ICROFS news

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Newsletter from the International Centre for Research in Organic Food Systems

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ICROFS
International Centre for Research in Organic Food Systems

ICROFS involved in two new EU projects

Your input to *ICROFSnews*

We listen to our readers's response with pleasure, as we are here for you!

Therefore, any responses are more than welcome, be it about the new format, suggestions to improvements, changes, content or anything you can think of.

Contact us at: simon.rebsdorf@icrofs.org

Organic RDD application deadline: 13. September 2010

The Ministry of Food, Agriculture and Fisheries calls for applications to the Organic Research, Development and Demonstration Programme, Organic RDD. This is a part of an organic effort under the Green Development and Demonstration Programme (GDDP), and is a step in the Government's goal of promoting market-based organic food production.

Organic RDD focuses on a strategy for the Danish organic research, development and demonstration, but with a strengthened synergy from international collaboration. The programme also focuses on three main themes, *viz*. Growth, Integrity and Robust Systems.

Read more at the Danish Food Industry Agency's website.

DARCOF III project, SEED, finalized

The DARCOF III project SEED focusing on high quality seed has been concluded.

The project objective has been to maintain the integrity in organic farming through production of high-quality GMO-free seed of plant species and varieties that are of particular value in organic farming.

Read about the project results in the final report, which is available at www.icrofs.org/Pages/Research/darcofIII_seed.html

VOA³R project website is published

ICROFS has become a partner in the innovative research project for digital libraries, VOA³R, which stands "**V**irtual **O**pen **A**ccess **A**griculture & **A**quaculture **R**epository: Sharing Scientific and Scholarly Research related to Agriculture, Food, and Environment."

Now, the project website is accessible at http://voa3r.eu

The general objective of the VOA³R project is to improve the spread of European agriculture and aquaculture research results by using an innovative approach to sharing open access research products.

One obvious task for ICROFS is to make the on-line, open research database Organic Eprints an active part in the sharing of scientific research results together with other repositories.

New EU project: Transparent Food: Quality and Integrity in Food

ICROFS is involved in the EU FP7 research project, Transparent_Food.

This project aims at "contributing to the development of transparency in the sector by supporting understanding of its complexities, identifying the present state-of-the-art, learning from experiences, making stakeholders aware, specifying deficiencies and research needs, and formulating a research framework for facilitating future research initiatives".

Read more at www.transparentfood.eu

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Why Danish Organic Farming Policy has been successful

The Danish organic farming policy has proved successful in growing the market for organic food. This article outlines the architecture of the policy and explains why, unlike elsewhere, it has put considerable emphasis on demand creating measures. Finally, the conditions under which the Danish model can be transferred to other countries are discussed.

By Carsten Daugbjerg, Department of Political Science, Aarhus University & Research School of Social Sciences, Australian National University

Governments are increasingly becoming engaged in the promotion of organic farming, some of them more enthusiastically than others. The approach to government intervention in the organic food sector varies significantly across countries.

One of the key objectives of the COP project is to establish whether government policies make a difference in growing the organic sector. Organic consumption in Denmark is relatively high. In 2008, the organic share of the total turnover in the food market reached 6.6 percent.

Research conducted within the COP project shows that the Danish success can to a considerable extent be put down to the mix of policy instruments applied.

The architecture of Danish organic farming policy

In 1987, the Danish parliament adopted the Organic Farming Act which laid down the basic structure of the Danish organic farming policy which remains today.

When intervening in the organic sector, governments can basically apply policy instruments aimed at increasing the supply of and/or demand for organic food. Supply-side policy instruments are, directly or indirectly, aimed at creating incentives for farmers to convert to organic farming. Demand-side instruments are, directly or indirectly, aimed at creating increased demand for organic produce.

Direct supply-side policy instruments

As to *direct supply-side policy instruments*, subsidies were provided to ease farmers' conversion from conventional to organic farming. Permanent subsidies for organic farming were introduced in 1994. Policy development up until the early 2000s was characterised by adjustments of organic farm subsidies to motivate particular groups of farmers to convert. Between 1989 and 1994 the organic farm subsidy scheme was aimed at motivating livestock producers to convert. In the mid-1990s, further potential for expanding the market was envisaged and a new subsidy scheme designed to motivate arable farmers and pig producers to convert to organic farming was adopted. However, in the early 2000s, after several years with considerable overproduction of organic milk and cereals, it was decided that support schemes directed at selective commodity groups had to be abolished. Therefore, in 2004, flat-rate conversion and permanent organic payments replaced the complicated and commodity differentiated subsidy system (though dairy farmers were not eligible for conversion subsidies until 2007 when market forecasts envisaged future under-supply of organic milk).

Indirect supply-side policy instruments in the form of support for organic extension services, research and education of farmers are also applied.

Direct demand-side instruments

The Danish organic farming policy has not yet applied *direct demand-side instruments*, but, to a considerable extent, has relied on indirect demand-side instruments. This is a unique feature of Danish organic farming

policy. The Organic Farming Act introduced a state certification system for organic farming (the 'Ø' label) to replace certification carried out by the National Association for Organic Farming. The state labelling scheme has been successful in generating consumer confidence. In a recent survey, 82 percent of Danes consumers expressed that they had confidence in it. Considerable funding for organic market research and development, marketing, information and food innovation has been provided. From 1996-99, the state spent €13.5 million on such activities. After 1999, the state continued providing such support but funds for these activities declined from a peak of €13.1 million in 2000 to €1.4 million in 2005, but were increased again in 2007 to €5.4 million.

