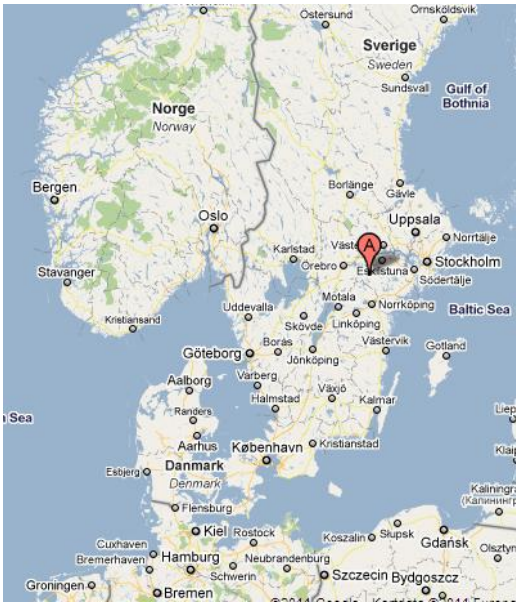
# Briquetting of reed canary grass at Låttra farm in Sweden

## Backround

Due to increasing prices for woodchips and growing competition for raw materials Låttra farm, located about 150 km west of Stockholm, started to look into the possibility to produce reed canary-grass briquettes. A spring harvest usually yields between 4 and 6 tonnes dry weight per hectare under normal conditions. If the crop is harvested early in the spring the dry substance is usually between 80 to 90 percent. Låttra Farm grows reed canary grass on 70 hectares and the goal is to increase this to 100 hectares by 2012. There is potential to increase the amount of land used for growing RCG in the area around Vingåker and Katrineholm. Nearby land is used for ley and fallow because many farms in the area have fields with “low productivity” i.e. that do not yield enough profit to warrant growing foodstuffs.




## Cultivation of reed canary grass (RCG) on Låttra farm

RCG is a perennial grass that can be grown throughout Sweden. The quality and quantity of the harvest depends on the quality of the soil, the species of RCG and what and if fertilizer is used. The first harvest is taken in the spring two years after sowing and is about 20% lower than following harvests. The harvest rate is around 4-6 tonnes DM per hectare at normal conditions for a spring crop.

*Typical fuel properties in spring.*

| | | |
|---|---|---|
| Net calorific value | MJ/kg dm | 17.5 |
| Ash content | % dm | 5.9 |
| Moisture | % | 13 |
| Softening temperature of ash | °C | 1,420 |
| Nitrogen | % dm | 0.48 |
| Sulphur | % dm | 0.06 |
| Chlorine | % dm | 0.04 |

## Harvest

Reed canary is slain during autumn and dries in wedges in the field until spring. In spring the grass is pressed into round or square bales. The goal is to store the bales protected from the weather beside the field to keep storage costs down. The Bales are afterwards transportetd from the field to the the briquetting hall for chipping and briquetting.

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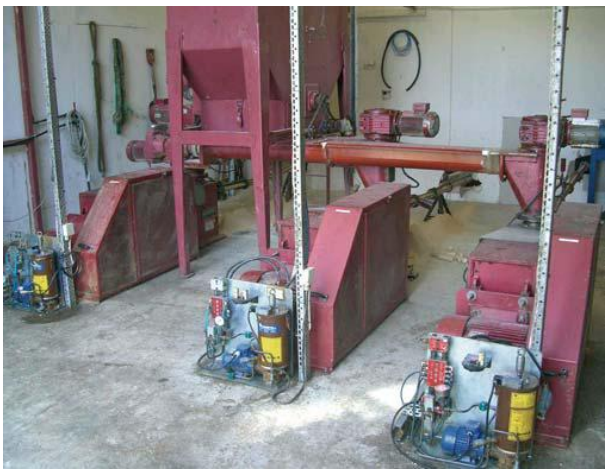
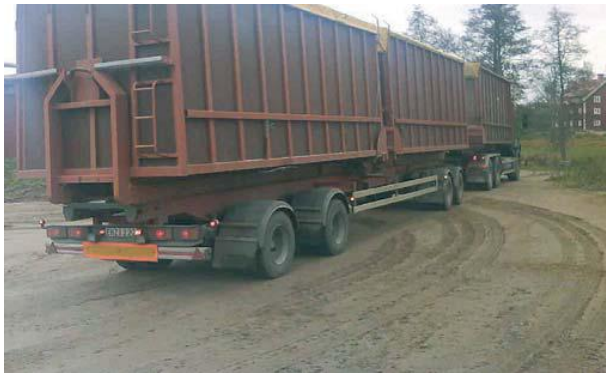
## Briquetting

Låttra farm has the capacity to produce 3500 tonnes of wood briquettes per year. The briquetting presses have a capacity for briquetting of reed canary-grass from about 500 hectares. Today briquettes (wood) are supplied to both households (15%) and greater heating plants (85%). The bales of grass are cut up in a slow shredder before being shredded further in an industrial grinder. The material is then fed into three Bogma V40 briquette presses which produce briquettes of 40 mm diameter. The finished briquettes are fed into a horizontal silo with capacity for 1000 tonnes of briquettes. The briquettes are taken directly from the silo for delivery to customers.



## Transport

The briquettes are loaded on Låttra farm on a demountable container and transported heating system at Ökna school. Each shipment contains about 30 tons of reed canary grass briquettes.



## Consumers:

There are currently a number of heating plants within a 100 km radius of Låttra Farm that use woodchips, wood pellets or briquettes. One of these plants is the briquette-fired plant at Ökna School in Tystberga, which is run by TCG Teem Combustion Group, heating supplier, based in Ulricehamn. TCG builds and operates different kinds of district heating plants. The aim is to replace one of the older solid fuel boilers which runs on wood briquettes with a new solid fuel boiler suited for ash-rich reed canary grass briquettes during the summer of 2011. In autumn 2011, TCG will begin work with optimising the plant to be able to use reed canary grass from Låttra Farm.

## Problems/ possible obstacles

The main challenge is the establishment of a profitable supply chain and market for reed canary-grass briquettes especially with regard to storage of raw material before pressing.

## Contact

SP Technical Reasearch Institute of Sweden
Anna Sager
Tel: 010-516 58 37
E-mail: anna.sager@sp.se

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