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ECOLOGICAL GROWTH OF SILAGE FOR REMEDIATION OF GROUNDWATER AND ENERGY PRODUCTION

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ABSTRACT

Many groundwaters are polluted due to use of high amounts of pesticides on farm lands. The EU water directive is the first step to a systematical change in land-use. Implementing the directive to national law, the EU states have to find sustainable solutions for water systems.

In Kalmar, a land area has been defined where intensive land use by farming has led to polluted groundwaters. These groundwaters are used for production of potable water.

By ecological growth of crops, emission of pesticides is eliminated and remediation of groundwater is possible.

In order to make ecological growth of crops economical, there has to be a market that pays a higher price than for conventionally grown crops. This market does not exist in Kalmar.

A solution that combines remediation of groundwater with development of a sustainable society is growing silage. Silage can be used as a renewable energy source. By digestion, silage is transferred to biogas. Biogas can be used to replace fossil fuels of different kinds.

A Swedish study shows that crops grown on land not used for farming (farm-land that is not used for farming can give the owner financing from the EU) and land that is going to be taken out of operation for intensive farming due to the water directive, has a capacity of more than 80% of all possible renewable energy sources.

The biogas plant in Kalmar uses manure as one substrate for gas production. Some of the manure can be replaced by silage and liquid rest products from food industries. Thus, ecological growth of silage will result in remediation of groundwater as well as biogas production and replacement of fossil fuel with a sustainable energy source.