic juices is the largest in Germany. The size of this product market is not only related to the population of the country but to the popularity of fruits and vegetables in the market. A high domestic supply of organic fruits, such as apples, would lead to a surplus that can then be converted into juices. Most other markets do not produce enough to meet supply let alone have any excess.

In addition, most juices contain citrus fruits which have to be imported from countries such as Spain and Italy. This raises the premium on organic

Table 21. European organic fruit and vegetables market values (US\$ m), 1995-99

	1995	1996	1997	1998	1999e	CAGR 1995-99
Austria	89.0	121.7	141.2	185.9	202.2	22.8%
France	238.8	215.5	223.1	257.6	291.2	5.1%
Germany	604.9	647.2	644.3	751.8	810.1	7.6%
Netherlands	84.6	83.6	84.5	98.7	103.2	5.1%
Sweden	24.3	29.0	29.8	29.8	32.9	7.9%
UK	94.0	126.7	169.8	220.4	262.5	29.3%
Total	1,135.5	1,223.6	1,292.7	1,544.2	1,702.0	10.6%

Source: Datamonitor Food and Drinks Database

Table 22. European organic fruit and vegetables penetration (% value), 1995-99

	1995	1996	1997	1998	1999e	CAGR 1995-99
Austria	5.6	8.4	11.2	13.9	16.6	31.2
France	1.4	1.3	1.5	1.7	2.0	9.6
Germany	2.7	3.0	3.3	3.5	3.8	8.6
Netherlands	2.4	2.5	2.9	3.1	3.3	7.9
Sweden	1.0	1.3	1.4	1.5	1.6	12.8
UK	0.9	1.2	1.6	2.0	2.5	30.4

Source: Datamonitor Food and Drinks Database

Table 23. European organic meat market values (US\$ m), 1995-99

	1995	1996	1997	1998	1999e	CAGR 1995-99
Austria	16.9	23.6	24.2	28.4	29.9	15.3%
France	5.5	9.0	7.0	8.2	12.7	23.6%
Germany	49.3	89.9	89.5	104.4	127.0	26.7%
Netherlands	8.5	8.4	8.5	9.8	10.3	5.1%
Sweden	1.5	3.4	3.5	3.5	4.4	31.1%
UK	7.4	11.4	16.8	21.8	26.5	37.8%
Total	89.0	145.6	149.4	176.0	210.7	24.1%

Source: Datamonitor Food and Drinks Database

Table 24. European organic meat and meat products penetration (% value), 1995-99

	1995	1996	1997	1998	1999e	CAGR 1995-99
Austria	1.5	2.5	3.9	4.7	6.0	40.1
France	0.1	0.1	0.1	0.1	0.2	28.2
Germany	0.3	0.5	0.6	0.7	0.8	27.6
Netherlands	0.3	0.3	0.5	0.5	0.5	14.2
Sweden	0.1	0.3	0.3	0.4	0.5	36.6
UK	0.2	0.4	0.6	0.6	0.8	40.0

Source: Datamonitor Food and Drinks Database

Table 25. European organic juice market values (US\$ m), 1995-99

	1995	1996	1997	1998	1999e	CAGR 1995-99
Austria	16.9	23.6	24.2	28.4	29.9	15.3%
France	5.4	9.0	7.0	8.1	12.7	23.6%
Germany	38.8	45.6	45.4	53.0	58.7	10.9%
Netherlands	7.1	7.0	7.0	8.2	8.2	3.8%
Sweden	0.8	1.0	1.0	1.0	1.1	9.6%
UK	2.5	3.4	4.6	5.4	6.2	25.6%
Total	71.5	89.5	89.2	104.1	116.8	13.1%

Source: Datamonitor Food and Drinks Database

juices to about 100% more than conventional juices. This premium has to be justifiable to the consumer. The German consumer drinks more juice than any other European consumer, therefore the market value of organic juices may simply be a reflection of the penetration that organic food and drinks have achieved in Germany.

9. Conclusions

Organic production in Spain is geared towards exports and the amount of organic certified land has grown at a CAGR of 74% between 1995 and 1999. The potential for further development of organic production for further export is high, while domestic market development is dependent upon retailer support and consumer demand.

The German organic retail market value is the highest due largely to the population size. Developments such as the move towards complete conversion to organic baby food in Germany have a large impact on overall consumer attitudes to organic food. A slight increase in organic penetration results in a large increase in the organic market value.

The bakery and cereals, dairy food, and fruit and vegetables markets are the largest organic product category markets across all European countries. Organic drinks are less developed in Europe as a result of the difficulty of securing supply.

III. Regulation and market developments

A. Patterns of private/NGO/public regulation—certification, norms, monitoring, and enforcement

1. Organic farming support under agri-environmental and extensification programmes

The CAP Reform of 1992 saw the introduction of both 'mainstream measures' and 'accompanying measures': the agri-environment programme (EC Reg. 2078/92), the early retirement programme (EC Reg. 2079/92), the farm forestry programme

Table 26. European organic tea market values (US\$ m), 1995-99

	1995	1996	1997	1998	1999e	CAGR 1995-99
Austria	12.3	15.1	19.7	21.9	24.0	18.2%
France	0.1	0.2	0.2	0.2	0.2	7.3%
Germany	1.4	1.7	1.7	2.0	2.2	12.0%
Netherlands	2.8	2.8	2.8	3.3	3.4	5.1%
Sweden	0.3	0.4	0.4	0.4	0.4	9.6%
UK	3.4	4.7	6.3	8.2	9.1	27.7%
Total	20.4	24.9	31.1	36.0	39.4	17.9%

Source: Datamonitor Food and Drinks Database

Table 27. European organic coffee market values (US\$ m), 1995-99

	1995	1996	1997	1998	1999e	CAGR 1995-99
Austria	18.8	26.2	30.2	38.9	42.2	22.4%
France	18.0	19.0	21.4	22.2	23.5	7.0%
Germany	48.5	59.9	59.6	69.5	78.0	12.6%
Netherlands	4.2	4.2	4.2	4.9	5.6	7.1%
Sweden	1.4	1.8	1.9	1.8	2.1	9.6%
UK	4.3	5.9	8.0	10.9	11.9	28.8%
Total	95.3	116.9	125.2	148.3	163.3	14.4%

Source: Datamonitor Food and Drinks Database

(EC Reg. 2080/92) and the regional products programme (EC Reg. 2081/92). The agri-environment programme (EC, 1992) has provided the most important mechanism for supporting organic farming in the European Union since 1994. However before 1994, some countries made use of the EU's extensification programme (EC, 1988a), while others made use of national or regional programmes. The forestry and early retirement measures have little direct relevance to organic farming and are not considered further in this report. The regional products programme has indirect relevance to support for the marketing of organic products.

This section reviews the range of schemes (measures) implemented under EU and national/regional programmes to provide direct support for organic farming, with a particular emphasis on schemes supported under the agri-environment programme.

2. Regulatory framework

a. EU regulations

An overview of EU policies on agriculture and the environment is provided by Cammarata; Scheele; Morard (1997) and policies on organic farming by Baillieux; Scharpe (1994). These publications also address the role of other policies considered in later sections of this report. In this section, only the most relevant environmental and extensification policies are considered.

Council Regulation (EEC) No. 2078/92 (EC, 1992) The purpose of the agri-environment programme is to contribute to the achievement of policy objectives regarding agriculture and the environment and to contribute to providing an appropriate income for farmers. Subject to positive effects on the environment, aid is available for farmers who undertake:

- a) to reduce substantially their use of fertilizers and/or plant protection products, or to keep to the reductions already made, or to introduce or continue with organic farming methods;
- b) to change, by means other than those referred to in a), to more extensive forms of crop and forage production, or to maintain extensive production methods introduced in the past, or to convert arable land into extensive grassland;

- c) to reduce the proportion of sheep and cattle per forage area;
- d) to use other farming practices compatible with the requirements of protection of the environment and natural resources, as well as the maintenance of the countryside and the landscape, or to rear animals of local breeds in danger of extinction;
- e) to ensure the upkeep of abandoned farmland or woodlands;
- f) to set-aside farmland for at least 20 years with a view to its use for purposes connected with the environment, in particular for the establishment of bio-topo reserves or natural parks or for the protection of hydrological systems;
- g) to manage land for public access and leisure activities.

In addition, the scheme includes measures to improve the training of farmers with regard to farming or forestry practices compatible with the environment, and particularly with codes of good farming practice or good organic farming practice, by grant of aid for:

- attendance of courses and traineeships;
- organization and implementation of courses and traineeships (including preparation of materials);
- demonstration projects concerning farming practices compatible with the requirements of environmental protection, and in particular the application of a code of good farming practice and organic farming.

Commission Regulation (EC) No. 746/96 (EC, 1996a) This regulation clarifies the rules for implementation of EC Reg. 2078/92. Of particular relevance to organic farming support, it requires that in defining the content and level of aid, member states should take account of Community rules on organically produced products, i.e. EC Reg. 2092/91. Further clarifications relate to schemes to support conversion of arable land to pasture, livestock extensification, linear units (e.g. hedgerows), abandoned land, environmental set-aside and training and demonstration projects.

The regulation also clarifies how aid levels should be determined and the scope for combination of support programmes. In particular, the level of any

incentive element in any support programme should not exceed 20% of calculated income foregone and additional costs incurred, other than in exceptional circumstances. The regulation restricts the extent to which payments can be made for the same land under different Community regulations, for example set-aside under EC Reg. 1765/92 and beef extensification as well as certain measures under EC Reg. 2328/91.

Commission Regulation (EEC) Nos. 1094/88 (EC, 1988a) and 4115/88 (EC, 1988) These regulations provided the basis for the EU's extensification programme, the aim of which was to reduce production of commodities in surplus rather than the achievement of environmental benefits as in the case of EC Reg. 2078/92. The EU's initial extensification policy (EC Reg. 1094/88) was linked to the set-aside programme (EC Reg. 1760/87) and required a 'quantitative' 20% reduction in other surplus commodities, in particular the numbers of sheep and beef animals on individual farms (EC, 1988a). This proved unsuitable as a means to support conversion to organic farming or other lower intensity systems. The revised regulation (EC Reg. 4115/88) introduced a 'production methods' option, the aim of which was to achieve a 20% reduction in output based on the adoption of less intensive practices. This legislation provided the basis for schemes to assist conversion to organic farming, initially in Germany and later in France and Luxembourg.

b. National/regional legislation

In Switzerland, agri-environmental support is provided under Article 31b of the 1994 agricultural law (Bundesamt Für Landwirtschaft, 1997). This support is intended to promote environmentally sustainable and animal friendly production systems, including integrated farming, organic farming and free-range livestock production.

In Norway, support for conversion to organic farming is provided under the *Forskrift for omleggingstilskudd til økologisk landbruk, Landbrukdepartementet 12.11.1996*, while support for continuing (maintenance of) organic farming was, until 1997, provided under the more general arable and agri-environment support regulation *Forskrift om areal og kulturlandskapstillegg, Landbruksdepartementet, 3.7.1997*. At the end of 1997, support for both conversion and continuing organic farming was merged into a single programme specifically for organic farming: *Forskrift om tilskudd til økologisk*

landbruk, Landbruksdepartementet, 2.12.1997. The aim of the various organic farming support programmes is to stimulate farmers to convert to organic farming and thereby contribute to meeting the demand for organic products. This is part of a general strategy to develop a more robust agriculture by improving the position of Norwegian agriculture in domestic markets, in particular by improving product quality and encouraging high ethical standards and maintaining and enhancing the environment. Organic farming is seen as a role model providing knowledge and ideas for more traditional agriculture in this context.

The pioneering Danish law on organic farming (No. 363, of 10.06.87) was the first national programme to define and provide support for organic farming and associated organizational, development and marketing activities.

Details of other national and regional aid schemes in EU countries which are not backed by EU Regulations are included in the next sections and in the individual country appendices.

3. Measures implemented

The following review of organic farming support measures is based on data collected by the researchers and sub-contractors in each of the countries studied, supplemented by data from published and unpublished sources, notably Deblitz; Plankl (1997), EC (1997e), STAR COMMISSION (1997) and Umstätter; Dabbert, eds. (1996).

a. Policies to support organic farming 1987-1993

Many western and central European countries introduced conversion aid schemes and other forms of financial support for organic farmers on a national or regional basis between 1987 and 1993, prior to the introduction of more general agri-environmental measures (Besson, ed. 1990; Lampkin; Padel, eds. 1994; Znaor, ed. 1994). The main schemes in the study countries are summarized below. Further details of these schemes can be found in the individual country appendices.

Denmark was the first country to introduce a financial support scheme for organic farming on a significant scale (Dubgaard; Holst, 1994). The scheme covered the development of extension, information and marketing services as well as financial assistance during the conversion period. The conversion aid payments covered a three-year

period, but the whole farm had to be converted within 6 years according to an approved plan, and payments were related to stocking rates for livestock. They were also weighted towards the start of the conversion period. By 1993, 257 farms on 1,437 ha were supported by the scheme.

Germany was the first EU member state to introduce, in 1989, a scheme to support conversion to organic farming in the context of the EU's extensification policy (EC Reg. 4115/88), which had the reduction of surpluses as its main objective. The implementation of the scheme varied between *Länder*. Farmers were generally presented with three options: conversion to organic farming; the production of cereals without sprays or fertilizers (so-called 00 cereals); and the conversion of cereal type from wheat and winter barley to rye, oats, spring barley or spelt wheat. Existing organic producers were not eligible for the payments. The condition of the extensification legislation, that output of surplus arable crops should be reduced by 20%, without any increase in other surplus commodities (such as beef and sheep) was applied to the organic conversion option. 11,248 farms on 372,843 ha converted using this scheme between 1989 and 1993. However, less than half of these chose to become certified organic farms.

Austria provided support in 1989 and 1990, under provisions of the 1988 Agriculture Act, to help organic farming organizations with advisory, certification, publicity and marketing activities. The emphasis was on building up the extension and marketing infrastructure before making conversion payments generally available. Converting farms were supported initially in three regions. In 1990/91, pilot projects for conversion payments were started. Widespread financial support for the converting and continuing organic farmers started in 1992. In 1994, there were 11,568 participants with 153,800 ha. The scheme continued until EU accession in 1995.

Sweden introduced policies to support organic farming on environmental and surplus reduction grounds in 1989. These policies included support for a state advisory service for organic producers as well as an one-off financial support scheme for conversion to and, uniquely at that time, continuation of organic production. The conversion support was paid for a maximum of three years, depending on land quality, yield potential and land use, but did not cover all the land under conversion and was not payable on horticultural crops. Grassland and green manures received funding for one year. Organic

management had to be maintained for six years. Funding was only available for farms registered in 1989, although conversion could start up to 1992. 1,781 converting and existing farms on 30,000 ha qualified for the support in 1989.

In Switzerland, a number of cantons introduced conversion support schemes from 1989 (Schmid,1994). These cantonal schemes were supplemented in 1994 by the national organic farming support scheme.

The Czech Republic introduced conversion subsidies for organic and integrated farmers in 1990, as well as creating the position of Deputy Minister responsible for privatisation and organic farming. In 1990, 85 farmers on 13,000 ha registered with the scheme. In 1991, the support payments were changed to investment grants, which became loans in 1992. The support levels were the same for integrated and organic farmers, making the schemes competitive, although the investment aids (grants and loans) varied significantly from farm to farm depending on requirements. In 1993 the support scheme was abandoned, although this was seen as beneficial to the organic sector. At the same time, the Ministry of Agriculture took responsibility for running and funding the organic farming control and certification system.

Finland introduced a conversion aid scheme in 1990 under law No. 1261/89 covering the first three years of conversion. The conversion could take up to eight years, but organic management had to be maintained for at least five. Initially, payments were not differentiated by region. Funding also covered ten full-time advisers and aid for research. Farmers' attendance at 3-5 day training courses was compulsory. In 1994 there were 1,433 participants on 26,327 ha. The scheme continued until EU accession in 1995.

Norway also introduced a conversion support scheme in 1990. The payments over three years consisted of an element per ha and an amount per farm, depending on farm size. From 1992, farmers also received a payment for each of the three years following conversion. The whole farm had to be converted within 10 years. The number of organic farms increased from 82 in 1989 to 501 in 1993.

France used the EU extensification programme (4115/88) briefly to support conversion to organic farming in 1992. It was implemented by Decree 92-369. The short notice given (11/5/92-30/6/92) restricted the number of applications. Overall, 909

applications were submitted, of which 211 were accepted, but 73% of farmers converted only parts of their holdings, so that 80% of the land area supported was used for annual crops and 15% for vineyards.

Luxembourg provided support from 1992 under the EU extensification programme (4115/88). Although the scheme could be used to support conversion to organic farming, it was not specifically targeted at organic farmers. The scheme remained open for applicants until 1997, to be followed in 1998 by new agri-environment schemes under 2078/92.

b. Policies to support organic farming 1994-1999

EC Reg. 2078/92 provided a framework for all EU member states to implement policies to support organic farming (Table 28). The majority of schemes were implemented in 1994, with AT, FI and SE starting in 1995 on accession to the EU. However, some regions in IT, DE and GB did not start until 1995 or later. The schemes in ES and GR were first implemented in 1996, while LU and CZ have just (re) introduced specific organic farming schemes in 1998.

Most countries have a uniform national policy, but several have significant regional variations in rates of payment and requirements (DE, ES, GB, FI, FR, IT, SE and CH) (Table 29). The regional payment variations in Finland and Sweden are primarily related to the productive capability of different areas. Details of these regional variations are contained in the Country Appendix.

c. Requirements and eligibility conditions of current organic farming schemes

1) Farmers eligible to participate

Most of the schemes allow for new farmers converting to, and existing farmers continuing with, organic production to qualify for aid (Table 30). Only France (with some regional exceptions) and the United Kingdom do not support existing organic producers. Schleswig-Holstein in Germany, which previously had no maintenance payments, introduced a scheme to support existing organic producers linked to a marketing fund in 1998.

Most countries allow staged conversions, where parts of the farm are converted progressively over

a number of years. Several countries (CH, DK, FI, FR, parts of IT, and NL) place limits on the time period which can be taken for this. A staged conversion of the whole farm allows experience to be gained and minimizes the risks of financially and environmentally damaging mistakes in the early phases of conversion. Staged conversions also avoid the need for sub-optimal entry points into organic rotations. Germany requires the whole farm to be converted in a single step, in line with most German certification organizations. Ireland also requires a single step, whole farm conversion as a consequence of the Rural Environment Protection Scheme (REPS) rules.

Most countries permit part farm conversions in line with EC Reg. 2092/91 (EC, 1991). Five countries (CH, DE, DK, IE and parts of IT) do not permit this, in part due to the perceived problems of controlling mixed organic and conventional units. The Austrian and Norwegian schemes previously did not permit part farm conversions, but now do as a result of adopting EC Reg. 2092/91.

2) Organic management and certification requirements

All schemes require organic management of crops to be maintained for at least 5 years (6 years in Switzerland) or payments must be refunded. In nearly all cases in the EU, organic crop production must be controlled according to EC Reg. 2092/91 (EC, 1991) (Table 31). The main exceptions to this are Sweden and some *Länder* in Germany, which use sample monitoring to confirm adherence to EC Reg. 2092/91 requirements. Some regions in Italy combine certification to EC Reg. 2092/91 with sample monitoring. In the Swedish case, the intention is to maintain a clear distinction between certified organic production for the market, and organic farming supported for agri-environmental policy reasons.

More than half the countries do not require livestock to be managed organically, the eight exceptions are AT, DK, ES, FR, IE, LU and some regions in DE and IT. In Sweden, organic management of livestock is required if the livestock supplement is claimed. Livestock production requirements are more complex because EC Reg. 2092/91 has not yet been extended to cover this aspect. Some countries like Sweden rely on IFOAM standards (IFOAM, 1995), while most rely on national standards as implemented by recognized certification bodies. In Germany, certification to AGÖL standards, and

Table 28. Dates when organic farming support schemes were first implemented (19..)

Measures	AT	BE	DE	DK	ES	FI	FR	GB	GR	IE	IT	LU	NL	PT	SE	CH	CZ	NO	
2078/92 schemes	95	95 ¹	94± ²	94	96± ⁴	95	93	94 ⁵	96 ⁶	94	94± ⁷	98 ⁸	94	94	95	-	-	-	
Other current schemes	-	-	(92) ³	-	-	-	-	-	-	-	-	(96) ¹⁰	-	-	-	-	93 ¹²	98 ¹⁴	90
Previous schemes	91	-	89	88	-	90	92	-	-	-	(90) ⁸	(92) ¹¹	-	-	89	(89) ¹³	90 ¹⁵	-	

BE ¹ Implemented in 1995 but applied retrospectively to 1994.