The table below provides an overview over the policy instruments applied.

Framing organic farming

The way in which a policy is framed has important impact on its design. Organic farming in most countries and in the EU is now predominantly seen as an agri-environmental measure. Interestingly, in the mid-1980s Danish policy makers conceived of the emerging organic farm sector as an infant industry with a potential to expand in the domestic market as well as in the export markets.

While the potential environmental benefits of applying organic farming methods were acknowledged, they were not the main driving force behind state intervention. The framing of the organic sector as an infant industry, rather than an environmental measure, meant the policy makers not only focused upon designing policies to promote farm conversion but also paid considerable attention to demand creation. Though later on, the environmental benefits of organic farming methods became more prominent in legitimising subsidies for organic farming, a commercial focus was maintained. As the Organic Food Council pointed in 1999: 'the underlying logic is that the organic farming sector can best be developed in accordance with the market which is created by the demand for organic produce. Thus conversion is based on voluntary action and positive motivation.'

Transferring the Danish policy model?

Since the Danish organic farming policy model has proved effective in increasing organic consumption, it may be potentially applicable in other countries. However, policy transfer is not necessary an easy process because successful transfer depends upon a number of conditions.

To work effectively, the Danish policy model requires that governance capacity can be developed. Organisational arrangements in which state agencies and stakeholder organisations can coordinate their activities related to organic market growth must be established. This requires that the organic industry and farm groups are able to coordinate their views and avoid competing with each other in terms of representing the organic sector in the relation to the government.

Further, it requires that the organic industry associations develop capacity to assist in policy formulation and implementation. Since traditional agricultural policies are supply-side orientated, states agencies have limited in-house expertise in creating demand. Such efforts require organisation, skills and experience in marketing campaigns, capacity in coordinating marketing activities with producers, processors and retailers. Organic industry associations not only have a strong incentive to develop such capacities, they are also better positioned to develop them. Finally, there must be a political will to engage in the organic sector.

Where these conditions are present or can be brought about, the Danish policy model would be an effective policy response to desires to increase the organic food sector.

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2: Strukturdirektoratet (1999), Aktionsplan II: Økologi i udvikling, Copenhagen: Strukturdirektoratet, p. 16

Supply-side policy instruments		Demand-side policy instruments	
Direct	**Indirect**	**Direct**	**Indirect**
Conversion subsidies introduced in 1987.	Subsidies for organic extension introduced in 1984.	None.	State certification and labelling introduced in 1987; fully operational in 1989.
Additional conversion subsidies for arable and pig farmers introduced in 1996.	Grants for organic research introduced in 1992.		State sponsored market research and marketing campaigns from 1988.
Permanent organic subsidies introduced in 1994.	Support for education of organic farmers introduced in 1995.		
Flat-rate conversion and permanent organic payments replaced the complicated and commodity differentiated subsidy system in 2004.			

Tabel. Organic farming policy instruments applied in Denmark.

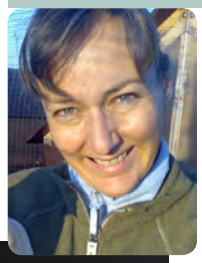
Read more

Find more information about the DARCOF III project COP on the webpage:

http://www.icrofs.org/Pages/Research/darcofIII_cop.html

The project is funded by the Danish Ministry of Food, Agriculture and Fisheries

Quality of foraging material and effect on hens feed intake, egg production and -quality



By Sanna Steenfeldt and Marianne Hammershøj
Faculty of Agricultural Sciences, Aarhus University

In a project with organic egg laying hens, the effect of different kind of foraging material was studied on feed intake, egg-production and -quality.

Hens in organic egg production require daily access to foraging material e.g. different kinds of silages, grasses, carrots or other vegetables. Foraging material has positive effect on foraging behaviour and welfare, and on development of the intestinal system and microflora. Foraging material constitute quantitatively a large part of the hens daily feed intake affecting the egg quality, depending on type of foraging material.

Tabel 1. Nutrients in silages and carrots

Nutrient	Alfalfa silage	Maize silage	Carrots
Drymatter	24,5	32,5	8,8
Protein	22,3	9,2	7,2
Methionine	2,5	1,5	< 1
Carbohydrates:			
Starch	< 1%	28,4	0
Celluose	20,6	16,9	7,8
NCP	20,3	18,1	13,1
Total NSP	40,9	35,0	20,9
Lignin	10,5	7,7	1,2
Total fibre	51,4	42,7	22,1

Values given are in % of dry matter; methionine in g/kg dry matter (average of 2-5 batch). NCP: Non cellulosic polysaccharides. Total NSP = Cellulose + NCP. Total fibre = NSP + lignin

In the present study, laying hens had daily access to different silages and carrots. The chemical composition of the foraging material was analysed in order to evaluate the nutritional value and study the effect on different parameters.

