Danish Research Centre for Organic Farming

Status Report 2003 and Application for Continuation in 2004

For research projects financed by grants from
The Directorate for Food, Fisheries and Agro Business
under the Danish Ministry of Food, Agriculture and Fisheries

1. Research program

Research in organic farming 2000-2005 (DARCOF II)

2. Project title and number

FØJOII-20
Project no. III.1
Consumer Demand for Organic Foods – Domestic and Foreign Market Perspectives

3. Head of project

Mette Wier
Research Professor
Danish Research Institute of Food Economics
Rolighedsvej 25, DK-1958 Copenhagen

4. Participating institutes

FOI (Danish Research Institute of Food Economics)
Rolighedsvej 25, DK-1958 Copenhagen
Tel. 35 28 68 00
Fax 35 28 68 01
e-mail mew@foi.dk

AKF, Institute of Local Government Studies - Denmark
Nyropsgade 37, DK-1602 Copenhagen V
Tel. 33 11 03 00
Fax 33 15 28 75
E-mail mw@akf.dk

Institute of Economics, University of Copenhagen
Studiestræde 6, DK-1455 Copenhagen K

Tel. 35 32 30 70
Fax: 35 32 30 64
E-mail: Martin.Browning@econ.ku.dk

GfK Danmark A/S,
Sylows Allé 1, DK-2000, Frederiksberg
Tel. 38 32 20 00
Fax: 38 32 20 01
E-mail: Henrik.Stender@GfK.dk

Centre International de Recherche sur l'Environnement et le Développement (CIRED)
45 bis, avenue de la Belle Gabrielle, F-94736 Nogent sur Marne, Frankrig
Tel. (33) 1 43 94 73 73
Fax (33) 1 43 94 73 70
E-mail: Millock@centre-cired.fr

Aalborg University (AAU)
Fibigerstræde 1, DK-9220 Aalborg Øst
Tel. 96 35 81 85
Fax: 98 15 53 46
E-mail: Ingeman@socsci.auc.dk

5. Other project staff

Research director Professor Lars Gårn Hansen
AKF, Institute of Local Government Studies - Denmark
Nyropsgade 37, DK-1602 Copenhagen V
Tel. 33 11 03 00
Fax 33 15 28 75
E-mail lgh@akf.dk

Senior Research Fellow Kjeld Høgsbro
AKF, Institute of Local Government Studies - Denmark
Nyropsgade 37, DK-1602 Copenhagen V
Tel. 33 11 03 00
Fax 33 15 28 75
E-mail keh@akf.dk

Research Fellow Laura Mørch Andersen
AKF, Institute of Local Government Studies - Denmark
Nyropsgade 37, DK-1602 Copenhagen V
Tel. 33 11 03 00
Fax 33 15 28 75
E-mail lma@akf.dk

Professor Martin Browning
Institute of Economics, University of Copenhagen
Studiestræde 6, DK-1455 Copenhagen K
Tel. 35 32 30 70
Fax: 35 32 30 64
E-mail: Martin.Browning@econ.ku.dk

Consultant Henrik Stender
GfK Danmark A/S
Sylows Allé 1, DK-2000, Frederiksberg
Tel. 38 32 20 00
Fax: 38 32 20 01

E-mail: Henrik.Stender@GfK.dk

Chercheur Associé Katrin Millock
Centre International de Recherche sur l'Environnement et le Développement (CIRED),
45 bis, avenue de la Belle Gabrielle, F-94736 Nogent sur Marne, Frankrig
Tel. (33) 1 43 94 73 73
Fax (33) 1 43 94 73 70
E-mail: Millock@centre-cired.fr

Associate Professor Jan Holm Ingemann
Aalborg University (AAU)
Fibigerstræde 1, DK-9220 Aalborg Øst
Tel. 96 35 81 85
Fax: 98 15 53 46
E-mail: Ingeman@socsci.auc.dk

PhD scolar Chris Kjeldsen
Aalborg University (AAU)
Fibigerstræde 1, DK-9220 Aalborg Øst
Tel. 96 35 81 85
Fax: 98 15 53 46
E-mail: ckj@socsci.auc.dk

6. Project period (month, year)

Start of project: 2000
End of project: 2004

7. Midterm description of the project, its results and progress, and application for continuation in 2004

Project summary

In ***Work Package 1***, we study household demand for organic foods. The Danish market for organic foods is relatively mature, meaning that it does not suffer seriously from the supply shortages and barriers, which dominate most of the markets outside Denmark. The well-functioning Danish market makes it possible to collect and analyse reliable data on purchases. Our study distinguishes itself by being based on observations of stated as well as actual purchasing behaviour. The project applies information at the individual household level (utilising panel data of 2000 households' daily purchases of a large number of organic as well as conventional foods during 1997-2001), which makes a detailed and informative approach possible. In addition, the purchase data are supported by a questionnaire, surveying households in the very same panel (response rate 77%) for information on attitudes, stated values and food habits. Thus, we utilize a household level panel data set with daily registration of food purchases combined with preference information elicited from panel members through a questionnaire.

Background variables make it possible to model demand dependence on household characteristics such as income, geographic location, occupation, age, number of children, etc. Furthermore by combining the detailed registration of consumption behavior with elicited information on underlying attitudes and valued attributes, we hope to be able to shed new light on the structure and relative importance of various motives for purchasing organic foods within various consumer segments. We intend to focus specifically on (1) purchasing motives (personal health, animal welfare, environmental effects, etc.), (2) attitudes towards organic convenience food and underlying processing technology, and (3) attitudes towards conventional versus alternative sales channels.

An estimated demand system including explicit representation of valued good attributes and underlying attitudes makes it possible to evaluate different information and labeling strategies in addition to more traditional evaluation of the demand effects of prices and demography. We also exploit the possibility of confronting willingness to pay information elicited through a CV-design with revealed demand behavior of the same group of households.

In the work package we conduct similar analyses in one or two neighboring countries, for the following reasons: first, it is highly relevant to explore export markets for Danish organic producers, i.e. identification of foreign consumer preferences and market barriers; second, the importance of specific market factors such as sales channels or labeling of organic products, can be analyzed through comparison between countries that differ with respect to these factors. We have access to British GfK household panel purchase data of almost as good quality as the Danish GfK data.

In 2003, we have particularly focused on:

- Identification of differences in purchasing motives, attitudes towards convenience food and towards alternative sales channels and processing technology and in the demand (and in its price sensitivity) between different consumer groups dependent on age, number and age of children, income, education, number of preschool children and place of residence.

- Examinination of differences in purchasing motives, willingness to pay, store choice and the importance of socio-demographic variables for different types of organic products.