DE ² Regional variations in starting dates 1993-1995. ³ There are a number of *Länder*, communal and waterworks schemes operating in parallel to 2078/92.

ES ⁴ Some regions started in 1995, others in 1997 and 1998.

GB ⁵ 1995 in Northern Ireland.

GR ⁶ Applications backdated to 1995.

IT ⁷ Regional variations in start dates from 1993 to 1996. ⁸ Some regional schemes initiated in 1989-1991.

LU ⁹ Specific organic farming scheme implemented in 1998. ^{10,11} Previously, support available to conventional and organic farmers under countryside stewardship (1996) and extensification (1992) schemes.

CH ¹² National scheme. ¹³ Cantonal schemes only.

CZ ¹⁴ New support scheme for organic farming in less favoured areas. ¹⁵ Investment aids and loans for conversion 1990-1992.

Source: own data

Table 29. Regional variations in application of current organic farming support schemes

Regional variations	AT	BE	DE	DK	ES	FI	FR	GB	GR	IE	IT	LU	NL	PT	SE	CH	CZ	NO
Existence of regional variations	-	-	✓ ¹	-	✓ ²	✓ ³	✓ ⁴	✓ ⁵	-	-	✓ ⁶	-	-	-	✓ ⁷	✓ ⁸	(✓) ⁹	-

✓ = yes, - = no regional variations

See individual country appendices for details of regional variations.

DE ¹ *Länder* responsible for own programmes.

ES ² Autonomous regions are responsible for own programmes; schemes are similar, but differences in maximum limits, livestock standards and payment rates.

FI ³ Payment rates but not other conditions vary on regional basis.

FR ⁴ Conversion to organic farming schemes are centrally co-ordinated, but some regions have adjusted payment rates and support existing producers.

GB ⁵ Payment rates but not other conditions vary on regional basis.

IT ⁶ Regions responsible for own programmes.

SE ⁷ Payment rates but not other conditions vary on regional basis.

CH ⁸ Cantonal schemes exist in parallel with national scheme.

CZ ⁹ Scheme applies in less favoured areas only.

Source: own data

Table 30. Eligibility to participate in organic farming support schemes

Group	AT	BE	DE	DK	ES	FI	FR	GB	GR	IE	IT	LU ¹¹	NL	PT	SE	CH	CZ ¹⁵	NO
Converting farmers eligible	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Staged conversions permitted	✓ ²	✓	-	✓ ³	✓	✓ ⁴	✓ ⁶	✓	✓	✓	✓ ⁹	nd	✓ ¹²	✓	✓	✓ ¹⁴	✓	✓
Part farm ¹ conversions permitted	✓ ²	✓	-	-	✓	(✓) ⁵	✓	✓	✓	✓	✓ ¹⁰	nd	✓ ¹³	✓	✓	-	-	✓ ¹⁶
Existing organic farmers eligible	✓	✓	✓	✓	✓	✓	-	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

✓ = yes, (✓) = restricted, - = no, nd = no data

¹ Part farm defined as a distinct unit as in EC Reg. 2092/91.

AT ² Staged and part farm conversions previously not possible - must include whole unit, not individual crops.

DK ³ Conversion of last areas of land must start by 4th year.

FI ⁴ Conversions can be staged over 2-3 years. ⁵ Part farm means small, poor quality or unsuitably located fields may be omitted.

FR ⁶ Maximum length of staged conversions is 5 years.

GR ⁷ Priority for 1995 entry given to farms certified by approved body for 1993-1996, and for 1996/7 entry to farmers whose land situated in a) areas of Natura 2000 network; b) within 1km of coasts; c) within 600m from lake shores; d) within 300m of river banks; e) islands except plains of Crete and Evia; f) mountainous (> 600m) or semi-mountainous (200-600m) areas of mainland. If total ha does not meet national targets ('95:3,200; '96:1,800; 1997:1,000; total:6,000 ha), then other certified producers in plains and elsewhere eligible.

IE ⁸ Under Rural Environment Protection Scheme rules, all land farmed must be either fully converted or undergoing conversion in the case of producers of animals and animal products (take-up by horticultural producers is minimal).

IT ⁹ Staged conversions possible, in some regions with time limits. ¹⁰ Part farm conversions normally possible, but some regions require whole farm conversion, or combinations between organic and other reduced input measures on different parts of whole farm.

LU ¹¹ Information applies to new organic farming scheme.

NL ¹² Staged conversions max. 5 years. ¹³ Part farm conversions must involve whole enterprise/unit.

CH ¹⁴ Staged conversions max. 5 years.

CZ ¹⁵ 1998 less-favoured areas organic farming scheme.

NO ¹⁶ Part farm conversion not permitted initially.

Source: own data

Table 31. Organic management and control requirements in organic support schemes

Organic status	AT	BE	DE	DK	ES	FI	FR	GB	GR	IE	IT	LU ¹⁹	NL	PT	SE	CH	CZ	NO
Crops managed organically	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2092/91 control required	✓	✓ ³	✓ ⁴	✓	✓ ⁶	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓ ²¹	✓ ²³	✓ ²⁵	✓ ²⁶
Livestock managed organically	✓ ¹	-	(✓) ⁵	✓ ⁷	✓ ¹⁰	-	✓ ¹¹	✓ ¹²	✓ ¹⁴	✓ ¹⁵	(-) ¹⁷	✓	✓ ²⁰	-	(✓) ²²	(✓) ²⁴	-	✓ ²⁷
Assistance for control costs	✓ ²	-	(-) ⁶	(✓) ⁸	-	-	-	✓ ¹³	-	(-) ¹⁶	(✓) ¹⁸	-	-	-	-	-	-	-

✓ = yes, - = not required/not available, () = limited basis

AT ¹ National standards (*Codex Alimentarius Austriacus*). ² 500 ATS (36.2 ECU)/ha up to 10 ha (not co-financed under EC Reg. 2078/92).

BE ³ Biogarantie for animal production and crop products not covered by EC Reg. 2092/91

DE ⁴ Some *Länder* require certification, others use sample monitoring. ⁵ Some *Länder* specify organic livestock management, but most do not. On farms that are AGÖL certified, livestock production must be organic. *Länder* own standards (comparable to IFOAM) are used for livestock if not AGÖL. ⁶ Bayern provides 80 DEM (40.7 ECU)/ha additional support for up to 10 ha to cover inspection costs. A similar scheme operates in Baden-Württemberg, independent of EC Reg. 2078/92.

DK ⁷ National standards for livestock. ⁸ Farmers only pay direct control costs, other costs covered by state.

ES ⁹ Organic status controlled by relevant regional authority. ¹⁰ Livestock standards based on former national standard (CRAE) but some regions have own standards.

FR ¹¹ Livestock managed to Ministry standards (*Agriculture Biologique*). Some regions allow conventional management of livestock.

GB ¹² UKROFS standards apply to livestock, but organic management is not a formal requirement. ¹³ 30 GBP (43.3 ECU)/ha supplement for up to 5 ha.

GR ¹⁴ Organic livestock enterprises not yet inspected/certified.

IE ¹⁵ Livestock managed to approved inspection body's standards. ¹⁶ Inspection bodies receive support for horticultural inspections outside 2078/92 context.

IT ¹⁷ Organic livestock management not normally required, except in some regions if grassland is supported. Livestock standards are those of approved certifying bodies.

¹⁸ Tuscany and Marche provide assistance for control costs.

LU ¹⁹ Details relate to new 1998 organic farming scheme.

NL ²⁰ Forage production excluded before end 1996. Skal standards apply if livestock managed organically

SE ²¹ Crops produced according to 2092/91 requirements, but control not required (sample monitoring).

²² Organic management of livestock (to IFOAM standards) optional - supplementary support payable.

CH ²³ Crops certified to national standards (EC Reg. 2092/91 equivalent). ²⁴ Organic management of livestock required under national production standards.

CZ ²⁵ Certification by CZ recognised organic farming organisations.

NO ²⁶ Crop production standards incorporate EC Reg. 2092/91. ²⁷ Debio standards apply to livestock.

(ECU currency conversions at average rate for 1997)

Source: own data

in Switzerland, certification to national organic standards, means that organic management of livestock is required *per se*.

Although assistance with certification costs is not specifically provided for under EC Reg. 2078/92, Austria, the United Kingdom and Bayern in Germany make an additional payment on the first 5 to 10 ha. In the Austrian case, these payments are made as a state aid and are not co-financed by the EU. In some cases, general support for certification is available. This type of provision is particularly significant where certification is compulsory, as few, if any, other agri-environment options require producers to pay for inspection and certification to prove eligibility for aid payments.

3) Maximum and minimum size, stocking rate and payment limits

Several countries operate maximum and minimum size limits, defined either in terms of land area (total or for individual crops), business size or amount of payment, either on a per farm or per hectare basis (Table 32). The actual limits vary widely from country to country. In most countries, maximum payments per hectare are imposed as required by EC Reg. 746/96 where measures are combined.

Half of the countries (AT, DE, DK, FI, FR, LU, SE, CH, NO) also impose stocking rate limits, typically around 2.0 LU/ha (FI 1.5 LU/ha, SE 1.6 LU/ha). In Austria and Ireland, there are also minimum stocking rates in certain situations. In some cases, e.g. Denmark and Finland, the stocking rates are based on manure equivalents, so that imports or exports of manure from the holding will affect the number of livestock that can be kept. Increasingly stocking rate limits are featuring in organic production standards. A limit of 2.0 LU/ha is proposed in the draft EU regulation on organic livestock production (supplementing EC Reg. 2092/91), with the possibility of adjustment for manure imports and exports.

4) Eligible crop, environmental and other restrictions

In a few countries (e.g. ES, GR, PT and parts of IT), the payments are restricted to specific crops. More commonly, permanent grassland is excluded (in DK, FI, GR, LU, NL, PT, SE and individual regions in DE and IT) (Table 33). In five countries (AT, DE, DK, GR, SE), and possibly ES and PT, set-aside land is also excluded. (This restriction may be more common than indicated

here, but the situation in other countries was not always specifically identified).

Some countries impose environmental requirements additional to EC Reg. 2092/91. In Ireland, Finland and Norway, participation in the main agri-environment protection schemes is compulsory (Table 33) but additional payments are made for this. Some countries have additional restrictions on nutrient imports onto organic farms (CH, DK, FI, NO) and more general soil and water protection measures (AT, CH, DE) including prohibitions on the use of sewage sludge and the conversion of permanent grassland into arable land. A few countries (CH, parts of IT) require a proportion (3-5%) of the farm to be dedicated to nature conservation. In some cases, additional environmental restrictions have been incorporated into organic production standards at national level (GB, CH).

Other, non-environmental constraints include requirements that the unit should be a full time unit (BE), should not owe money to the state (CZ), should respect animal welfare requirements (AT). From 1998, Portugal has extended the period of eligibility for higher rate conversion payments to farmers who process or market more than 70% of their produce as organic (organic marketing was previously implemented as an unofficial eligibility condition on an *ad hoc* basis). In Norway, a marketing plan is a requirement of organic production standards.

In part, these exclusions relate to the principle of avoiding double payments for the achievement of the same objective under different agri-environment and mainstream measures, particularly as emphasized in EC Reg. 746/96. But the additional restrictions result in significant variability in the implementation of the schemes between countries, and within countries such as Italy and Germany where regional differentiation is greatest.

5) Training and/or advice provided

EC Reg. 2078/92 makes specific provision for training and demonstration in relation to good organic farming practice. Just over half the EU member states have taken advantage of this (Table 34). Austria, Finland and Portugal have compulsory training programmes for organic farming, while Ireland requires farmers to pursue a general environmental training course. Some countries, such as the Netherlands and Belgium, have established organic demonstration farm networks. Where training is provided, on a group

Table 32. Size and stocking rate limits on areas eligible for organic support or on level of payments receivable

Size limits	AT	BE	DE	DK	ES	FI	FR	GB	GR	IE	IT	LU ¹⁵	NL	PT	SE	CH	CZ ²⁶	NO
Maximum level (per farm)	-	-	(✓) ⁴	(✓) ⁵	6k ³	-	(✓) ¹¹	300	-	40	-	50	45k ¹⁵	✓ ¹⁸	(✓) ²⁰	(✓) ²³	-	✓ ²⁵
Unit	-	-	-	ECU	ECU	-	-	ha	-	ha	-	ha	ECU	ha	-	-	-	NOK
Minimum level (per farm)	2 ²	-	153 ⁵	1	✓ ⁹	3	-	1	-	3 ¹²	(✓) ¹⁴	3	40	✓ ¹⁹	0.1 ²¹	3 ²⁴	2	✓ ²⁸
Unit	ha	-	ECU	ha	ha	ha	-	ha	-	ha	ha	ha	ha	ha	ha	ha	ha	ha
Stocking rate (LU/ha)	2 ³	-	2	✓ ⁷	-	1.5 ¹⁰	2	-	-	0.3 ³	-	2	-	-	1.6 ²²	2.5 ²⁵	-	✓

✓ = yes, (✓) = limited requirement, - = no requirement/not applicable

AT ¹ Previous scheme maximum 100 000 ATS (7 400 ECU)/farm. ² Current scheme minimum 0.5 ha if > 0.25 ha perennial crops and herbs.

³ Stocking rate maximum 2 LU/ha, minimum 1.5 LU/farm (ruminants or other livestock kept outdoors). Holdings with more than 90% permanent grassland must have at least 0.2 grazing LU per forage ha and at least 1.5 LU per farm – this may include free range non-grazing livestock.

DE ⁴ Generally no maximum, except 3 *Länder* (35 000 – 40 000 DEM – 40 000 DEM (17 900 – 20 400 ECU)/farm). ⁵ 300 DEM – some *Länder* vary minimum support levels from normal level shown.

DK ⁶ Maximum payments per ha apply if schemes combined. ⁷ Stocking defined by manure units (DE) – central value: cattle 2.3, pigs 1.7, cropping 1.7 (values reducing in stages to 1.7 on all farms by 2003).

ES ⁸ 1 MESP. ⁹ Minimum areas defined for each crop type – see payments table in country appendix for details.

FI ¹⁰ Stocking rate refers to actual livestock or equivalent in manure applications.

FR ¹¹ Normally no maximum except some regions, e.g. Drôme 10 600 ECU/farm/year.

IE ¹² Minimum area can be <3 ha if >1 ha fruit and vegetables. ¹³ Minimum stocking rate.

IT ¹⁴ Minimum area in some regions only: 0.2-1 ha (varies according to region and crop type).

LU ¹⁵ Details relate to new 1998 organic farming scheme.

NL ¹⁶ Maximum payments 100 000 NLG (45 250 ECU)/farm over 5 years if converting, 50 000 NLG (22 625 ECU) if continuing, not applicable from 1998.

¹⁷ Minimum converted/organic unit size 40 standard business units (SBU) and minimum total farm size 120 SBU.

PT ¹⁸ Maximum areas crop-related: annual crops and olives 150 ha, non-irrigated orchards 80 ha, irrigated orchards 50 ha (limits no longer applicable from 1998).

¹⁹ Minimum areas: annual crops 0.5 ha, perennial crops 1 ha, protected crops 0.1 ha (protected cropping excluded from 1998).

SE ²⁰ Indirectly through restrictions on fodder purchases. Maximum payment limits of 3 900 SEK (450 ECU)/ha apply. ²¹ Minimum payment per unit 1 000 SEK (115 ECU). ²² Stocking rate limit not specific to organic farms.

CH ²³ Maximum limit 100 000 CHF (60 827 ECU) under discussion for 1998. ²⁴ Minimum limit 1.5 ha for horticulture. ²⁵ Stocking rate limit 3.0 LU/ha under water protection law, 2.5 LU/ha under organic production standards.

CZ ²⁶ 1998 LFA organic farming scheme.

NO ²⁷ Maximum and minimum payment levels per farm apply, details not supplied. ²⁸ Stocking rate limits apply generally to organic and conventional farms, details not supplied.

(ECU currency conversions at average rate for 1997 for current schemes, or last appropriate year for previous schemes)

Source: own data

Table 33. Eligible crop and additional environmental or other requirements in organic farming support schemes

Restrictions	AT	BE	DE	DK	ES	FI	FR	GB	GR	IE	IT	LU ¹⁷	NL	PT	SE	CH	CZ	NO
Permanent pasture excluded	-	-	-	✓	-	✓	-	-	✓ ¹¹	-	- ¹⁶	✓	- ¹⁹	✓	✓	-	-	-
Set-aside land excluded	✓	-	✓	✓	nd	-	-	-	12	-	16	-	-	nd	✓	-	-	na
Compulsory environmental protection scheme combination	-	-	-	-	-	✓ ⁹	-	-	-	✓ ¹⁴	-	-	-	-	-	-	-	✓ ²³
Additional environmental constraints	✓ ²	-	✓ ⁵	✓ ⁷	-	✓ ⁹	-	(✓) ¹⁰	✓ ¹³	-	-	✓ ¹⁸	-	-	-	✓ ²¹	-	✓ ²⁴
Other constraints	✓ ³	✓ ⁴	✓ ⁶	-	✓ ⁸	-	-	-	-	✓ ¹⁵	-	✓	-	✓ ²⁰	-	-	✓ ²²	✓ ²⁵

✓ = yes, (✓) = limited requirement, - = no, nd = no data, na = not applicable

AT ¹ Fodder area covered by livestock reduction schemes excluded. ² Prohibition of readily-soluble, chloride-based fertilizers (e.g. KCl) and sewage sludge/composts; erosion control in fruit and wine production: at least 10 months ground cover, including winter periods, or terracing; maintenance of landscape elements. ³ Partly perforated floors prohibited for calves, pigs, lambs, pullets, and table birds; silage must be supplemented by hay in ruminant diets.

BE ⁴ At least 50% of income from farming and more than 50% of labour time devoted to farming.

DE ⁵ General prohibition on use of sewage sludge and conversion of permanent grassland to arable land. ⁶ Some Länder have additional constraints.

DK ⁷ Applicable to all organic and conventional farms: rotation/fertilizer plans required; >65% of fields must be covered with crops until at least 20th October; nutrient application restricted according to manure type and crop requirements.

ES ⁸ Restrictions indicated but no details of eligible crop restrictions and other requirements supplied.

FI ⁹ Compulsory participation in General Agricultural Environment Protection Scheme (GAEPS).

GB ¹⁰ Additional environmental requirements included as part of UKROFS organic farming standards.

GR ¹¹ All grassland excluded (organic livestock production not recognized). ¹² Rotational set-aside payable at rate for following crop. ¹³ Environmental management plan diary required.

IE ¹⁴ Compulsory participation in Rural Environment Protection Scheme (REPS). ¹⁵ Only producers of crops and livestock for human consumption eligible.

IT ¹⁶ Generally, there are no cropping or additional constraints, although some regions support only horticultural production and others exclude permanent or non-rotational grassland. A few impose additional husbandry or environmental constraints, notably Emilia Romagna.

LU ¹⁷ No details on new 1998 organic farming scheme. ¹⁸ Countryside stewardship scheme: hedges and trees on grassland must be conserved; no further draining or conversion of grassland to arable; soil analysis required as part of monitoring; maximum limits on cereals (80%) and maize (70%) as proportion of arable land.

NL ¹⁹ Grassland and fodder crops initially excluded, permitted since 1996.

PT ²⁰ In some regions, rules have been interpreted that products must be marketed as organic to qualify. From 1998, period of eligibility for higher-rate conversion payments can be extended if more than 70% of products marketed as organic.

CH ²¹ Additional environmental constraints generally part of environmental cross compliance requirements, including balanced nutrient budgets, rotational constraints, minimum 5% of farm as ecologically diversified area, max. copper use, soil protection, water protection etc.

CZ ²² No debts to government.

NO ²³ 1994-1997 continuing organic farming support included in arable/cultural landscape programme. ²⁴ Restrictions on nutrient inputs. ²⁵ Marketing plan required.

Source: own data

Table 34. Training and advisory support under EC Reg. 2078/92

Information provision	AT	BE	DE	DK	ES	FI	FR	GB	GR	IE	IT	LU	NL	PT	SE	CH	CZ	NO
Compulsory course attendance	✓	-	-	-	-	✓	-	-	-	(✓) ³	-	-	-	✓ ¹³	-	(✓) ¹⁶	-	-
Optional course attendance	-	✓	-	✓	✓	-	-	-	-	-	✓ ¹⁰	-	-	-	✓	✓	-	✓
Length (hours)	15 ¹	nd	-	nd	nd	5	-	-	-	nd	30	-	-	nd	nd	15	-	nd
Financial support for participation in training	-	-	-	-	-	-	-	-	-	-	✓ ¹⁰	-	(✓) ¹²	-	-	-	-	-
Financial support for provision of training courses	✓	-	(✓) ³	✓ ⁴	✓	✓	-	-	-	✓ ¹⁰	-	(✓) ¹²	-	✓	✓ ¹⁵	(✓) ¹⁷	-	✓
Demonstration/advisory projects	-	✓ ²	(✓) ³	✓	-	✓ ⁵	(✓) ⁶	(✓) ⁷	-	-	(✓) ¹¹	-	(✓) ¹²	(✓) ¹⁴	✓ ¹⁵	(✓) ¹⁷	-	✓

✓ = yes, (✓) = limited applicability, - = not required/not applicable, nd = no data

AT ¹ Up to 5 hours may be field visits.

