

Economic use of rye in biogas production

Carsten Hövermann

Treurat und Partner Unternehmensberatung GmbH

Over recent years the use of rye WPS has increased slightly in the 80 managed biogas plants and there will be an increasing tendency for it to be used as a substitute for corn which has become a focus of criticism.

Together with the commercial parameters to be documented, the following benefits and drawbacks have been found with the use of Rye WPS or WPS in general in the management of current WPS biogas plants:

Tab. 1: Benefits and drawbacks of using WPS

Benefits	Drawbacks
Improved fermentation biology in combination use with corn	High harvest risk in relation to DM content
Balancing peak workloads	The mono-fermentation of WPS requires longer retention times
Possible to have relaxation of crop rotation and a subsequent catch crop up to humus formation	

As a substrate in biogas plants, in mono-fermentation rye WPS produces about 5% less gas yield than corn with an identical dry matter content. Based on the average area yields for the individual cultures, it can be seen that rye WPS generally delivers about 25% less total energy yield per ha than corn.

Contact:
Claus Hinrich Heuer
Tel.: +49 (0) 5051 477-325
E-Mail: claus.heuer@kws-lochow.de
www.ryebelt.com

KWS LOCHOW GMBH
Post box 11 97
29296 Bergen

Ferdinand-von-Lochow-Str. 5
29303 Bergen
Deutschland

With the respective fertilisation using corresponding quantities of fermentation substrates, the production costs for both substrates (excluding lease costs) are about 17.9 € per t corn and 19.1 € per t GPS. Once the production costs and the gas yield are added up, rye WPS is about 156 € per ha less commercially efficient than corn. However, with other substrates the economic disadvantage compared to corn is frequently even higher.

Summary:

Using rye as grain in the production of biogas becomes economically viable only once the price is less than 105 € per t. Rye WPS is currently used in many regions as an alternative to silage corn, because other alternative substrates (including sugar beet at 70 t/ha with an economic drawback of 279 € per ha) are frequently connected with higher costs. However, the exact economic difference between substrates still remains a question of location.

Contact:
Claus Hinrich Heuer
Tel.: +49 (0) 5051 477-325
E-Mail: claus.heuer@kws-lochow.de
www.ryebelt.com

KWS LOCHOW GMBH
Post box 11 97
29296 Bergen

Ferdinand-von-Lochow-Str. 5
29303 Bergen
Deutschland