News and Views

1 2001

Biofuels make a growing contribution to Nordic energy supplies

Biofuels, such as wood fuels, peat, energy crops and organic waste products, now contribute 15 percent of the Nordic countries' total energy supplies. Fossil fuels – oil, coal and gas – are still the major sources, however, with a total market share of almost 60 percent.

Sweden and Finland each produce biofuels equivalent to 91 TWh annually, while Norway produces 13 TWh equivalents, and Denmark 18 TWh.

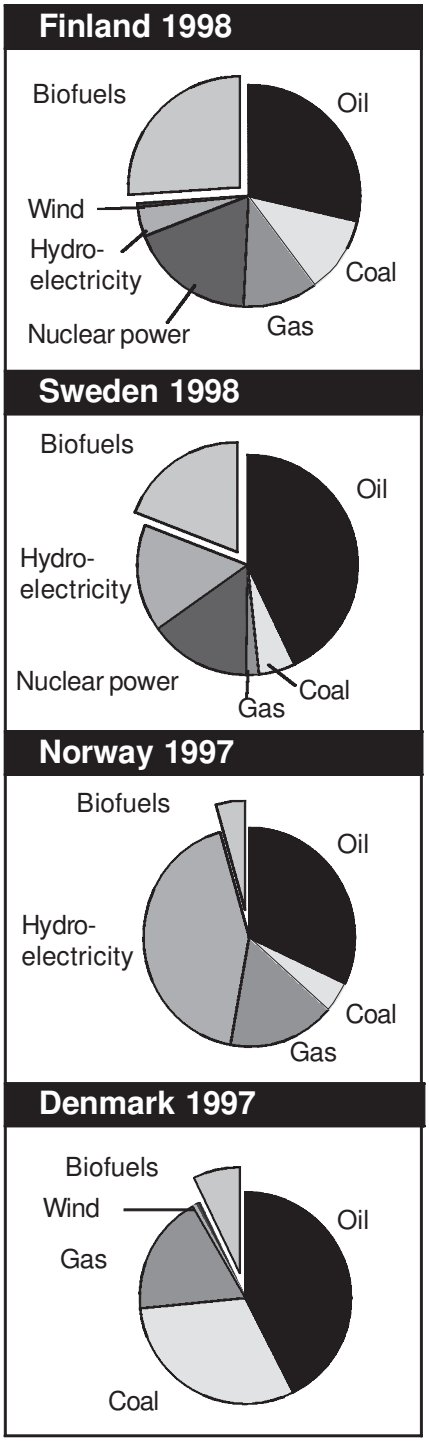
These figures come from a survey initiated by the Nordic Council of Ministers. In the final report, you can also find, amongst other observations, that:

- The annual production of biofuels in the four countries comes to 210 TWh.
- The potential production of biofuels is estimated to be 450 to 470 TWh.
- Secondary products from the pulp industry (especially lignin) are the most important bioenergy sources.
- Denmark, Finland and Sweden have well developed systems for providing heating to entire districts, which facilitate the use of biofuels in heating plants.
- In Denmark, straw from corn-production is a substantial biofuel source
- Special energy crops, such as *Salix*, are grown in Sweden. So far, 14,000 to 15,000 hectares have been planted with such crops. There is less interest in energy crops in the other Nordic countries.
- Peat is a substantial bio-energy source in Sweden and Finland, but it is not used in the other countries.

Source: Bio-energy in the Nordic countries. Nordic Council of Ministers 2000 *(published in a mixture of Swedish/Danish/Norwegian).*

Harvest in a Swedish Salix plantation. Photo: ARECA.

Energy production - excluding electricity imported or exported



Forest Information Services Network for Europe

A vast amount of forestry information is available on the Internet, but in a lot of cases this material is not accessible because of language barriers or because it has a low profile on the Internet.

In order to improve the transparency of the forest sector, the European Forest Institute has launched the Forest Information Service for Europe, or FINE in short.

The aim is to provide the public, business professionals and forestry students with value added information about forests.

The information is split into various sections: forest history and policy, forest products and trade, a database of small and medium enterprises, and contact information for local organisations.

In the pilot phase, the focus has been on four regions: information on North Karelia in Finland and Flanders in Belgium is already on the net, while facts on Galicia and Catalonia in Spain will soon be added.The intention is to gradually expand the project to provide pan-European coverage.