BE ² Demonstration farms in each region.

DE ³ In some regions only, usually not 2078/92 schemes.

DK ⁴ Development of information and educational materials (40% of additional costs).

FI ⁵ Only certain local communities and projects support advice costs, otherwise main 2078/92 provision for advice is preparation of farm environmental plans.

FR ⁶ In some cases a preliminary analysis has been funded by the local administration.

GB ⁷ Organic Conversion Information Service (help-line and free advice), but not 2078/92 supported.

GR ⁸ Training course scheme in preparation.

IE ⁹ Training compulsory for Rural Environment Protection Scheme only.

IT ¹⁰ In some regions only organization of short courses (30-50 hours) and participation are supported under 2078/92. ¹¹ Most regions provide advice through Agencies for the Development of Agriculture or local farmers unions.

NL ¹² General support for agri-environmental training and demonstration projects.

PT ¹³ New converters must attend training course within 6 months of application unless organic for more than one year. ¹⁴ General support available for agri-environmental training courses (including organic farming) and demonstration activities.

SE ¹⁵ Compensation to the Swedish Board of Agriculture for administration costs for running training/information and demonstration programmes.

CH ¹⁶ Training required under organic production standards and by one canton. ¹⁷ Support for advice and training only at canton level.

Source: own data

or one-to-one basis as advice, there is often an element of aid towards the costs of the programme. Finland covers the costs of preparing the compulsory environmental management plan. In Ireland, the producer has to pay for this. In many cases (e.g. GB, DE, DK) training and advisory provision is made using funding from other sources.

6) Adjustments made to scheme

Most countries have made changes to the original agri-environment schemes (the exceptions being AT, BE, most of DE, GB, and most of IT). In Great Britain, Finland and in Ireland (for horticultural producers only) the schemes are currently under review. In seven countries (DK, FR, NL, PT, CH, NO and some parts of DE), payment rates have been increased to encourage greater participation, while in Finland, in other German *Länder* and in Spain, payment rates have been reduced because of higher than expected uptake and/or budgetary pressures.

In some cases, changes to conditions have been made. In Switzerland, the area allocated to extensive management has been increased. Finland did not permit new converters during 1997 due to budgetary pressures. In Greece, new potentially combinable agri-environment schemes are in preparation. In the Netherlands, temporary grass and fodder crops became eligible for support in 1996, leading to a substantial increase in uptake by dairy farmers.

d. *Rates of payment for organic farming options under 2078/92*

Under EC Regs. 2078/92 and 746/96, the payments made need to be justified in terms of incomes forgone or additional costs incurred, with the possibility of an additional 20% as an incentive payment. In exceptional circumstances, the incentive element may be increased. Other factors, such as the environmental benefits to be expected, or costs incurred before the scheme was introduced, can not be included in the calculations.

The maximum rates eligible for co-financing by the EU under EC Reg. 2078/92 and typical payment rates for land in the first two years of conversion for different crop types are summarized in Table 36. (Table 37 shows typical rates for supporting continued organic farming on the same basis.) The EU covers 50% of the costs of support

(75% in the so-called Objective 1 regions up to the specified co-financing limits). Member States can pay more than the specified co-financing limits if the payment levels can be justified in the terms permitted under EC Reg. 746/96, but they must finance 100% of the difference themselves. (The co-financing rates shown are 20.7% higher than the original values in EC Reg. 2078/92 following revaluation of the green (agricultural) ECU rates in 1996).

Payment rates vary widely between countries, and within countries where regional variations exist. In Finland and Ireland, where combination with environmental protection schemes is compulsory, the combined payments lead to relatively high overall values.

In most countries, payments for continuing organic farming are lower than for payments for conversion. This is intended to recognize that there are particular costs of conversion and that farms often cannot qualify for organic premium prices until full organic status has been achieved. However, some countries, such as Austria, have adopted a policy of not offering higher payments for conversion, so as not to encourage entrants who are solely interested in the available subsidies (Posch, 1997). CH, CZ, GR, SE and most regions in IT also do not offer higher payments for conversion.

In a limited number of cases, such as Portugal and more recently Austria, payments are modulated, with payments reducing as the area supported increases. In other cases, such as the United Kingdom and the Netherlands, payments are higher in the earlier years and decline towards the end of the period, with the clear implication that the support payments are not to be considered as continuing indefinitely.

To some extent, the level of payment can be linked to rates of uptake, with countries such as Austria and Finland which offer high rates of payment experiencing significant growth, while the lower rates in the United Kingdom and France have proved less attractive. However, the relationship is not consistent for all countries and other factors, such as market demand and availability of information, are also important. Perhaps more significant are reports from several countries that the types of farms converting are skewed towards mixed cropping and moderate to low intensity livestock farms, particularly milk production. Specialist cropping farms (arable and horticulture) as well as intensive pig and poultry producers, seem to be less attracted by available payment

Table 35. Adjustments made to current organic farming support schemes since implementation

Adjustments made	AT	BE	DE	DK	ES	FI	FR	GB	GR	IE	IT	LU ¹⁷	NL	PT	SE	CH	CZ ²⁷	NO
Increased payment rates	-	-	(✓) ¹	✓ ²	-	✓ ⁵	✓ ⁷	-	✓ ⁹	- ¹²	(✓) ¹⁵	na	✓ ¹⁸	✓ ^{20,21}	-	✓ ²⁵	na	✓ ²⁸
Reduced payment rates	-	-	(✓) ¹	-	(✓) ⁴	✓ ⁵	-	-	(✓) ¹⁰	- ¹²	(✓) ¹⁵	na	-	-	-	-	na	-
Changes to conditions	-	-	(✓) ¹	-	(✓) ⁴	-	-	-	(✓) ¹¹	(✓) ¹³	(✓) ¹⁵	na	✓ ¹⁹	✓ ²²	✓ ²³	✓ ²⁶	na	✓ ²⁹
Other	-	-	-	✓ ³	-	✓ ^{5,6}	-	-	-	(✓) ¹³	-	na	-	-	(✓) ²⁴	-	na	-
None	✓	✓	(✓) ¹	-	-	-	-	✓ ⁸	-	-	✓	na	-	-	-	-	na	-
Currently under review	-	-	-	-	-	✓	-	✓ ⁸	-	(✓) ¹⁴	(✓) ¹⁶	na	-	-	-	-	na	-

✓ = yes, (✓) = limited applicability, - = no, na = not applicable

DE ¹ Some Länder have modified payment rates, either up or down, and conditions depending on levels of uptake and budgetary pressures.

DK ² Higher rate conversion payments introduced for arable (no milk quota) and pig farms. ³ From 1997, organic farming is the only scheme available outside ESAs.

ES ⁴ Minimum area requirements reduced from 1998. Due to high uptake levels, Castilla y León modified olive and vine payment levels and grassland eligibility conditions in 1996 (see country appendix).

FI ⁵ New converters not eligible in 1997 due to higher than expected uptake. Conversion support was reinstated in 1998 but payments during conversion reduced to 166 ECU/ha (excl. GAEPS payment) across whole country.

⁶ Term of notice to quit scheme increased from 2 to 4 years.

FR ⁷ Payments increased on average by 15% in 1998 as part of action plan for organic farming.

GB ⁸ Increased payments planned for 1999 (following review) along with removal of 300 ha maximum limit.

GR ⁹ Payments for most crops increased in 1998. ¹⁰ Payments for a few crops reduced in 1998. ¹¹ Eligibility conditions relaxed in 1998.

IE ¹² Payments fixed in ECU (a) - IEP rates adjusted annually to reflect exchange rate changes. ¹³ REPS conditions amended in 1996 and 1998. ¹⁴ Conditions for horticultural producers under review.

IT ¹⁵ Payments fixed in ECU (a) - ITL rates adjusted annually to reflect exchange rate changes. In addition, payments and conditions have been modified in a few regions (no details available). ¹⁶ Payments and conditions currently under review in Emilia-Romagna and Marche.

LU ¹⁷ Not applicable as current organic scheme first implemented in 1998.

NL ¹⁸ Increased payment rates for conversion of horticultural crops from 1998. ¹⁹ Grassland and fodder crops included from 11/1996.

PT ²⁰ Payments fixed in ECU (a) - PTE rates adjusted annually to reflect exchange rate changes. ²¹ From 1998 the higher rate conversion payments apply for longer where > 70% of production marketed as organic. ²² Modulation percentages increased and maximum area limits removed, protected cropping no longer eligible.

SE ²³ New payments introduced for fruit and berries in 1998. ²⁴ Some minor modifications relating to tenancies and animal husbandry have been made.

CH ²⁵ Payment rates increased, partly to maintain position relative to integrated farming payments which had also been increased. ²⁶ 5% of land must be managed extensively in addition to 5% for nature conservation.

CZ ²⁷ Not applicable as current organic scheme first implemented in 1998.

NO ²⁸ Payment rates increased and differentiated by crop type. ²⁹ Length of conversion period and continued organic farming requirement modified. Part farm conversions permitted. Compulsory staged conversion requirement abandoned after one year (1995).

Source: own data

Table 36. Typical 1997 payment rates for land in first two years of conversion (ECU/ha/year)

	Cereals/AAP ¹	Other arable	Grass/forage	Vegetables	Intens. hortic.	Olives/vines	Fruit ext./int.
2078/92 max²	181/423 ³	302/423 ³	302/423 ³	302/423 ³	302/423 ³	483/845	845-1208
AT⁴	326	326	217	434	723	na/723	723
BE⁵	180	299	299	299	299	na	299/838 ⁵
DE⁶	127-153	127-153	127-153	127-153	127-153	611-713	611-713
DK⁷	140	87	87 ⁸	140	140	na	140
ES⁹	121 ⁹	151 ¹⁰	90	241	452 ¹¹	271	211/362 ¹²
FI¹³	280-498	498-600	498-600 ¹⁴	532-600	532-600	na	987-1056
FR¹⁵	151	212	106	151	151	454/151	711
GB¹⁶	101	101	101	101	101	na	101
GR¹⁷	182	304	304	304	304	see ¹⁷	852/1217 ¹⁸
IE¹⁹	337	337	398	398	398	na	398
IT²⁰	185	309	309	309	309	494/864	864/1235
LU²¹	173	173	173	173	173	na	173
NL²²	226	226	136 ²²	543	837	na	837
PT²³	217 ²³	362 ²⁴	na ²⁵	362 ²⁴	362 ²⁶	217/578	434/723 ²⁷
SE²⁸	104/185	104/185	173/254 ²⁹	104/185	104/185	na	104/185
EU 15³⁰	202	248	219	287	340	340/517	505/619
CH³¹	852	852	322	1095	1095	1095	1095
CZ³²	56	56	56	56	56	56	56
NO³³	374	374	249	374	374	na	374

Currency conversions based on average ECU (b) rates for 1997.

¹ AAP = crops eligible for arable area payments.

² 2078/92: co-financing maxima from 1996. ³ Higher rate applies if Art. 2.1a/b and 2.1d measures combined.

AT ⁴ Normally combined with basic agri-environmental support payment of ca. 50 ECU/ha (not included).

BE ⁵ Fruit: ext. = high-stemmed, int. = low-stemmed.

DE ⁶ Ranges represent variations in payments between *Länder*. Nordrhein-Westfalen, Rheinland-Pfalz, Sachsen and Bayern generally give higher levels of support for arable and grassland (204-280 ECU/ha), perennial crops (755-1010 ECU), and, except Rheinland-Pfalz, vegetables (252-505 ECU). Conversion payments are usually for five years, at levels typically 20% higher than continuing or similar. Some *Länder* shorten the period to, or give an additional supplement for, the first two years.

DK ⁷ Higher rate (140 ECU) applies to crops eligible for nitrogen reduction scheme. Lower rate (87 ECU) applies to ineligible crops with low N requirement. ⁸ Permanent grass excluded. A 30 ECU/ha supplement is payable in ESAs. From 1997, a supplement of 232-268 ECU/ha/year for 3 years is payable on arable farms without milk quota and on pig farms.

ES ⁹ Dryland arable. ¹⁰ Irrigated arable. ¹¹ Protected cropping. ¹² fruit: ext.=dryland, int.=irrigated.

FI ¹³ Includes payment for compulsory agri-environment protection scheme (GAEPS). Ranges represent variations according to region (extensive lowest, arable areas highest). Conversion payments not available in 1997 for new entrants, payments restored but reduced by 68-136 ECU/ha in 1998. ¹⁴ Permanent grassland excluded (but eligible for other agri-environment payments).

FR ¹⁵ Conversion payments for 2 years in the case of annual crops and 3 years for perennial crops. Organic management must be maintained for five years in total.

GB ¹⁶ 20% of values shown in less favoured areas in England/Wales or rough grazing in Scotland/Nireland.

GR ¹⁷ Olives/vines: extensive olives 162, intensive olives 377, vineyards 808, table grapes 815, sultana raisins 655, Corinthian currants 707 ECU/ha (all with 4.5% supplement in ESAs). ¹⁸ Fruit: higher rate for citrus, lower for other.

IE ¹⁹ Includes payment for compulsory agri-environment protection scheme (REPS). (Rates converted from green ECU(a) to IEP at 1/1/97 exchange rates).

IT ²⁰ Some regional variations. (Rates converted from green ECU(a) to ITL at 1/1/97 exchange rates).

LU ²¹ Figures relate to new 1998 organic farming scheme.

NL ²² 5 year average; actual values decline in equal annual steps from 181 to 91 ECU/ha.

PT ²³ Dryland arable. ²⁴ Irrigated arable. ²⁵ Grassland excluded. ²⁶ Protected cropping. ²⁷ Fruit: ext.= dryland, int. = irrigated. (Rates converted from green ECU(a) to PTE at 1/1/97 exchange rates.)

SE ²⁸ Lower rate zone 1, higher rate zone 2. ²⁹ Grassland/fodder crops rate applies if livestock managed organically (69 ECU/ha supplement), if not same rate as other crops. Permanent grassland excluded.

EU15 ³⁰ Unweighted average.

CH ³¹ 1 217 ECU/farm/year supplement if whole farm fully converted.

CZ ³² Data relate to new 1998 LFA organic farming scheme.

NO ³³ Conversion payment of 748 ECU/ha spread over 2 years for annual crops, 3 years for grass.

Source: own data

Table 37. Typical 1997 payment rates for fully (continuing) organic land (ECU/ha/year)

Country	Cereals/ AAP ¹	Other arable	Grass/ forage	Vege- tables	Intens. hortic.	Olives/ Vines	Fruit Ext./Int.
2078/92 max ²	181/423 ³	302/423 ³	302/423 ³	302/423 ³	302/423 ³	483/845	845-1208
AT ⁴	326	326	217	434	723	na/723	723
BE	111	222	173	296	296	na	740 ⁵
DE ⁶	102-122	102-122	102-122	102-122	102-122	509-611	509-611
DK ⁷	114	60	60 ⁸	114	114	na	114
ES	72 ⁹	90 ¹⁰	54	145	271 ¹¹	163	127/217 ¹²
FI ¹³	162-312	264-414	264-414 ¹⁴	414	414	na	869
FR ¹⁵	0	0	0	0	0	0	0
GB	0	0	0	0	0	na	0
GR	182	304	304	304	304	see ¹⁶	852/1217 ¹⁷
IE ¹⁸	246	246	246	276	276	na	276
IT ¹⁹	185	309	309	309	309	494/864	864/1235
LU ²⁰	148	148	148	148	148	na	148
NL ²¹	136	136	136	136	136	na	136
PT	181 ²²	301 ²³	na ²⁴	301	301 ²⁵	181/482	362/603 ²⁶
SE ²⁷	104/185	104/185	173/254 ²⁸	104/185	104/185	na	104/185
EU 15 ²⁹	169	211	193	241	273	274/590	455/537
CH ³⁰	852	852	322	1095	1095	1095	1095
CZ ³¹	56	56	56	56	56	56	56
NO	187	187	137	187	187	na	187

Currency conversions based on average ECU (b) rates for 1997.

- ¹ AAP = crops eligible for arable area payments.
- ² 2078/92: co-financing maxima from 1996. ³ Higher rate applies if Art. 2.1a/b and 2.1d measures combined.
- AT ⁴ Normally combined with basic agri-environmental support payment of ca. 50 ECU/ha (not included).
- BE ⁵ Fruit: ext. = high-stemmed, int. = low-stemmed (both same rate).
- DE ⁶ Ranges represent variations in payments between *Länder*. Nordrhein-Westfalen, Rheinland-Pfalz, Sachsen and Bayern generally give higher levels of support for arable and grassland (154-230 ECU/ha), perennial crops (655-705 ECU), and, except Rheinland-Pfalz, vegetables (227-352 ECU).
- DK ⁷ Higher rate (114 ECU) applies to crops eligible for nitrogen reduction scheme. Lower rate (60 ECU) applies to ineligible crops with low N requirement. ⁸ Permanent grass excluded. A 30 ECU/ha supplement is payable in ESAs. From 1997, a supplement of 232-268 ECU/ha/year for 3 years is payable on arable farms without milk quota and on pig farms.
- ES ⁹ Dryland arable. ¹⁰ Irrigated arable. ¹¹ Protected cropping. ¹² fruit: ext.=dryland, int=irrigated.
- FI ¹³ Includes payment for compulsory agri-environment protection scheme (GAEPS). Ranges represent variations according to region (extensive lowest, arable areas highest). ¹⁴ Permanent grassland excluded (but eligible for other agri-environment payments).
- FR ¹⁵ Organic management must be maintained for five years in total if conversion payments received. Three regions provide support for continuing organic farming.
- GR ¹⁶ Olives/vines: extensive olives 162, intensive olives 377, vineyards 808, table grapes 815, sultana raisins 655, Corinthian currants 707 ECU/ha (all with 4.5% supplement in ESAs). ¹⁷ Fruit: higher rate for citrus, lower for other.
- IE ¹⁸ Includes payment for compulsory agri-environment protection scheme (REPS). (Rates converted from green ECU(a) to IEP at 1/1/97 exchange rates).
- IT ¹⁹ Some regions pay 5-10% less following 2 year conversion period. (Rates converted from green ECU(a) to ITL at 1/1/97 exchange rates).
- LU ²⁰ Figures relate to new 1998 organic farming scheme.
- NL ²¹ 5 year average; actual values decline in equal annual steps from 181 to 91 ECU/ha.
- PT ²² Dryland arable. ²³ Irrigated arable. ²⁴ Grassland excluded. ²⁵ Protected cropping. ²⁶ Fruit: ext.= dryland, int. = irrigated. (Rates converted from green ECU(a) to PTE at 1/1/97 exchange rates.)
- SE ²⁷ Lower rate zone 1, higher rate zone 2. ²⁸ Grassland/fodder crops rate applies if livestock managed organically (69 ECU/ha supplement), if not same rate as other crops. Permanent grassland excluded.
- EU15 ²⁹ Unweighted average, excluding FR and GB.
- CH ³⁰ 1 217 ECU/farm/year supplement if whole farm fully converted.
- CZ ³¹ Data for 1998 LFA organic farming scheme.