Experimental study

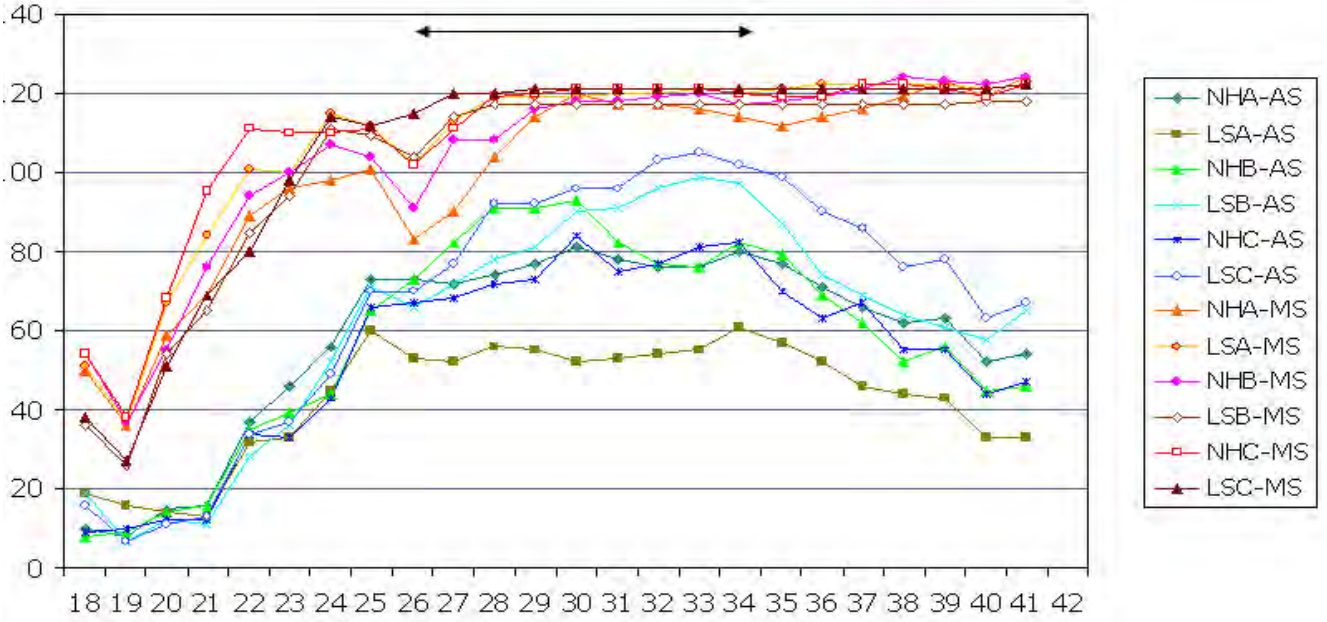
The study with organic hens was performed at the organic research facilities at DJF during 23 weeks (hen age 19-41 weeks). Two different genotypes were included (Lohmann Silver: LS and New Hampshire: NH), and three experimental diets (A, B and C) were fed to both genotypes together with either alfalfa silage (AS) or maize silage (MS) and carrots.

Diet A represented the organic feed used in practice with mainly imported protein sources. Diet B and C were entirely based on Danish grown ingredients, including protein sources as soybeans and lupine. A, B and C contained 19.3%, 18.7% and 17.0% protein and 3.6g, 2.8g and 2.6g methionine/kg feed, respectively. From 2012, feed for organic egg production within the EU must be based 100% on organic ingredients. Inadequate supply of methionine (Met) can have negative effects on egg-production and -quality, so the demand for alternative protein sources is high.

Foraging material and chemical composition

Analysis of the two silages and the carrots showed a large difference in chemical composition (Table 1). The content of protein and Met was highest in AS and lowest in MS and carrots. The total content of fibre

Figure 1 Intake of foraging material (g/hen/day) during the experimental period of 23 weeks (hen age 19-41 weeks).



NH = New Hampshire, LS = Lohmann Silver, A = diet A, B = diet B, C = diet C. AS = Alfalfa silage, MS = Maize silage + carrots. The arrow indicates the 10 week period where organic carrots were unavailable and the groups normally fed with both MS and carrots were fed MS only (see text).

was also highest in AS and lowest in carrots. The MS used in the present trial contained on average 28.4% starch, i.e. a fine quality with a high content of maize kernels, which contribute with energy to the hen.

Intake of foraging material

Groups given MS had a higher intake of silage than groups fed AS (Figure 1). Consumption of MS increased over time except in the 10 weeks mid summer, where organic carrots were unavailable. The hens needed a period to increase their intake of MS with higher fibre content. Intake of AS increased until the age of 34-35 weeks, where a dramatic drop in the consumption of AS was observed in all groups. For both genotypes given diet C, the intake of AS was higher compared to hens fed either diet A or B. Probably the hens given diet C have increased their intake of AS to compensate for the lower protein and Met content in diet C.

On the contrary, the hens on diet A or B was not particularly interested in the AS. The AS used in the present study had a high fibre content (>50% of dry matter), which resulted in a poor quality silage in spite of the high Met content. This could also explain the higher daily intake of the diets by hens given AS (on average 120g diet/day/hen) compared to hens given MS and carrots (on average 108g diet/day/hen).