- Analyzing the effect of policy instruments such as levies, subsidies, information campaigns and different types of labeling depending on both market conditions like sales channels as well as on consumers' socio-demographic characteristics and purchasing motives.

- Examining differences in people's confidence in organic product labeling among different consumer groups.

In 2003/2004 we will continue

- Elaborating and analysing household panel purchase data from GfK for a selected export market (UK).

- Analyzing differences in food consumption, consumer preferences and confidence in organic product labeling from country to country, and identification of key factors behind the differences. Of particular interest is differences in food culture (favorite types of food, attitudes towards imported goods, preferences of prepared/unprepared products etc.), and differences in sales channels (whether the products are sold in supermarkets, through alternative sales channels like health-food shops, food co-ops, farm shops or markets).

- Make scenario calculations.

In ***Work Package 2****,* we focus on alternative production, distribution and sales channels. The expansion of organic farming has resulted in a number of organic producers establishing alternative processing and distribution networks, in a search for interested consumers. There can also be identified cases, where consumers have established alternative food networks, in a search for interested producers, who will participate in a closer and more obligating cooperation for both parties. There can also be found cases, where development of producer-consumer relations in organic farming aims at creating local or regional development. The purpose of WP2 is to describe and analyse the possibilities and barriers, these innovative initiatives encounter, and to investigate their potential for reformulating the role and function of existing institutions and policies, aimed at enhancing sustainable development on a local or regional scale.

The project is comprised of three main elements. First, a historical description of the development of the relations between organic farming and its societal context (consumers, other nodes in the agro-food network, local communities etc.). Secondly, case studies will be conducted, where a number of relevant examples among recent pioneer initiatives, aiming at developing producer-consumer relations, are selected for a detailed study. Thirdly, an analytical part, where the selected cases are compared and related to general development trajectories of contemporary society.

Six cases have been selected for conducting the case studies, including Thiese Dairy, Aurion Bakery, the organic food terminal at Tinglev, Aarstiderne.com, Spidsroden and Landbrugslauget.

The activities in 2003 were mainly focused on producing data on these cases. Various types of data have been collected on the selected cases, such as qualitative interview data with selected actors from various activity areas in the selected food networks, company accounts, telephone interviews, participants observation and various written documentation (popular articles, homepages, etc.).

In 2003 we
- complete case studies of the selected cases
- collect further quantitative data on the market for organic products on an aggregated level

In 2004 we will
- prepare working papers for presentation at conferences
- prepare drafts for journal articles
- visit University of Cardiff 2-4 months– contact has been inititated
- write the PhD dissertation

Table A.1: Work package list (from application)

No.	Work package title	Participants*	Budget (1,000 DKK)	Start	End	Deliverable No:
1	Consumer preferences and demand: potentials and barriers for market expansion	AKF/FOI, KU, CIRED, GfK	3,730	2000	2004	1,2,3,5,6,7,8 ,9,10,11,13, 14,15,16,17, 21,22,23,24, 25,26,27,28
2	Alternative distribution channels: driving forces and potentials	AAU	500	2001	2003	4,12,18, 19, 20

* Responsible participants are underlined.

Objectives and expected achievements

The overall goal is to assess the long-term potential of demand for organic food from Danish agriculture. Thus, we will attempt to identify the market potential at home and abroad and identify the conditions of utilizing this potential - including the effects of various policy instruments, sales channels and information strategies. In order to accomplish these objectives, the project is divided into 2 work-packages:

Goals for WP1 (Consumer preferences and demand: potentials and barriers for market expansion):
To analyze consumer demand for organic foods, including estimation of a system of household demand functions for organic foods with explicit representation of valued good attributes and underlying attitudes. Domestic as well as foreign demand is considered. Special attention is given to

- Evaluation of the effect of policy instruments, such as levies, subsidies, labeling and consumer evaluation,
- Identification of the relations between purchasing motives and willingness to pay
- Examination of consumer attitudes towards industrially manufactured organic food, specifically convenience food/prepared meals versus alternative small-scale manufacturing and distribution.

Goals for WP2 (Alternative distribution channels: driving forces and potentials):

- To identify driving forces behind “alternative” and “small-scale” market initiatives, their opportunities, including institutional and structural limits for further innovations.

C. Midterm results and progress

C.1 Description (summary) of main results and conclusions

For details on results in 2000-2002, se Midterm Status report. Main results in 2003 are as follows:

Work Package 1:

In WP1, we have accomplished the following:

- Surveyed previous studies on consumption of organic foods
- Identified main prerequisites for growth in consumption of organic foods
- Carried out focus group interviews
- Designed and tested the questionnaire on 400 households
- Redesigned and submitted final questionnaire to the GfK household panel (2000 households)
- Received, documented and elaborated data from the GfK household panel (response rate 79%)
- Analyzed the organic market, based on data from the GfK household panel
- Compared actual and stated willingness to pay for various products
- Estimated a model determining willingness to pay for organic foods
- Carried out macro- and micro-estimations to estimate price-and budget sensitivity, and the importance of household characteristics
- Carried out estimations of consumer valuation of milk characteristics (organic/non-organic, fat content, taste)
- Estimated a model to evaluate the importance of environmental and animal welfare labeling on the egg market
- Received, documented and elaborated data from the British GfK household panel (15.000 households)
- Conducted a two-day workshop and meetings in the coordination group on a regular basis.

Fore more details on results during 2000, 2001, and 2002, se Midterm Status Report

In more details, we have achieved the following results:

Elaboration and documentation of purchase data
The primary data source in this project is "GfK – ConsumerScan (Dansk HusstandsPanel)". Each week households in the panel report their shopping to GfK, and state whether each good purchased is organic or conventional. The working paper explains the nature and contents of the panel data. It gives a general overview of the information available in the data, and as well as examples of the data recorded by GfK. In addition to data on household purchases, GfK has the following background information on households: demographic and socio-economic characteristics, attitudes to food and shopping patterns, eating patterns and media habits. We have access to these data at their most detailed level starting in 1997. The very detailed observation level provides a wealth of information, but, on the other hand, it implies a considerably amount of time to elaborate the data.

In 2003, we received and elaborated British GfK/TNS purchase panel data. The panel consists of daily registrations 15000 households' purchase behaviour during 2001-2003 (two years of weekly purchase information). Selected grocery goods are (organic as well as conventional) vegetables, fruit, milk, yogurt, and eggs. These are the most important organic good categories, which all together is purchased by 60% of the British population. Socio-demographic variables are social class, household size, housewife age, child presence and geographic region. In addition, we have comprehensive information on store choice.