Source: EFI News No. 2/2000

Swedes still like to roam in the forest

Roaming in the forest is still a very popular activity in Sweden, in fact as popular as it was twenty years ago, according to a newly published thesis. In one of the papers, the author, Lisa Hörnsten, presents the results of an enquiry, in which the respondents were asked to rank forests in a number of photographs showing different forest types, asking "Which forest is best for outdoor recreation activities? Which is second best, etc.?" The same photographs were used in a similar study in 1977. The preferences are obviously stable over time. Almost exactly the same forests were popular in both studies. And a common finding was that forests that were easy to walk through were preferred.

On the other hand, picking blueberries and lingonberries is not as popular in Sweden as it used to be. In 1977, 35 percent of the respondents between 35 to 44 years used to pick both these popular berries in Sweden. But when the same question was asked in 1997, the number of berry-pickers had decreased to only 6 percent.

Source: The Swedish University for Agricultural Sciences.

Most popular forest in both 1977 and 1997.

First European centre of expertise in urban forestry launched in Denmark

The Danish Minister for the Environment and Energy, Svend Auken, launched a new European urban forestry research centre on Monday 15 January. The centre is based at the *Danish Centre for Forest, Landscape and Planning*.

The new centre will support the conservation and development of urban forests and trees as major contributors to the quality of life in cities and towns. It is named *EUFORIC*, an abbreviation of *European Urban Forestry Research and Information Centre*.

The centre involves a consortium of institutions from eight European countries. During the first three years of its existence, it will enhance networking and co-ordination among urban forestry research facilities in Europe.

EUFORIC has been established as a Regional Project Centre of the *European Forest Institute* (EFI). EFI is a non-governmental organisation with over 130 member institutions in 35 countries.

One of the first tasks will be the development of an Internet site, which will include features such as news on research and conferences, addresses of experts throughout Europe and, at a later stage, databases of relevant research projects and places offering higher education in urban forestry.

EUFORIC will co-organise several urban forestry seminars, starting in 2001. One of the planned events is a research conference on Urban Greening as a Development Tool (to be held in St. Petersburg, Russia) Another is the annual European Forum on Urban Forestry, a meeting of urban woodland managers initiated by IUFRO. Both events will take place in May.

The centre will also be involved in the formulation of innovative research in the field of urban forestry. Moreover, it will improve the links between research and practice, and contribute to the European policy agenda from the urban forestry perspective.

The annual budget will be approx. 500,000 DKK. This money is to be used for networking and information facilities, and will add to the existing and future research funding for the Centre's urban forestry activities

Contact: Cecil Konijnendijk, EUFORIC-coordinator, FSL. E-mail: CCK@FSL.DK

The Danish Minister for the Environment and Energy, Svend Auken, opens the new centre for urban forestry. Photo: FSL

Oaks under stress

In the late 1980:s, oak-trees of all ages started to die in Sweden. Both old trees in parks and young forest trees were affected. This "fast oak dieback" is today believed to ben caused by three years of extremely cold winters with low temperatures and deep frost in the ground.

But parallel to this, there was also a "slow dieback" of oak-trees, starting a couple of years later. Old branches died and new adventitious branches sprang out from the stem. Eventually the trees died.

The cause for this slow dieback has not been fully explained, but recent research has shown that areas with high variation in the groundwater level were most affected. Drought is today believed to be the triggering factor, often followed by infections caused by fungi and insects.

This was not the first time this type of oak-decline appeared in Europe in the 20th century.

Source: Swedish University of Agricultural Sciences.

Nutrient supplies to forest ecosystems – what have we learned?

What have we learned about forest fertilization so far? And what are the most important research issues for the future? A group of nine Nordic researchers have collaborated on a project financed by SNS (The Nordic Forest Research Cooperation Committee) to address these questions.

Their findings were recently delivered in a comprehensive report and in a number of national presentations. They were also encapsulated in an overall summary, entitled "Main findings and future challenges in forest nutritional research and management in the Nordic countries". Some of the conclusions given in this paper are:

Nitrogen is still a key element

Nitrogen fertilization can yield profitable growth increases in large parts of the northern Nordic countries. Although N deposition has increased, N is still the major growth-restricting nutrient in these areas.

In the Nordic countries, no severe damage due to air pollution has been observed. Although N fertilization may promote significant growth increases, fertilization has been very limited during the last decade.