Egg parameters	Alfalfa silage	Maize silage and carrots	P-value
Egg weight, g	57,1	55,9	< 0,001
Laying rate, %	79,3	75,9	< 0,001
Egg mass, g/hen/day	45,9	42,6	< 0,001
Shell strength, N	35,9	36,0	NS
Yolk colour, lightness	62,5	63,6	< 0,001
Yolk colour, redness	1,24	0,21	< 0,001
Yolk colour, yellowness	56,0	54,6	< 0,001
Albumen dry matter, %	12,89	12,9	NS
Albumen pH (48 hours)	8,96	8,98	NS

Tabel 2. Effect of using AS or MS and carrots on egg-production and quality (average for the period 21-41 weeks of age)

Egg-production and quality

Hen given AS had a higher egg-production, egg weight and total egg mass, compared to groups given MS and carrots (Table 2). This result can be caused be either a higher intake of diet C and/or additional contribution with amino acids from the AS due to a higher intake of AS in these groups.

The yolk colour was influenced by the specific foraging material used and hens given AS produced egg with darker and more reddish and yellow yolks, caused by the difference in content and composition of carotenoids between the silages and carrots. The carotenoid lutein is yellow, of which the egg yolk in general has a high content. The concentration of carotenoids in AS was 6-10 times higher than in MS.

Perspectives

The study shows that different kinds of foraging material can influence both egg-production and quality in organic egg production.

The composition of nutrients in the silages and carrots used in the present study was very different in content of protein, Met, starch and fibre. The particular batch of alfalfa silage used had a high content of protein and Met, which could contribute with essential amino acids. Diets based entirely on 100% organic feed ingredients could limit the supply of especially Met. Unfortunately, the alfalfa silage was also high in fibre content.

The results imply the importance of using foraging material of a high quality and further studies on the quality of other types of silages or vegetables are relevant in order to obtain an optimal organic egg-production with a high egg quality.

Read more

Find more information about the DARCOF III project QEMP on the webpage:

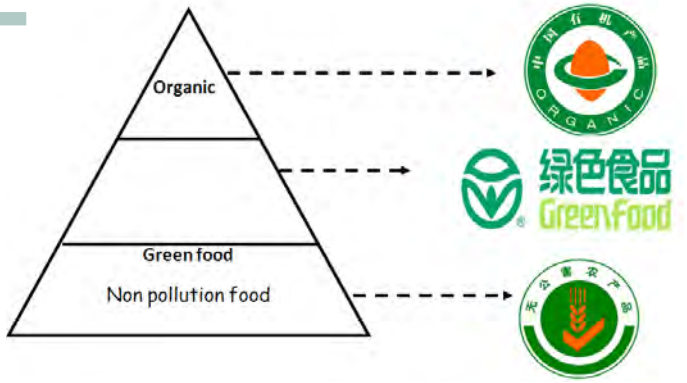
http://www.icrofs.dk/Sider/Forskning/foejoIII_qemp.html

The project is funded by the Danish Ministry of Food, Agriculture and Fisheries

The Chinese Organic Export Model, Globalization and a Danish Future Perspective

By Henrik Egelyng, Ph.D., Senior Project Researcher, Danish Institute for Agricultural Sciences and International Studies

China has gained a top position in the world of Certified Organic Agriculture (COA). This article briefly portrays the development and institutional nature of the Chinese success as an exporter of organic products in a process of globalization. It then reflects on possible lessons from this case of globalization, to be implied from the point of view of future development and integrity of the Danish organic sector.



China is known as the world's factory and symbol of globalization mainly in fields where – in the words of Harvard business scholars Zeng & Williamson (2007) - "Chinese Cost Innovation is Disrupting Global Competition". China has now also gained a top position in the world of organic agriculture - in terms of area under COA management. It may be relevant to ask therefore how this success came about and whether it may have implications for global competition, division of labor and economic as well as environmental sustainability of organic farming in different regions.

China eats "Green" food – export organics

The large majority of Chinese consumers eat Green Food (GF) which is certified according to a longstanding Chinese product standard: GF has been analysed, verified and labeled as "unpolluted" and safe to eat (Fig 1). The pre-existence of this "green" label is perhaps one reason why the evolution of Chinese COA has been export oriented. The institutional set-up for COA in China has been analysed in detail elsewhere (Egelyng, Qiao & Li 2006).

The Chinese environmental administration (now ministry) SEPA and later the standardization bureau (CNCA) has recently issued a stream of circulars, rules, and guidelines for regulation of the market for COA products. The essence in this history is the emergence of a state guided and yet commercial certification system for organic products. The policy rationale is to

improve compliance with all the increasingly complex and formal rules involved with internationally accepted certification as "organic".

China's capacity to "deliver" on formal compliance is already high. In other words, it may well be that Chinese organic production bases are small green "islands" in high seas of background pollution, in some regions, and it may be that the (natural resource) transaction costs of transporting small amounts of "Biofertilizers" long distances by small diesel trucks between these "islands" could trigger some green (including GHG) accounting issues. However, the Biofertilizers and the end products are usually very professionally certified.