Results from combining purchase data and questionnaire data
The uniqueness of our study is the availability of detailed self-reported consumption diaries and the opportunity of connecting questionnaire answers with these at family/person level. This allow us to construct a demand model for the individual consumer based on a richer/deeper utility function specification including underlying consumer attitudes, perceived good attributes and information gathering skills/attitudes. Compared to simple statistics, such as the average market share of different egg types, econometric estimations make it possible to disentangle the effect of labels from the effects of e.g. differences in prices. Main results are as follows;

Are organic buyers different?
In the study, we compare organic buyers with non-buyers, to identify main differences between the two groups. We define buyers as consumers holding an organic budget share (all food types) higher than 2.5%, following the definition of "medium- and heavy users" applied in other Danish studies. Heavy users hold organic budget share higher than 10%, and constitute 13% of all households. Medium users hold organic budget share between 2.5% and 10%, and constitute 28% of all households. Light users hold organic budget share lower than 2.5%, and constitute almost half of all households. Finally non-users have no organic consumption at all and constitute 10% of all households

Not surprisingly, organic buyers are more health concerned, more focussed on residues, animal welfare, and environmental attributes, less focussed on low prices, and more often they prefer domestic products, compared to non-buyers. Origin is important to most consumers, and 72% would rather buy conventional domestic fruit and vegetables than organic foreign fruit and vegetables. Thus, the origin attribute commonly overrules the organic attributes – this holds to a higher degree for non-buyers, though. Buyers are more often members of organizations protecting nature and organizations protection animal welfare, and they recognize and notice the Nordic Swan Label (an environmental label) more often than non-buyers. In the main, we find that organic buyers also behave (and think) more environmentally friendly in other areas. Finally, fruit and vegetables (conventional as well as organic) constitute a higher share in their diet – and meat (conventional as well as organic) constitutes a lower share.

Who consumes what?
Different household groups (distinguished by organic budget shares as described above) demand different types of organic goods. Thus, organic butter, meat, fruit and coffee (note, all products holding relatively high organic price premiums) are primarily purchased by heavy users. In contrary, medium and light users are responsible for the major part of organic milk, eggs and bread (note, all products holding relatively low organic price premiums). Thus, even though

medium and light users hold much lower organic budget shares for these products than heavy users do, the number of medium and light users is so much higher than the number of heavy users that their organic consumption exceeds the consumption of heavy users.

Dynamic pattern
Consumption of organic goods (all types) increased until 1999, where after it fell and stagnated on the level of 1998. Behind this development, considerable differences across household types and product types are observed. Thus, the drop in 1999 was due to decreasing consumption of meat, bread, flour, pasta, butter, yogurt and cheese. In contrary, consumption of organic coffee and milk has increased, while consumption of eggs, fruit and vegetables was relatively stable. It is primarily light and medium users that are responsible for the increasing consumption of organic milk, while heavy users are responsible for the increasing consumption of coffee.

Most households have changed their organic consumption considerably during 1997-2001. Thus, around one third of the households being heavy users in 1997, had turned into medium or even light users in 2001. Actually, the drop in 1999 was primarily due to heavy users cutting down their organic consumption. However, new heavy users have been enrolled from the light and medium user groups, making heavy users constitute a slightly increasing share of all households. Furthermore, more than half of the households being non-users in 1997 had, already in 1999, turned into light or medium users.

Danish organic label
The national Danish organic label is well known – 93% of all consumers recognise it. In general, people have a good understanding of the organic rules. However, consumers in the main believe that the label is more comprehensive than it actually is. Surprisingly, there are almost no significant differences in knowledge of the rules behind the organic label between buyers and non-buyers. Most consumers (59%) have general confidence in Danish products with the Danish organic label (significantly more buyers than non-buyers). However, only 29% have general confidence in foreign products carrying the same label, though. Trust in organic products without the label is low – especially, for foreign products. Around half of the consumers believe that the rules are good enough to ensure animal welfare, nature and health. Only few consumers (12-13%) disagree in these statements. However, generally respondents would prefer organic rules to be stricter than today, especially in relation to pesticide/medicine application compared to e.g fertilizer application. Significantly more buyers than non-buyers prefer stricter rules. Finally, significantly mores buyers than non-buyers trust other labels such as “guaranteed salmonella free”, “ensuring animal welfare”, etc.

Perception and valuation of organic good attributes
Consumers may hold **use values**, such as utility from taste, health and/or freshness, i.e. private good attributes which can only be enjoyed by actually consuming (eating) the product. **Non-use values** are in our study **public good** values related to improved environment and/or animal welfare.

According to consumers’ own statements, non-use values are assigned around twice as much weight on the “importance scale” compared to use values. This result holds for specific product types, as well as for organic goods in general. Comparing specific use and non-use value types reveal that environmental and animal welfare attributes are equally important. For use values, health attributes are most important, taste second most important, and finally freshness the least important.

Before jumping to the conclusion that people purchase organic foods from environmental and animal welfare concern reasons, it may be useful to do some additional analyses. To find out what these findings means for actual willingness to pay on the real market, we combine information on stated values for organic goods in general with actual purchase behaviour. And very interesting, households having both types of values also hold highest organic budget share on the real market. Consumers can be divided in 4 groups, as shown in Figure 1: The majority – two thirds of all consumers – acknowledges and value organic goods for their non-use values (environmental or animal welfare attributes), as well as for their use values (health, taste or freshness attributes). Highest propensity to purchase organic is found in this group (average organic budget share 5.5%). The second group is households having non-use values only, constituting 16% and holding an average

organic share of 2.5%. Households having no values whatsoever constitute another 16% – this group holds an average organic share of 1.2%. The fourth group, households having use values only, is negligible (1%). These results suggest that non-use benefits are generally acknowledged, but only those having use values in addition, actually purchase organic to a high degree. Thus, households having both types of values purchase more than twice as much organic food than households having non-use values only. And again, these households (having non-use values only) purchase more than twice as much organic foods than households having neither use nor non-use values. The very same pattern can be observed when looking at specific product groups.

