



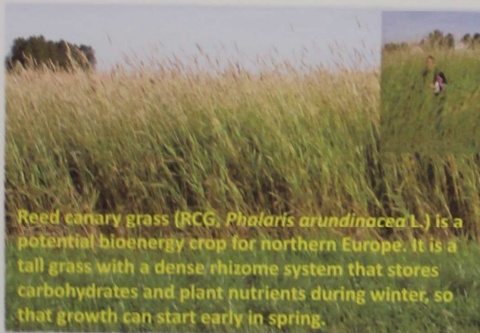
Bioenergy farms in a new landscape

- applied reed canary grass research

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The aim of the project *Bioenergy farms in a new landscape* was to develop the cooperation between the different operators within the biofuel sector. Work has been done to develop harvest technique and logistics, combustion studies and cultivation experiments including variety testing. The project has been conducted by researchers at SLU, farmers and energy companies in the Västerbotten region in northern Sweden.



Reed canary grass (RCG, *Phalaris arundinacea* L.) is a potential bioenergy crop for northern Europe. It is a tall grass with a dense rhizome system that stores carbohydrates and plant nutrients during winter, so that growth can start early in spring.



A **delayed harvest** method is practiced; cutting the biomass in late autumn, leaving it on the field during the winter, and harvesting in spring when it is sufficiently dry.

Harvest and logistics are considerable costs in the production of RCG. Large scale on-farm production trials have been conducted in order to find cost efficient systems. Different combinations of machines were tested.

- For short-range transports, less than 12 km, from field to end-user bulk harvested RCG, transported in containers was found to be cheapest. For longer distances, and where storage was needed, bales were more cost-effective.



Bulk harvest



Round bales



High density bales



Variety trials and experiments with intercropping between RCG and perennial legumes have been conducted.

- The dry matter yield varied between 8000 and 10000 kg ha⁻¹ at autumn harvest. Winter losses can vary from about 15% up to more than 50% depending on the winter conditions.
- Intercropping with legumes could not be recommended in a spring harvest system since too much biomass is decomposed during winter. It might be more beneficial in a two harvest system where the biomass is intended to biogas production.

Combustion studies were carried out in large boilers as well as in smaller. For burning in large boilers (district heating plants) a mixture of RCG and peat or forest residues was used.

- The fuel mixtures worked well in a circulating fluidised bed boiler, but not in a bubbling fluidised bed. Briquettes of RCG/peat were tested in the smaller boilers, which worked well.

