

14 October 2015: 09.00-17.00

Woodbio project meeting

Hotel degli Arcimboldi, Milan, Italy

The Second Woodbio project meeting

Dates: 13-16 October 2015, Palace: Hotel degli Arcimboldi, Milan, Italy.

Agenda 14 October 2015

Short presentations of Woodbio project work (max 15 min for each participant + questions/comments).

Halldór Sverrisson (IFS): Populus clonal trials in Iceland, preliminary results

Þorbergur H. Jónsson (IFS): Woodbio activities in the “Sandlækjarmýri” experimental site in S-Iceland

Anders Tærø Nielsen (KU): Effects of seasonal cutting on moisture content of poplar timber and biomass

Jyrki Hytönen (Luke): Biomass production of coppiced hybrid aspen in agricultural land in Finland

Coffee c. 10.30

Maarit Kallio (Luke): Future supply and demands of forest biomass

Judit Sandquist (SINTEF): Mapping the developing industries (Innovation) utilizing wood biomass

Hrefna Jóhannesdóttir (Energigarden): Study related to the pellet market in the Nordic countries

12.30-13.30 Lunch

Almir Karacic (SLU) and **Anneli Adler** (Swetree): Hardiness zones for Nordic countries based on growth rhythm- and phenology of poplar clones bred for higher latitudes, preliminary results.

14.00-17.00 General discussions, workshop/conference, finance, next steps etc

- **Planning the Conference/workshop that will be held in the autumn 2016.** (Location, time, subjects, agenda, invited speakers, publications (abstracts, extended abstracts, papers?))
- **General discussions**

Thursday 15 October 2015

Visit to Casale Monferrato, The Research Unit for Intensive Wood Production and excursion to experimental fields and plantations. Strada Frassineto 35 - 15033 Casale Monferrato (AL) Italy Tel: +39 0142 330900 - Fax: +39 0142 55580

07.30-08.30 Breakfast

08.45

We meet outside the hotel ready for the Bus that will take us to Casale Monferrato.

c. **10.00** Arrival to Casale Monferrato. Casale Monferrato is a town in the province of Alessandria. It is situated about 100 km west of Milan on the right bank of the Po River. The institute will inform us about their activity, show us the experimental farm, biomass plantations, biomass heating power plant etc. The director of the institute is Dr. Giuseppe NERVO.

18.00 Estimated arrival time to Hotel degli Arcimboldi



Afternoon

Planning the Conference/workshop

Time frame: October 2016, in connection to the:

NordBio Conference October 5-6, 2016 at Harpa Concert Hall, Reykjavik Iceland.

This is a conference on bio-economy, sustainability and the outcome of the Nordic Bio-Economy Initiative (NordBio).

Before or after the Nordbio conference? 5 and 6 Oct (Wednesday and Thursday)

Agenda: Lectures and excursion?

Location: Reykjavik Iceland

Topics: ?

Short rotation forestry (SRF)

High productivity forest management

The Future demands of wood biomass

New products from wood biomass.....

Title of conference: Nordic.....

Invited speakers?

Publications (abstracts, extended abstracts, papers?)

For discussion on the second Woodbio meeting, Milan

Methods to increase wood biomass from the Nordic forest during the next decades.

Aim: To fulfil the upcoming demands from the market for wood biomass products from the forests.

Important question we have to consider: Will there be a demand for more wood biomass from Nordic forests during the coming decades? If the answer is yes then we can continue.

We try to answer this question with the following assignments within the Woodbio project:

- Maarit Kallio (Luke): Future supply and demands of forest biomass
- Judit Sandquist (SINTEF): Mapping the developing industries (Innovation) utilizing wood biomass
- Hrefna Jóhannesdóttir (Energigarden): Study related to the pellet market in the Nordic countries

Roadmap (recommendations):

- A. Increase the outtake from the forests
- B. Increase the productivity of the forest
- C. Increase of forest areal (land use changes): afforestation

A. Increase the outtake from the forests

In all Nordic forests more biomass is produced than harvested annually

Average felling share (%) of annual increment (Rytter et.al 2014):

- Norway: 36%
- Denmark: 50%
- Finland: 55%
- Sweden 78%

High potential to increase the outtake:

Methods:

Harvest more forest and still keep the forest sustainable (including future demands) and productive for the generations to come.

Limitations:

Do we have mature and productive forest to harvest? Is it economically profitable to harvest more?

Is today's harvest optimized already?

Is the forest logistic structure capable to support more harvest?

B: Increase the productivity of the forest

Methods:

- **Applying new methods in forest management** (ENERWOOD) e.g. replace low productivity forest with high productivity forest (introduction of fast growing species). Use pioneer species for early biomass production in mixed forest plantations.
- **Optimise the forest productivity during the rotation time.** The forest starts in early stage to give us forest products (e. g: wood biomass) and gives us continues products during the rotation time.
- **Using fertilization.** Increase the growth of today's forests
(Example from Sweden: An annual fertilization on maximum 1.5 % (400 000 ha) of the total forest area in Sweden can be considered long-term sustainable. In productivity terms it means an extra growth of c. 6 million m³ during a 10-year period (Swedish Forest Agency 2011).

Using fertilization in Swedish forestry gives on average increased production of: 1,5 m³/ha year

Limitations: regulations, sustainability, cost, CO₂, nutrient enrichment of freshwaters (eutrophication)

C. Increase of forest areal (land use changes): afforestation

Methods:

Using high productive tree species on marginal areas.

Using high productive tree species on fertile land (e.g. on abandoned agricultural land)

Assignments in Woodbio project related to high productive tree species within the Woodbio project:

- Halldór Sverrisson (IFS): Populus clonal trials in Iceland, preliminary results
- Þorbergur H. Jónsson (IFS): Woodbio activities in the “Sandlækjarmýri” experimental site in S-Iceland
- Anders Tærø Nielsen (KU): Effects of seasonal cutting on moisture content of poplar timber and biomass
- Jyrki Hytönen (Luke): Biomass production of coppiced hybrid aspen in agricultural land in Finland

Limitations:

Is this land area available in the Nordic countries? **Yes** (e.g. Rytter et.al 2014)

In 1000 ha

Denmark 250 – 470, (afforestation aim 20-25 %, today forest 14%)

Finland 276 (uncultivated arable land)

Norway 195 (mainly coastal heathland)

Sweden 300 - 500

Iceland 200 (afforestation aim 5% of lowland, today plantation forest 0,5%)

Total available land for re- and afforestation in the Nordic countries: 1,2-1,6 m ha

Additional factors that might (will) affect the forest growth in Nordic countries:

Climate change effects:

Is the forest adapted to climate change (adaptation)?

Will it increase the production?

Negative effects:

- Forest fires
- Pathogens, insects
- Draught

etc

Other?

References:

Lars Rytter, Kjell Andreassen, Johan Bergh, Per-Magnus Ekö, Antti Kilpeläinen, Dagnija Lazdina, Peeter Muiste and Thomas Nord-Larsen 2014: **Land areas and biomass production for current and future use in the Nordic and Baltic countries**. Nordic Energy Research Oslo, 44 p. (<http://www.nordicenergy.net/publications/>),

Swedish Forest Agency 2011. Swedish Statistical Yearbook of Forestry. Swedish Forest Agency, Jönköping, 386 p.