



PROGRASS Experimentations – First Results

Since 2009 the EU-funded PROGRASS project (LIFE+) has been demonstrating the technical and socio-economic feasibility of renewable energy production employing extensively used grasslands, mainly areas protected by NATURA 2000 legislation. Thus protection of biodiversity and efficient renewable energy production become two sides of the same coin.

Meanwhile, the second harvesting season finished in all three partner regions (Germany, Estonia, Wales) and the mobile bioenergy demonstration plant was brought into service. Even though the teething troubles in the very first period were a challenge, they had positive side effects, insofar as the PROGRASS team gained valuable new insights in its functioning and acquired additional technical knowledge that helped in the subsequent months to operate the plant successfully. First results of the experimental works were analysed and are now available:

Substances in Press Cake

Besides biogas one of the main outputs of the energy production process (Integrated Generation of Solid Fuel and Biogas from Biomass: IFBB) is dried press cake which can be used as solid fuel (e.g. in form of pellets). For marketing and economic efficiency reasons it is thus crucial that the processed press cake reaches combustion qualities which are better than those of whole crop matters (e.g. hay) or comparable to wood pellets or chips.



Measurement data show reduced amounts of ash and minerals in relation to the silage. Compared to willow fuel the content of some minerals in the press cake (e.g. potassium) is almost identical, whereas it is slightly higher for other minerals. This means that the quality of the PROGRASS press cake (or pellets) comes close to the one of willow fuel, but does not reach it exactly.

Additionally the amount and quality of the biogas production was measured. The results of batch experiments showed slightly higher methane content compared to whole crop fermentation. During the continuous operation of the prototype nearly constant pH-values and acceptable values of total amount of fatty acids were obtained.



Ecology

Each year the diversity of plant species are identified anew on six defined experimental plots in each of the three project regions. Even though ecological evolutions need a longer time period, the second year ecological survey displayed positive effects for biodiversity at least on two sites in the Vogelsberg region (Germany) as well as on Welsh plots.

Modifications of Technical Elements

Until spring this year the mobile demonstration plant was running in the Vogelsberg region (Germany), during summer it was installed in Estonia and some weeks ago it came into operation in Wales. The transfer from Estonia to Wales was used for some maintenance works and some technical improvements like e.g. improvements of the sensor systems and steering units as well as modifications of the fixed bed reactor.

PROGRASS Mobile Demonstration Plant on Tour – Great Public Interest



During its tour to the partner regions the PROGRASS mobile demonstration plant met remarkable interest among public visitors as well as among other stakeholders at its respective locations in Vogelsberg (Germany) and Estonia. The regional project partners performed a variety of information events which comprised theoretical introductions to the aims and activities of the PROGRASS project as well as on-site visits of the

mobile demonstration plant. In Germany approximately 500 and in Estonia approximately 100 participants could be registered. The range of participants consisted of farmers, members of local and regional authorities, scientists, politicians and others.

Third Transnational Meeting of Project Partners in Aberystwyth, Wales

Host of the third transnational meeting in November was the Welsh project partner, the Institute of Biological, Environmental & Rural Sciences (IBERS) in Aberystwyth. The meeting gave the platform for intensive exchange of experience made during the last harvesting season. Technical aspects of the mobile demonstration plant (relabelled blueConrad), procedures and problems of harvesting, newly initiated fertilisation trials as well as socio-economic research aspects were discussed. Furthermore next year's activities were planned such as combustion trials, research on consistence and marketing of pellets, performance of several micro-studies etc.



Moreover, the partners combined a visit to blueConrad with a guided walking tour to other related research facilities on the site of IBERS. Additionally a field visit to the demonstration and experimental plots of the host partner were possible. Only the weather challenged the good mood of the team with slight but continuous rain.

The PROGRASS-Consortium

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- Government of the Vogelsberg Region, Lauterbach, Germany
- Institute of Biological, Environmental and Rural Sciences (IBERS), Aberystwyth, Wales
- Estonian University of Life Sciences, Tartu, Estonia
- Rheinische Friedrich-Wilhelms-Universität, Institute of Animal Science, Bonn, Germany
- BUPNET GmbH, Bildung und Projekt Netzwerk, Göttingen, Germany
- blended learning institutions' cooperative blinc eG, Göttingen, Germany
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