

# Experience report on livestock waste in Russia Krieg & Fischer Ingenieure GmbH

Torsten Fischer and Dr. Katharina Backes

Krieg & Fischer Ingenieure GmbH  
Bertha-von-Suttner-Straße 9, D-37085 Göttingen, Germany  
Tel.: ++49 551 900 363-0, Fax: ++49 551 900 363-29  
Fischer@KriegFischer.de  
www.KriegFischer.de

Biogasworld, Berlin, Germany  
April 1, 2014



Krieg & Fischer Ingenieure GmbH

# Krieg & Fischer Ingenieure GmbH

Engineering Office, specialized in Design and Engineering of Biogas Plants

Foundation: 1999

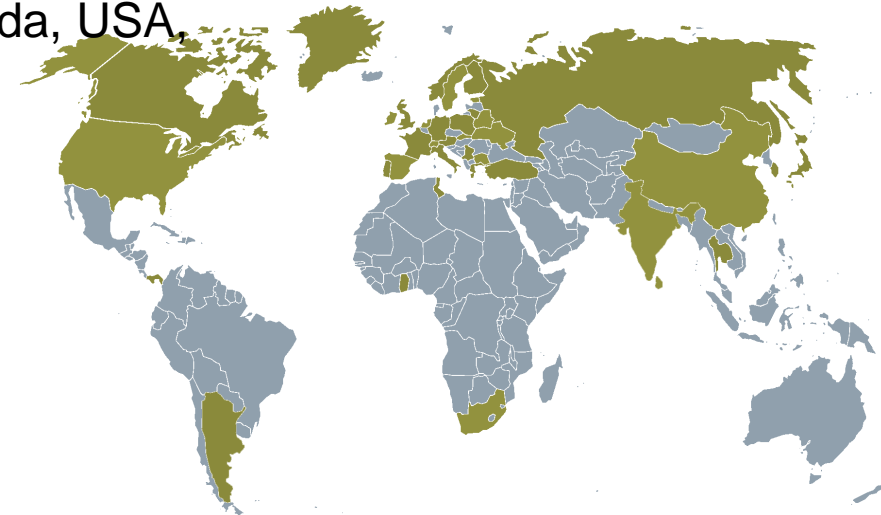
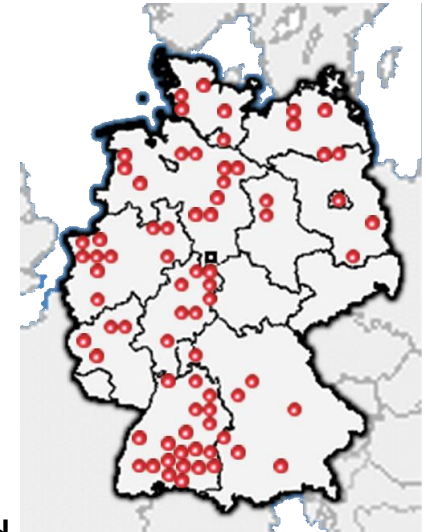
Team: 20

Experience: > 25 Years

References: ca. 150 Biogas Plants

in: Germany, Japan, Netherlands, Austria, Switzerland, Lithuania, Italy, Slovakia, Canada, USA, Spain, France, Ireland, Russia and India

Partner in: Japan, Korea, Canada, Bulgaria, France, Poland, Italy, Spain, Ireland, Serbia, Greece and China