To explore this further, we perform a regression analysis, using each household's stated importance (5 points scale) of various use and non-use attributes for organic goods in general to explain the household's average annual organic budget share for all food types. The model explains average organic budget share for each household, 1997-2001, using stated values (use and non-use values), a variable measuring health risk perception in relation to pesticide residues, main stated purchasing barriers and various socio-demographic variables as explanatory variables. The barriers are introduced to measure importance of lack of trust and lack of interest: some consumers, assigning values to organic product attributes, may at the same time be unresponsive and uninterested when it comes to actual shopping behaviour, because they are not really dedicated or because they do not really trust organic goods after all. Trust is divided in two variables, one measuring lack of trust in organic control and one measuring lack of trust in any health effect from eating organic foods. Finally, we control for the effect from household characteristics, such as income (approximated by total food expenditure), geography, age of the oldest person in the household, presence and age of children, and education level of most educated person in the household.
Doing the regression analysis, it becomes evident that the propensity to purchase organic increases significantly with the weight assigned to *use values*. The weight assigned to non-use values is much lower and not significant. That is, acknowledgement of non-use values cannot explain actual purchasing behaviour, but the contribution from use values can. Thus, we can conclude that even though households assign highest values to the non-use attributes, it is the valued *use attributes* that makes them buy organic foods.

The importance of household characteristics
Our results suggest that differences in organic shares across households to a large extent are related to specific household characteristics. Higher disposable household income (approximated by total food expenditure), age and education level all significantly increase organic budget share, as does the presence of children younger than 15 years. Very remarkable, the presence of children aged 15 to 20 years (living at home) has the opposite effect: the presence of older children reduces organic shares. This difference suggests that health and taste concern is more prevalent for parents having younger children.
All barriers significantly reduce organic shares and concern about health risk from eating foods with pesticide residues increases organic budget share significantly. Geography is significantly influencing organic shares too. Household organic shares are higher in urban areas, especially in the capital area – lowest shares are observed in western rural areas.

Demand modelling

Macro demand, assuming separability
In the project, we apply several modelling approaches. First we applied demand modelling aggregated across household types and assuming separability. Separability in our demand modelling implies that relative price changes – and the associated changes in organic share – between organic and conventional goods within one group of goods (e.g. dairy goods) do not influence the organic share in another groups of goods (e.g. bread). Assuming separability, results from demand modelling suggest that price sensitivity in demand for organic products is high, compared to other food demand studies. An important reason for the high elasticities is that the organic and conventional products are close substitutes, and that the model approach exclusively focuses on substitution between these close substitutes – disregarding changes in demand for other good types. Furthermore, it appears that organic products respond much more to price changes than conventionally produced products do. This is partly due to the high budget share of conventional products, and partly indicating that organic products, often newly introduced on the market, may be subject to more price comparison. Similar results can be found in other studies on demand for organic foods in

United States (cf. Glaser, L.K. and G.D. Thompson (1998), Demand for Organic and Conventional Frozen Vegetables. Paper presented at the American Agricultural Economics Association Annual Meeting, August 8-11, Nashville, Tennessee, or Glaser, L.K. and G.D. Thompson (2000), Demand for Organic and Conventional Beverage Milk. Paper presented at the Western Agricultural Economics Association Annual Meeting, June 29-July 1, Vancouver, British Columbia.

In the preferred model specification, the budget elasticity was set to unity. However, if this restriction is relaxed, the budget elasticity for organic products is larger than 1. This indicates that organic foods are luxury goods, as the budget share increases with the budget.

Micro demand, not assuming separability

When testing for separability, we found that this assumption does not hold. Leaving the assumption of separability and estimating a new, total demand system, resulted in interesting findings. Thus, our research suggests that an increase in the organic share in one group of goods is partly outweighted by a decrease in the organic shares in other good groups. This means that some of the attributes of organic goods are to some extent general and can be supplied by any organic good type. Hence, households will partly compensate a decrease in consumption of organic carrots with an increase in consumption of e.g. organic milk. An interesting policy conclusion can be drawn from this: Information/promotion targeting one specific product group can possibly be outweighted by reverse effects in other organic product groups. Instead, promotion of general organic attributes will be more effective, possible increasing organic demand in all product groups.

The general organic attributes are environmentally friendly production and improvement of animal welfare. These attributes are – to some extent – offered by all types of organic goods (animal welfare only by lifestock products, however). In contrary, freshness and especially taste attributes are product specific. The health attribute is most possible prevalent in both groups: Our research reveals (cf. above) that consumer perception of health effects from organic goods are primarily associated with the absence of pesticide residues in products – and this characteristic is – more of less – offered by all types of organic products. Thus, in the main, the health attribute is general. It may, however, also be product specific in some cases: If the health matter relates to a specific household member (e.g. an infant child), this attribute can only be enjoyed through the products this infant child is actually eating (e.g. milk) and cannot be substituted by organic products the infant is not eating (e.g. organic coffee). In this case, the health attribute is product specific.

Furthermore, doing micro-econometric (household level) estimation of demand for aggregated food groups, taking in the total food system (all food groups within one system/no separability) reveals interesting results. First, price elasticities are lower than in the case of separability, This is partly due to application of more aggregated groups (i.e. less closer substitutes), and partly due to interaction with other product groups, which has now been taken into account. Finally, we previously found that organic goods are luxury goods across households (high income households hold higher organic shares). However, looking at income changes within each household, this pattern was not clear. Thus, within each household, increasing income will not necessarily result in increasing organic share – at least not in the short run.

Labelling

The purpose of this part was to estimate marginal willingness to pay for eggs carrying different labels. Among other things these labels indicate environmental features and different levels of animal welfare for the hens that produce the eggs.

The eggs were divided into battery eggs ('buræg'), barn eggs ('skrabe æg'), free-range eggs ('fritgående') and organic eggs ('økologiske') and the marginal willingness to pay for the three last types relative to battery eggs are estimated. The marginal willingness to pay for different types of eggs turned out to vary with the chain of stores in which the purchase is made. Econometric estimations using store-level data reveals that customers in some stores (e.g. Superbrugsen) are generally willing to pay for labels indicating environmental and animal friendly production methods, while customers in other stores (e.g. Bilka) are reluctant to do so.

The labels 'barn eggs' and 'free-range eggs' mainly indicates increased animal welfare, whereas the 'organic' label indicates a more environmentally friendly production as well as a higher level of animal welfare. Some households may also perceive the organic eggs as being healthier than other egg types because the hens are fed with organic feed. The heterogeneity of marginal willingness to pay for organic eggs can therefore be induced by differences in the perception and evaluation of at least three different attributes, whereas the heterogeneity of marginal willingness to

pay for barn and free-range eggs is expected to arise only from differences in perception and evaluation of animal welfare. Data supports this hypothesis as the estimated heterogeneity of marginal willingness to pay is generally higher for organic eggs than for the two other egg types.

Work Package 2:

There has been made a selection of cases for WP2. The following cases have been studied in detail, using various modes of inquiry, as listed below. Interviews have been carried out during spring and summer of 2003. Actors from production and distribution/retailing, as well as consumers have been interviewed.

