Nicholson fund faculty exchange visit by graduate student Klavs Ielejs from Swedish University of Agricultural Sciences

Wood biofuels master thesis research

I traveled to Raleigh in September 2014 as a part of Gunnar and Lilian Nicholson short exchange program. As the demand for biofuel products globally are growing due to different reasons as for example energy independence, global warming and sustainability. I decided to write my master thesis about biofuel products produced in Latvia and Southeast USA concerning biofuel policies and wood biofuel products produced for export in Europe and North America. The data collection here in USA consisted within the wood pellet producers which export their products to European Union. The survey consisted of selected 15 companies which were showed as pellet exporters to Europe. All of the companies were questioned with 20 different questions concerning production types, capabilities, tree species used, future development predictions, timber supply, new products, demand and supply and future challenges.

I arrived to Raleigh on 9th of September. The research interview visits consisted of time period between 12th to 28th of September. During that time I visited most of the companies which were selected for interviews. Companies as Trae Fuels Ltd - Pellet Plant Biomass Energy LLC in Bumpass, Virginia, American Wood Fibers in Marion, Virginia, Varn Wood Products in Hoboken Georgia. The companies interviewed had a difference in their production capabilities starting from 15 000 t annually to 650 000 t annually. The most used tree specie for pellet production were Southern yellow pine, at some plants hardwoods were used too as different Oak species, Hickory and Cherry. Companies were producing two kind of products – industrial pellets used for CHP plants and Premium pellets used for private house heaters. As the trends in US pellet markets are changing in last two years few of the companies switched to local consumers. The household market in US are growing every year which derive market growth which usually consumes the pellets from the smaller sized companies. As if we look at the exporting companies the main markets are Denmark, Netherlands and United Kingdom for Industrial class pellets and Italy is the main market for Premium class pellets. All of the companies
interviewed mentioned that the local and export markets are growing and they are looking forward to expand their production sites as there is mainly no lack of raw material in the market. Two companies as in the time I visiting them were doing expansions in their mills investing in new dryers and new pellet presses.

From 3rd to 11th of October with a group of students supervised by Dr J.Roise we went to Utah, Salt lake city IUFRO and SAF conference. In the conference I listened lectures about the different bioenergy researches around the world.

After the conference I spent one month in Raleigh which I used for finalizing and summarizing my data about wood pellet producers in Southeast USA, and collected needed information for development of biofuel sectors in USA and EU. At last three weeks I analyzed the data collected and compared it to the data I collected in Latvia. The comparison was made between wood pellet producers in Southeast USA and Latvia. I reached the goals for my research and I was able to derive conclusions about two different regions which are one of the major suppliers of wood pellets.

Pellet companies were analyzed in two regions which are significant suppliers of premium class and industrial class pellets to Western European countries. Latvia is the leading country in Baltic States by exporting wood pellets and SE USA are leading region in USA and one of the leading regions in North America supplying wood pellets overseas to Europe.

The premium wood pellet markets are changing due to steady developments of local markets in Latvia and USA. The industrial class pellets stays as the main export products for both countries and regions. Softwoods is the main resource for wood pellets in most of the wood pellet mills. As the main resource for pellet production primary is manufacturing wood waste.

Expansion of pellet production sites will take a part in Southeast USA as there are new pellet plants launched every year. Export market demand will increase in further years, as different renewable energy policies are implemented in European Union countries. Pellet producers in both regions predict that next 3-5 years pellet demand will increase both in local and export markets.

I’m very great full to everyone from NCSU who helped me on doing research and solving different issues related to exchange period. I’m glad that I was able to see and interview the wood pellet industry in Southeastern US, which supports EU to use renewable resources in energy production. After finalizing all the results in SLU this research will give different view from biofuel producers perspective in EU and US, and other relevant information for people interested in wood biofuels sector.

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In Further pages there are attached photos from wood pellet mills and SAF conference.

Trae Fuels Ltd - Pellet Plant Biomass Energy LLC in Bumpass, Virginia

Pellet mill at Varn Wood Products in Hoboken, Georgia
Standard wood four Grades at American Wood Fibers in Marion, Virginia

Pellet bag at American Wood Fibers in Marion, Virginia
Pellet mill - JCE Group AB Green Circle Bio Energy Inc

Exhibition hall at IUFRO and SAF conference Utah, Salt lake city
Researchers from Bangladesh, Austria and Sweden at Exhibition hall at IUFRO and SAF conference Utah, Salt lake city