# Key account



Krieg & Fischer Ingenieure GmbH



# References worldwide



Cudworth Pork



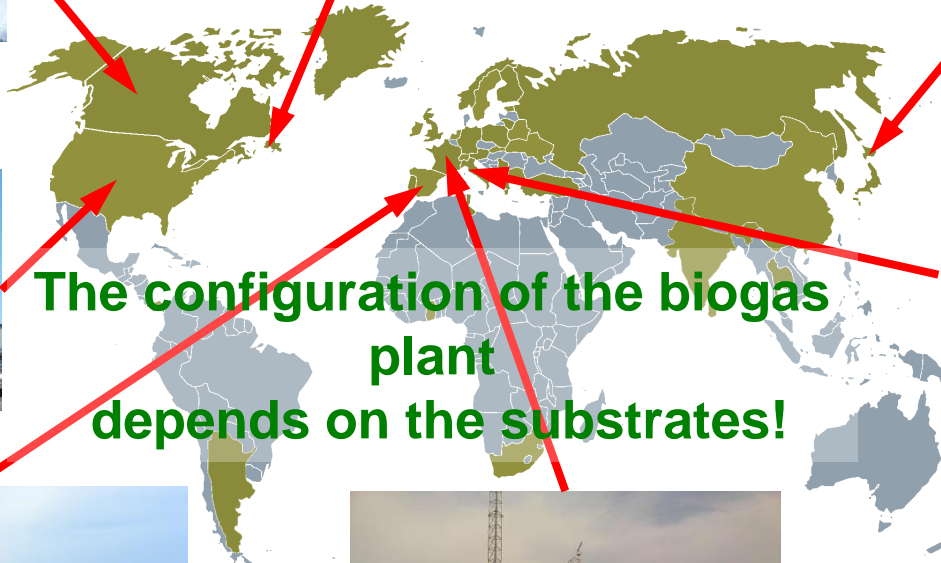
Prince Edward Island



Bekkai



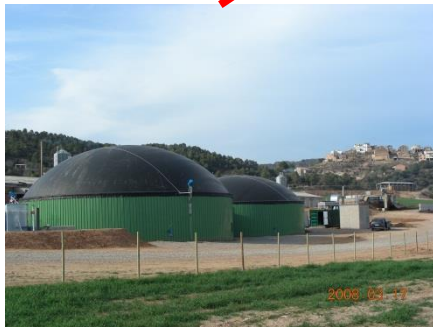
Inland Empire



The configuration of the biogas plant depends on the substrates!



Prato



Montargull



Noyon

# Projects in China



Belgorod, Russia

Krieg & Fischer Ingenieure GmbH

4 Februar, 19:58

# Russlands Premier füttert Bakterien auf Biogas-Station



Foto: RIA Novosti

manure,

sludge  
skin

1  
ge  
m<sup>3</sup>

...y digester,

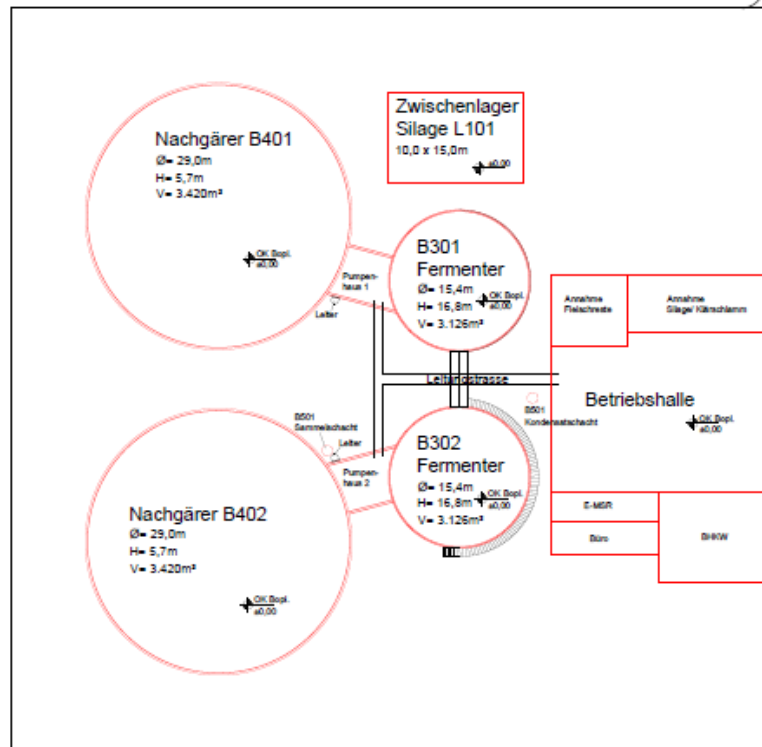
mesophilic

- Adoption to cold climate

# Belgorod, Russia



# Belgorod, Russia



Alle Maße sind am Bau zu überprüfen !