The institutional foundation for certified organics in China, is not yet anchored enough to ensure inwards nationwide expansion of COA across the nation. It remains to be seen therefore whether and to what extent certification as organic can work as an institutional vehicle within China itself, to promote a more environmentally sustainable rural development trajectory to strengthen local livelihoods of Chinese producers, rural communities and safeguard local environments or help conservation of environment and nature.

It is also still an open question to what extent the export oriented COA sector has a direct farmer livelihood function, given that most Chinese COA exports are produced at socalled "production bases" meaning companies renting land and hiring workers to till, plant and harvest, rather than dealing with "farmers".

In the past few years, nevertheless, Chinese COA has evolved quickly, measured in quantitative terms like numbers of producers, area and product value, prompting Chinas current position among the world's big COA nations, exporting to Europe, Japan and USA, where the entry of large supermarket chains such as Walmart has introduced Chinese COA food products in the same shelves as American, European and Latin-American foods.

Challenges and Perspectives for COA at national and local levels

A few years ago, this author participated in an American conference on "Place, Taste and Sustenance – the Social Spaces of Food and Agriculture" at Boston University. I shall never forget the assembly of eminent US scholars essentially concluding that the US agricultural model had grossly failed to safeguard development (environments, local communities and livelihood), and only succeeded providing (too) cheap volumes of food, obesity, urbanization and monetary streams up production chains. The assembly pursued a solution

Read more
Find more information about the DARCOF III project GLOBALORG on the webpage: http://www.icrofs.org/Pages/Research/darcofIII_globalorg.html
The project is funded by the Danish Ministry of Food, Agriculture and Fisheries

by looking to Europe – particularly to French concepts of terroir and geographical indications (GI) – i.e. for a new and different institutional environment to create real dollar value out of what had so far been non-market values and therefore apparently having had no value at all: biodiversity, cultural diversity, small rural communities, local food cultures, environmentally benign production methods, local agro-environments and so on. Like the American assembly, a Danish Professor (Kjeldsen-Kragh) argues – in Tidsskrift for Landøkonomi, June 2010 – that (conventional) Danish agriculture is on the wrong track – it failed to serve the policy goals of the society in which it is embedded.

Challenged certification

As eminently shown i.a. by the American journalist Michael Pollan, in his "The Omnivore's Dilemma" published in 2006, the integrity of organic certification is challenged not so much by formal rule compliance issues perhaps, but rather by what American food system researchers refer to as bifurcation and by conventionalization. This has meant that in the USA a significant number of organic producers have turned their back on the organic certification system, because they feel the organic label has been hijacked by the corporate sector, using "input substitution" to comply with formal rules (industry standards), rather than following "genuine" organic principles. In the long run, of course, further travel along such a trajectory of bifurcation and conventionalization, will threaten the "brand value" of COA.

In Denmark, where COA has been a rising star for a full generation now, the "Green Growth" policy paper has presented a triangular public policy ambition of ensuring (market driven) growth, development and integrity of the organic sector - in addition to a new opening towards corporate ownership, as in China and the US. Mature stars can implode and if one adds the dimension of a globalized organic market and division of labor for COA (with China illustrating globalization and the US other challenges), one may conclude that it may be relevant indeed to catapult Danish COA to a new and higher level. In the eyes and mind of this author, this new level may have to evolve around a concept of valorization and a policy discussion of what it is we - in our capacities as consumers, citizens, farmers, processors, stakeholders and taxpayers – wants the organic label to valorize. Is it merely a matter of conformity to one industry standard (no chemical inputs) among many similar technical standards, providing money value for participants in a value chain from competition in the global market as it presents itself in the supermarkets. Or is it also a discussion of national levels, conditions under and institutions by which the organic sector holds potential to capture or valorize a host of additional positive "externalities".

Jinling Hotel in Nanjing has it's own production of organic vegetables

Institutional innovation needed

To build an even brighter future on an already glorious past, institutional innovation is needed in several areas of COA. This innovation need to move beyond technical, production and (money) "value chain" issues and include a broader "contractual" and more (rural) developmental view of organic farming as involving a palette of public policy instruments (market conform of course) for conserving Danish nature areas and their biodiversity, for keeping clean water, diverse landscapes, develop local gastronomic cultures and strengthen local livelihoods and employment in areas "threatened" by de-population, zoning restrictions and "structural reforms".

If successful, such a strategy will help Denmark consolidate or further valorize its agro-food system products at home and abroad, in a world market generally blind to "externalities", positive as well as negative.

In the case of China as the world's factory, the world market is blind to the huge environmental and social cost polluting industries incurs on China, where local populations suffers the consequences. Chinese COA holds promise that this "brown" history need not repeat itself in the case of Chinese agriculture and certainly for Denmark COA is an institutional vehicle that has already helped Denmark add or reflect the high value of an agricultural sector providing high levels of sustainability and development - environmental and social safeguards.

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The climate heroes of the future?

By Gert Tinggaard Svendsen, Professor, Dept. of Political Science, Aarhus University

If farmers got the opportunity to trade CO_2 quotas in the EU, they would probably be able to become the climate heroes of the future- and make a profit at the same time.

The Food and Agriculture Organization of the United Nations, FAO, has estimated that agricultural activities account for approx 35 percent of man-made greenhouse gases in the world. As a consequence, FAO and other international, worldwide agricultural organisations have suggested involving the agricultural sector actively in the fight against climate change and giving the sector a central position in a global climate agreement.

