

Sugar beet: Candy for biogas plants!

Almost all crops which grow on the fields throughout Europe can be fermented in digesters and then be transformed into either electricity and heat or fuel. Besides maize as presently most efficient energy crop, also sugar beets offer interesting options for the biogas sector.

Since 2012 at the latest, and following the German Erneuerbare-Energien-Gesetz (EEG – Renewable Energy Act), which restricted the use of maize to a maximum of 60% of the total input in digesters, operators and owners of biogas plants increasingly opt for alternative energy crops. The use of sugar beets in biogas plants has thus become a reasonable choice.

Particularly in Northern Germany, the low-growing plant has been cultivated for many years. Planted between March and May, beets are harvested between September and December. This lengthy time span allows for more variability in farmers' working times, and also provides more flexibility for spreading fermentation residues on the fields. In addition, sugar beets are quite robust plants and in particular rather drought-resistant.

However, there is a small disadvantage for biogas operators once the beets have been harvested: Quite often soil will stick to the beets, thus causing possible contamination of the digester – the huge reservoir where the fermentation takes place. There might also be stones in the harvested crop which must not get into the pumps of a biogas plant. Accordingly, beets must be washed and stones must be sorted out prior to feeding the substrate into the digester. In addition, storage and conservation of sugar beets requires more attention than maize. And yet, in practice different solutions for storing sugar beets have been developed already.

When sugar beet substrate is fed into the digester, a rapid increase in biogas production can be observed. At the same time, the substrate can be stirred and mixed more easily.

All in all, the economic viability of sugar beets is almost as high as with maize. The key difference remaining to the still most efficient biogas-crop at present is the more extensive conditioning after harvest. In order to make the sugar beet a biogas beet, it must get a smoother surface where as little soil as possible will adhere: research institutes are working on that characteristic with quite some success. In many regions of Germany, sugar beets are nowadays grown as sensible addition to maize and as means to expand the rotation. Costs related to using sugar beets in digesters keep on shrinking and it can thus be expected that the importance of sugar beets in biogas production will continue to grow.

Source: Fachverband Biogas e. V.



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