

# High-Performance-Digester for pig slurry and fodder beet

Leipzig, March 28<sup>th</sup>, 2017

Record Biomap Network – Technical Workshop on Biomethane  
Production in Small and Medium Scale Units

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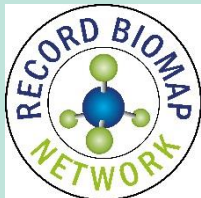
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# Engineering company Rossow - PRV

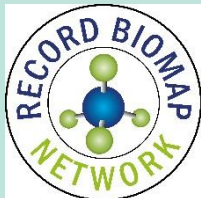
## Neubrandenburg, Germany

### Since 21 years specialized in:

- > Production and utilization of energy from biomass
- > Planning of heating, cooling and air conditioning systems
- > District heating systems

### Priority of work:

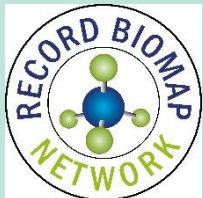
- > Optimization of production and utilization of biogas
- > Experience in research and development (hydrolysis, ultrasound)



# High Performance Digester

Developed and patented:

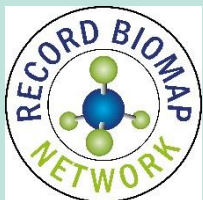
- PRV and ATB Potsdam (Prof. Linke)
- Thermophilic process for sugar/fodder beets
- Straw floating layer
- Internal recirculation
- Variable recirculation points
- Variable digestate outflow



# High Performance Digester

## Characteristics:

- Small digestion volume
- High tank construction
- Targeted floating layer (different substances possible: wheat straw, rape straw, harvested cotton tree etc.)
- Internal recirculation
- Variable recirculation points
- Use of liquid digestate for dilution of solids in digestion process of less degradables



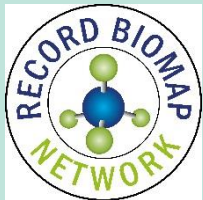
# Research digester at pig farm



Research project (ME-LE, PRV, University of Applied Sciences  
Neubrandenburg)