03	18.08.10	VL	DL	Anpassung der Höhen ( Kundenwunsch)
02	04.08.10	VL	DL	BBT, BBT, VBT
01	15.07.10	VL	DL	Anpassung Höhenplan für ein Angebot
00	08.07.10	VL	DL	Planerstellung
Stufe	Datum	Skiz	Gepr	Art der Änderung

**KF** Biogasanlagen  
 Planung-Bau  
 Betriebs-Optimierung  
 Krieg & Fischer Ingenieure GmbH

Bertha-von-Sülthner-Str. 9  
 D-37085 Göttingen  
 Tel.: +49-(0)551-900303-0  
 Fax: +49-(0)551-900303-20

Bauer: **OOO Alt Energo** Plan-Nr.: **1463-3-2** Stufe: **03**

Ausgaben: **BD Belgorod** Projekt-Nr.: **1463 AB 1005 019**

Plan-Nr.: **Gesamt Lageplan** Projekt-Nr.: **Mk-2010**

Format: **800 x 500**

Gepruft: \_\_\_\_\_ Freigegeben: \_\_\_\_\_

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 Originals und Vervielfältigungen jeder Art dürfen Dritten nicht  
 zugänglich gemacht werden, sondern werden nur für den  
 vereinbarten Zweck hergestellt und sind dafür zu verwenden

Gezeichnet:  
 V. Lütjohr

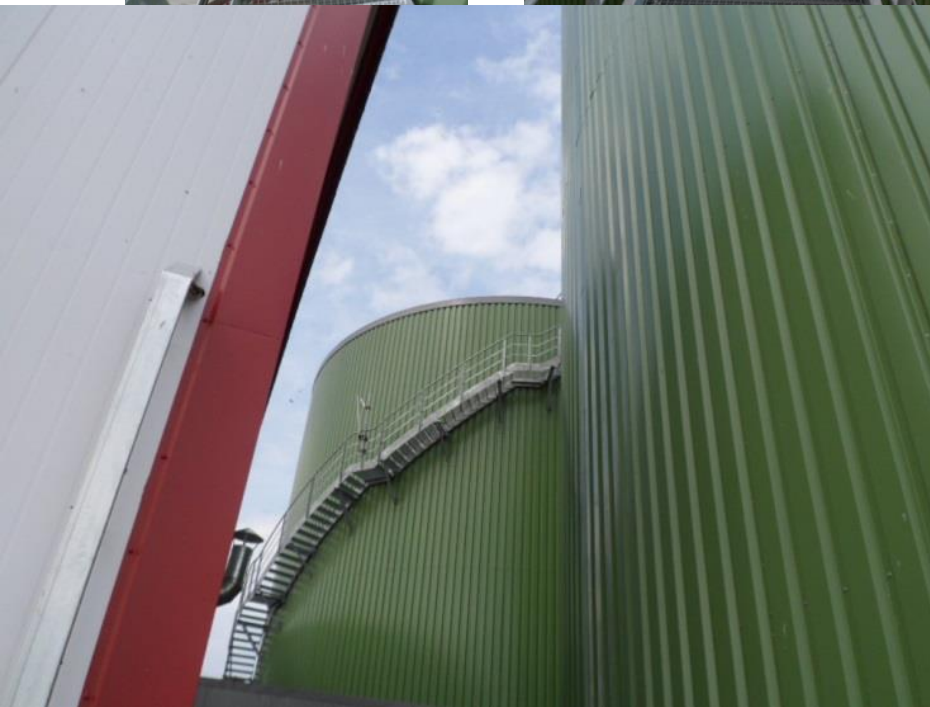


# Digester



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Digester: 2 x 3,035 m<sup>3</sup>  
steel tank