This was also the main message from a historic conference about agriculture and climate held in 2009 in Copenhagen. It was the first time that agricultural leaders from the entire world had gathered to discuss this subject. Both former Minister for Energy and Climate, Connie Hedegaard, and Minister for Food, Eva Kjer Hansen, were present at the conference to listen to their compatriots. Connie Hedegaard also found it very positive that the agricultural sector is now showing initiative and a will to lead the way.

Among the most important messages at the conference were the wishes to fix the price for greenhouse gases and to give farmers economic incentives to reduce the emission of greenhouse gases. The question is whether farmers can become the climate heroes of the future and make money on it at the same time.

The EU quota system

One obvious way to fix the price on greenhouse gases and to give farmers economic incentives is to allow them to trade greenhouse gases under the Kyoto Agreement. Such a quota system has existed in the EU since 1 January 2005. The purpose of it is to reach the ambitious targets to reduce the emission of greenhouse gases in the EU with eight percent from 1990 to 2012 and 20 percent in 2020.

At the moment, only industry and power plants are included in the EU quota system. The three main sectors not included in the system are farmers, cars and housing. The agricultural sector makes up approx 10 percent of the EU's and 18 percent of Denmark's total greenhouse-gas emissions.

In this way, the agricultural sector can be expected to contribute substantially to the future reduction of greenhouse gases, both in the world as such, and in the EU and Denmark.

Standards have already been established at the EU level concerning the average emission of CO2 from produced cars. The transport sector is responsible for approx 20 percent of total emissions in the EU. Likewise, housing is, to a large extent, regulated indirectly via power plants, which provide them with electricity and heating. Housing in the EU contribute with 10 percent in total.

The potential of organic farming

As regards agriculture, much indicates that, for instance, organic farming and growing methods have a great potential in terms of reducing greenhouse gases. There are many 'low-hanging fruits', which are easy to pick. First and foremost, fertilizers and pesticides are not used, resulting in relatively low energy consumption.

Read more
Read more about the COP project at www.icrofs.org/Pages/Research/darcofIII_cop.html

The project is funded by the Danish Ministry of Food, Agriculture and Fisheries

However, a conflicting effect is the somewhat larger energy consumption for the mechanical weed control. Especially, organic plant production contains a particular potential for reducing the emission of greenhouse gases in a relatively inexpensive way, which makes creating and selling quotas for greenhouse gases in the market economically attractive. However, the potential is smaller for livestock farming and negative for vegetable growing (Halberg 2008).

For instance, an organic farmer in Denmark will be able to sell surplus quotas to a power plant if reducing his emission of greenhouse gases is more inexpensive for him than for the power plant. All players in the market will react on this price on greenhouse gases, which is converted into € per ton CO_2 equivalent. Buyers and sellers in the quota system for greenhouse gases will reduce or increase their greenhouse gas emissions until all individual, marginal reduction costs equal the quota price. Both buyer and seller make money by trading, because a reduction of the emissions can now be undertaken by the most inexpensive place; that is, where the fruit hangs the lowest.

Increased amounts of carbon in soil

Thomas Færgemand, CEO at Concito, Denmark's leading green think tank, has suggested including CO_2 stored in soil, for instance. Customers could be companies such as DONG Energy and Vattenfall, who wish to expand their energy production on coal-based plants.

In this way, there might be both environmental and agricultural reasons for increasing the amount of carbon in farm land, since well-planned agriculture can build up the pool of organic matter in the soil.

This, again, contributes to binding CO_2 in the soil. CO_2 can be stored in the soil in many other ways. One of them is wet meadows, which ensures that carbon contained in the soil is not burnt off and converted into CO_2 in the atmosphere.

"As long as it is covered with water, 10 tons of CO_2 can be stored per year. If you can sell this at DKK 200 per ton, you have an income of DKK 2,000 per hectare," says Thomas Færgemand.

Likewise, the biomass utilisation for energy could free quotas via the utilisation of waste products and the growing of multi-annual energy crops (willows and energy maize) on marginal acreage. Moreover, greenhouse gas emissions in the agricultural sector could be reduced through technological changes, such as improved manure handling, changes in fodder mixture, reduced soil preparation, the set-aside of farm land, and reduced livestock production.

Emission trading opens up a great number of opportunities. For instance, there would also be an extra gain in the planting of new trees, which binds CO_2, rather than deforestation, which is a great problem in many developing countries, particularly in West Africa. So, indeed, if farmers have the opportunity to trade CO_2 quotas in the EU, they would, by all appearances, be the climate heroes of the future and make money on it at the same time.

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First year with the course 'Organic agriculture in a development perspective'

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In 2010, the course 'Organic agriculture in a development perspective' was run for the first time at Aarhus University. Education within and continuous reflections upon organic farming and food systems on all levels is a prerequisite for the development of the field, and young university students can contribute greatly to this.

The aim of this small article is to tell about the content of and rationale behind the course and how it is carried through, as an input to the knowledge and debate on the approach to education, development and research in organic food and farming systems in general, and – most importantly – to present some of the work which was done by the five students who took the course as very active participants in the spring semester 2010.