Source: own data

Table 38. Relationship of organic farming schemes to other agri-environmental measures

	Combinable measures	Competitive measures	Incompatible measures	Most popular measures
AT	Basic support (normally combined), extensive grassland production, mowing/grazing management and erosion control measures, rare breeds. Maximum payments for combined schemes: arable 615 ECU/ha, grassland 687 ECU/ha, perennial crops 1 013 ECU/ha. Long-term set-aside and abandoned forest schemes combinable on separate areas of same holding.	Input reduction and integrated production schemes, some of which are defined in terms of 2092/91 permitted inputs (Annex II).	Competitive schemes, management of ecologically valuable areas and 'eco-point' scheme	Basic support and stabilisation of crop rotation
BE	Only in Wallonia. Combinable with most options except input reduction measures, continuing extensive livestock production, winter green cover.	Input reduction measures <i>not</i> competitive with organic	-	Maintenance of hedgerows and woodland strips
DE	Specific nature protection schemes, field margins and 20-year set-aside - payment may be additional, usually only highest rate paid. Endangered breeds and basic support in some <i>Länder</i> .	Input reduction in arable crops (integrated and zero chemical farming systems)	Meadow and pasture, reduced stocking, abandoned land	Basic support, meadows and pastures, arable crops
DK	Normally nitrate reduction scheme ⁴ and ESA supplement as options within organic scheme. Also (in ESAs only) extensive grassland management, ryegrass in cereal fields, 20 year set-aside, maintenance of nature areas.	None as alternatives restricted to ESAs and uptake of reduced pesticide measures is low.	Competitive measures, unsprayed buffer zones	Organic farming, extensive grassland management
ES	All horizontal measures (extensive cereal systems, preservation of local breeds and agri-environmental training) and all zonal measures (National Parks, RAMSAR, ZEPAS, CCAA areas) with some exceptions.	Possibly integrated crop protection option in CCAA areas	Flora/ fauna in wetlands, integrated crop protection	Extensive cereal systems: Irrigation water restriction in wetlands
FI	General Agricultural Environment Protection Scheme ⁵ compulsory. All except one supplementary measure optional including improved efficiency of manure nutrient use, liming of acid sulphate soils, creation of riparian zones, landscape and habitat management, and preservation of local breeds	-	Extensification for ground water protection (no pesticides, low fertiliser inputs)	GAEPS has very high uptake. Of the supplementary measures, organic farming is most popular
FR	Most national and regional programmes including grassland extensification scheme, conversion of arable land to grassland, reduction of stocking density, preservation of rare breeds, local level programmes and sustainable agriculture plans.	Input reduction scheme - fewer requirements but payment rates similar to organic cereals and grassland, not time limited.	20-year set-aside	Grassland extensification scheme, local level programmes and input reduction scheme.
GB	All measures including ESAs, countryside stewardship, nitrate sensitive areas, habitat, moorland, arable extensification, and countryside access schemes	Payment rates for alternative schemes often higher relative to requirements, and awareness of combinability is low.	-	Environmentally sensitive areas and countryside stewardship
GR	All schemes including nitrate reduction, long-term set-aside, and potentially new schemes ⁶ such as rare breeds, soil conservation, livestock extensification, landscape and habitat conservation.	Possibly nitrate reduction scheme in Thessaly (cotton focus)	-	Nitrate reduction and long-term set-aside
IE	Rural Environment Protection Scheme ⁷ compulsory. All supplementary measures optional, including natural heritage areas, rejuvenation of degraded areas, preservation of local breeds, long term set-aside and public access/recreation activities.	-	-	REPS
IT	Measures including reduced inputs, integrated crop production, extensification, reduced stocking density, rural areas and landscape, rare breeds, upkeep of abandoned land, if on different parts of same farm	Reduced input and integrated crop management.	Long-term set-aside and public access incompatible on same parcel of land	A1/A2 (reduced inputs) and D1 (maintenance of rural areas and landscape)

Table 38. Relationship of organic farming schemes to other agri-environmental measures (continuation)

LU	Organic farming scheme available from 1998. Countryside stewardship and extensification schemes used by organic farmers.	nd	nd	Countryside stewardship
NL	All schemes (management agreements, demonstration farms, training, public access, beef extensification).	-	Beef extensification if organic forage supported.	Management agreements, training courses
PT	Not combinable with other schemes except training	Integrated farming measures, extensive forage	na	Traditional, extensive multi-crop, forage and olive prod.
SE	Most combinable, including maintenance of open landscape, conservation of biodiversity and cultural heritage of farming landscapes, and use of catch crops. Other schemes such as specific habitat conservation schemes and establishment of permanent grassland combinable, but not same land.	-	-	Open landscape; conservation of bio-diversity and cultural heritage of farming landscapes; organic farming
CH	Management of semi-natural habitats (various programmes for grassland, hedges and shrubs, and high-stem orchards), free-range livestock production and animal welfare-friendly housing.	Integrated farming	Integrated farming	Integrated farming
CZ	Other LFA agri-environment measures introduced in 1998: grassland management, beef breeds, sheep production, conversion of farmland to forest	Integrated farming (previous scheme)	nd	nd
NO	Cultural landscape ¹ , building restoration, soil conservation and investment support for environmental improvement measures	No support for integrated or other alternative agriculture	Reduction of erosion in arable areas.	Cultural landscape and investment support

- = none, na = not applicable

BE¹ Agri-environment measures in Flanders (other than organic farming and demonstration farms) not yet implemented

DK² Sowing ryegrass as catch crops for N, conversion of arable land to permanent pasture, restricted N-inputs, but excluded from other options such as unsprayed field margins, and reduction of N use in environmentally sensitive areas

FI³ GAEPS requirements include environmental management plan, restrictions on fertiliser use, training in spray use, establishment of field margin filter strips around water courses, increased plant cover for arable land in winter, maintenance of cultivated landscape and its natural biodiversity.

GR⁴ Currently only organic farming and nitrate reduction schemes in force.

IE⁵ REPS requirements include environmental management plan, fertilising and manure storage plan, grassland management plan (including winter housing of livestock), protection of water bodies, retention of wildlife habitats, maintenance of field boundaries and features of historical/archaeological interest, no agri-chemicals near hedgerows, ponds and streams and unsprayed field margins for arable crops.

NO⁶ From 1994 to 1997, continued organic farming support was part of the arable and cultural landscape scheme. Many of the general agri-environmental requirements therefore applied to organic farmers.

Source: own data; Deblitz; Plankl (1997).

rates. To address this problem, Denmark introduced in 1997 a supplement of 232-268 ECU/ha/year for 3 years for arable farms without milk quota and pig farms.

1) Relationship between organic farming and other agri-environment schemes

The other agri-environment schemes may be classified into four groups (Table 38): those where combination is either optional or compulsory, and those that are either competitive (such as integrated crop management) or incompatible, at least on the same piece of land (e.g. 20-year set-aside, see individual country appendices for further details).

Two countries (Finland and Ireland) require participation in their general agri-environment protection schemes as a condition of eligibility for the organic farming support scheme.

All countries except Portugal allow combinations with some agri-environment options such as preservation of rare breeds, environmentally and nitrate sensitive area schemes, and habitat protection schemes, subject to the general principle of avoiding double payment for individual objectives. Where schemes of this type are combined, payments may be combined, possibly subject to an overall limit per hectare, or only the higher of the two payments will be made. In a few cases, reduced rates are specified for combinations with organic farming.

In several countries (AT, DE, FR, IT, PT, CH and CZ), input reduction measures relating to arable and horticultural crops, such as integrated crop management, have proved to be particularly competitive with the organic farming schemes. This is because payment rates for these schemes are high relative to organic farming when compared with the restrictions imposed. In some cases, payments may even be similar. The effect may be exacerbated in countries where organic management of livestock is required (e.g. Austria).

In France, competitive input reduction schemes are not time limited in the same way as payments for conversion to organic production. In Portugal, extensive grassland management is also a competitive option as grassland is not supported under the organic scheme and combinations are not permitted. In the United Kingdom, alternative schemes appear competitive because of higher payment rates, but awareness that the schemes are in fact combinable is low.

Long-term set-aside and other non-productive schemes (e.g. nature conservation, public access)

are sometimes incompatible and sometimes combinable on different parts of the holding. In general, competitive input reduction schemes are also incompatible. In the Netherlands, the new beef extensification scheme is incompatible with organic farming only if organic forage production is supported.

As far as the most successful (in terms of uptake) agri-environment schemes are concerned, the picture is very variable. The basic support schemes in AT, DE, FI and IE have proved particularly popular, while organic farming has been one of the most popular choices in DK, FI, IT and SE. In FR, DK, ES and PT, traditional, extensive grassland and crop management have proved popular, while in BE, GB, LU, NO, IT, NL the emphasis has been on countryside stewardship and nature conservation schemes. Integrated farming has been most successful in Switzerland, France and Italy.

2) Local schemes

In a number of countries, a diverse range of local agri-environment schemes has been implemented, which run in parallel to the main national/regional schemes. Some of these include support for organic farming. Examples include communal support schemes in Germany (e.g. Hamburg, Korntal-München amongst others in Germany (Thomas; Schneider; Kraus 1995), cantonal support schemes in Switzerland, and Lelystad in the Flevoland Obj. 1 region of the Netherlands). In some cases the local authorities provide supplementary support, in others they require or encourage organic management on their own land. Some further details of these schemes can be found in the individual country appendices.

Of particular interest is the growth of organic farming schemes operated by water companies in water catchment areas. In Luxembourg, the Redange Municipality supports conversion to organic farming (220 ECU/ha) for water protection purposes. These payments are combinable with the national countryside stewardship scheme. In Germany, several water companies (for example Augsburg, Dortmund, Göttingen, Leipzig, München, Osnabrück and Regensburg) operate support schemes for organic farming either in their catchment areas or on their own land (Arbeitsgemeinschaft Ökologischer Landbau und Bund Umwelt und Naturschutz Deutschland, 1997). It has been estimated that the costs of these support schemes are substantially lower than the costs of removal of nitrates and pesticides

Table 39. Actual public expenditure in 1996 on organic farming support options and total agri-environmental measures (excluding administration and monitoring costs)

Public expenditure (MECU)	AT	BE	DE ²	DK	ES	FI	FR ¹	GB	GR ³	IE	IT	LU ⁴	NL	PT	SE	EU 15	CH	CZ ⁵	NO
Organic farming support	55.65	1.14	18.53 ⁶	6.85	0.88	17.07	0.96 ⁷	0.53	2.78	nd	59.97	na	0.28 ⁷	1.31	20.21	186.15	25.06	na	1.61
EU co-financing	32.82	0.62	9.42	3.43	0.86	8.53	0.48	0.28	2.09	nd	41.06	na	0.16 ⁷	0.98	10.11	110.64	na	na	na
EU share of organic (%) ¹	59.0	54.4	50.9	50.0	75.0	50.0	50.1	53.1	75.0	nd	68.5	na	57.8	75.0	50.0	59.4	na	na	na
Total agri-environmental support	592.8	2.98	345.7	11.73	57.25	270.7	228.5	61.77	11.23	57.70	273.7	na	13.31	48.72	135.5	2 111.6	373.9	na	28.96
EU share of total (%) ¹	59.0	52.3	57.3	50.0	75.0	50.0	50.1	50.3	75.0	75.0	59.1	na	51.2	75.0	50.0	57.0	na	na	na
Organic share of total (%)	9.39	38.13	5.36	58.40	1.53	6.31	0.42	0.87	24.77	nd	21.91	na	2.07	2.69	14.92	8.82	6.70	na	5.56

na = not applicable, nd = no data

¹ EU co-financing: where EU share > 50%, share is normally 75% in Obj. 1 regions and 50% elsewhere

² Mid-year estimate of situation at 15th October.

DE ³ Data excludes continuing payments under EC Reg. 4115/88 extensification programme 'avoidance of artificial inputs' (58 of total 84 MECU, or 69%)

FR ⁴ Data excludes 0.7 MECU for EC Reg. 4115/88 extensification scheme

GR ⁵ Totals for 1995 and 1996 combined, as payments backdated to 1995 and individual year data not available.

LU/CZ ⁶ Agri-environment programmes and organic farming support not yet implemented.

NL ⁷ Includes estimated value for Flevoland (Obj. 1 region) as actual data not available.

Source: EC Reg. 2078/92 statistical reporting by member states to European Commission (situation at 15th October) and national agricultural administrations (AT, ES, FI, GR, IT, PT, SE, CH, NO) (situation normally at 31st December).

Table 40. Actual public expenditure in 1997 on organic farming support options and other agri-environmental measures (excluding administration and monitoring costs)

Public expenditure (MECU)	AT	BE	DE	DK	ES	FI	FR ²	GB	GR	IE	IT	LU	NL	PT	SE	EU 15	CH	CZ	NO
Organic farming support	65.03	0.88	23.27 ³	9.44	2.91	21.07	4.02 ³	0.82	4.25	nd	102.9	na ⁵	0.34	1.18	25.13 ⁶	261.24	30.41	na ⁶	nd
EU co-financing ¹	33.73	0.47	12.22	4.72	2.18	10.53	2.02	0.42	3.19	nd	70.14	na	0.20	0.88	12.57	153.27	na	na	na
EU share of organic (%) ¹	51.9	54.1	52.5	50.0	75.0	50.0	50.2	51.9	75.0	nd	68.2	na	58.5	75.0	50.0	58.7	na	na	na
Total agri-environmental support	502.1	3.69	390.6	16.21	74.45	278.4	293.1	86.03	13.39	130.3	402.3	4.28	40.16	61.07	147.4 ⁶	2443.5	425.2	nd	nd
EU share of total (%) ¹	51.9	51.8	56.4	50.0	71.4	50.0	50.1	50.7	75.0	75.0	59.6	50.0	50.4	75.0	50.0	55.7	na	na	na
Organic share of total (%)	12.95	23.71	5.96	58.24	3.90	7.57	1.37	0.95	31.74	nd	25.58	na	0.85	1.93	17.05	10.69	7.15	nd	nd

na = not applicable, nd = no data

¹ EU co-financing: where EU share > 50%, share is normally 75% in Obj. 1 regions and 50% elsewhere

² Mid-year estimate of situation at 15th October.

DE ³ Excludes data for EC. Reg. 4115/88 extensification support – values not known

DK ⁴ Includes 40.3 MDKK officially postponed until 1998 due to computer payment problems.

LU/CZ ⁵ Organic farming support not yet implemented.

SE ⁶ Estimated value based on increase in land area supported.

Source: EC Reg. 2078/92 statistical reporting by member states to European Commission (situation at 15th October) and national agricultural administrations (AT, ES, FI, IT, PT, SE, CH) (situation normally at 31st December).

from water supplies (Fleischer; Schirmer, 1996). In the United Kingdom, one water company is contracting management of its orchards out to an organic farmer and another is currently investigating the potential of a support scheme.

B. Public policies-fiscal incentives, reconversion, trade, legislation

1. Public expenditure on organic farming support under agri-environment programmes

Estimated actual public expenditure on organic farming support (excluding administration and monitoring costs), from EU, national and regional sources under the agri-environment programme, totalled 186 MECU (excluding Ireland) in 1996, or 8.8% of the total expenditure on agri-environment programmes of 2112 MECU (Table 39). In 1996, a further 58 MECU was spent in Germany and 0.7 MECU in France on extensification support for organic farming (EC Reg. 4115/88).

In 1997, expenditure on organic farming support under EC Reg. 2078/92 increased to 261 MECU (excluding IE), or 10.7% of the total agri-environment expenditure of 2 444 MECU (Table 40). Payments to support organic farming were highest in Italy (103 MECU – nearly 40% of total organic farming support under EC Reg. 2078/92 in 1997) and Austria (65 MECU or 25%). Organic farming support payments exceeded 20 MECU in Germany, Finland and Sweden in 1997. Switzerland also incurred relatively high levels of expenditure (30 MECU). In contrast, less than 1 MECU each was spent on support in Belgium, Great Britain and the Netherlands. (All these figures include EU co-financing except in the case of Switzerland.)

As a proportion of total agri-environment programme expenditure in 1997, organic farming support was highest in Denmark (58%), Greece (32%), Italy (26%) and Belgium (24%) and lowest in France (1.4%), Great Britain (1.0 %) and the Netherlands (0.9%).

The EU co-financing share of the expenditure on organic farming support programmes under EC Reg. 2078/92 is estimated at 111 MECU in 1996 and 153 MECU in 1997. This is equivalent to 59% of total expenditure on organic farming support. In some countries, particularly Italy and the Netherlands, the EU co-financing share is higher for organic farming than for agri-environment

schemes in general, indicating higher uptake in Obj. 1 regions. However, the reverse is true for Germany.

In addition, some countries have substantial state aids for organic farming. For example Denmark spent 10 MECU on organic farming development projects in 1996. This and other expenditure on marketing, regional development, training, advisory and research programmes are considered in later sections of this report.

Our estimates for actual total agri-environmental expenditure and the share of organic farming support compare reasonably well with estimates prepared by the European Commission (EC, 1997d), although individual country estimates vary substantially in some cases. Some of these differences can be attributed to revisions to data supplied to the European Commission by national agricultural administrations – we have used the revised data where we believe them to be more accurate. (Some countries (e.g. AT, DE and SE) supplied estimates to the Commission because their year-ends did not coincide with the required reporting dates of 15th April and 15th October each year.) In addition, the Commission's 1996 data in Table 39 for AT, FI and SE include 1995 expenditure. However, for two countries (Spain and Sweden) we were not able to obtain accurate or consistent data on expenditure and estimates have had to be used.

IV. Technological support and development

The section gives an overview of research and development policy for organic farming in the EU, the member states and three non-EU countries. This includes the regulatory framework, a review of evaluations of research needs and strategic planning of organic farming research, and the various types of institutions that are involved in research in the field of organic farming.

A. Regulatory framework

At European level research is supported through Framework programmes. The second Framework (CAMAR, 1989-1993) mentioned organic farming under the overall topic of extensification, diversification, including extensification of production, cost reduction and protection of the rural environment, development of alternative farming practices, particularly organic farming with

the aim of conserving natural resources and the countryside.

The third Framework (AIR, 1991-1994, OJ 91/C/264/11) again mentioned organic farming under the research heading of conversion, diversification and extensification as non- or low-chemical (including "organic) production systems and integrated systems (Page 2 work-programme). Organic farming is also mentioned under consumer safety, health and safety aspects of uncooked and "organic food" (Page 13, work programme).

The fourth Framework (FAIR, 1994-1997, Decision No 1110/94-EC) specifically mentions organic farming in Area 4 of the detailed work programme under Heading 4.1 (Reform of CAP: optimisation of methods, systems and primary production chains). Organic farming is included in the first theme and comparisons of the productivity of organic (biological) and conventional production systems are specifically mentioned under Objective 4.1.1 (Optimisation of methods, systems and primary production chains). Under Objective 4.2.1 (Consumer expectations) and Objective 4.2.2 (Technological instruments and methods) organic farming is also mentioned. Other areas of the work programme (such as Objective 4.3, Diversification) could also accommodate projects that deal with work in organic farming.

The common positions for the fifth research Framework that were agreed at the Council meeting on the 12/2/1998, include sustainable agriculture as a main heading in the first thematic programme. The implications for research in organic farming cannot be assessed at this early stage.

B. Review of the current situation

1. European research co-operation in organic farming

Research projects that focus on aspects of organic farming and that were funded under the second, third and fourth Research Framework Programmes of the EU are listed in Table 41. Table 42 shows projects that have an organic element, such as some experiments on organic farms or organic management as one variant in a trial, but do not entirely focus on organic farming. Other projects where all work is carried out under the conditions of conventional agriculture have been excluded from this analysis, even though

they might be of some relevance to organic farming.

A total of ten projects focusing entirely on organic farming and a further nine projects that have an organic element were identified through a search of the CORDIS database. The majority of organic projects were funded under the third Framework (AIR), whereas under the second (CAMAR) and fourth (FAIR) Framework only one organic project each succeeded in obtaining funding. As a comparison, a total of 189 projects were funded under the AIR programme. Given the comparatively high emphasis on organic farming in the working programme of FAIR it is worth noting that only one project researching organic farming systems was funded out of a total of 163 projects in the first three calls (selected out of 1.376 submissions). On the basis of the available material the reasons for this cannot be determined.

2. International co-operation and networks

The EU research funding included two concerted actions of major importance for the development of organic farming research: DOCEA, a network of centres for documentation of literature in ecological agriculture and ENOF (European Network of Organic Farming) for research co-ordination. The DOCEA concerted action received funding until 1997 and no further sponsorship to continue the activities has been secured yet; ENOF's funding continues until the end of 1998.

The regular bi-annual scientific conferences of IFOAM attract researchers in organic farming from all over the world. The conferences also act as a forum for debate of issues concerning standards and certification and a meeting point for traders and retailers.

The German speaking countries also hold a bi-annual scientific conference on organic farming research. The Nordic countries are increasingly co-ordinating their initiatives in research and academic training in organic farming through the NOVA (Nordic Forestry Veterinary and Agricultural University) and the Nordic Research Network for Ecological Agriculture that is funded by the Nordic Research Academy. One of the contributions of the Nordic countries is the publication of the newsletter *Research Notes on Ecological Agriculture in the Nordic countries (Forskningnytt)*, published in Nordic languages.

Table 41. European research projects in organic farming funded under CAMAR, AIR and FAIR.