Case	Description	Contact initiated
Thise Mejeri (Thise Dairy)	Share-based cooperative dairy; producer controlled; relatively traditional distrubition methods	Company accounts, scientific reports, telephone interviews
Bageriet Aurion (The Bakery Aurion)	Bakery and mill; initially consumer owned; biodynamical products, sold via health shops	Company accounts, scientific reports, telephone interviews
Økoterminalen i Tinglev (The organic freshware terminal in Tinglev)	Organic freshware terminal, based in Southern Denmark; producer owned; went bankrupt in 2001	Company accounts, scientific reports, various written documentation, semi-structured qualitative interviews
Årstiderne.com	Web-based vegetable box scheme; private ownership (stocks)	Company accounts, scientific reports, various written documentation, semi-structured qualitative interviews, participant observation
Spidsroden	Cooperative farm outlet in downtown Copenhagen; consumer controlled	Company accounts, scientific reports, telephone interviews
Landbrugslauget	Danish CSA (community supported agriculture); consumer owned and collectively organised	Various written documentation, semi-structured qualitative interviews

The last part of 2003 will partly be used for interpreting interview data, as well as developing the theoretical framework of the project.

C.2 Fulfilment of deliverables and milestones

WP1 Consumer preferences and demand: potentials and barriers for market expansion	Time schedule according to application	Deviations, if any*
Task		
T1 Specification of the theoretical model taking outset in literature and focus group interviews	2001-2002	
T2 Design of questionnaire through use of focus groups and tests	2001	
T3 Surveying the questionnaire	2001	
T4 Estimation of price and income elasticities of various products	2001-2002	
T5 Investigation of alternative model approaches Implementing relevant socio-economic and demographic variables, plus underlying attitudes	2002	
T6 Evaluation of the implications of the estimated price sensitivity of demand for organic foods, including evaluation of the effect of economic policy instruments such as levies and subsidies	2002	
T7 Examination of difference between postulated and observed willingness to pay	2002	
T8 Identification of differences in purchasing motives, attitudes towards convenience food and towards alternative sales channels and processing technology and in the demand across consumer groups.	2002-2003	
T9 Examination of consumers' confidence in labeling	2003	
T10 Analysis of differences in food consumption and prefeerence across countries	2003	
T11 Examination of differences in purchasing motives, etc	2003	
T12 Analysis of the effects of policy instruments	2003-2004	
T13 Scenario calculations	2003-2004	
Deliverables		
D1 Working paper with literature review	12.2000	
D2 Time table version 2	11.2000	
D3 First annual status report	11.2000	
D5 Working paper on Modeling and Estimation Approach	06.2001	
D6 Working paper on Interviews and Questionnaire	06.2001	
D7 Time table version 3	10.2001	
D8 Second annual status report	10.2001	
D9 Working paper documenting results from questionnaire	01.2002	
D10 Int. paper on the importance of prices and income for different types of organic products	12.2002	
D11 Int. paper on the importance of sociodemographics	12.2002	
D13 Int. paper with examination of difference between stated and observed willingness to pay	06.2002	
D14 Int. paper on differences in purchasing motives, willingness to pay and socio-demographic variables	02.2003	
D15 Int. paper with differences in attitudes towards convenience food and alternative sales channels	02.2003	
D16 Time table version 4	10.2002	
D17 Third annual status report	10.2002	
D21 Int. paper, with examination of differences in consumers confidence in organic products	11.2003	
D22 Int. paper, with analysis of differences in food cons. And cons. preferences across countris	11.2003	
D23 Time Table version 5	10.2003	
D24 Fourth annual status report	10.2003	
D25 Int. paper on policy instruments	11.2004	

D26 Int. paper on scenario calculations	11.2004	
D27 Time table version 6	03.2005	
D28 Fifth annual status report	03.2005	
Additional deliveries, not in application	11.2003	
IFOAM Conference paper	08.2000 (not planned, additional work)	
EAERE Conference paper	06.2001 (not planned, additional work)	
Article in British Food Journal	06.2001 (not planned, additional work)	
Working paper documenting Household Panel Data	09.2001 (not planned, additional work)	
Working paper on Modeling Demand for Organic Products – Implications for the Questionnaire.	06.2001 (not planned, additional work)	
Contribution to SJFI report	06.2001 (not planned, additional work)	
An oral presentation on preliminary results at a Seminar on Animal Welfare at the Swedish University of Agricultural Sciences	11.2001 (not planned, additional work)	
9 popular articles	2000-2003(not planned, additional work)	
9 oral presentations at meetings	2001-2003(not planned, additional work)	
CAM presentation	06.2002 (not planned, additional work)	
OECD paper	09.2002 (not planned, additional work)	
Article in Nationaløkonomisk Tidsskrift	2002 (not planned, additional work)	
Working paper on environmental and animal welfare labelling	10.2002 (not planned, additional work)	
An oral presentation at a workshop at Institute of Fiscal Studies, UK.	10.2002(not planned, additional work)	
Int. paper on price and budget sensitivity in demand for organic foods	12.2002 (not planned, additional work)	
Int. paper on revealed preferences (characteristics model) for milk	12.2002 (not planned, additional work)	
Milestones		
M1 Decision of modeling approach	06.2001	
M2 Completion of analysis of the importance of prices and income	11.2002	
M3 Completion of the analysis of socio-demographic variables	12.2002	
M4 Results from final questionnaire collected	09.2002	
M5 Comparison of stated and observed willingness to pay	06.2002	
M6 Completion of analysis of differences in purchasing motives etc	11.2003	
M7 Completion of analysis of consumers' confidence	11.2003	
M8 Completion of analysis of differences in food cons. and preferences across countries	11.2003	
M9 Completion of analysis of policy instruments	11.2004	
M10 Completion of scenario calculations	11.2004	

WP2 Alternative distribution channels: driving forces and potentials	Time schedule according to application	Deviations, if any*
Task		
T1 Final description of PhD Scholarship for advertising	2000	
T2 Appointment	2001	

T3 Final description of educational program for appointed scholar	2001	
T4 Preparing historical review	2001-2002	
T5 Selection of adequate cases	2001-2002	
T6 Selection of adequate evolutionary theories	2001-2002	
T7 Preparing case studies	2002-2004	
T8 Preparing outlook	2003-2004	
T9 Preparing PhD Thesis	2003-2004	
Deliverables		
D4. Working paper: Historical Review	04.2002	11.2002
D12 Working paper: Theoretical foundation	09.2002	
D18 Working paper: Case studies	10.2003	
D19 Workin paper: Outlook	06.2004	
D20 Dissertation	07.2004	
Additional deliveries, not in application		
1 popular article	06.2002 (not planned, additional work)	
2 oral seminar presentations	2002 (not planned, additional work)	
Milestones		
M1 Final appointment	12.2001	
M2 Final selection of cases	06.2002	
M3 Presentation of D4	07.2002	12.2002
M4 Presentation of D12	09.2002	
M5 Presentation of D18	10.2003	
M6 Presentation of D19	06.2004	
M7 Presentation of D20	07.2004	

** Deviations are to be further discussed in D.*

D. Description of deviations and subsequent adjustments of plans

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Project publications and other products

1. Articles in international, scientific journals with review procedures

Wier, M. and C. Calverley (2002): Market Potential for Organic Foods in Europe. *British Food Journal*, 104:45-62.

