

AMBY Laboratorie Aps

V. Britt Amby Malthesen Herredsvejen 180A, Klejtrup, 9500 Hobro tlf 28201549,

Biogas potential of split wheat straw

Prepared for:

Linka Energy A/S
Nylandsvej 38
6940 Lem ST

Experiment periode

9. March 2024 -7. June 2024

Samples:

Split wheat straw 2,5 mm
Split wheat straw 12 mm
Split wheat straw 25 mm
Wheat straw Briquettes from Foulum

Methode

The biogas potential has been determined by the gravimetric method from Document number 303.
File version 1.0. (6 Jan 2023) From the Standard BMP Methods collection.

The following procedure was used for the test::

- Thermophillic fermentation at 52° C
 - Triple determination of biomass and blank samples have been used
 - Determination of drymatter:105°C, 24 hours and stable weight
 - Ash content: 550° C, 4 hours and stable weight
 - The sample has been added to a concentration of 10 g VS/l
 - Triple determination has been made on a cellulose reference type 50, for control
- The expected value is 375 Nm³ CH₄/h VS +/- 20 Nm³
- Each bottle has been added 400 ml of pre-gassed inoculum materialfor the fermentation
 - Accumulated methane production is shown as measured value in Nm³ CH₄/ ton sample vs after full. fermentation
- The inoculum is from a straw-adapted plant

Results:

Table 1. Drymatter and volatile solids in the samples.

Sample	Drymatter DM -%	Std. DM- %	OM-% *	Std. VS- %	
Straw 2,5 mm	91,24	0,09	88,4	0,05	
Straw 12 mm	90,11	0,11	87,5	0,08	
Straw 25 mm	90,32	0,08	88,51	0,03	
Briquettes	87,67	0,12	83,29	0,13	

*Calculated as drymatter minus ash

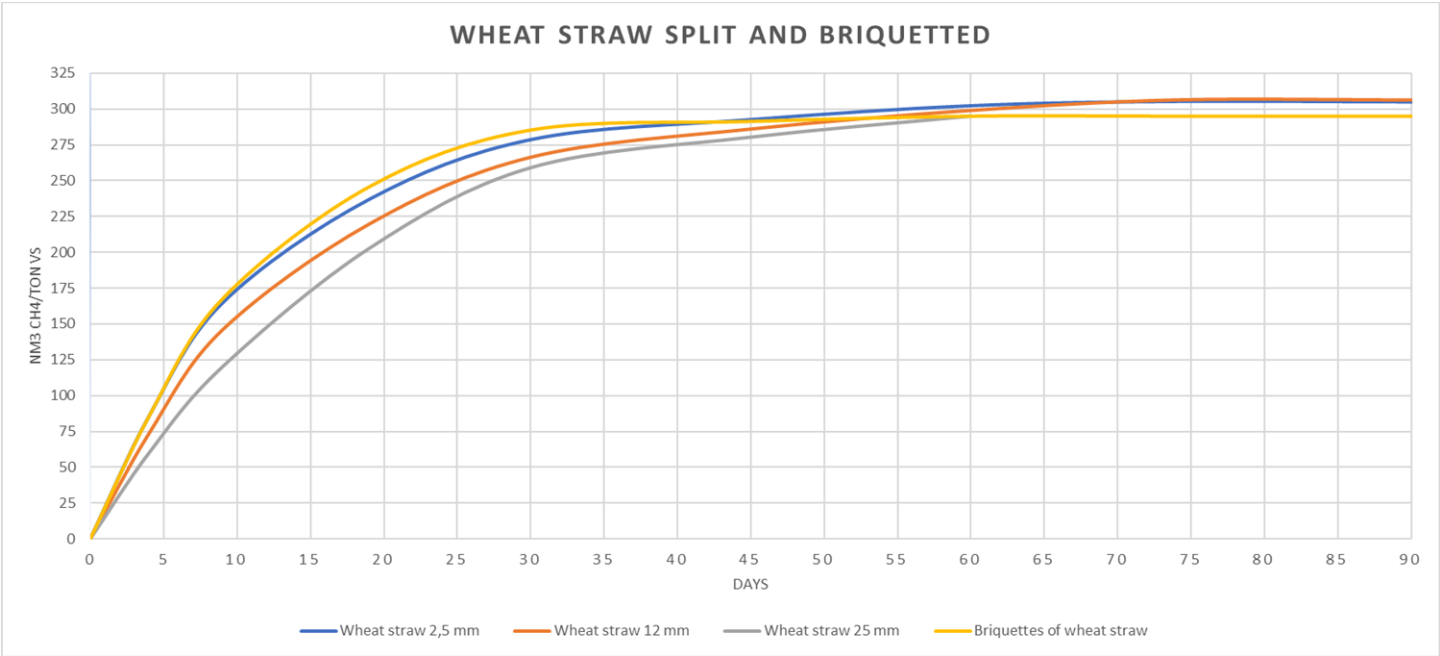
The results for accumulated methane production after 90 days are shown in Table 2 as normal m³ methane/ton sample. Furthermore, the methane production is calculated as Nm³ per ton VS. Nm³ is the volume in cubic meters at 0 °C and a pressure of 101.3 kPa (1 atm.)

Table 2. Accumulated methane production after 90 days

Sample	Nm ³ CH ₄ /T sample	Std. Nm ³ CH ₄	Nm ³ CH ₄ /T VS
Straw 2,5 mm	270	3,22	305
Straw 12 mm	269	5,94	307
Straw 25 mm	267	3,89	302
Briquettes	246	7,15	295
Cellulose 50		7,10	359

The cellulose control produced 359 Nm³/ton VS which is within the expected value of 375 Nm³ +/-20 m³ which indicates that the inoculum is working.

Development of methane production and curve



Klejtrup d. 20-06-2024

Britt Amby Malthesen

Signature

Britt Amby Malthesen