However, nutritional management should be acceptable in stands where there are positive financial results and in stands where nutritional deficiencies or imbalances have been identified, and where the treatment effects on the environment fall within acceptable parameters.

Liming under debate in Sweden

In Sweden, the perceived need to counteract ongoing soil and surface water acidification through liming has been intensely debated. The scientific community is divided into two opposing camps. One group stresses the problems associated with soil and water acidification, and the potential risks these processes pose for losses of productivity and biodiversity of the terrestrial environment. This group argues that large-scale liming is urgently required. The other group argues against large-scale liming, pointing out that it appears to have minor positive effects on water quality and forest health, and stresses the risk that liming may increase other environmental problems, e.g. nitrate leaching and fluxes of greenhouse gases.

Interdisciplinary research needed

The overall task for future research is to establish a sound scientific basis for forestry to decide when nutrient management is needed and what treatment effects can be categorised as being acceptable, taking all organisms and processes involved into account. These goals demand an interdisciplinary research effort.

Special questions in Iceland

In Iceland, further research on the nutrient status of seedlings, and on the possible modes and effects of fertilization in the phase of plantation establishment appear to be of crucial importance for afforestation.

More intensive forestry raises new nutritional questions

Generally, the Nordic forest management regime is aimed to be sustainable, and to ensure long-term soil fertility, thus promoting stable forest production in the future. However, a continuation, or in some cases even an intensification, of the present harvesting strategy may make compensatory fertilization highly desirable, or even essential. There is also an urgent need for research into the effects of spreading wood ash to recycle nutrients removed in the intensified

Forest fertilization with nitrogen, a profitable pursuit in a majority of the Nordic conferous forests. Photo: Norsk Hydro

use of forest residues for energy production.

Need for long-term experiments

Nutrient management may, over time, affect the forest ecosystem and stand growth in different ways. It is therefore important to establish, maintain and evaluate long-term fertilization and liming experiments if integrated knowledge of the effects of these treatments is to be obtained. Alternative nutrient sources need special attention through long-term research as they often contain ecotoxic compounds and may present a long-term risk to the environment.

Interaction with silviculture

It may be possible to solve many of the nutritional problems on nutrient-poor soils by changing the forest management system instead of fertilizing and liming. For instance, nutrient removal through harvesting may be decreased by refraining from removing the most nutrient-rich parts of the biomass (e.g. avoiding the removal of needles by refraining from chipping fresh trees). Nutrient losses through leaching and soil acidification may also be reduced in some parts of the Nordic countries by changing from coniferous to deciduous or mixed stands. However, the results of some of these changes may be less economically beneficial in the long term than nutrient management.

Source: Nutrient supplies to forest ecosystems – what have we learned? SNS 66. Final report (in English).

A number of the articles in the SNS-report will be published in a special issue of Scandinavian Journal of Forest Research, which will appear in 2002.

Climate change no threat

The mean temperature in Sweden may rise by three degrees in the next 50 years as a consequence of global warming. But this drastic increase in temperature poses no real threat to the forests, according to a newly published thesis.

Johan Sonesson has grown pine and spruce seedlings with similar genetic backgrounds under different temperature and water regimes in a climate chamber. Both species were able to adapt to the differing conditions. Some individuals also gave a stable progeny, which means that the progeny performed well in all tested climates. The author suggests that these individuals should be used in future breeding programmes, to ensure that our trees are well prepared for any possible global change.

Source: Swedish University for Agricultural Sciences

Freshly-cut Christmas trees safer

Every year there are accidents caused by Christmas trees catching fire. The Forest & Landscape Centre in Denmark has studied the fire-risk presented by different tree-species. According to their studies, the risk is higher for *Abies nordmanniana* and *A. nobilis* than for *Picea abies* and *P. pungens.*

But their overall conclusion is that is difficult to set fire to a fresh Christmas tree, regardless of species.

They also give some advice on how to keep your Christmas tree fresh:

- Buy a freshly-cut tree
- Store the tree outdoors in the shade until it is time to bring it indoors
- Take it inside as late as possible
- Cut a 2-3 cm slice from the stem before putting it into water.

Source: Source: Skov & Landskab Nyt No. 4 2000.

SNS initiative expanded into comprehensive research project

Value for money

A couple of years ago, SNS promoted a preliminary study into the production of wood energy from conventional forests. The work is now being expanded into a more comprehensive project, involving researchers from Denmark, Sweden, Finland, Norway, Lithuania, Latvia and Estonia.