Programme (Wave)	Area	CT N° Type ¹	Title	Countries	Period
FAIR (3)	4.1.3	1794 SC	Effects of the CAP Reform and possible further development on organic farming in the EU	DE, GB, DK, IT	1/3/97-30/6/00
AIR (1)	4.1.1	0051 CA	Advanced ecological farming systems, based on best practice with organic farmers' pilot groups	BE, NL, IE	1/3/93-28/2/97
AIR (1)	4.1.1	0576 SC	Viable organic stockless systems	FR, DE, GB	1/1/93-31/12/94
AIR (1)	4.1.1	0776 SC	Organic livestock farming, nutritional, environmental and economic implications of conversion	IE, GB, DE, NL	1/1/93-31/12/95
AIR (2)	4.1.1	0852 SC	On-farm development and evaluation of organic farming systems (incl. nutrient supply and weed control): the role of livestock and agro-forestry	DE, GR, ES, GB, FR	1/10/93-31/3/97
AIR (3)	4.1.1	1940 CA	Elaboration of standards for site specific fertilization systems in organic farming in Europe, based on long term field experiments	DE, DK, CH, SE, FI	1/1/95-31/12/97
AIR (3)	4.1.1	2135	DOCEA (Development of a strategy for co-operation and optimal documentation of and supply of literature on ecological farming)	NL, GR, IT, ES, GB, DK, IT, FR, SE	1/1/95-31/12/96
AIR (3)	4.1.1	2143 CA	ENOF (The European network for scientific research co-ordination in organic farming)	ES, IT, BE, DE, DK, FR, GB, SE, FI, GR, IE	1/1/95-31/12/98
AIR (2)	4.1.3	1210 CA	The landscape and nature production capacity of organic agriculture	NL, FR, GB, CH, NO, DE, ES	1/1/94-31/12/97
CAMAR (1)	4.3.1	0116	Valorization of pumpkin varieties under the perspective of the organic market	BE, FR, IE, ES	1/2/92-1/8/94

¹SC = shared costs; CA = concerted action.

Sources: CORDIS and European Commission.

Table 42. European research projects related to organic farming funded under CAMAR, AIR and FAIR.

Programme (Wave)	Area	CT N° Type ¹	Title	Countries	Period
FAIR (3)	4.1.1	2056 SC	Integrated and ecological field vegetable production, development of sustainable farming systems focusing on high quality production and minimum environmental impact	NL, IT, CH, PT	1/1/97-31/3/00
FAIR (3)	4.1.2	1832 SC	Low-input animal production, forage legumes	GB, FI, SE, DE	1/2/97-31/3/00
FAIR (1)	4.1.2	0274 SC	Implementation and effectiveness of EU Agri-environmental schemes under Regulation 2078/92.	DE, PT, DK, AT, FR, ES, GR, SE, CH	
FAIR (1)	4.2.1	0844 SC	Development of an integrated knowledge-based decision support system for differentiated agricultural products	GR, GB, NL, SE	
AIR (1)	4.1.1	0755 CA	Working group on integrated and ecological arable systems for EC and associated countries	NL, PT, AT, NO, SE, CH, BE, DK, DE, FR, GB, GR, IE, IT	1/1/93-31/12/96
AIR (2)	4.1.2	1299 SC	Reducing or eliminating agro-chemical inputs in efficient production of high quality produce with conventional, sustainable and organic farming systems	GB, DK, ES, FR	1/1/94-31/12/96
CAMAR (1)	4.1.1	0003	Study of the limits and potentials of systems and techniques of integrated and alternative agriculture	FR, NL, ES, FR	1/2/91-1/2/93
CAMAR (1)	4.4.1	0019	Biological control of fungal foliar diseases	DE, GB, GR, NL	1/2/91-1/2/94
CAMAR (1)	4.6.2	0119	The contribution of alternative farming systems to the future comparative advantage of farms in lagging regions of the community	GB, IE, GR, FR	1/1/92-1/6/94

¹SC = shared costs; CA = concerted action.

Sources: CORDIS and European Commission

3. National research programmes and co-ordination of organic farming research

In five EU (DE, DK, FI, GB, SE) and two non-EU (CH and NO) countries research on organic farming is currently part of a national programme, and in a further two countries (AT and FR) activities are co-ordinated at a national level. In Denmark and Finland, research activities are co-ordinated through one public research institution for organic agriculture. The Swiss and Norwegian governments have approved the research programmes of the respective private research institutes for organic farming. Great Britain and Sweden have dedicated research funding for organic farming. In Austria and Switzerland, a committee of all institutions that are involved in organic farming research co-ordinates the activities and gives recommendations for funding. In France, a private institute co-ordinates and disseminates results of applied research and in Spain organic farming is included in the national agricultural research programme. With a growing organic industry the situation is changing considerably in most countries with new initiatives being introduced whereas old programmes are phased out (Table 43).

4. Institutions involved and level of research activities

A range of institutions and organizations are conducting research in organic farming:

- Public research stations and institutes specialising in organic farming exist in Denmark and Finland. These are largely publicly funded and carry out a range of projects, as well as co-ordinating the research for organic agriculture in their country. The Centre for Sustainable Agriculture at Swedish Agricultural University has a similar role.
- Chairs of ecological agriculture at agricultural universities exist in 6 countries (AT, DE, DK, NL, SE, NO). All of these are also involved in teaching and research projects are funded from a variety of sources: public agencies, companies and private foundations as well as from core funding of the universities.
- There are six private research institutes in the study countries (AT, DE, GB, NL, CH, NO, see Table 44) that carry out research in organic farming for a variety of sponsors, public as well as private. The majority of the institutes have some project independent funding (foundation

or public support). All institutes maintain close links with the organic industry, FiBL and EFRC also support an advisory service for organic farming.

- Public research institutes for agriculture and related areas are involved in organic farming projects in most countries (AT, BE, DE, DK, ES, FI, GB, GR, IE, NL, SE and in the non-EU countries CH, NO). These projects are mainly publicly funded.
- University departments of agriculture and various other subjects in almost all countries (AT, DE, DK, ES, FI, GB, GR, IE, IT, NL, SE, CH, NO, CZ) have been involved in individual projects through contract work as well as through research carried out by postgraduate students.
- Technical institutes that are associated with a particular group of farmers (e.g. winegrowers) carry out applied work such as variety trials e.g. in France and Switzerland. Some of this work is publicly funded.
- Groups of organic farmers have been involved in applied research and development work in various countries (e.g. BE, FR, GR, CH, NO).

In addition there are a number of private foundations and institutions that support or carry out research work in organic farming.

Table 45 gives an overview of the level of research activities in organic farming in the various countries. There are some countries where the overall level of research activities can be regarded as high (AT, DE, DK, FI, GB, SE, CH, NO) whereas in some countries virtually no research in the organic area is carried out (ES, LU, PT, CZ). The remaining countries have some individual research projects.

5. Public expenditure on organic farming research

Table 46 shows the EC contribution to research projects in organic farming that have been listed in Table 41 and Table 42. Projects directly related to organic farming under AIR received 3.8 MECU (0.5 MECU for related projects). The total funding for the AIR programme was 125 MECU (EC, 1997). The spending for organic farming projects under FAIR was 1.1 MECU (5.0 MECU for related projects), whereas the total ongoing spending for agriculture, forestry and rural development under the EU FAIR programme is 260 MECU (EC, 1998).

Table 43. Countries with national research programme(s) and/or national co-ordination of organic farming research

AT	The FBL (<i>Forschungsinitiative im biologischen Landbau</i>) is a forum where all institutions that are active in the field are represented to discuss priorities and provide recommendations. It was established in 1991 and undertook a major review of all activities in 1994/95 (Lindenthal, et al., 1996).
DE	National research programme was introduced in 1998 to support research and development projects in agriculture and environmental protection: area dissemination of production methods for improvement of ecological agriculture (Announcement Nr. 02/98/51). Projects are required to follow EC Reg. 2092/91 or AGÖL standards, production methods to reduce environmental pollution, are profitable and transferable to other organic farms. The project has to be useful for the majority of organic farms in Germany, and must be accompanied by scientific research. Support covers 25 % of project costs (max 50 %) plus all costs of necessary scientific research.
DK	The Centre for Organic Farming Research was established in 1995. The main objective of the centre is to co-ordinate organic farming research. In particular a programme to initiate and maintain research on organic plant production and animal husbandry and on the connection between them, investigate the importance of organic farming for the environment and society, educate researchers, provide in-service training for advisors and teachers, and disseminate the results.
ES	The Ministry for Agriculture included organic farming in the listing of research priorities in 1996.
FI	The Research Programme for ecological agriculture for 1995-1997 and a preliminary research programme for 1998-2000. The main objective is to develop production methods, which are in line with definitions of organic agriculture, related to the specific conditions of Finland. This includes eight sectors: resource economy, nutrient economy, plant protection, cultivation techniques, horticulture, and animal husbandry, plant breeding and food processing. Main responsibility for the programme lies with the Partala Research Station for ecological agriculture, part of the Agricultural Research Centre of Finland.
FR	ITAB (Technical Institute for the Biological Agriculture), founded in 1982, co-ordinates applied research. ITAB's aim is to facilitate connections between the farmers and the research institutions and to disseminate research results at national level. ITAB co-ordinates applied work that is carried out by several technical institutes; part of ITAB is a documentation service on organic agriculture GEYSER.
GB	MAFF organic farming research programme for England and Wales was implemented in the late 1980s. The strategic objective is to help promote organic farming as a form of environmentally friendly production, and to provide a firm basis for government decisions nationally and within the EU. Specific objectives include the investigation of methods, costs and benefits of conversion; identifying sound methods of farming and processing, identifying and overcoming the main limiting factors for commercial organic production; investigation of the environmental impact of organic farming, and other issues relevant to the organic sector.
IE	(Johnstown Castle Research from 1990-1995; currently on hold. The purpose of the project was to investigate the levels of production, which could be achieved on the organic farm, and the economic feasibility of this method of farming.)
IT	In 1996, the Italian Group of Researchers in Organic Farming (GRAB-IT) was founded, which has currently 18 members. Its aims are to co-ordinate research efforts in the field of organic farming, and to organize workshops.
SE	Two programmes Ecological agriculture and horticulture production (<i>Ekologisk jordbruks- och trädgårdsproduktion</i> , Swedish Council for Forestry and Agricultural Research), and Environmental improvement of agriculture, organic farming (<i>Miljöförbättrande åtgärder i jordbruket, ekologiskt lantbruk, Sveriges Jordbruks Verket</i>) were implemented in 1997. The main objectives are to assist in achieving the goal set by the Government: 10% land area by the year 2000.
CH	The working programme of FiBL (covering 1994-1998) acts as a national programme as it has been approved by the government and is receiving substantial financial support. The main objectives of FiBL's working programme are to develop the organic farming system on different levels: soil management, plant nutrition and plant quality; plant production, weed and pest control, bio-diversity; animal husbandry; farm management and economy; landscape; advisory, training and inspection systems. The Federal Office of Agriculture has established a working group that co-ordinates projects in organic agriculture.
NO	NORSØK's programme for the development of ecological agriculture was formulated in 1997. The main objective is to further develop and disseminate knowledge concerning central problems within organic farming and to contribute to the increase in the production of organic products. Two new strategic research programmes (plant and animal health and plant nutrition) will start in 1998 in co-operation with other research institutes.

Source: Own data

Table 44. Private research institutes for organic farming in Europe

AT	Ludwig-Bolzmann Institute, Vienna.
DE	Research Institute for Bio-Dynamic Agriculture, Darmstadt.
GB	EFRC - Elm Farm Research Centre, Hampstead Marshall.
NL	Luis Bolk Institute for Bio-Dynamic Agriculture, Driebergen.
SE	Bio-dynamic research Institute, Järna (currently only limited research activity).
CH	FiBL - Research Institute for Organic Agriculture, Frick (previously Oberwil).
NO	NORSØK-Norwegian Research Institute for Ecological Agriculture, Tingvoll.

Source: Own data

Table 45. Research activities in organic farming in EU and three non-EU countries

Type of project	AT	BE	DE	DK	ES	FI	FR	GB	GR	IE	IT	LU	NL	PT	SE	CH	CZ	NO
University chairs ¹	1	0	5	4	0	0.5	0	0	0	0	0	0	1	0	3 ⁵	2	0	2
Contract research projects ²	✓✓	✓	✓✓	✓✓	✓	✓✓	✓	✓✓	✓	✓	✓	0	✓	0	✓✓	✓✓	✓	✓
Experimental farms ³	nd	0	>10	2	nd	2	nd	6	0	(1)	2	0	nd	0	6	1	0	2
On farm research ⁴	nd	nd	✓	✓	nd	✓	✓		✓		nd	0	✓	0	✓	✓	0	✓

✓ = existing ; nd = no data available.

¹ No of chairs of ordinary and associate professors.² ✓=1-20 projects, ✓✓= over 20 projects.³ No of farms, () currently on hold.⁴ ✓ = available.⁵ Established in 1997, not all positions have been filled.

Source: Own data

Table 46. EC contribution to European research projects in the area of organic farming under the AIR and FAIR programmes

Project Number	Type	EC-Contribution (MECU)
<i>Organic projects</i>		
FAIR-1794	SC	1.13
AIR-0051	SC	1.05
AIR-0776	SC	1.05
AIR-0852	SC	0.95
AIR-1940	CA	0.10
AIR-2135	CA	0.15
AIR-2143	CA	0.21
AIR-1210	CA	0.28
Total organic farming projects		4.92
<i>Organic related projects</i>		
FAIR-2056	SC	1.32
FAIR-1832	SC	1.26
FAIR-0274	SC	1.59
FAIR-0844	SC	0.87
AIR-0755	CA	0.37
AIR-1299	SC	0.10
Total related projects		5.52

Source: European Commission.

Public expenditure by individual countries on organic farming is summarized in Table 47 which is based on actual spending unless otherwise indicated. In Switzerland, the research budget was increased because of an increasing demand for organic products and growing awareness, which resulted in increasing political pressure. The budget in Great Britain is due to be increased as a result of increased commitment of the government to the organic sector.

In Denmark, the budget has been adjusted in several years because of increasing public awareness and the need for further research. No indication of any specific adjustments to the budget has been given from anywhere else. In several countries, private foundations have contributed towards research in organic farming (AT, DE, GB, SE, CH, CZ). The bio-dynamic

movement supports their own private research institutions in DE, NL and SE. Other research is funded by buyers of organic products, notably supermarket chains (AT, GB, CH).

Total spending on organic farming research in 1996 in the EU and individual countries has been estimated to be in the range of 15 MECU. The estimate does not include funding for university chairs.

C. Evaluation of research projects and research needs

The evaluation is based on published and unpublished reviews of organic farming research carried out prior to this project and observations by partners and subcontractors. Table 48 gives

Table 47. Public expenditure for organic farming research and development in the EU and three non-EU countries (k ECU)

Year	AT ¹	BE	DE ²	DK	ES ³	FI ⁴	FR	GB ⁵	GR	IE	IT	LU	NL	PT	SE ⁶	CH ⁷	CZ	NO
1993	nd	0	nd	1,199	0	328	nd	1,332	0	19	nd	0	nd	0	1,754	1,220	0	878
1994	99	0	nd	2,520	0	533	nd	1,736	0	38	nd	0	nd	0	1,747	1,517	0	943
1995	203	0	nd	1,664	0	613	nd	1,356	0	31	nd	0	nd	0	1,179	2,031	0	929
1996	86	0	nd	7,459	62	600	nd	1,955	0	13	nd	0	nd	0	nd	2,411	0	939
1997	106	0	nd	6,160	60	595	nd	2,142	121	27	nd	0	nd	0	3,294	2,895	0	1,010

nd=no data available; 0=no spending identified; figures are based on actual spending data unless otherwise indicated.

¹ The estimates included only the expenditure by the Austrian Ministry of Agriculture and do not include projects that were financed by other public bodies.

² Some data for the expenditure of special projects of the *Länder* are shown in the country appendix.

³ Budget for the two projects funded under the Sectoral Programme (1996-1999) are 14.7 and 2.3 MECU respectively, no national budget.

⁴ Estimate is based on budget for the Partala research station and does not include other research institutes.

⁵ Financial year from 6/4 to 5/4.

⁶ Financial year changed to calendar year in 1995; year 1995/96 covers 18-month period.

⁷ Includes projects at FiBL as well as other research institutions.

Source: Own data.

Table 48. Inventories of research projects and reviews of research priorities in the EU and three non-EU countries

AT	Review of research priorities and recommendations for future development. (Lindenthal; Vogl; Hess, 1996).
DE	A database on agricultural research projects in DAINET contains projects on organic, biological, ecological and alternative agriculture http://www.dainet.de/dainforen/landwirtschaft/oekologische_landwirtschaft/index.htm ;
DK	Review of research activities in organic agriculture (Kristensen; Hald, 1994); Eco-guide contains a list of research stations and projects (Borgen, 1997)
FR	Review of state of the art of organic farming research in France as part of larger report (Assouline et al., 1996)
GB	Review of all research projects and comparison with research priorities (Sharples; Stopes; Woodward, 1996)
IT	A review in the field of sustainable agriculture and organic farming, published by CEDAS (Folli; Nasolini; Q.R.?, 1998)
SE	Three inventories on ongoing organic farming projects (Höök, 1995; SJFR, 1991; SJFR, 1996). Action plan 2000 (Jordbruksverket, 1996)
CH	Working programme of all research planned between 1996 and 1999 (FiBL, 1996); unpublished internal report on ongoing research projects in organic farming (Fried et al., 1997)
NO	Evaluation of research activities for the Norwegian Research Council (NFR) (Henriksen; Mikkelsen; Simán, 1995)

Source: Own data.

an overview of national inventories of organic farming projects or reviews of research activities and priorities in eight countries. In addition three international reviews were considered (Expert Roundtable on Biological Farming Research in Europe, 1997); (Niggli; Lockeretz, 1996); (SJFR, 1997).

Farmers have to a large extent developed organic farming, unlike other technical innovations in agriculture where science has been the driving force for new developments. However, some researchers have considerably influenced the thinking of the organic pioneers in the past (Niggli; Lockeretz, 1996).

More recently research in organic farming systems has been recognized as very important for the development of the organic industry in Ireland, France (Assouline et al., 1996) and Austria (Lindenthal; Vogl; Hess, 1996). In countries with currently a low level of research activities (such as Greece and Ireland) the organic movement sees increasing investment in research as a priority so that the problem of a growing organic industry can be addressed.

Research priorities should be determined with the involvement of the organic industry as well as the research community and the allocation of funds should follow accordingly (Sharples; Stopes; Woodward, 1996; Lindenthal; Vogl; Hess, 1996).

Animal husbandry, economics and horticulture (especially fruit production) have been somewhat neglected in research in the past, possibly indicating the degree of difficulty in these particular sectors of coping with problems under organic management (Wynen, 1997).

Examples of research priorities for future work from Austria and Great Britain (Lindenthal; Vogl; Hess, 1996; United Kingdom Register of Organic Food Standards, 1995) include:

- Improved economic and resource efficiency;
- strengthening of self regulatory mechanisms;
- improving organic production in horticulture (including propagation systems);
- perennial crops (such as wine and fruit);
- animal husbandry and animal health (including external and internal parasite control);
- "problem solving research" for weed control (especially of perennial weeds);
- Monitoring the implications of conversion.

The IFOAM EU group was asked in June 1998 to submit its views on the main priorities for research and development of organic food production. Apart from already mentioned areas above, they included the following priorities:

- Alternatives to the use of copper-salts for the control of fungal diseases;
- evaluation of inputs;
- organic seed production and breeding without the use of non permitted inputs;
- assessment of EU policies on the organic sector (such as EC Reg. 2092/91);
- new concepts of sustainable land use and landscape development with organic methods;
- improved holistic food quality assessment and methods for the detection of GMOs (IFOAM-EU Working group, 1998).

Broader research priorities that are relevant to the organic sector as a whole as well as to policy makers are economic monitoring and studies of market development and the socio-economic implications of more widespread conversion.

Research projects on organic farming broadly fall into four categories:

- Highly applied, short-term projects addressing the questions that organic farmers face today by studying directly the production systems as they are on commercial organic farms;
- studies of the underlying principles of organic farms, to get a better understanding of how the system works and how it can be improved in the long term (Niggli; Lockeretz, 1996);
- research to support policy making;
- review and application of work that has been carried out in conventional agriculture and is of benefit to organic farming.

An increase in the number of research projects alone does not necessarily improve the situation for the organic farmers and the industry. Reviews of organic farming research in Great Britain, Sweden and Norway identified in each case approx. 30 projects, but a substantial number of projects did not produce any significant results and did not lead to scientific publications (Henriksen; Mikkelsen; Simán, 1995; Sharples Stopes; Woodward, 1996; SJFR, 1991). In all

three reports it was therefore concluded that there is a need for strategic planning of organic farming research. This would seem to apply to Germany as well, where a considerable number of research institutions carry out projects, but in the absence of any national co-ordination it is difficult to obtain information about the various projects and their results. Similar reasons led to the establishment of the Organic Farming Research Centre in Denmark that is now co-ordinating the organic research work under three programmes (strategic, user-oriented and system development for plant production).