Wier, M. and S. Smed (2002): Forbrug af økologiske fødevarer (Consumption of organic foods). Accepted for publication in *Nationaløkonomisk Tidsskrift*.

Wier, M., Hansen, L.G., Andersen, L.M. and Millock, K. (2003): Consumer Preferences for Organic Foods. *Organic Agriculture*, pp. 257-272, CABI Publishing.

Hansen, L.G. (2003): Organic Organic Crowding Out? - A Study of Danish Organic Food Demand *(under submission)*

Andersen, L.M. (2003): Labelling Animal Welfare *(under submission)*

Browning, M. L.M. Andersen. L. Blow, and I. Crawford (2002): A Nonparametric Characteristics Model of the Demand for Milk (*in preparation)*.

Wier, M. Andersen, L.M., Millock, K. (2003): Understanding Consumer Choice – The Case of Organic Foods *(in preparation)*.

2. Presentations at congresses, symposiums etc.

Wier, M. and S. Smed (2000): Modeling demand for organic foods. The 13th International Scientific IFOAM Conference, Basel, Switzerland, 28-31 August 2000.

Wier, M., L.G. Hansen and S. Smed (2001) Explaining Demand for Organic Foods. *Paper presented at the 11th annual EAERE (European Association of Environmental and Resource Economists) Conference*, June 2001, Southampton, UK.

Millock, K. (2001): Explaining Consumer Demand for Organic Food : A Survey on Danish Consumers. *Seminar on Animal Welfare at the Economics Department, Swedish University of Agricultural Sciences*, Ultuna, November 2001.

Millock, K., L.G. Hansen, M. Wier, and L. M. Andersen (2002) Willingness to Pay for Organic Foods: A Comparison between Survey Data and Panel Data from Denmark. *Paper presented at the 12th annual EAERE (European Association of Environmental and Resource Economists) Conference*, June 2002, Monterey, USA.

Browning, M. (2002) Revealed Preferences for Milk. Presentation at the *CAM* (Centre for Applied Microeconometrics) *Workshop on Characteristics Models*. University of Copenhagen, June, 2002

Ian Crawford, M. Browning and L.M. Andersen (2002): Nonparametric tests of the consumer characteristics model. *Workshop at Institute of Fiscal Studies*, London, October 14th, 2002.

Wier, M, L.G Hansen, L.M. Andersen and K. Millock (2002): Consumer preferences for organic foods. Paper prepared for an *OECD Workshop on Organic Agriculture*, 23-26 September, Washington D.C.

Wier, M., L.M. Andersen and K. Millock (2003): Consumer Demand for Organic Foods – Stated Attitudes and Actual Behaviour. SEE Workshop on Environment, Information, and Consumer Behaviour, Frederiksdal, April 28-29th, 2003.

Andersen, L.M. (2003): Consumer Evaluation of Environmental and Animal Welfare Labelling: Estimating the Willingness to Pay for Different Types of Eggs. SEE Workshop on Environment, Information, and Consumer Behaviour, Frederiksdal, April 28-29th, 2003.

L.G. Hansen (2003): Danish Organic Food Demand – Separability and Substitution Patterns, SEE Workshop on Environment, Information, and Consumer Behaviour, Frederiksdal, April 28-29th, 2003.

Browning, M. (2003): Revealed Preference Tests for Characteristics Models. SEE Workshop on Environment, Information, and Consumer Behaviour, Frederiksdal, April 28-29th, 2003.

3. Reports, articles in agricultural journals etc.

Wier, M. (2000): Væksten i forbrug af økovarer. *AKF Nyt* 2/2000.

Wier, M. (2000): Prisfølsomt økoforbrug. *Økologisk Jordbrug*, No. 218, 20. årgang, 2000.

Wier, M. (2000): Dansk undersøgelse om forbrug af øko-varer. *Forskningsnytt om økologisk landbruk i Norden*, No. 4, 2000.

Wier, M. (2000): Forbrug af økovarer. Forskning i Økologisk jordbrug*, Nyhedsbrev fra FØJO.* Sommer 2000.

Wier. M. and L.M. Andersen (2000): Studies on Consumer Demand for Organic Foods – a Survey. Working paper #1, AKF

Wier, M (2001): Markedspotentiale og merpriser, in Christensen, J. and S.E. Frandsen (2001): Økonomiske perspektiver for økologisk jordbrug. SJFI report #124, SJFI, Copenhagen.

Wier, M. (2001): Forbrugernes efterspørgsel genstand for forskning. *Økologisk Jordbrug,* No. 252, Vol. 21.

Andersen, L.M. (2001): Documentation of household panel data. *Working paper #2*

Wier, M. and L.M. Andersen (2001): Designing and Testing the Questionnaire – Results and Considerations. *Working paper #3*, AKF

Hansen, L.G. (2001): Modeling Demand for Organic Products - Implications for the Questionnaire. *Working paper #4,* AKF.

Hansen, L.G. (2001): Demand for Organic Products - Specification of Functions to be Estimated. *Working paper #*5, AKF.

Andersen, L.M. (2002): Consumer Evaluation of Environmental and Animal Welfare Labelling: An Econometric Analysis on Panel Data Using Mixed Multinomial Logit. *Working paper #6*, AKF

Kjeldsen, C. (2002): Samfundsvidenskabelig bæredygtighedsteori. (*Social scientific sustainability theory*) Working Paper #1, Aalborg University.

Kjeldsen, C. (2002): Bæredygtige producent-forbruger netværk? *(Sustainable producer-consumer networks?)* Forskningsnyt for Økologisk Jordbrug i Norden, Summer 2002.

Wier, M. and L.M. Andersen (2003): Forbrug af økologiske fødevarer – holdninger, værdier og faktisk købsadfærd, FØJOenyt No. 3, June 2003.

Wier, M. and L.M. Andersen (2003): Consumer Demand for Organic Foods – Attitudes, Values and Purchasing Behaviour. DARCOFenews, No. 2, June 2003.