The project is named WOOD-EN-MAN, or "Wood for Energy", and will get extensive financial support from the EU. The work will concentrate on four research fields:

1. Ecosystem nutrient vulnerability: An investigation designed to identify ways of classifying sites according to their vulnerability to nutrient imbalances after removal of biomass.
2. Wood-ash application to forests: Here a field experiment with wood-ash fertilization is to be established in Lithuania. This, and various experimental plots that have already been established, will then be analysed to determine the effects of wood-ash application on soil and seepage water, soil acidity, tree nutrient status etc.
3. Insect biodiversity and insect pests: A study on the effects of storing woody material in the forests.
4. Socioeconomic effects of wood-based biomass usage: Amongst other goals, this investigation will develop a decision model for forest owners and managers.

Co-ordinator:
Karsten Raulund Rasmussen,
The Danish Forest and Landscape Research Institute (DFLRI)
KRR@FSL.DK

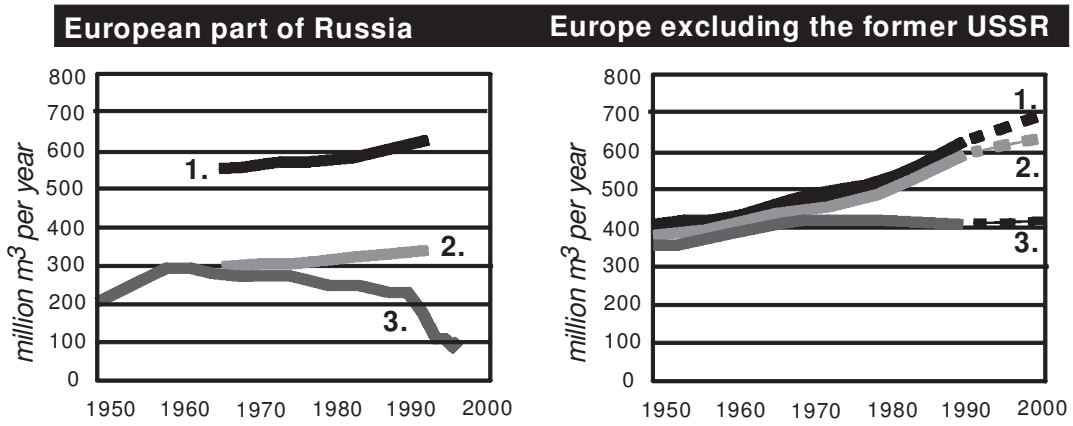
Forest resources are increasing in the European part of Russia

The growth potential of the forests in the European part of Russian is as high as in the rest of Europe, excluding other parts of the former USSR, according to an analysis carried out in co-operation with the All-Russian Information Centre of Forest Resources, and published by the European Forest Institute.

The analysis shows there is a big gap between gross and net annual increment in Russia. It also shows that annual fellings in Russia have decreased substantially over the last ten years.

One conclusion given in the analysis is that forest resources in the European part of Russia are large enough to allow forests to be set aside as protected areas and at the same time increase the fellings, without endangering sustainability.

Source EFI News No. 2 2000.



1. Gross annual increment 2. Net annual increment 3. Annual fellings

Natural regeneration after the storm

In December 1999 and January 2000, extensive forests were destroyed by hurricanes in Denmark. A majority of the wind-thrown forests will be replanted. But in a newly launched project, researchers will study the natural regeneration process, and see what happens if nothing is done. The hypothesis is that a new stand will establish itself, and that the resulting forest will be more varied and beneficial for plants and animals than the replanted stands.

Already today, just a year after the tempest, you can find pioneer tree species, such as birch and Scots pine on the experimental plots.

Source: Skov & Landskab Nyt No. 4 2000.

After the storm: Photo: ARECA

New address for SNS

The seceretariat of SNS, The Nordic Forest Research Cooperation Committee, has got a new adress:
c/o FORMAS
P.O. Box 1206
SE-111 82 STOCKHOLM. SWEDEN
sns@formas.se

News & Views is edited by
Areca Information AB.
Contact: Carl Henrik Palmér. chp@areca.se

We strongly encourage our readers to contribute to a lively and interesting journal. Letters to the News & Views section will be published if they are:

- short
- relevant to the Journal
- interesting for the readers.

Examples: comments on papers published in the Journal, views on ongoing research, trends in research policy, opinion about forestry practice etc.