There is also a need to review the methodology employed in the light of the topics and research priorities. Historically, research in organic farming has been carried out outside the traditional agricultural disciplines. The first researchers that showed interest in organic farming had good contact with the organic pioneers, but their peers exposed them to intense criticism and they usually continued their work in isolation from their scientific disciplines. Mainstream agricultural researchers have been critical of organic farming, convinced it would exhaust the soils and lead to severe pest and disease problems. As a result a large number of comparative trials were established, comparing organic farming with conventional agriculture, but those did little to solve the more practical questions of organic farmers (Niggli; Lockeretz, 1996).

There appears to be a contradiction between the desire for scientific comparisons and excellence on the one hand and the problem solving and applied research needs of the organic industry on the other. This was suggested as one explanation for the lack of involvement of the main agricultural research institute in France (Assouline et al., 1996).

Furthermore, it has been suggested that organic farming represents a paradigm shift in agriculture. This would imply a need to revise methodology as well as difficulties with the current institutional set up of research including research funding (Wynen, 1996), the establishment of specialist institutions for research exclusively in organic farming (see Table 44) would conform to this. On the other hand, an increasing number of researchers in several other countries are now working within mainstream agricultural institutions on projects that are relevant to organic farming. The often quoted "holistic" approach to organic farming research also needs further clarification (Niggli, 1997). Recognising the need FAO decided after a meeting in June 1997 to support a working group on the topic of "Research Methodologies

in Organic Farming", a first technical workshop will be held in September 1998 (Expert Roundtable on Biological Farming Research in Europe, 1997).

Several other institutional barriers for the advancement of organic farming research have been identified such as the lack of policies to support organic farming research; the reductionist approach that underlies the disciplinary structure of universities; lack of multi-disciplinary work; absence of networks for researchers in organic farming; lack of a united position of the organic sector and a lack of structure to foster good researchers in organic farming through supervision by experienced researchers in organic farming and peer review (MacRae, et al. 1989; Wynen, 1997).

Looking to the future, Niggli; Lockeretz (1996) and Lindenthal; Vogl; Hess (1996) concluded that in publicly funded research a shift away from comparative studies and increased emphasis on improving existing organic systems would be desirable. However, comparative work alongside studies of the conversion process will remain important in the area of economic research, as a data source for systems simulations (Zanoli, 1997) and to generate information on the impact of organic systems for interested conventional producers.

Finally, several authors emphasized the need not only to expand and improve the research, but ensure effective documentation and dissemination of all research results among farmers and all those involved in the organic movement (Expert Roundtable on Biological Farming Research in Europe, 1997).

D. Summary and conclusions

Farmers have developed organic farming, even though some researchers have played an important role in the past. Today, research involvement is considered vital for the future development of the organic industry. There is a need for organic farming research to work under applied scenarios and to maintain links with farmers and others in the organic sector so that effective two way communication of research needs as well as results is ensured.

Organic farming has been included as a topic for further research in the second, third and fourth Framework Programmes of the EU. A total of ten projects (CAMAR 1; AIR 8; FAIR 1) were identified that received funding under the three programmes including two concerted actions that aim to improve documentation (DOCEA) and co-

ordination (ENOF) of organic farming research in Europe.

In seven countries, research in organic farming is part of a national research programme, in a further two countries some national co-ordination of organic farming research takes place. In ten countries, the overall research activities in organic farming can be considered as significant and in most they are increasing. However, in some countries there is only limited activity to support the developing organic industry through research and development.

Shortcomings in a number of countries lie in the quality of some research, lack of dissemination, a lack of strategic planning and co-ordination that leads to failure to meet the research needs of the organic farming industry.

Research work falls in the broad categories of applied short-term projects, long-term studies of farming systems, research to support policy making and application of the results of conventional work.

Lists of research priorities include current problems of organic producers, as well as more long-term evaluations of the organic system and underlying principles. Specific issues vary according to the conditions in each country. Commonly recurring themes are various aspects of animal production especially animal health, horticultural techniques including fruit production and weed control. Long-term priorities include the economic and environmental impact of agriculture in general, and organic farming in particular, improved understanding of the self-regulatory mechanisms for pest and disease control, the development of species-appropriate and welfare-oriented but also economic animal production systems and socio-economic implications of widespread conversion.

Private and public research institutes and university chairs specialising in organic farming mainly conduct research in organic farming. Increasingly other public institutions that carry out general agricultural research are getting involved in organic farming projects.

The funding sources for organic farming projects are public as well as private, the latter ranging from buyers of organic produce to private foundations supporting organic farming or environmental issues in general. Total spending on organic farming research (excluding university chairs) in 1996 in the EU and individual countries has been estimated to be in the range of 15 MECU.

Limited research funding has been identified as a major barrier for future work. The disciplinary structure of agricultural research institutions and funding bodies and their preference for comparative experiments present further obstacles in meeting the industry's research priorities and supporting further development of the organic sector through research.

1. Future research

This report only provides a descriptive overview of the policy and regulatory environment for organic farming in the EU, and a preliminary assessment of some of the key issues identified. Future work on this research project will include:

- a more detailed analysis of the impacts on the development of organic farming of the individual measures described in this report;
- an assessment of the contribution that the growth in organic farming has made to current agricultural and environmental policy objectives;
- the development of a list of possible policy instruments suitable for influencing the development of organic farming;
- the identification of institutional and other factors that have contributed to the very different rates of development of organic agriculture in different countries, and
- an analysis of the potential impacts of future policy developments and expansion of the organic farming sector in Europe.

V. Conclusions and recommendations

Sustained growth or absorption?

The real dynamic for the organic sector

- a) The reality is that organic production and supply in the European context is only at its infancy. Even in the most celebrated national cases (e.g. Switzerland and Denmark) where rapid growth has occurred, the share of the consumer market is just over 2 per cent and the amount of agricultural land occupied is more than 10 per cent;
- b) it becomes increasingly clear from most of the descriptive research on organics that its development is based upon a series of largely unconnected factors. Most studies have over-

- concentrated upon 'the sector' as if it is a sector; when in fact, as this report demonstrates, it represents a significant generic category of food development. This incorporates production, processing, supply and retailing; yet most of the research still tends to be based upon the production focus of organics;
- c) this latter point has also tended to restrict the work which assesses, the real potential of this generic technology. It is still regarded, with some justification, as a rather ecologically esoteric agenda, clouded by political resistance. In fact it is not. It represents the biggest threat to the industrial model of food supply and provision;
- d) these points mean that it is currently very difficult to assess the true potential of organics given the *competitive mutation* associated with the interactions going on within both the industrial and alternative food sectors. Research on organics has, somewhat ironically, focussed far too much upon describing itself. In fact, its future lies in seeing the interactions with the industrial food sector; of course, at a time when the latter is also mutating in ways which attempt to deal with widespread and diffuse consumer concerns;
- e) it is clear from the analysis and review in this report that a much more focussed research and development agenda is emerging. There is no doubt that consumers will demand more organic products in Europe; but there are clear signs of some of the key factors which stimulate this development;
- f) these include:
- highly positive consumer organization and influence on the development in the market;
 - attempts to reduce the premiums on prices at least below 50 per cent of that charged by non-organics;
 - wide and agreed (state and local-authority supported) distribution of single and consistently applied certification procedures;
 - break-through factors and 'early gains' in achieving over 50 per cent of sales in some grocery sales;
 - new alliances and support from private firms (particularly the retailers) in assisting the above;
- g) this latter point also means that there are serious questions concerning how 'ecologically coherent' the organic sector can and will remain. The organic value-added market and processing system are crucial in this regard. They could steer a significant proportion of foods through the established retail-led chains. Alternatively, specific resistance to such developments from producers and consumers (and some evidence suggests government agencies) could 'protect' a segment of the organic sector by producing and sustaining alternative food supply chains;
- h) a wider tension in these developments, particularly concerning the rural and productive sphere is the degree to which organic innovation promotes sustainable integration of rural social and economic resources. There is a clear danger that it will lead, rather, to progressive fragmentation of food production and supply and consequently to more segmentation and intense competition among the corporate sectors. This is not an either/or scenario; we may see both co-evolving and colliding;
- i) these trends put renewed emphasis upon national, regional and local governance structures to help shape solutions. There is currently a tendency in the literature to treat organics as a somewhat surprising and new 'beyond-state' option which may solve some of the deepening problems inherent in state-supported global industrial food systems. However, as this preliminary analysis has begun to show, the 'rise of organics' represents a significant 'rear-view mirror' for policy-makers and power brokers. Its real development is out there to be developed; and its trajectory is far more tied to the political and social priorities bestowed by government. If nothing else, it represents a clear indication of the need to shape markets and institutions in the public as well as private interest;
- j) the sustained growth of the organic sector in Europe is intricately tied to the political commitments of state agencies in fostering both the production and consumption ends of the supply chain. So far, governments have variably encouraged organic farm conversions, but they have done little to follow this through by stimulating downstream research, development and financial support. This is left very much to the private sector; and particularly to the retailers. These strategies, and the degree to which they shape consumer choices will be crucial in sustaining the growth experienced in the 1990s.

VI. Bibliography

- AGRICULTURAL DEVELOPMENT AND ADVISORY SERVICE (1997). Organic Conversion Information Service Customer Satisfaction Survey. (Sin publicar), Bristol, ADAS, Market Research Team.
- ARBEITSGEMEINSCHAFT ÖKOLOGISCHER LANDBAU UND BUND UMWELT UND NATURSCHUTZ DEUTSCHLAND. (1997). Wasserschutz durch ökologischen Landbau - Leitfaden für die Wasserwirtschaft. Darmstadt. AGÖL and BUND
- ASSOULINE et al. (1996). Stimulating the implementation of environmentally sound agricultural practices in Europe. Château Jail; Theys.
- BAILLIEUX, P. and SCHARPE, A. (1994). Organic farming. Brussels. Office for Official Publications of the European Communities.
- BESSON, J.-M., ed. (1990). Biological Farming in Europe: an expert consultation. FAO (Italy). REUR Technical Series, 12.
- BUNDESAMT FÜR LANDWIRTSCHAFT. (1997). Die Ökoprogramme gemäss Landwirtschaftsgesetz Art. 31 b. Bern
- BORGEN, M. (1997). Organic-Guide 1997. Aarhus, Denmark. Organic Service Centre.
- BURTON, M., RIGBY, D. and YOUNG, T. (1997). Sustainable agriculture technologies: a quantitative analysis of adoption. In: Agricultural Economics Society Annual Conference. (? , 1997, Edinburgh) / Papers/. Edingurgh, ? pp. ?
- BYNG, J. (1997). Codex: setting global standards. In: IFOAM trade conference, (5th, 1997, Oxford). Proceedings. Tholey-Theley/Bristol, IFOAM/Soil Association. pp 30-32.
- CAMMARATA, A., SCHEELE, M.; MORARD, V. (1997). Agriculture and the environment. Brussels, European Commission, Working Notes on Common Agricultural Policy.
- CLERCQ, L. I. (1989). Omlägningsproblem vid övergång från konventionell till alternativ odling; problems when converting from conventional to organic agriculture. Växtodling, 7, 123.
- COMMISSION REGULATION 4115/1988: Official Journey of the European Communities no. L 361, 29 December 1988, p. 13
- COMMISSION REGULATION 746/1996: Official Journey of the European Communities no. L 102, 25 April 1996, pp. 19-27
- COUNCIL REGULATION 1760/1987: Official Journey of the European Communities no. L 167, 26 June 1987, pp. 1-8
- 1094/1988: Official Journey of the European Communities no. L 106, 27 April 1988, pp. 28-32
- 866/1990: Official Journey of the European Communities no. L 91, 6 April 1990, pp. 1-6
- 2092/1991: Official Journey of the European Communities no. L 198, 22 July 1991, pp. 1-15
- 2328/1991: Official Journey of the European Communities no. L 218, 6 August 1991, pp. 1-21
- 1765/1992: Official Journey of the European Communities no. L 181, 1 July 1992, pp. 12-20
- 2081/1992: Official Journey of the European Communities no. L 208, 24 July 1992, pp. 1-8
- 2078/1992: Official Journey of the European Communities no. L 215, 30 July 1992, pp. 85-90
- 2079/1992: Official Journey of the European Communities no. L 215, 30 July 1992, pp. 91-95
- 2080/1992: Official Journey of the European Communities no. L 215, 30 July 1992, pp. 96-99
- DEBLITZ, C.; PLANKL, R. (1997). EU-wide synopsis of measures according to Regulation (EEC) 2078/92 in the EU. Federal Agricultural Research Centre. Braunschweig.
- DUBGAARD, A.; HOLST, H. (1994). Policy issues and impacts of government assistance for conversion to organic farming: the danish experience. In: N. H. Lampkin; S. Padel The economics of organic farming. Wallingford, CAB International, pp 383-391.
- EC (1978). Council Regulation (EEC) No 1360/78 on producer groups and association

- thereof. Official Journal of the European Communities L166, 23, June, 78, 1-8.
- EC (1988) Commission Regulation (EEC) No 4115/88 laying down detailed rules for applying the aid scheme to promote the extensification of production. Official Journal of the European Communities L361, 29, December, 88, 13-17.
- (1988a) Council Regulation (EEC) No 1094/88 amending Regulations 797/85 and 1760/87 as regards the set-aside of arable land and the extensification of production. Official Journal of the European Communities L106, 27, April, 88, 28-32.
- (1990) Council Regulation (EEC) No 866/90 on improving the processing and marketing conditions for agricultural products. Official Journal of the European Communities L91, 06, April, 90, 1-6.
- (1991) Council Regulation (EEC) No 2092/91 of 24 June 1991 on organic production of agricultural products and indications referring thereto on agricultural products and foodstuffs. Official Journal of the European Communities L198, 22, July, 91, 1-15.
- (1991a) Council Regulation (EEC) No 2328/91 on improving efficiency in agricultural structures. Official Journal of the European Communities L 218, 06, August, 1-21.
- (1992) Council Regulation (EEC) No 2078/92 of the 30 June 1992 on agricultural production methods compatible with the requirements of the protection of the environment and the maintenance of the countryside. Official journal of the European Communities L215, 30, July, 92, 85-90.
- (1993) Council Regulation (EEC) No 2081/93 amending Regulation (EEC) No 2058/88. Official Journal of the European Communities L193, 31, July, 93, 5-19.
- (1994) Leader II. Notice to Member States 94/C (180/12), 44-55.
- (1995) The structural funds in 1995; seventh annual report 1996. Brussels, European Commission.
- (1996) Council Regulation (EEC) 2200/96 on the newly reformed EU regime for fresh fruit and vegetables. Official Journal of the European Communities L 297, 21, November, 96, 1-11.
- EC (1996a) Commission Regulation (EC) No 746/96 laying down detailed rules for the application of Council Regulation (EEC) No 2078/92 on agricultural production methods compatible with the requirements of the protection of the environment and the maintenance of the countryside. Official Journal of the European Communities L 102, 25, April, 96), 19-27.
- (1997) The agricultural situation in the European Union, 1996 report. Luxembourg, Office for official publications of the European Communities.
- (1997a) Council Regulation (EC) No 950/97 on improving the efficiency of agricultural structures. Official Journal of the European Communities L142, 2, June, 97, 1-21.
- (1997b) Council Regulation (EC) No 951/97 on improving the processing and marketing conditions for agricultural productions. Official Journal of the European Communities L142, 2, June, 97), 22-29.
- (1997c) Council Regulation (EC) No 952/97 on producer groups and associations thereof. Official Journal of the European Communities L 142, 2, June, 97), 30-39.
- (1997d) Report of the Commission to the Council and European Parliament on implementation of EC Reg. 2078/92 for agri-environmental measures. Report to STAR commission, COM (97)620. Brussels, European Commission.
- (1998). Proposals for Council Regulations (EC) 98/0107-98/0113 (CNS) concerning the reform of the common agricultural policy. COM (1998) 158 final 18, March, 1998. Brussels, European Commission.
- ERM (1997). Effects of CAP accompanying measures on bio-diversity and landscape in Northern Member States. Final Report to EC DGXI. London, Environmental Resources Management.
- EXPERT ROUNDTABLE /ON/ BIOLOGICAL FARMING RESEARCH IN EUROPE (1997, Braunschweig, Ger). (1997). Proceedings. FAO (Italy). REU Technical Series, 54.
- FIBL (1996). Arbeitsprogramme des Forschungsinstitutes für biologischen Landbau 1996-1998. Frick,

- Forschungsinstitut für biologischen Landbau.
- FITZPATRICK (1997) Mid-term evaluation: Development of organic farming (Measure 1.3 (e)). Dublin. Fitzpatrick Associates, Economic consultants.
- FLEISCHER, H.; SCHIRMER, G. (1996). Vorsorge statt Nachsorge. *Bio-land*, 96 (3): 22-23.
- FOLLI, A.; NASOLINI, T.; Q. R. ? (1998) Ricerca e sperimentazione in agricoltura sostenibile in Italia, *Annuario 1998*. Cesena, CEDAS-IAM.
- FOSTER, C.; LAMPKIN, N. (1998). Task 2.1: Organic land area, number of farms and enterprise structure in Europe. Draft Report ii to the European Commission for project Fair3-CT96-1794, Organic Farming and CAP). Aberystwyth, University of Wales. Welsh Institute of Rural Studies.
- FRIED et al. (1997). Report on ongoing research projects in organic farming. Bern, Swiss Federal Office of Agriculture. (sin publicar)
- GEIER, B. (1997). Reflections on standards for organic agriculture. *IFOAM-Ecology and Farming* no. 15: 10-11.
- HAMM, U.; MICHELSEN, J. (1996). Organic agriculture in a market economy; perspectives from Germany and Denmark. *Fundamentals of Organic Farming, Proceedings 11.th IFOAM Conference*, 1. IFOAM Ökozentrum Imsbach; Tholey-Theley.
- HENRIKSEN, K., MIKKELSEN, G.; SIMÁN, G. (1995) Evaluation of research on organic farming. Oslo. The Research Council of Norway.
- HÖÖK, K. (1995). Uppsala. Swedish Agricultural University.
- IFOAM. (1995). Basic standards of organic agriculture. Tholey-Theley, Germany. International Federation of Organic Agriculture Movements.
- IFOAM-EU working group (1998). Main priorities on research and development for organic food production. Brussels. IFOAM-EU.
- IPEE. (1997). Evaluation des effect des mesures d'accompagnement de la reforme de la PAC et des mesures communautaire de développement rural sur la biodiversité et les paysages dans les regions du sud de l'Unions européenne. Paris. Institute for European Environmental Policy.
- JASPER, U. (1998) Regionalisierung - Chancen und Risiken. *Ökologie & Landbau* 26 (1): 19-21.
- JOHANNSON, U. (1997) Personal communication. Senior organic advisor with Jordbruksverket, Sweden.
- JORDBRUKSVERKET (1996) Ekologisk produktion - Aktionsplan 2000. Rapport: 1996:3, Jordbruksverket; Jönköping.
- KALLIO, V. (1994). Developing methods of organic agriculture in Finland and Europe. Unpublished report. Helsinki. Department of Economics and Management, University of Helsinki. (Sin publicar)
- KNICKEL, K. (1996) Organic agriculture: only another discipline in higher agricultural education. In: *New Research in Organic Agriculture, Proceedings of 11th IFOAM Conference*. (N. H. Kristensen and H. Høgh-Jensen). IFOAM; Copenhagen, pp 161-167.
- KRISTENSEN, L.; HALD, P. K. K. (1994) Review on research activities in organic agriculture in 1994. Copenhagen. The Royal Veterinary & Agricultural University, Department of Agricultural Sciences, Centre for Ecology and Environment & Crop Science.
- LAMPKIN, N. H. (1990) *Organic Farming*. Ipswich. Farming Press.
- ; PADEL, S. (eds.) (1994). *The economics of organic farming*. Wallingford. CAB International.
- ; WEINSCHENCK, G. (1996). Organic farming and agricultural policy in Western Europe. *Fundamentals in organic agriculture, Proceedings of 11th IFOAM Scientific Conference Vol 1*. (T v Oestergard), IFOAM, Copenhagen, pp 259-270.
- (1996) Impact of EC Regulation 2078/92 on the development of organic farming in the European Union., University of Wales. Welsh Institute of Rural Studies., Working Paper, No 7
- (1996a) European organic farming statistics. Aberystwyth. University of Wales, . Welsh Institute of Rural Studies.

