Newsletter IEA Bioenergy Task 37: 02/2019

Digestate as fertilizer and soil improver

Effect of multiple year digestate fertilization on soil fertility

In field trials five fermentation products, raw solid cattle waste and manure were compared to mineral N fertilization and a control at an application rate of 12.5 t per ha and year of manure equivalent in a crop rotation of silage maize-rye (as intermediate crop – sorghum. After 6 years pure mineral N fertilization revealed some negative effects with respect to soil fertility parameters, soil carbon (Corg) content, pH, aggregate stability, particulate organic matter (POM), binding strength and the activity of heterotrophic bacteria but not with digestate. Negative effects of digestate as described in other studies like structure loss, wetting inhibition or a change in the population structure could was not shown in this experiment. The stability parameters and humus equivalents of the examined fermentation products are 20-40% higher than those of cattle manure. After 6 years of continuous cultivation, field trials showed the first significant differences in the Corg content of the soil between digestate and the other fertilizers.
More (in German only)

Biogas Done Right: the sustainable way of producing food, feed and biomethane

A position paper of the Biomethane Group within the ARTFuels project shows that today's agricultural technologies integrating biogas production, sequential cropping and precision farming allows to produce GHG neutral or even GHG negative Bioenergy while Capturing and Sequestering Carbon (BECCS); without limiting food and feed production and with a low risk of indirect land use change (iLUC). This concept called Biogas Done Right has been proven by Italian farmers motivated by the Italian Biogas Association. The paper summarizes the essential parts of the Biogas Done right concept and gives examples of farms in northern and southern Italy.
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Fertilization with digestate

The brochure of the German Biogas Association was designed for the biogas industry considering increased agricultural requirements and current developments in the field of fertilization. Economic options that can be integrated into an individual operating concept are part of the brochure. Digestate contains all necessary compounds for an excellent plant growth as well as for building up the organic content and structure of the soil. A careful management of the fertilizer is of utmost importance for the environment including ground water protection. A pre-treatment of the digestate helps to provide the right product quality and consistency. The brochure highlights the best applications of the different products, describes the different pretreatment processes and market strategies to sell at least part of the products.
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Circular economy: New Regulation to boost organic and waste-based fertilizers

The regulation on the use of organic and waste-based fertilizers was the subject of a tripartite agreement on 13 December. Its aim is to reduce the use of chemical fertilizers in Europe. While the agreement still has to be officially approved by the European Parliament and the Council. The

Regulation will then be directly applicable in all Member States and will become mandatory from 1 January 2022. Currently, only non-organic fertilizers, extracted from mines or produced chemically can be freely traded in the European Union. Only 5% of bio-waste is recycled and reused as fertilizer. More

Crop production with digestate

Last year, the German Agency for sustainable crops (FNR) organised the third symposium "Crop Production Utilization of Fermentation Residues from Biogas Plants" on behalf of the Federal Ministry of Food and Agriculture (BMEL) and in cooperation with the Institute for Agricultural and Urban Ecological Projects at the Humboldt University of Berlin. Around 100 participants from science and practice came together in the environmental forum to discuss the current framework conditions, developments and challenges in the recycling of fermentation products. The proceedings of the conference summarise the lectures and provide a good overview of the current state of knowledge. Unfortunately, the publication is in German but all of the slides are included and easy to understand. More