Three basic elements of the course

The course is built up of three sections or modules, which together should introduce organic food and farming systems in more levels, from the soil to the knowledge systems and as development strategy:

1. Agro-ecological farming methods: enhancing soil fertility, diversified agricultural production, integrated livestock, keep water and build up resilient systems which can withstand shocks.

2. Human and community development, social capital, learning, gender issues and food sovereignty.

3. Development perspectives and strategies, and global food systems. Understanding how food systems work both in organic and non-organic sectors, and integrating knowledge about resilience, food sovereignty, agro-ecology etc into various strategies for development.

In 2010, we were 'lucky' that the Danish minister of development launched a new strategy for development, which we could discuss and analyse together with Millenium Development Goals, The Civil Society Strategy, The Paris Declaration, and The Africa Commission Report. Based on these documents which were analysed and discussed by the students, we could discuss the approach to agriculture and rural development, as well as food policies. We also were so privileged that Klaus Bustrup, the head of Danida's board accepted to give a talk and discuss the Danish development policy with us, and at the same day we went to Dan Church Aid's office and heard about and discussed this organisation's approach to sustainable agricultural development.

Interdisciplinary approaches necessary

This course is based on interdisciplinary approached. The students also had different backgrounds, mostly

biology, agro-biology, and agro-environmental management, but also anthropology. The topics covered in the course were also of highly different nature and included agriculture, biology, sociology, anthropology, political economy and touched other interdisciplinary approaches including a bit of geography, philosophy and psychology. The rationale for this is quite clear: working with development in North or South, in agricultural and food systems, is working with highly complex systems and demands interdisciplinary approaches.

Most people who engage in development, innovation and research in these issues, will be working in teams, where other disciplines are represented. In other words, each person does of course not have to be able to cover all methodologies, but has to be able to communicate across disciplines in a qualified way. Therefore, we hope that this emphasis on stimulating interdisciplinary understanding and approaches in a group as a student in relation to one focus area, in this case 'organic agriculture in a development perspective', will benefit the graduated candidate at a later stage, and as a course coordinator I enjoyed very much the active and competent way in which the five students with very different backgrounds could give very qualified inputs to the knowledge sharing and debate in the group.

Colleague supervision

In the light of the above, it also seems quite obvious that the methods of interdisciplinary work should be trained, tested and used in practice. In addition to various group work, a method of Farmer Field Schools (FFS) was used by the students to discuss their own work in the assignments. FFS methods is a range of learning methods often applied in development work involving farmers, and it is highly relevant in the knowledge intensive organic systems. In addition to this, colleague supervision was used and it was obligatory for the students to use colleague supervision or FFS and communicate and support each other in the process of writing assignments, and also to reflect on this in the assignment and the examination.

Five students and their own work

The five 2010-participants chose five different topics for their assignment, and a small summary will be given below. The knowledge production developed by the students is another source of knowledge which can be valuable and useful for the future discussion and collaboration on organic agriculture trends and developments, and they are encouraged to upload their work on Organic Eprints.

1. Certification systems in organic food systems

Emmanouela Karydi wrote about certification systems in organic food systems. She analysed and discussed different types of certification and their appropriateness under different conditions. The so-called Third Party Certification (TPC) is normally expensive, which excludes small-holder farmers unless in groups, which then demands an effort is needed to ensure the fairness in terms of ownership of the certification. Systems like the Participatory Guarantee Systems (PGS) and Internal Control System (ICS) are built on farmers' participation in groups with or without external inspectors. They may be affordable for small-scale farmers, but are often not accepted for external markets. She discussed the case of Uganda, where there is a big export market and much organic local food production involving many farmers.

2. Agro-forestry and the potentials

Thomas Dahl Olejarz wrote about agro-forestry and the potentials under tropical dryland conditions for building up resilient and at the same time income generating agricultural systems which included trees as a main component. He used the climate change as a framework for analyzing the relevance of agro-forestry systems and discussed how they could contribute to the long-term resilience of farming and food producing systems in the world. In addition to serve as sources in local communities for fodder, fruit, timber and fuel, there is also a potential to include high value trees in some systems, e.g. trees from which the local community can produce cash crops or 'gold crops' such as saffron, cardamom, myrrh (for perfume) or other high-value spices or crops.

3. Integrated livestock production

Lena Karina Hinrichsen focused on integrated livestock production in organic tropical agriculture. She had analysed the available information and literature based on the Tigray-experience, which had been a great success in terms of increased production of family food and cash crops for the local marked; had enhanced the agricultural system in the parts of Ethiopia where the project had been implemented, and a dramatic improvement of the humus layer in the soil – but where the 'dark side' of the development were the animals which were fenced and close to zero-grazed. This presents a very common challenge in tropical agriculture where animal welfare and health are compromised as a result of introduction of zero-grazing which enables the farmer to more efficiently collect manure and use the land.

4. Key species of vegetables in home gardens

Govinda Shresta wrote an assignment on use of indigenous knowledge to identify and characterize the use of key species of vegetables in home gardens in Nepal, which is his home country. His assignment was based on own data collection from when he worked in an NGO with development of perma-culture. One interesting observation in his work was that he did not use the term 'organic', nor defined 'organic', but everything in the assignment was focused on the use of local species of vegetables grown using agro-ecological methodologies, and preserved, integrated and included explicitly in the local communities through networks (e.g. seed collection and exchange). He plans to develop further on this assignment and turn it into a booklet which will later be published.

5. Sustainability aspects of urban agriculture

Andreas Vedel-Jensen submitted his assignment about sustainability aspects of urban agriculture with a strong focus on the social capital building related to urban agriculture, especially if it should be developed using the agro-ecological and organic principles, and be used as a development strategy for improved food security. He pointed to the necessity of knowledge infusion and experience exchange in groups, which could be Farmer Field Schools or other types of communities of practice. He used a Ugandan example, where persistent civil society groups had influenced an official policy for food security involving urban agriculture. He furthermore discussed the dilemmas of growing 'clean and healthy food' in an urban and often very polluted area.

Publications

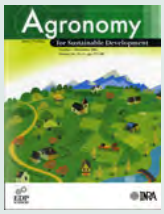
The added value of organic farming for environment and health

A special issue on organic food and agriculture has been released by British Food Journal entitled:

The added value of organic farming for environment and health: Facts and consumer perception.

Read the articles online at the British Food Journal website (external link)

Agronomy for Sustainable Development - most cited articles



The Journal Agronomy for Sustainable Development (ASD) has published a ASD most cited articles for the period 2007-2009 released by the ISI Web of Knowledge.

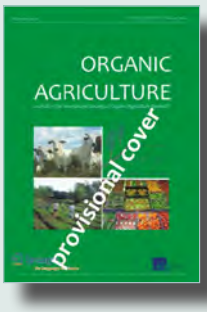
Go to most-cited list.

IFOAM membership directory 2010

IFOAM has released its comprehensive alphabetical directory of IFOAM members around the world.

You can get the directory at the IFOAM website

New journal: Organic Agriculture - Call for papers



The new journal, *Organic Agriculture*, is issued by Springer Publishing in the staging of ISOFAR.

It is the International Society for Research in Organic Agriculture calling for papers for the first issue of the novel journal.

Organic Agriculture will constitute a new platform for the sharing of knowledge within the many cross-disciplinary areas of organic agriculture and food systems.

Lines of direction for future authors and reviewers can be found here (pdf):

Generel information: go toSpringers' homepage: www.springer.com/13165

Congresses

Organic food for the youth: Final iPOPY Conference

[2. September 2010, Oslo, Norway]

Invitation to final conference for the CORE Organic iPOPY project:
Increased consumption of organic food is an objective in several countries. During the last four years, the international research project, iPOPY, has studied organic food for young people in Italy, Finland, Denmark, and Norway (and partly Germany). Some results show that schools using organic food achieve a healthier diet.

For further information, go to the Final iPOPY Conference Programme (pdf).

FQH 2011 1st announcement

First international conference on Organic Food Quality and Health Research is held in Prague, 18-20 May 2011.

Read more at www.fqh2011.org

1st UNAAB International Summer School on Organic Agriculture

[13-24 September 2010, Abeokuta, Nigeria]

The Organic Agriculture Project in Tertiary Institutions in Nigeria (OAPTIN) was founded in 2004 in response to the global quest for the development of sustainable agricultural systems. The University of Agriculture, Abeokuta, Nigeria (UNAAB) now holds a summer school in September. Focus is capacity building, skill and technology development in organic agriculture.

Read the first announcement and summer school programme (jpg):
www.icrofs.org/foto/images/2010_summer_school_nigeria.jpg

3rd International Conference on the Organic Sector Development

[17-18. September, Astana, Kazakhstan]

The 3rd International Conference on the organic sector development will present practical and scientific knowledge and allow exchange of experiences among practitioners in the fields of grain, rice and seed production, animal husbandry, cotton growing and wild collection, among other activities. The event takes place in Astana, Kazakhstan.
Go to the conference website.

Congresses/meetings

2nd International Symposium on Medicinal Plants, Their Cultivation and Aspects of Use

[3-4 November 2010, Petra, Jordan]

Interested participants are invited to participate in the Symposium, which will be held at the Petra Marriott Hotel, Petra. The Symposium will focus on recent advances in all aspects related to medicinal plants. Ash-Shoubak University Collage, Al-Balqa' Applied University is organizing the symposium. Read more at the University's website: www.bau.edu.jo

The official website of the symposium will be announced soon.

3rd ISOFAR Scientific Conference

[28.9-1.10, 2011; Gyeonggi Paldang, Republic of Korea]

Call for papers (deadline 30.11, 2010):
At the 17th IFOAM Organic World Congress, ISOFAR holds its 3rd Scientific Conference. Deadline for papers is 30. november 2010. Read more at the conference website:
www.isofar.org/kowc2011/index.html

Working Group: Organic Greenhouse Horticulture

[11-14. October, 2010, Bleiswijk, NL]

The working group "Organic Greenhouse Horticulture" will meet on the 11-14 October 2010, in Bleiswijk, The Netherlands.

The meeting will feature 4 days of presentations and workshop discussions. Topics will, among others, include soil management, energy use and management, crop health and management, nursery production, economics, social and ecological and environmental aspects, standards and product quality. Read more at the working group website