- LATACZ-LOHMANN, U.; FOSTER, C. (1997). From "niche" to "mainstream" - strategies for marketing organic food in Germany and the UK. *British Food Journal* 99 (8 & 9): 275-283.
- LINDENTHAL, T.; VOGL, C. R.; HESS, J. (1996). *Forschung im ökologischen Landbau*. Wien. Bundesministerium für Land- und Forstwirtschaft.
- LOCKERETZ, W. (1991) Information requirements of reduced chemical production methods. *American Journal of Alternative Agriculture* 6 (2): 97-103.
- MACRAE, R. J. et al (1989). Agricultural science and sustainable agriculture: a review of the existing scientific barriers to sustainable food production and potential solutions. *Biological agriculture and horticulture* 6: 173-219.
- MARSDEN, T. (1999). Rural futures: the consumption countryside and its regulation. *Sociologia Ruralis* 39 (4): 501-530.
- ; MURDOCH, J.; MORGAN, K. (1999). Sustainable agriculture, food supply chains and regional development: editorial introduction. *International Planning Studies* 4 (3): 295-301.
- NIGGLI, U.; LOCKERETZ, W. (1996). Development of research in organic agriculture. In: *Fundamentals of organic agriculture*. Proceedings of 11th IFOAM International Scientific conference, August, Vol 1. (T. v. Østergard). IFOAM; Copenhagen, pp 9-23.
- (1997). Organic agriculture research: state of the art and future priorities. In: *Expert Roundtable /on/ biological farming research (1997, Braunschweig, Ger.)*. Proceedings. FAO (Italy), REU Technical Series, 54; Rome, pp 55-56.
- OCIS (1996). *Organic conversion information service*. London. Ministry of Agriculture Fisheries and Food.
- PADEL, S. (1994) Adoption of organic farming as an example of the diffusion of an innovation; a literature review on the conversion to organic farming. University of Wales. Centre for Organic Husbandry and Agroecology. Discussion Paper, 94/1.
- (1997). Towards an extension model for organic farming. In: *Congress of the European Society for Rural Sociology (17th, 1997, Chania, Crete)*. Papers
- PADEL, S.; LAMPKIN, N. H. (1994). Conversion to organic farming: an overview. In: N. Lampkin and S. Padel. *The economics of organic farming: an international perspective*. Wallingford. CAB-International, pp 295-313.
- PARLIAMENT and Council Decision 1110/1994: OJ no. L 126, 18 May 1994, pp. 1-33
- PLS. (1992). Evaluation of Law no 363 10 June 1987 on organic farming by PLS-Consult. Copenhagen. Ministry of Agriculture, The Directorate of Agriculture;.
- POSCH, A. (1997). Making growth in organic trade a priority. The future agenda for organic trade. Proceedings of the 5th IFOAM conference for trade in organic products (T. Maxted-Frost), IFOAM and Soil Association, Tholey-Theley and Bristol, pp 9-12.
- PUGLIESE, P. (1997) Personal communication.
- RIQUOIS ?. (1997). *Pour une agriculture biologique au coeur de l'agriculture française*. Paris. Ministry of Agriculture and Fishery;.
- RÖLING, N. (1994). Facilitating sustainable agriculture: turning policy models upside down. In: I. Scoones, J. Thompson; R. Chambers. *Beyond farmers first*. London. Intermediate Technology Publications, pp 245-247.
- RUNDGREN, G. (1997). Accreditation: the key to making global standards work? In: *The future agenda for organic trade*. Proceedings of the 5th IFOAM conference for trade in organic products. (T. Maxted-Frost). IFOAM and Soil Association; Tholey-Theley and Bristol, pp 32-33.
- SANTUCCI, F. (1993). Back to the future: giving advice on organic farming. In: *European seminar on extension education, (11th, 1993)*. Proceedings. Aarhus, Denmark, Institute for Agricultural Information pp 193-206.
- SCHMID, O. (1994). Agricultural policy and impacts of national and regional government assistance for conversion to organic farming in Switzerland. In: N. H. Lampkin and S. Padel. *The economics of organic farming*. Wallingford. CAB International; pp 393-408.
- SCHMID, O (1996). The challenge to an advisor and lecturer on organic agriculture, 1.

- IFOAM, Oekozentrum Imsbach; Kopenhagen
- SCHULZE PALS, L.; BRAUN, J.; DABBERT, S. (1994). Financial assistance to organic farming in Germany as part of the EC extensification programme. In: N. H. Lampkin and S. Padel. Economics of organic farming: an international perspective. Wallingford. CAB International, pp 411-436.
- SHARPLES, A.; STOPES, C.; WOODWARD, L. (1996). Survey of organic farming research and development in the UK 1993-1996. London and Hamstead Marshall. MAFF and Elm Farm Research Centre.
- SJFR. (1991). Alternativa produktionsformer i jordbruket och trädgårdsnäringen; utvärdering av forskningen 85/86-91/92. Stockholm. Swedish Council for Forestry and Agricultural Research,
- (1996). Ekologisk jordbruks- och trädgårdsproduktion; utredning om kunskapsläge, pågående forskning och behov av fortsatt forskning. Stockholm. Swedish Council for Forestry and Agricultural Research,
- (1997) Ecological agriculture and horticulture: research in seven european countries. Stockholm. Swedish council for forestry and Agricultural Research.
- SPOHN, L.; GEIER, B. (eds.) (1995). Directory of training opportunities in organic agriculture for temperate climate zones. Tholey-Theley, Germany. International Federation of Organic Agricultural Movements.
- STAR COMMISSION(1997). Support for organic farming under Regulation 2078/92; working document of the STAR Commission, VI/6692/97. Brussels. European Commission,
- SVENSSON, I. (1991) Statligt stöd till alternativ odling 1989, en enkätundersökning. Alternativ odling, 59 (7). Research Committee for Alternative Agriculture; Swedish University for Agricultural Science, Uppsala.
- SYLVANDER, B. (1993). Quality products: an opportunity for rural areas. Leader Magazine No 3.
- TATE, W. B. (1994). The development of the organic industry and market: an international perspective. In: N. H. Lampkin; S. Padel. The economics of organic farming: an international perspective. Wallingford. CAB International, pp 11-24.
- THOMAS, F.; SCHNEIDER, M.; KRAUS, J. (eds.) (1995). Kommunen entdecken die Landwirtschaft. Alternative Konzepte, 94.
- UNITED KINGDOM REGISTER OF ORGANIC FOOD STANDARDS (1995). List of R&D priorities for organic production., London. UKROFS
- UMSTÄTTER, J.; DABBERT, S. (eds.) (1996). Policies for landscape and nature conservation in Europe; an inventory. In: Workshop on landscape and nature conservation (1996, Hohenheim, Stuttgart). /Documents/. Hohenheim University
- VOLK, R.; AALTONEN, S. (1998). Interim evaluation of the programme for processing and marketing of agricultural products in Finland. Pellervo Economic Research Institute.
- WOODWARD, L.; FLEMMING, D.; VOGTMANN, H. (1996). The challenges of organic agriculture: reflections on the past, outlook for the future. Fundamentals of Organic Farming, Proceedings 11th IFOAM scientific conference Vol 1 (T.v. Oestergard), Copenhagen, pp 259-270
- WYNEN, E. (1996). Research implications of a paradigm shift in agriculture: the case of organic farming. Canberra. Centre for Resource and Environmental Studies.
- WYNEN, E. (1997) Research on biological farming methods in Europe: perspectives, status and requirements. In: R. Krell Biological farming research in Europe. FAO (Italy) REU Technical Series No 54. pp 6-49.
- ZANOLI, R. (1997) Comments on the report of Els Wynen and overview of the ENOF research project. In: Expert Roundtable / on/ biological farming research (1997, Braunschweig, Ger.). Proceedings FAO (Italy)
- ZNAOR, D. ed. (1994) The contribution of organic agriculture to sustainable rural development in Central and Eastern Europe. In: International Seminar (1993, Czech Republic). Proceedings. Edens, N.L., Avalon Foundation

VII. Annex: Examples of leading product development in the organic sector

1) Baby food launches include a complete alternative range to mainstream products

Table 49. Organic baby food new product launches, 1998-1999

Company	Product	Country	Description
HiPP KG	Baby food	Austria	HiPP KG has introduced Babys-Erster-Keks, a 100%-organic biscuit for babies. The product, described as the first fully organic biscuit on the market, is complemented by Märchenkeks, a children's biscuit made in the shapes of fairy tale characters and also completely organic.
Baby Organix	Baby food	UK	Baby Organix has introduced 100% Natural Organic Breadsticks, a product created especially for babies. Described on-pack as an infant's ideal introduction to finger foods, the breadsticks are made by hand in Italy using traditional methods, unbleached flour and no added salt. Also containing extra virgin olive oil, the product is presented in a 100g cardboard box at a recommended retail price of £0.99.
Earth's Best Baby Food	Baby food	USA	Earth's Best Baby Food is a new organic and natural baby food line launched to compete directly with Gerber products. All of the ingredients in the foods, intended for babies of four months and older, conform with the Californian Organic Foods Act 1990. A 113g single-serve portion contains 60 calories and retails at US\$0.83.

Source: Datamonitor Worldwide Innovations Network

The new product launches in the European baby food market were both biscuits for babies while the US launch was the launch of familiar products under a new brand. The launch of an entire range of baby products indicates that the demand for organic baby food is on the increase. Earth's best is a subsidiary of H.J. Heinz that operates under its original name to prevent disillusioning Heinz's consumers with conflicting brand messages.

2) Shelf stable organic bakery products combine convenience with health

Table 50. Organic bakery new product launches, 1998-1999

Company	Product	Country	Description
Biofournil SA	Bakery	France	Biofournil has launched a range of part-baked, shelf-stable organic bread products. Requiring only an additional ten minutes in the consumer's oven, the breads can be kept at room temperature for three months and are produced from stoneground flour and unrefined Guérande salt, before being partially baked in a stone oven. Ten varieties are available, from baguettes to rolls, with retail prices starting at around FF10.
Doves Farm foods Bakery	Bakery	UK	A range of organic cookies has been introduced by Doves Farm Foods. The range, comprising Roman, Muesli, Seven Seed, Oat & Honey and Lemon varieties, is sold in 150g packs with a recommended retail price of £1.39.

continue ▾

Table 50. Organic bakery new product launches, 1998-1999 (continuation)

Company	Product	Country	Description
Doves Farm foods	Bakery	UK	Doves Farm Foods has launched a range of organic, tray-baked flapjacks, comprising Butter Flapjack, Fruity Apple & Sultana Flapjack, Coconut Choc Chip Flapjack and Choc Fruit & Nut Flapjack. Suitable for vegetarians and vegans, the 150g products are presented in a pack of six, retailing at £1.29.
New Earth	Bakery	UK	Food manufacturer New Earth has launched two new hemp-based products in the shape of Hemp Flapjack and Organic Hemp Muesli. The flapjack is an 80g bar comprising 50% organic ingredients, while the muesli is presented in a 500g pack and comprises exotic fruit and hemp seeds. The products are aimed at health-conscious consumers and retail at £0.49 and £2.79 respectively.
Walkers Shortbread Ltd	Bakery	UK	Three companies have produced new products for Duchy Originals, the Prince of Wales' food company which supports charities and sustainable agriculture. Walkers Shortbread of Scotland has created a range of three organically produced wheat biscuits, in almond, lemon and highland shortbread varieties, retailing at between £1.85 and £2.15.
Portland Pretzel Co	Frozen bakery	USA	Portland Pretzel Co. has introduced frozen organic pretzels into its range, available in classic (salted) and garlic variants. The pretzels are presented individually wrapped within a bright yellow 227g box containing two. The product retails at a price two-to-three times higher than that of regular frozen pretzels on account of its organic nature.

Source: Datamonitor Worldwide Innovations Network

The bakery market has had two particularly notable new product launches. The Biofournil part baked bread addresses the issue of the shorter shelf life of organic products and combines this with the consumer need for convenience. Portland frozen pretzels also fit the convenience trend and have a relatively long shelf life.

3) Canned food launches include children's meals

Table 51. Organic canned food new product launches, 1998-1999

Company	Product	Country	Description
Biona Quality Organic Food Ltd.	Canned Food	UK	Organic Peeled Tomatoes and Organic Chopped Tomatoes, two new brands of canned Sicilian tomatoes, have been launched in the UK by Biona. The tomatoes are available in 400g cans retailing at £0.55.
Organic Valley Foods	Canned baked beans	UK	Organic Valley Foods has launched Organic Baked Beans, specifically targeted at children. The 420g tin of naturally produced beans is sold at a recommended retail price of £0.80.
Organic Food Products Inc	Canned Ready Meals	USA	Organic Food Products, Inc. has launched a children's ready meal in a can. Grand Millina's pasta rings in tomato sauce, made with certified organic ingredients, are presented in a 425g can containing two servings and retailing at US\$1.89.

Source: Datamonitor Worldwide Innovations Network

The examples noted in the canned organic food market demonstrate that new product development is focused on providing alternatives for existing conventional products. Two of the launches were aimed at children demonstrating the opportunity this market presents. Also notable is the large price differential in a traditionally price focused category.

4) Organic cereals incorporate the multi-ingredients offered in conventional cereals

Table 52. Organic cereal new product launches, 1998-1999

			Description
Doves Farm foods	Cereals	UK	Doves Farm Foods has launched an organic breakfast cereal range aimed at children, comprising Multi Flake, Noughts & Crosses and Rice Pops. Multi Flake is a cereal flake made from wheat, rye and oats and sold in a 375g pack, Noughts & Crosses is a mixed-grain cereal in the shapes of O and X, covered in a chocolate glaze and sold in a 275g pack, and Rice Pops are crisped rice pieces in a vanilla coating, also sold in a 275g box. All three retail at £1.69.
GranoVita	Cereals	UK	Classic Flakes, Sunny Honey, Wheat Pearls and Choco Hits are four new cereal brands launched in the UK by GranoVita Cereals. All products are organic and retail at between £1.50 and £1.87.
W Jordan's (Cereals)	Cereals	UK	Jordan's Organic Muesli has been launched by W Jordans (Cereals), with ingredients including coconut, hazelnuts, oats, pumpkin seeds, raisins, sultanas and toasted wheat flakes. The product is presented in 500g box featuring depictions of the ingredients and retailing at £2.01.
Nature's Path	Cereals	USA	Nature's Path has introduced a range of organic cereals entitled Instant Hot Cereal. The range includes Multigrain Raisin Spice, Heritage Raspberry, Apple Cinnamon, Maple Nut, Apple Cranberry and Flax N' Oats varieties.

Source: Datamonitor Worldwide Innovations Network

The introduction of new organic cereals are noted for their multi-ingredients attribute which is difficult in a market where sourcing even basic organic products in sufficient quantities is difficult. The new products cater primarily for adults although the Doves Farm ranges are aimed at children as well.

Table 53. Organic condiments new product launches, 1998-1999

Company	Product	Country	Description
Crabtree & Evelyn (London) Ltd,	Condiments	UK	Crabtree & Evelyn has added six new preserves retailing at around £2, such as traditional lemon curd and fine cut blood orange marmalade.
W P Hartley	Condiments	UK	Hartley's has launched Organic Strawberry Jam and Organic Orange Marmalade into its spreads portfolio. Presented in a 340g glass jar, both products retail at £1.29.

Source: Datamonitor Worldwide Innovations Network

5) Organic confectionery launches have additional benefits

Table 54. Organic confectionery new product launches, 1998-1999

Company	Product	Country	Description
A Egger Sohn Süßwaren & Naturmittel GmbH	Confectionery	Germany	Austrian confectioner A. Egger Sohn has launched 'Biobonbons' onto the German market in three flavours. The sweets, made with organically-grown ingredients, are available in Honey, Alpine Herb and Lemon & Mint flavours in 75g packets.
Green & Black	Confectionery	UK	Kaoka SA has launched three ethically sound chocolate bars. The three variants are Dark Chocolate, Milk Chocolate and Maya Gold, marketed under the Green & Black's brand name. Maya Gold is a dark chocolate with a delicate orange flavouring and a hint of spice that is rich but not excessively sweet. The 100g bars retail at £1.59 and carry assurances by Fairtrade that Kaoka does not exploit Third World workers and by the Soil Association, certifying the organic nature of the ingredients.
Newman's Own Inc	Confectionery	USA	The Paul Newman's brand of foods has entered the confectionery market with Newman's Own Organics, a range of chocolate bars. The ingredients are all labelled organic and the pack claims all post-tax profits go to charity. The bars weigh 85g and cost US\$2.29 each.

Source: Datamonitor Worldwide Innovations Network

Bio bonbons meet the high demand for functional confectionery in Germany with the launch of these organic sweets that are positioned as better for you and contain functional ingredients such as honey which soothes the throat and mint which helps mask bad breath. Both the chocolate products are marketed with an ethical positioning. For Newman's chocolate, the fact that proceeds will go to charity encourages the consumer to pay the premium on organic chocolate.

6) Organic dairy launches dominate NPD in the organic food and drinks retail market

Table 55. Organic dairy new product launches, 1998-1999

			Description
Milchwerke Berchtesgadener Land-Chiemgau eG	Dairy	Austria	Milchwerke Berchtesgadener Land has launched Haltbare Bio Milch, the first ever UHT organic milk presented in a Tetra Slim carton. Treated using a gentle heating process to ensure minimal loss of flavour, the new milk is marketed in Germany, Austria and Italy, presented in predominantly green packaging
Besnier SA	Dairy	France	A new UHT organic milk has been launched by Besnier SA under its Lactel brand name. Lait Bio is semi-skimmed and packaged in a 1 litre recyclable plastic bottle, for a retail price of FF5.90. The bottle bears an AB mark.
Gervais Lait Nactalia	Dairy	France	Gervais-Nactalia is launching an organic milk, available in three varieties: full-fat, priced at FF7.60, semi-skimmed at FF6.80 and skimmed at FF6.75.
Triballat Noyal	Dairy	France	Triballat Noyal is to launch a range of organically produced dairy products in March, entitled Vrai. Included in the 'real' range are natural yoghurt, lemon and vanilla yoghurts, 20%-fat fromage frais, 0%-fat natural and fruit yoghurts, fat-free fromage frais, crème fraîche de Normandie and a number of chilled desserts including crème caramel and rice pudding. The products are free of colorants and preservatives.
BZ Bio-Zentrale	Dairy	Germany	The Gut & Gerne range of organic dairy products has been re-packaged by manufacturer BZ Bio-Zentrale. The returnable glass containers previously used for the company's curds, milk and yoghurt have been replaced with disposable plastic packaging. The labels of the whole range have been made more colourful and modern, and the re-launch is BZ's response to the shift away from returnable bottles in the German dairy industry as a whole.
Bio 1a	Dairy	Germany	Bio 1a has launched a range of organically produced dairy products onto the German market, under the Bergquell Naturhöfe brand name. The range, comprising milk, fruit yoghurts, butter, cheese, whipping cream and fromage frais, is presented in packaging featuring a uniform typeface and the Bergquell Naturhöfe logo placed prominently on each pack to enhance recognition.
Breisgaumilch GmbH	Dairy	Germany	An organic fresh milk called Die Fallers has been launched by Breisgaumilch of Freiburg. The milk takes its name from a soap opera which can be seen in south-west Germany and is available in a 1 litre returnable bottle for DM1.99 excluding deposit. Die Fallers is pasteurised, not homogenized and contains at least 3.8% fat. Breisgaumilch plans to launch a range of organic products.
Fromi-GmbH	Dairy	Germany	Fromi GmbH of the Franco-German border town, Kehl, has launched a variety of French organic cheeses onto the German market. The range comprises Comté AOC (of verified origin), Tomme d'Auvergne, Feuille de Dreux, Morbier, Reblochon de Savoie AOC, Galette, St. Nectaire AOC, Munster Géromé AOC and Roquefort AOC Papillon. In addition, the company has introduced a separate range of French cheeses for the self-service aisle, comprising Petit Camembert, Camembert du Calvados, Roquefort le Papillon, a range of goat's cheeses, Chaource Fromi and Pont l'Eveque. All are presented in small sizes ideal for self service.
Gervais Danone	Dairy	Germany	Gervais Danone has re-launched its Jahreszeit (Season) range of yoghurts to contain milk sourced from organic farms. Available in cherry, strawberry, raspberry, vanilla, banana, peach, plum and fruits of the forest flavours and presented in 175g tubs, Jahreszeit is the first widely available range of its type to be made with organic milk. The entire range was re-packaged in the New Year in an innovative tub produced from sugar beet and is 100% biodegradable. The tub decomposes into water, humus and carbon dioxide.

continue ▶

Table 55. Organic dairy new product launches, 1998-1999 (continuation)