4. Other presentations, public meetings, field days etc.

Wier, M (2000):Troløse eller trofaste forbrugere – hvad er det reelle indkøbsmønster for økologiske varer? Økologi Kongress, November, Horsens, 2000

Wier, M. (2000): Consumers and organic foods. Presentation at Aarhus Business School, November 2003.

Wier, M (2001): "Relationer mellem forbrugere og producenter". Presentation at Summer Meeting on “Principles and Goals for Organic Farming” at Askov Højskole, June 21st, 2001.

Wier, M (2001): “Markedspotentiale og merpriser“. Presentation at SJFI Seminar on “Economic Perspectives for Organic Farming” at Falconer Conference Center, June 7th, 2001.

Kjeldsen, C. (2002): *Økologiske producent- forbruger netværk i et bæredygtighedsperspektiv. (Organic producer-consumer networks in a sustainability perspective)* Presentation for researchers at Danish Institute of Agricultural Sciences, Department of Agricultural Systems, the 22th of february 2002.

Kjeldsen, C. (2002): *Tendenser i økologisk jordbrug og fødevareproduktion*. (Tendencies in organic farming and food production) Presentation at SOAR (Research School for Organic Farming) biannual seminar 8th of may 2002 at Roskilde University.

Wier, M. (2003) *Forbrugerne*. Presentation on Det Økologiske Fødevareråds 2-day-meeting, Hillerød 29-30 September 2003.

Wier, M. (2003): Kompleksiteten i det økologiske forbrug. Presentation on Nordic Workshop on "Magten i den økologiske fødevarekæde", Danish Consumer Council, Copenhagen 30-31 October, 2003.

Hansen, L.G (2003): Is there organic crowding out? Presentation at Aarhus Business School, Novemver 2003.

F. Scientific education

In Work package 2, Chris Kjeldsen is currently enrolled in a PhD scholarship. Besides ordinary PhD education, he attends the following

- In April 2002 the course "The Craft of Making Social and Political Science" at Department of Economics, Politics and Public Administration, Aalborg University, was completed. The course was about social scientific methodology and the project was presented and critiqued among the participants in relation to the methodological principles presented in the course.
- In early October 2002 (from 7th through 11th october 2002) he participated in the SOAR (Research School for Organic Farming) summer school, entitled "Research Methodologies in relation to Principles and Practice of Organic Agriculture".
- In late October 2002 (from the 21st through the 24th of october 2002) he participated in the Ph.D.-course "Sustainability and Empirical Research", which is being held at Roskilde University. The lecturer of the course will be Wolfgang Sachs from the Wuppertal Institute, Germany.
- In January 2003 he participated in the PhD course "Theory Construction" at Institute of Political Science at Aarhus University. The course dealt with the dialectical relationship between theory and empirical observation, investigated via contributions from classical, as well as contemporary social theory.
- In August 2003 he participated in the course "modern Sociological Theory" at Department of Management, Politics and Philosophy, Copenhagne Business School.

We have raised funding (through Danish Social Science Research Council) for a PhD scholarship for Laura Mørch Andersen. The scholarship will be on the issues of consumer preferences, information and althruistic behaviour.

G. National and international cooperation

National co-operation

We have appointed a coordination group, in which we gather contact persons from other related ongoing projects, and discuss our research results. The group meets twice a year. Mette Wier is responsible for arranging, planning and chairing all meetings. The purpose is to

- exchange ideas,
- disseminate preliminary and final findings from the projects to other researchers,

- discuss methods,
- elaborate on results from the projects, and finally
- coordinate the projects, to ensure we base our research on previous findings.

The coordination group has the following members:

- Suzanne Beckmann, Copenhagen Business School
- Helle Bossen, The Organic Service Center
- Thomas Roland, The Danish Consumer Council
- Tino Bech-Larsen and John Thøgersen, Aarhus Business School
- Katherine O'Doherty Jensen, KVL - The Royal Veterinary and Agricultural University
- Niels Heine Kristensen and Martin Harring Boll, DTU - Technical University of Denmark
- Dorthe Ilsøe, RUC - Roskilde University
- Jan Holm Ingemann and Chris Kjeldsen, Aalborg University
- Lars Gårn Hansen, and Laura Mørch Andersen, AKF - Institute of Local Government Studies
- Mette Wier ,Søren Frandsen, Sinne Smed and Jørgen Deigaard Jensen, FOI - Danish Research Institute of Food Economics

International co-operation

The French institute CIRED is a partner in the project.

GfK, another partner in the project, is an international institute having departments in several European countries. Data from one of these countries, Great Britain, is applied in the project.

Our questionnaire was kindly commented by Per-Olof Johansson, Stockholm School of Economics, Peter Frykblom, Appalachian State University, NC. Nancy Bockstael, University of Maryland, and Alain Carpentier, INRA, France

We have established close contact with Dr. Ian Crawford, who has visited us for two days in October 2001, and we have begun writing papers with him. Ian Crawford is Director at Institute for Fiscal Studies (Consumption and Savings Research), Deputy Director at Centre for Microdata Methods and Practice, and Research Fellow at Department of Economics, University College London, UK.

We have contact with Professor Gary Thompson, University of Arizona, Department of Agricultural and Resource Economics. Gary Thompson works with micro-estimations on demand for organic foods himself.

We are participating in a project under the EU Commision's Framework 6: Food quality and Safety in the European Organic Supply Chain.

Critical reflection on the project

WP1:
Organic farming is pesticide free and is attributed a number of other environmental advantages as well. This is why increasing the proportion of cultivated area that is organically farmed is an important element of Danish environmental policy.

Accurate estimates of current organic food demand functions are important steps towards assessing the feasibility of large increases in Danish organic food production. However, under-

standing and quantifying the underlying motives for organic food demand is also important for at least three reasons.

- First, organic foods are an emerging market where development of products in new areas and consumer learning of product attributes may cause substantial shifts in demand functions. A good understanding of motives and valued attributes is essential if meaningful predictions of such shifts are to be attempted.

- Second, such an understanding is also essential for assessing the future role of alternative versus conventional sales channels, different types of information and labeling strategies and, ultimately, alternative development strategies for organic farming practices.

- Third, such an understanding is important for assessing potential sales on export markets. A good understanding of the importance of differences in supply channels, labeling, price premiums and consumer demand across countries is a prerequisite for exploiting potential demand abroad.