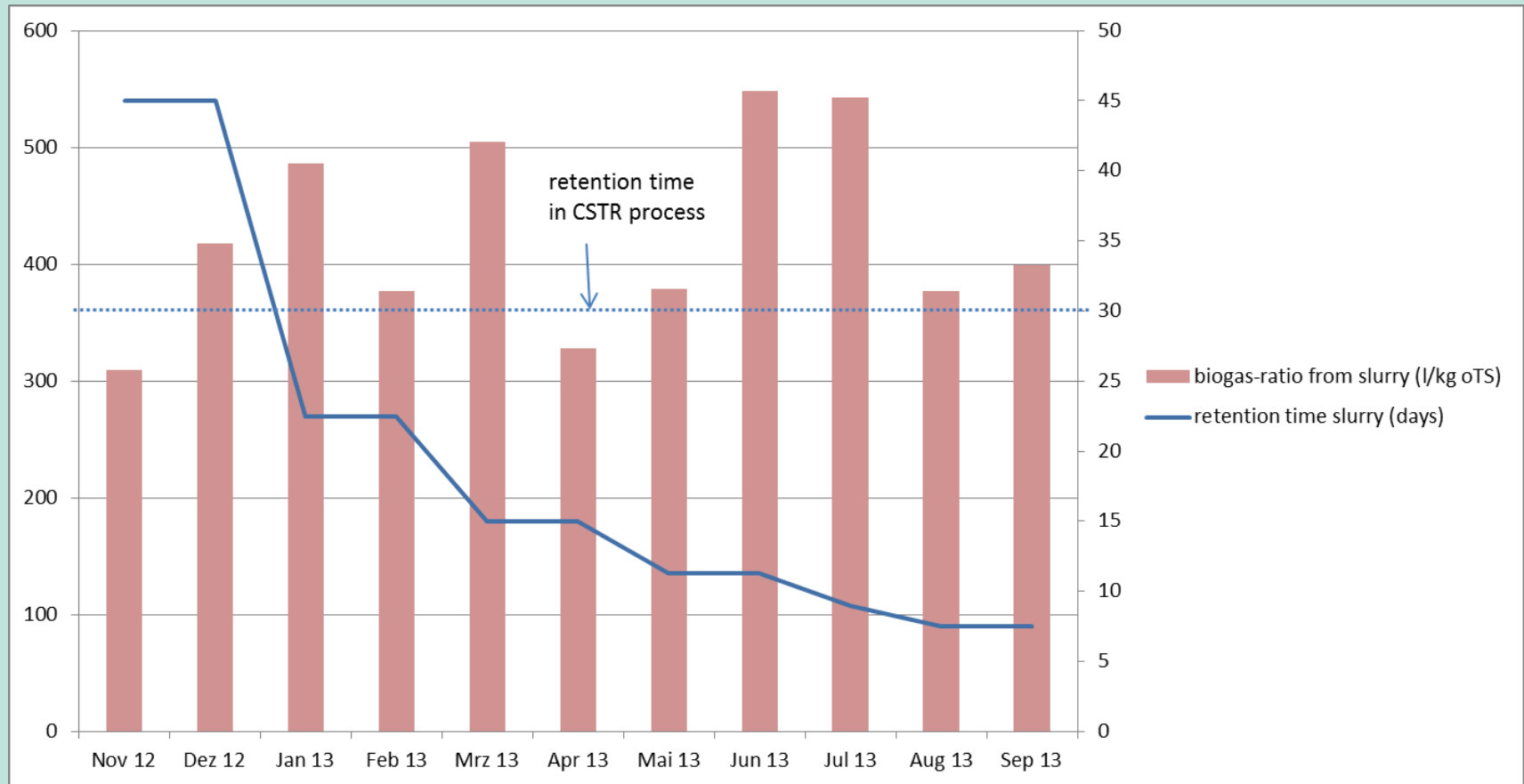
Substrates: pig slurry with straw layer

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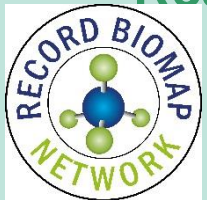




# Research study with pig slurry



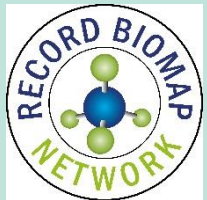
**Rising slurry feeding, lowering retention time, constant biogas yield:  
Research project V-630-F-096-2010/300 u. 301  
(Mecklenburg-Vorpommern)**



# Case study biogas plant Anklam



**Biogas plant (standard type) of High-Performance-Digester at cattle farm (2 \* 1,600 m<sup>3</sup> volume)**



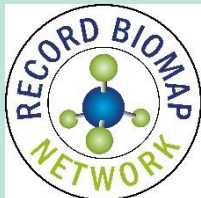
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# PRV – High-Performance-Digester

## Advantages:

- Cost-effectiveness
- Small digester volume
- Small ecological footprint
- No costs for stirring devices
- Maintenance friendly
- Decoupling of solid and dissolved proportions:
- Long retention time for organics and Archaea,
- while short retention time for liquid and inorganics





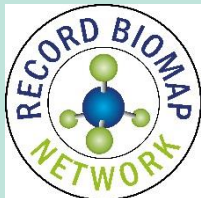
# Outlook

## Obstacles / trends:

- Suitable for international projects (Brasilia)
- Because of retention time restrictions in Germany not possible as single treatment technique

## Future perspectives:

- Perspectives for separate treatment of easy degradable substrates: Fodder beet, sugar beet, sugar cane etc.
- Digested liquid usable for dilution of poultry manure in same plant
- International perspectives for manure based plants

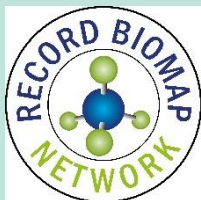


# PRV

## *Thank you for your attention*

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