		Country	Description
HiPP KG	Dairy	Germany	Früchte Duett is a new fruit yoghurt and fromage frais dessert, aimed at babies but also suitable for older children and adults. The product consists of organically grown fruit and organic yoghurt or quark in two separate layers. Furthermore, the gentle processing of the milk component, Früchte Duett means that the product does not need to be kept refrigerated. It is available in yoghurt & fruit, apple & mango with quark and peach & apricot with quark varieties.
Milchwerke Berchtesgadener Land-Chiemgau eG	Dairy	Germany	The Demeter range of organic yoghurts has been extended with the introduction of four new varieties. Apple & pear, apricot, apple strudel and plum, with the temporary exception of apricot on account of a poor harvest. The yoghurts contain no added sugar and are presented in 150g pots with a recommended retail price of DM1.29.
P van der Sterre Kaashandel	Dairy	Germany	An organic cheese has been launched by van der Sterre of the Netherlands, entitled Eden. The new cheese contains 48% fat and is produced from cow's milk. Natural and mixed herbs varieties are available. Eden is supported during its introductory phase with point-of-sale material and sampling events.
Rewe Zentral AG	Dairy	Germany	Rewe, the supermarket chain, has extended its Füllhorn private label range, to include two new dairy products. Alongside the organic milk and yoghurts previously available, the dairy part of the range now comprises whipping cream and fromage frais in low-fat and cream-enriched varieties. Both products are presented in plastic tubs.
Söbbeke	Dairy	Germany	BioBoi, Germany's first organic impulse ice cream, has been launched by Söbbeke in two variants. Made only with organic ingredients including milk, cream and eggs, the product is sweetened with concentrated agave juice. Sold in health food stores, the vanilla & chocolate and vanilla, almond & chocolate lollies have a recommended retail price of DM3 each.
Rachelli	Dairy	Italy	The Italian company, Rachelli, has launched an organic ice cream called Rachelli Bio. The ice cream is made with naturally produced raw materials and available in a number of flavours.
Del Rancho	Dairy	Mexico	Del Rancho has launched a range of organic products including an organic fat-free milk. The milk, targeted at young people, will be launched with an introductory price of US\$7.40. The launch will be supported with a sampling programme in self-service outlets.
Boermarke BV	Dairy	Netherlands	The first wholly organic ice cream in the Netherlands has been introduced by Boermarke BV. Produced exclusively with organic ingredients, the hand-held ice creams are available in vanilla, chocolate, strawberry, cinnamon, mocha and straciatella varieties, with a retail price of HF11.75 per ice.
Alvis Bros	Dairy	UK	Alvis Bros has extended its Lye Cross cheese range with the launch of organic Double Gloucester. It is currently available exclusively through wholefood and healthfood stores, but listings with the major multiples are being sought.
Buxton Foods	Dairy	UK	Buxton Foods has extended its Stamp Collection brand name into the dairy market with the launch of an organic cheese called Troy. The hard cheese, made from sheep's milk, is presented in a 110g pack and sold at a recommended retail price of £2.49.
Coberco Zuivel	Dairy	UK	Coberco Zuivel has introduced a range of organic dairy products called NatuurBest, comprising whole and half-fat milk, yoghurt and buttermilk. The products, presented in 11 cartons with a uniform design differentiated only by the colour and the name of the variety, carry the Eko seal from Skal, the independent organic inspection authority of the Netherlands. NatuurBest whole milk retails at HF11.99, half-fat milk at HF11.79, yoghurt at HF12.39 and buttermilk at HF11.79

continue ▶

Table 55. Organic dairy new product launches, 1998-1999 (continuation)

		Country	Description
Green & Black	Dairy	UK	Green & Black has introduced the first organic ice cream approved by the Soil Association to the UK. The first flavour is Chocolate, made from dark chocolate, organic double cream and vanilla. The cocoa beans for the chocolate come from the Amazonian Rainforest and are grown using organic farming methods. Chocolate is now available in 500ml tubs at a retail price of £3.99, and the range will be extended in future to include new flavours.
Provamel	Dairy	UK	Provamel, the soya milk, yoghurt and dessert manufacturer, has launched Organic Rice Drink. It is dairy and lactose-free and aimed at those allergic to milk or intolerant to lactose. Organic Rice Drink is packaged in 1 litre carton and will retail at £1.49 in Sainsbury and health food stores.
Rocombe Farm Fresh Ice Cream	Dairy	UK	Rocombe Farm Fresh Ice Cream, has launched smoked salmon & chips-flavoured organic ice cream. The ice cream is made with real pieces of smoked salmon and French fries.
Skåne Dairy	Dairy	UK	Mill Milk Oat drink, the non-dairy milk substitute, has been re-launched by Skåne Dairy in organic classic and organic fibre variants. The lactose-free drinks contain no sugar and have low fat and cholesterol contents. Formulated with artesian well water, oats and rapeseed oil and presented in a one-litre carton, the drink has a recommended retail price of £1.30.
Swedish Farmers	Dairy	UK	Swedish Farmers has launched its Swedish Organic Ice Cream brand in the UK. The organic ice cream is available in vanilla and blueberry variants and has a retail price of £2.99 for 500ml. Cartons of the ice cream carry the Soil Association symbol.
West Country Creamery	Dairy	UK	A range of organic whole and semi-skimmed milk has been launched by West Country Creamery. The products are presented in one-pint and one-litre cartons.
Yeo Valley Organic Co.	Dairy	UK	A frozen natural yoghurt has been added to Yeo Valley Organic Co's existing frozen strawberry yoghurt. Retailing at £1.99, the product is presented in a 500ml plastic pot.
Galaxy Food Corporation	Dairy	USA	The first organic, individually wrapped cheese slice has been introduced into the American market by Galaxy Foods Co, Florida, under the Wholesome Valley Organic brand label. Available in packs of 12 slices, the product contains only 50 calories per slice and is made from natural cheese.
Howler Products	Dairy	USA	Howler Products has launched Organic Gelato, a range of gourmet Italian ice cream including vanilla bean, mocha chocolate chip, Aztec cappuccino, dark forest chocolate, Mayan blackberries & cream, chocolate & hazelnut and chocolate orange passion varieties. The ice cream is presented in a one-pint carton and sold at a recommended retail price of US\$3.79

Source: Datamonitor Worldwide Innovations Network

The dairy product market has had the majority of new product launches in the organic food and drinks market over the last year. These products have ranged from unprocessed milk to yoghurts, fromage frais, cheese and ice cream and desserts. While these new product launches are all alternatives of ranges already available in the conventional dairy market, the number and variety of launches signifies the importance of the organic dairy market. In addition, it suggests that there is sufficient supply to develop new products other than plain milk and yoghurts.

Notable launches include those by Triballat, which focus on the needs of the health-conscious consumer. The introduction of fat free yoghurts and fromage frais in the organic sector has gained

Triballat the leading position in the French organic chilled desserts category. The company has also launched products targeted at the premium market where it has a strong position in the conventional chilled desserts category with products such as Crème Brulee. Triballat has managed to combine the key consumer trends of convenience, pleasure and health for its conventional and organic product lines.

Other innovative new organic products include Mill Milk Oat drinks launched by Skåne dairy. The lactose free drinks contain no sugar and have low fat and low cholesterol contents. They are formulated with artesian well water, oats and rapeseed oil for consumers who are intolerant to lactose. This is an example of a product that offers two attributes that are an alternative to conventional milk. The first is the fact that the product is organic and secondly that it is a non-dairy product. Mill Milk Oat drinks are Swedish Farm Assured and guarantee traceability.

7) Organic beverage product launches are primarily range extensions

Table 56. Organic beverages new product launches, 1998-1999

Company	Product	Country	Description
Mount Hagen	Drinks - coffee	UK	New from Mount Hagen is Organic Café, a coffee derived from 100% organically-grown highland arabica coffee beans. Described as having a mild, natural aroma, the coffee retails at £2.89 for a 100g pack featuring an illustration of a parrot.
Nerada	Drinks - tea	Australia	Nerada has introduced two new varieties of tea in the shape of Organic and Royal Devonshire. Organic is derived from pure organic South African tea, while Royal Devonshire contains only tea grown in Australia. Both have a retail price of A\$2.85 for a 100g box containing 50 bags and are currently available at the introductory price of A\$2.69.
Mitsui Norin	Drinks - tea	Japan	Mitsui Norin has introduced an organic tea in Japan. Yuki Sabai Kocha tea bags are made with tea leaves grown in organic tea gardens which have been inspected by the Institution for Marketecology, an international organic certification organization. The 40g pack contains 20 tea bags and has a retail price of ¥348.
Clipper Teas	Drinks - tea	UK	Clipper Teas has launched Organic Tea, bagged tea available in regular and Earl Grey varieties. The former, containing Assam, Indian and Sri Lankan teas, is described as having a 'full flavour and aroma,' while the latter, which blends Sri Lankan tea and oil of bergamot, is a refreshing beverage. The plain tea retails at £1.69 for a 125g box of 40 bags, Earl Grey at £1.69 for a 125g box of 50.

Source: Datamonitor Worldwide Innovations Network

8) Organic ready meals are primarily vegetarian

Table 57. Organic frozen ready meals new product launches, 1998-1999

	Product	Country	Description
J Sainsbury	Frozen ready meals	UK	Sainsbury has introduced Organic Tagliatelle with Garlic Mushrooms and Caramelised Onions under its Organic Meal range. Produced to Soil Association standards, the chilled ready meal is microwaveable and retails at £2.29 for 300g. Penne with Roasted Vegetables in a Rich Tomato Sauce is also available.
Amy's Kitchen Inc.	Frozen ready meals	USA	Amy's Kitchen has launched Pocket Sandwiches, a range of filled 128g pastry pockets suitable for vegetarians and made only with organic ingredients. The products, intended to appeal to health-conscious and busy consumers, are premium-priced. The range comprises spinach & feta, roasted vegetable, veggie pepperoni pizza and cheese pizza, each retailing at US\$4.45.
Amy's Kitchen Inc.	Frozen ready meals	USA	Amy's Kitchen has launched Amy's Organic Crust & Sauce Cheese Pizza Pocket Sandwich in America. The pocket sandwich, filled with low-fat mozzarella and an organic pizza sauce, is shelved in the freezer. This is a premium product targeted at consumers who desire convenience but are also concerned about their health. The 128g single serving retails at US\$1.99.

Source: Datamonitor Worldwide Innovations Network

Organic ready meals are amongst the most innovative organic products for two primary reasons:

- the ability to secure multiple organic ingredients necessary for ready meals;
- the technical ability to process products that fall within the boundaries set by the EU Regulation 2092/91 to ensure the organic certification of a product.

Both of the reasons identified act as limiting factors in the development of any innovative and processed organic food or drink. It is therefore interesting to note that all the products launched are ready meals that do not include meat products. Organic meat is in short supply in all countries examined due to factors related to the costs of conversion and production. The price premiums on meat further tarnish the attractiveness of launching a product that targets the mass market. These new product launches fit the trend towards convenient and ready-to-heat meals observed in the conventional food industry.

9) Organic juices tend to include citrus fruits

Table 58. Organic juices new product launches, 1998-1999

Company	Product	Country	Description
Neu's Fruchtsäfte	Juice	Germany	Neu's Fruchtsäfte has introduced Bio Multisaft, an organically-produced mixed fruit juice comprising apple, orange, banana, peach and maracuya. The drink is presented in a 750ml glass bottle featuring an on-label picture of a traditional German landscape and retailing at DM2.69.
Del Monte Foods	Juice	Italy	Del Monte has launched a range of nectars made with fruit from controlled cultivation areas. It has also launched a range of organic nectars and pure fruit juices under the Sanafrutta brand name.
Dan International	Juice	UK	Dan International has launched Pressed Organic Apple Juice. The product is presented in a 1 litre and 330ml glass bottle, retailing at £1.99 and £0.99 respectively.
Libby's	Soft drinks	UK	Libby's has launched Organic Pure Fruit Juice in apple and orange varieties. The juice is presented in a one-litre carton featuring a large picture of a fruit depending on the flavour and retails at £1.19.
Horizon Organic Dairy	Juice	USA	Horizon Organic Dairy has launched an organic chilled fruit juice range entitled Horizon Organic. The range comprises orange juice with or without pulp, and ruby red grapefruit juice, each presented in a 100%-recyclable carton with a re-sealable lid.
Organa Beverage Co.	Juice	USA	The Organa Beverage company has launched a range of organic fruit juices, including Pink Lemonade Persuasion and Tropical Tease Punch varieties. The drinks, made with organic ingredients, are presented in 16-oz. bottles.
Organic Food Products Inc	Juice	USA	The Organic Food Products company has launched a range of organic juice drinks under the Cinagro label. The range, made with fruit and vegetables, is available in Apple Carrot Smoothie, Total Tomato, Carrot/Lemon-Lime, and Veggie Array varieties, all sold in 32-oz. bottles.

Source: Datamonitor Worldwide Innovations Network

Organic juice product development is confronted foremost with the difficulty of securing supply in sufficient quantity required for juicing. As the demand for organic fruit and vegetables is increasingly outstripping supply in most European countries, there is often little produce left over for juices. Further, it is usually the crop that is seen as unfit for sale in its whole form that is selected for the production of juices unless a manufacturer has a plantation specifically for juicing. In the case of organic produce, these fruits are likely to be much smaller in size and therefore a large quantity is required. In addition, most juices contain some citrus fruits and in Europe, these are primarily derived from Spain and Italy. These factors impact upon the price of the juices which may often be twice as expensive as a conventional juice product.

10) Functional organic soft drinks attract the health driven consumer

Table 59. Organic soft drinks new product launches, 1998-1999

Company	Product	Country	Description
Alpenmilch Salzburg GmbH	Soft drinks	Austria	Alpenmilch Salzburg has launched Ja Natürlich, a new organic drink, onto the Austrian market. The new-age beverage is made with sweet whey, rosehip purée and green tea for a unique flavour. The chilled product, presented in a 0.5l Tetra Pak, retails at öS13.90.
Vitagermine	Soft drinks	France	Vitagermine has launched an organic iced tea entitled Thé Bio. The drink, made with organic ingredients, is available in peach, mint and jasmine variants, presented in 50cl glass bottles.
Santa Cruz Brewing Company	Soft drinks	UK	Santa Cruz has launched Santa Cruz Organic, a range of naturally produced soft drinks including Lemonade, Orange Mango and Tropical Guava variants. The lightly carbonated drinks, certified as organic by the Soil Association, are presented in 355ml cans which depict the relevant fruit.
Hain Pure Food	Soft drinks	USA	Hain Food Group's VigorAid Nutritional Drink range has been extended with the addition of a chocolate mocha variety. Containing organic soy, the ready-to-drink beverage is lactose-free and contains 25 vitamins and minerals including isoflavones, amino acids and antioxidants (A, B and C). Marketed under the WestSoy brand name, the product is presented in a single-serve 8-oz aseptic box.

Source: Datamonitor Worldwide Innovations Network

Of the soft drink product launches described above, two are particularly notable. VigorAid by Hain Pure foods and the new age beverage produced by Alpenmilch for Billa's exclusive label Ja! Natuerlich.

Both these products can be described as functional and the manufacturers have managed to secure supplies of a multitude of organic ingredients for these innovative drinks. VigorAid caters for a more niche market as the drink has the primary benefit of being lactose free. The inclusion of 25 vitamins and minerals positions the drink as an organic nutraceutical. This is one of the most advanced soft drinks to be launched in both the conventional and organic soft drinks markets.

VigorAid is comparable to XCel the isotonic sports drink enriched with 10% aloe vera. XCel launched by Coastal Health-Age Beverages in the US also contains vitamin C and a number of B vitamins. While XCel is promoted as a sports drink, it is also described as a nutraceutical for the reason that it contains a number of vitamins and minerals that have a functional property. The Ja! Natuerlich drink also contains green tea and can therefore be described as functional. Green tea has antioxidant properties and is a widely used ingredient in nutraceutical products.

11) Range extensions and introductions are the focus of organic vegetable launches

Table 60. Organic vegetables new product launches, 1998-1999

Company	Product	Country	Description
Biona Quality Organic Food Ltd.	Vegetables	UK	Biona Quality Organic Food has launched Organic Chick Peas in water. The product is presented in a 400g can and sold at a recommended retail price of £0.85.
Biona Quality Organic Food Ltd.	Vegetables	UK	Biona Quality Organic Food has launched Biona Organic Red Kidney Beans in water. The product is presented in a 400g can and sold at a recommended retail price of £0.85.
Waitrose	Frozen vegetables	UK	Waitrose has launched a range of frozen organic vegetables under its own brand name, comprising Waitrose Organic Whole Green Beans, Garden Peas, Sweetcorn and Cauliflower. The vegetables are presented in 500g plastic packs, retailing at £1.19 each.
Waitrose	Fruit & Vegetables	UK	Waitrose has launched Organic Italian Tomatoes under its own name, available in whole and chopped varieties. The plum tomatoes are presented in a 400g can retailing at £0.55.

Source: Datamonitor Worldwide Innovations Network

Whilst there have been a multitude of new organic fruits and vegetables introduced across Europe, these products have been selected as indicators of the activity in the fruit and vegetable markets. Organic lines are highly seasonal and there are a large number of products introduced and withdrawn each month. The launches that have been noted here all have the property of extended shelf life. One of the most frequent complaints about the quality of organic products is the short shelf life and the impact upon freshness.

Canned fruit and vegetables are shelf stable and have the advantage of prolonged freshness. While frozen organic vegetables are not particularly innovative and have been available in the UK for over a year, with Iceland being the first to launch a range of organic vegetables, this launch demonstrates that organic lines are beginning to match conventional lines in terms of shelf life.

PUBLICACIONES DEL PROYECTO GLOBAL

SERIE DOCUMENTOS

- Nº 1** O Contexto Macro da Dinâmica de Inovação do Sistema Agroalimentar no MERCOSUL - Ampliado
- Nº 2** Trayectoria y Demandas Tecnológicas de las Cadenas Agroindustriales en el MERCOSUR Ampliado - Cereales: Trigo, Maíz y Arroz
- Nº 3** Trayectoria y Demandas Tecnológicas de las Cadenas Agroindustriales en el MERCOSUR Ampliado - Oleaginosas: Soja y Girasol
- Nº 4** Trajetória e Demandas Tecnológicas nas Cadeias Agroalimentares do MERCOSUL Ampliado - Carnes: Bovina, Suina e Aviar
- Nº 5** Trajetória e Demandas Tecnológicas nas Cadeias Agroalimentares do MERCOSUL Ampliado - Lácteos
- Nº 6** Trayectoria y Demandas Tecnológicas de las Cadenas Agroindustriales en el MERCOSUR Ampliado - Vino y Frutas: Uva de Mesa y Pasas
- Nº 7** Trayectoria y Demandas Tecnológicas de las Cadenas Agroindustriales en el MERCOSUR Ampliado - Hortalizas: Tomate Fresco y Procesado
- Nº 8** Producción, Mercados, Regulación y Tecnología en los Rubros Orgánicos
- Nº 9** Demandas Tecnológicas, Competitividad e Inovação no Sistema Agroalimentar do MERCOSUL Ampliado
- Nº 10** Tendencias y Demandas de Tecnología Ambiental en Eco-regiones Predominantes del Cono Sur
- Nº 11** Tendencias y Papel de la Tecnología en la Agricultura Familiar del Cono Sur
- Nº 12** La Oferta Tecnológica de las Principales Cadenas Agroindustriales en el MERCOSUR Ampliado
- Nº 13** Tendencias en la Organización y el Financiamiento de la Investigación Agrícola en los Países Desarrollados
- Nº 14** Los Sistemas Nacionales de Innovación Agropecuaria y Agroindustrial del Cono Sur: Transformaciones y Desafíos
- Nº 15** Los Institutos Nacionales de Investigación Agropecuaria del Cono Sur: Nuevos Ambitos y Cambios Institucionales

En forma paralela a la presente se publicó la serie Resúmenes Ejecutivos compuesta por los mismos títulos mencionados anteriormente. Complementando las publicaciones del Proyecto Global se editan, además, tres trabajos. Primero, el marco conceptual, metodológico y operativo del Proyecto. Segundo, reflexiones sobre la trayectoria y oportunidades futuras del PROCISUR. Por último, la síntesis general de los estudios realizados.

**Programa Cooperativo
para el Desarrollo Tecnológico
Agropecuario del Cono Sur**

Argentina

Chile

Bolivia

Paraguay

Brasil

Uruguay



Banco Interamericano de Desarrollo

*Departamento de Desarrollo Sostenible
División de Medio Ambiente*

Departamento de Integración y Programas Regionales

J^{ntat} *Instituto para la Integración de América
Latina y el Caribe*

PROCISUR

Andes 1365 Piso 8 - Tel. (598-2) 902 0424 - Fax (598-2) 900 2292 - E-mail: sejecutiva@procisur.org.uy - <http://www.procisur.org.uy>
Casilla de correo 1217 - 11.100 Montevideo - Uruguay