In our project, we have access to a unique panel data set (Danish as well as foreign), in combination with elicited information from interviews on underlying attitudes and valued attributes. Thus, we hope to be able to shed new light on the structure and relative importance of various motives for purchasing organic foods within various consumer segments. However, it requires considerable time to handle, organize, elaborate and utilize the very extensive and detailed data set, encompassing more than 5 million observations of purchase acts. It turned out to be more time demanding than we expected, and this is especially due to three circumstances

- The purchase data is observed at a highly disaggregated level. To analyse, we need to aggregate. Aggregating properly, however, requires full understanding of detailed codes and specifications.
- It is not straightforward to assign proper prices for the alternative goods the consumer is facing in the shopping situation, but is not buying. In purchase data, we only have prices for goods actually purchased.
- It is not straightforward to identify problems of supply shortage, which is very common for organic products. We can see from purchase data when a certain good is not sold, but we cannot tell whether the good was not supplied, or whether it was not chosen by the consumer. This has required some time to handle.
- The purchase data was created in GfK for non-research purposes. This means that there is considerable lack of continuity and consistency across time periods. Thus, the number and meaning of codes and variables may differ from one period to another. This has required some time to straighten out.

In 2003, we turned to a selected export market (Great Britain). Consumption of organic foods at the Danish market is currently stagnating, and has been so for a couple of years. This means that future growth in consumption of Danish organic products will probably call for product development (more processed and elaborated organic products) as well as further export. For that reason, analyses of markets abroad are highly necessary – and more relevant than ever. This means that the part of our product focussing on foreign markets should not be reduced.

We have learned however – from our experience with Danish GfK data – that we need to focus on certain commodity groups and restrict the analysis in this way. Otherwise we will not have the time to analyse all the aspects we have planned in the project proposal. Focussing on certain, carefully selected, commodity groups on the export market will leave time for a comprehensive market analysis.

Some other issues currently discussed at home and abroad, are consumer attitudes towards organic production standards, future application of GMO's in organic production, food safety and consumer risk perception, and finally the importance of information provision to consumers, by e.g. labelling. Organic production standards are developing and changing in these years, and so is labelling strategies. These topics are encompassed in our project, but we attempt to handle them in more detail than originally planned. Among other initiatives, we have changed the first version of the questionnaire to handle these questions in a more comprehensive way.

WP2:

The establishment of a theoretical foundation for the project has proven to be a time-consuming task. One reason is the obvious lack of truly integrative, multi- or transdisciplinary studies of organic producer-consumer networks, or organic food networks. Existing studies seem to be either discipline specific (for example studies within established disciplines as marketing, export economy, agricultural economics etc.) or sector specific. Sector specific studies include studies such as (organic) farm economy, consumer studies, studies of development in the cooperative sector and other types of studies, where one of the processes involved in the operation of the whole network is considered. But examples of studies, which include production, distribution as well as consumption in the area of study, are very rare. There can be found examples of approaches, for example actor-network theory (ANT), which at least in theory claims to embrace all of these dimensions of food networks. But one common characteristic for these approaches is the lack of a sound empirical grounding.

The approach so far developed in the project is therefore a multidisciplinary approach, drawing on insights from a diverse range of scientific disciplines such as (agricultural) political economy, rural sociology, ecological economics, systems theory, environmental sociology and evolutionary/institutional economics. This has so far meant a heavy workload in terms of accessing many different approaches and viewpoints on food networks, thereby delaying the collection of empirical data and completion of the historical review.

8. Budget

A. Account for any change in budgets

B. Budget for the whole project (1.000 DKK)

Total consumption of funds from DARCOF and expected consumption this year and coming years

Year:	Consumption before 2003	Expected consumption 2003	2004	2005	Total
Man-months					
Scientific personnel	38	21	3,5		62,5
Technical personnel	16,3	3,9	0,6		20,8

Year:	Consumption before 2003	Expected consumption 2003	2004	2005	Total
Salaries					
Scientific personnel	1382	751	110		2243
Technical personnel	331	79	12		422
Other operational costs	508	343	63		856
Equipment					
Others (please specify)					
Direct costs	2221	1173	127		3521
Indirect costs (20% of direct costs)	444	234	26		704
Total	2665	1407	153		4225

Comments:

Please note that our consumption before 2003 is 2,665,000 DKK. This is 130,000 DKK lower than budgetted in the Midterm Report (where it was 2,795,000). Thus, we would prefer to transfer this amount to 2003/2004.

9. Signatures and stamps

Name	Institute	Date	Signature
Head of project Mette Wier	Fødevareøkonomisk Institut	10.10.03	

Appendix I. Detailed budget

A. Budget for each participating institute (1.000 DKr)

Name of Institute: AKF (including CIRED and GfK Danmark)

Year:	Consumption before 2003	Expected consumption 2003	2004	2005	Total
Man-months					
Scientific personnel	32,4	15,8	1,3		49,5
Technical personnel	16,3	3,9	0,6		20,8

Year:	Consumption before 2003	Expected consumption 2003	2004	2005	Total
Salaries					
Scientific personnel	1211	589	46		1846
Technical personnel	331	79	12		422
Other operational costs	498	338	58		836
Equipment					
Others (please specify)					
Direct costs	2040	1006	58		3104
Indirect costs (20% of direct costs)	408	201	12		621
Total	2448	1207	70		3725

Comments:
Please note that our consumption before 2003 is 2,448,000 DKK. This is 131,000 DKK lower than budgetted in the Midterm Report (where it was 2,579,000). Thus, we would prefer to transfer this amount to 2003/2004.

B. Budget for each participating department (1.000 DKK)

Name of Institute and department: AAU

Year:	Consumption before 2003	Expected consumption 2003	2004	2005	Total
Man-months Scientific personnel Technical personnel	5,6	5,2	2,2		13

Year:	Consumption before 2003	Expected consumption 2003	2004	2005	Total
Salaries Scientific personnel Technical personnel	171	162	64		397
Other operational costs	10	5	5		20
Equipment					
Others (please specify)					
Direct costs	181	167	69		417
Indirect costs (20% of direct costs)	36	33	14		83
Total	217	200	83		500

Comments:

C. Budget for co-financing from each participating institute (1.000 DKK)

Name of Institute: AAU

Year:	Consumption before 2003	Expected consumption 2003	2004	2005	Total
Man-months Scientific personnel Technical personnel	7,4	6,8	2,8		17

Year:	Consumption before 2003	Expected consumption 2003	2004	2005	Total
Salaries Scientific personnel Technical personnel	211	193	68		472
Other operational costs	54	52	21		127
Equipment					
Others (please specify)					
Direct costs	265	245	89		599
Indirect costs (20% of direct costs)	53	49	18		120
Total	318	294	107		719

Comments: