



Sixth Regional meeting Wismar, Germany 23-24 October 2003

Members present

Denmark: Finn Rexen, Bioraf Denmark Foundation
Denmark: Lis Beck Hansen, Bioraf Denmark Foundation
Denmark: Michael Rustand, Bornholms Erhvervscenter
Sweden : Rolf Olsson, Swedish University of Agricultural Science
Finland : Elina Muutomaa, TTS Institute
Estonia : Tonis Eerme, Tartu Science Park
Lithuania: Deividas Vijekis, Lithuania Innovation Centre
Poland : Anna Grzybek, IBMER
Poland : Alexander Muzalewski, IBMER
Poland : Marek Bury, Agricultural Academy in Szczecin
Poland : Beata Lubicka, Wroslaw Centre for Technology Transfer
Poland : Jaroslaw Osidiadacz, Wroslaw centre for Technology Transfer
Germany : Jörg Köhn, Regionalmanager, Westmecklenburg-Schwerin
Germany : Antje Köhn, JK Innovationsgesellschaft mbH

Not present:

Latvia : Gundega Lapina

Invited speakers

Dr. Hans Korte, Innovationsberatung – Holz und Fasern
Prof. Dr. Birger Kropfshofer, Criterium Consultants
Prof. Dr. Horst Gerath, Hochschule Wismar
Prof. Dr. Grünwald, Hochschule Wismar
Herr Groepper, Stropoli

Thursday 23. October, stakeholders meeting

Agenda

1. Welcome to Wismar
2. Excursion to local SME – STROPOLI, a new straw board plant, Mr. Groepper
3. Visit at Technology centre, Poel: Pilot plant for production of bio-ethanol, Prof. Gerarth
4. Regional projects in Western Mecklenburg
5. New materials from timber residues and other natural fibres for industrial purpose, Dr. Korte

Welcome to Wismar

The Hanseatic city of Wismar has for centuries been an important European trade centre. It connects German to Scandinavia, and especially the links to Sweden have been close. Wismar has 45.000 inhabitants, and it has a few large industries. For example a large modern shipyard – Kompaktwerft 2000 – and one of Europe's largest wood clusters. The cluster includes a sawmill, a pulp factory, a chipboard factory and a glue factory. All factories have been built between 1995 and 2000, and together they already have more than 1000 employees. In total more than 500 million € has been invested.

Close to the wood cluster – in Holzhafen – has been established a modern technology and research centre, which provides optimal conditions for the co-operation between industry and the University of Wismar. Near the centre is placed a Technology park, which offers facilities for start-up companies.

STROPOLI GmbH & Co. KG, Mr. Groepper

The factory is new. It is a private company (GmbH), which received financial support (40 % of total investment) from the regional development fund. It started up production in the beginning of this year.

As raw-material us used wheat straw, and the company has a five-year straw supply contract with a group of local farmers. The straw must be reasonably dry – 15-20 % - at delivery. It is collected from distances up to 50 km. It has not been difficult to find farmers, who are willing to deliver to the factory and to sign a long-term contract, it is however not so easy to convince them to take extra care of the straw during storage in order to maintain a good quality.

The capacity is 50.000 m³ of boards per year. The straw is stored in big-bales outdoors, which might create deterioration problems especially in rainy seasons . It is chopped, dried in a drum drier and disintegrated in a hammer mill. The hammer milled straw is are sorted according to size. The dust is removed, and the fine particles are used as outer layer, while the course particles are used as the inner layer. The sorted straw chips glued with an iso-cyanate glue (5 %), and waterglass is added to improve adhesion and stiffness.

After the addition of glue the chips are spread in a homogenous layer and pressed in a one-floor press.

The plant is very flexible. It can produce boards in various thickness (10- 100 mm) and densities, from very light boards that e.g. can be used for insulation, to heavy boards used for flooring or construction material in buildings. The boards may also be used for furniture production.

The straw-boards have to compete in a market that today is almost saturated with chipboards made of wood. The wood-boards have been on the market for a long time, and the customers have got used to them. The competition will therefore presumably be tough, but Mr. Groepper is optimistic. The boards can easily compete on quality, and the price may be somewhat lower than for wood boards.

Bioethanol production, Professor Gerath, Universität Wismar

University of Wismar has at its technology centre in Poel established a pilot plant for production of bioethanol.

Experiments are made with different types of biomass as raw-material:

- Willow
- Straw
- Whole cereal crop (straw and grain)

In the case of whole cereal crop the intention is to harvest the whole crop – grain + straw – in one go with a field chopper, which is much cheaper than conventional combine harvesting.

The process is a four-step procedure:

- Pre-treatment
- Enzymatic hydrolysis
- Fermentation
- Ethanol extraction and purification

The raw-material is chopped and treated with steam and sulphuric acid (0,5 %) in an autoclave under 22 bar pressure for 2 – 4 minutes. This treatment partly hydrolyses the cellulose and increases the surface, which should make the enzymatic hydrolysis faster and more complete.

One of the innovative elements in the process is the development of optimal enzyme mixtures especially suited for the individual raw-materials. Most of the work is dedicated to this task.

The fermentation process is traditional apart from testing a new way to separate yeast cells from the fermentation mixture. Part of the yeast is separated through a metal membrane to be used again in the next fermentation.

The technology centre is also doing research on other non-food applications of bio-based raw-materials such as sea-weed and rape-seed.

New materials from timber residues and other natural fibres for other industrial purposes, Dr. Korte

Friday 24. October. Members meeting

Agenda

1. Welcome to the Technical University of Wismar: Rektor, Prof. Dr. Grünwald
2. Conclusions and results from final conference: Finn Rexen
3. Discussion on composition and content of final report
4. Country report from Sweden: Rolf Olsson
5. Conclusions from the first day
6. Discussion on possibilities for continuation of the Basan activities: Jörg Köhn
7. End of meeting

Technical University of Wismar

Rektor, Prof. Dr. Grünwald

The University of Technology, Business and Design offers an untraditional composition of scientific disciplines. They range from the traditional electronic engineering, mechanical engineering and business administration to modern topics such as multimedia technology, communications design and media or architectural design.

The university with its 4000 students (almost 10 % the total population of Wismar) has a significant influence on the cultural and commercial life in Wismar. It functions as a catalyst for the dynamics of the whole region, and it is good example of the importance of academic R&D and education centres in remote regions.

It has a centre for maritime studies in Warnemünde and a department of mechanical engineering/process and environmental engineering placed on the remote island of Poel. This department is strongly involved in research on non-food application of renewable raw-materials from agriculture. They focus on wood, cereals, seaweed and oil-crops.

The university offers distant learning courses via the internet.

Conclusions from the final conference on Bornholm

Finn Rexen

Approximately 60 participants from all countries around the Baltic Sea, except Russia attended the conference that was held on Bornholm – a small Danish island situated in the middle of the Baltic Sea. The participants were national and EU parliamentarians, scientists, industrialists, businessmen and farmers. Thus the audience was “mixed” which presumably was one of the reasons for a lively and engaged discussion during the two days. The first day’s presentation gave an impression of the current situation in the Baltic Sea region, while day 2 was focused on the potentials for development.

Needs for changes

It was clear from the discussion and papers presented that the conditions prevailing in the regions around the Baltic Sea area not only have many similarities but also many differences. It is also obvious that all regions are facing many challenges, although these challenges may not necessarily be the same in all regions.

On the other hand the Baltic Sea area with plenty of natural resources, surplus of agricultural land and relatively easy access to large markets due to a well developed infrastructure has also got the potentials to become a very dynamic and prosperous area.

It was mentioned that the Baltic Sea region might become one of Europe's new growth areas, where we will see trade develop faster than in the rest of Europe. However people with visions and entrepreneurial spirit are needed.

Biotechnology and information technology will become key elements in this development. Diversification in agriculture and new uses of products from agriculture are needed. The challenge is to learn how good ideas are effectively developed and transformed into profitable and sustainable productions.

Standing alone the regions are too small, but together they could form a strong link between old and new Europe.

Success stories

An exhibition of successful regional products was established to illustrate that also in remote regions it is possible to produce high quality products although often in a small scale. Most products are sold on local markets, but some are also exported.

In addition 3 papers dealt with success stories from Latvia ,(marmalade and juices), and Germany , (insulation material from seaweed and building boards from straw), were presented.

New business opportunities

Several speakers referred to the recent WTO summit in Cancun, and it was a general perception that the competition, especially from Third World countries, on traditional agricultural and agro-industrial commodities will become stronger in the future. Therefore Baltic agriculture and agro-industries should put more focus on production of speciality crop and products.

An overview over the trends in the international food sector was given, and the great potentials for functional foods and food ingredients were illustrated.

Another area with great potential for the Baltic Sea regions is the production of bio-fuels , both solid and liquid. 50 % of the land is covered with forests and 20 % is arable land. Some of the agricultural land is today abandoned and some is cultivated extensively indicating a very large potential for a production of energy crops, fuel pellets liquid fuels (bio-ethanol and biodiesel).

It was also illustrated that the potentials for a future production of pharmaceuticals, cosmetics, paints, fine chemicals etc. from agricultural raw-materials are considerable.

A strategy for initiating and securing dynamic rural development in the Baltic Sea region

All in all there is no lack of good ideas for new activities. The difficult part is to commercialise these ideas.

A strategy for initiating new activities, based on the discussions at the regional Basan meetings, was presented.

One step in this strategy is to attract investors to the Baltic Sea regions by making the advantages known to the outer world. The potential investors must be convinced that the regions have important assets compared to other regions. Such assets may be lower input costs, transport costs, access to raw-materials in acceptable amounts and quality, access to specialised labour or research facilities etc. Also fiscal incentives, the local business climate etc. could play important roles.

The strategy shall include a promotion scheme for the entire Baltic Sea area managed by a centralised secretariat that should be established as part of a “**virtual Baltic Sea agro-industrial campus**”. It would probably be of great benefit for the entrepreneurs in the Baltic Sea regions to have access to **one** entity, where they can have their ideas tested (both technology and market) and business plans controlled by experts, before they contact investment funds and banks.

The campus shall consist of four pillars:

- ❑ The “Baltic Sea Agro(bio)-industrial Research network”. Network of existing local Research and Development institutions
- ❑ A training centre for entrepreneurs (language skills, IT, “entrepreneurial spirit thinking” etc.),
- ❑ A business and market study unit and
- ❑ A technology observatory (scout function).

The Baltic Campus shall thus function as a focal point for the establishment of new SME's in the Baltic Sea regions. Instead of spreading the activities in many different directions the Campus must have a visible profile and clear priorities and focus on specific directions of development. Potential Baltic Sea focus points might be: Bio-energy regions, agro-food technology nuclei, biorefineries etc.

The Agriculture in The Kvarken area of Sweden and Finland Rolf Olsson, Swedish University of Agricultural Sciences; Henrik Ingo , Österbottens Svenska Lantbrukssällskap, Sven Lingegård, Länsstyrelsen i Västerbottens län

Production area

The area described consist of the county of Västerbotten in Sweden and the counties Österbotten, South Ostbothnia and Central Oestrobothnia In Finland. The reason to describe a larger area in Finland is that they together form a food industry cluster. Special emphasis will be put into describing the coastal areas of the county Österbotten in Finland. The coastal areas in both countries are homogenous in conditions for agriculture concerning soils and climate . The area is also homogenous concerning culture and language which in both areas is the Swedish language. The Swedish speaking farmers in the Finnish area have a long tradition on relaying on agriculture research and development in Sweden and the interest of increasing cooperation is increasing also on the Swedish side. Both areas have also a common history about entrance to the European Union. There are thus many common features in the structure and activity of agriculture in the two areas but also many different development trends which will be discussed. The total production area in Västerbotten is 72.000 ha and in coastal areas of Österbotten 115.000 ha. The trend in utilisation of arable land in the Swedish part has been a strong decrease since the middle of 1950 especially in inland areas . In the Finnish area is the trend that a small decrease can be seen in inland area and an increase in the coastal areas of Österbotten..

Areas of Agricultural Production

The agricultural production in Västerbotten consist of both winners and losers. The winners are milkproducers mainly in the coastal areas with rapidly growing sizes of companies with a high mechanisation rate(cool loose housing barns) while the inland farmers and farmers with crop production or other activities are decreasing and thus are losers in such comparisons. The average land rent is low in Västerbotten (10- 20 Euro/ ha and year).Many farms have a high extensive culture level.

In Österbotten is milk production also increasing with increasing size and mechanisation rate on the farm level. There are also many farms with increasing activity in pork production. In a local area around a meet processing factory has also production of chicken and turkey grown rapidly. Farms with crop production are also many compared to Västerbotten and among crops grown here but not in Västerbotten are wheat, turnip rape and sugar-beet . Österbotten has also over 500 greenhouse companies as well as 800 fur farmers. The arable land in Österbotten is also increasing and the land rent costs is high (**100-500 €** ha and year). The Österbotten region is thus as whole a winner region also in a broader European Union comparison. Österbotten and central Ostrobothnia is a world leading production area in fuxfur.

Structure and activity in farms of Västerbotten and Österbotten

County	Number of farms					Total number of farms	Total area of arable land (ha)
	Crop Production	Husbandry	Green houses	Fur farms	Others	total	
Västerbotten	538	1247	36		2835	4656	72 000
Österbotten			500	800		4000	115 000
Österbotten, South Ostrobothnia, Central ostrobothnia	11510	4813	600	1200		18 123	426 000

Farm subsidies and other economic differences in comparison between the two counties

The farm subsidies are higher in Österbotten compared to Västerbotten and the national Swedish support to farms is also more steered up to support cattle breeding compared to the Finnish national support. There are also many options for growing different crops in Finland and to get subsidies compared to the situation in Västerbotten. The total level of support is strongly correlated to different land rent costs in the two counties and can not explain the differences in agricultural success.

Extension service to farmers

The governmentally financed extension service in Västerbotten has dramatically been reduced and is today restricted to the area of organic farming. Extension service in husbandry is today organised and financed by the farmers own companies. In Österbotten is extension service given by the farmers own organisations but is partly financed by government. The tendency in Österbotten seems to be increasing rather than decreasing compared to Västerbotten. The extension services in Finland are well integrated and covers the whole chain from water drainage, crop production, farm house building and husbandry. There is also a national strategy in Finland for the whole food chain where quality management is the key element and thus more or less forces the different actors within the chain to cooperate.

Production clusters and its connection to extension service, research and development.

Production clusters and its coupling to extension service and ongoing research is well developed in Västerbotten in the areas of organic farming and husbandry but is missing in other areas of agriculture in Västerbotten. In Finland is this situation good in all areas of agricultural activities. The production clusters in Österbotten in the areas of fur farming and green house production can be good examples of success. The production is in both cases built up in a concentrated area of Finland as has grown so strong that advisory as well as service companies have been possible to establish in farmer initiatives in areas as

product distribution, forage production and waste handling (fur farming). The production clusters are also organising , new extension services in connection with research and development.

Availability of Research institutions for farmers in the region

Västerbotten has two universities which are active in research areas of interest for agriculture. The University of Umeå is active in food and especially functional food area and the Agriculture University in Umeå in forestry, husbandry and renewable energy production. The research trend in Sweden is decreased applied research and increased basic research. Clusters between production and research have strongly been developed during the last 10 years. Research units on the Finnish side are focused on crop production , fur farming and green house production. There are also old traditions that Swedish speaking farmers in coastal areas of Österbotten that farmers rely on research institutions on the Swedish side.

Rural development as an important factor for agricultural development

The importance of social factors has also been recognised in Österbotten as well as in Finland as whole and new professorships in rural development will be established in 8 places of Finland with one located to Österbotten in comparison with totally 1 for Sweden. Other factors of importance which has been recognised is farm structure and farm village organisation in Västerbotten and Österbotten. The laws for improving farm structure in Sweden as well as Swedish agriculture policy have also to great extent lead to disrapture of former farm village structures in Västerbotten but not in Österbotten there the former farm village structure still exist. The social importance of keeping this farm village structure has so far not been evaluated but is obviously of importance in aspects as less movement to cities from rural areas.

The farm industries and connected industries in Österbotten play an important role in the economic activities in many communities in Österbotten. This is also an important matter concerning public opinion and politics for agricultural and rural development. The importance of the agriculture and agroindustry sector is accepted as important for the whole country and area of Österbotten but have a much weaker position in Västerbotten. This will also influence the availability of investment money for the agroindustry sector.

Which factors will be key factors in rural development for the Baltic Sea Area ?

Entrepreneurship is an important factor for development of agroindustry. The situation in Österbotten shows how new agroindustry business can be developed also in other Baltic sea areas.

Industry sectors which have good acceptance will also get new entrepreneurs to the sector as is the situation in Österbotten. The farm schools in the area have a good development concerning recruitment of pupils . Good basic knowledge in agroindustry development is one key factor in establishment of new entrepreneurs. In Österbotten has also the importance of establishment of production clusters and its connection to advisory and research clusters been accepted and is continuously developed further. The importance

of these factors are also recognised by agroindustry sector in both countries and new clusters are under development in e.g the energy sector in both counties.

During the time in history when Finland was a more closed society (both politically and language wise) the importance of international contacts and influence can be used as a factor why Österbotten developed stronger entrepreneurship than more eastern part of Finland. Both fur farming and greenhouse production were brought in by emigrants returning to Österbotten. Also other new ideas came faster to Österbotten due to contacts to other countries, most important Sweden and USA. Finnish farmers nowadays are in this respect more equal to the global society are really open for anyone wanting to take part in it. On the other hand the speed of change is higher. Networks for spreading ideas are therefore important.

The future optimal size of successful clusters is still not clear. The increased competition in global economy will maybe force the clusters to grow to be competitive. The willingness in Västerbotten and Österbotten is good to participate in clusters covering the Baltic Sea area.