# Input of silage



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2012



2012-06-20



2012.06.20

# Hall



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- Solid input device
- Receiving liquid
- Storage tank manure
- CHP
- Office, sanitary rooms



# Silage production and storage



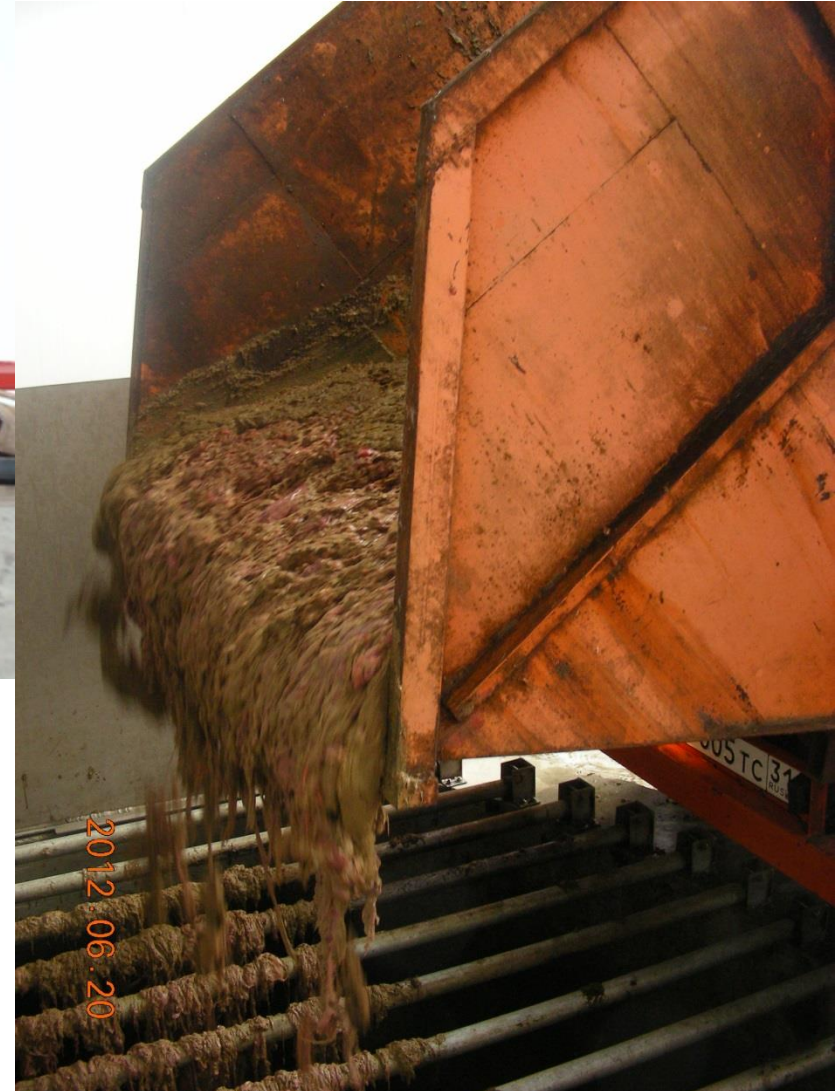
genieure GmbH



# Underground reception pit



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# Storage of digestate in lagoon



# Time table

Tätigkeit	2010												2011												2012												2013																																			
	Kw	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr																																				
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Construction																	█																																																							
Start-up																																	█																																							
Acceptance																																				█																																				



K&F on site  
Plant management

## Operation of the biogas plant

- Many stones in the silage
- Many problems with the pump





# Interfaces

- The Russian power supply fails every 2 days
- Grid connection is not capable of receiving the performance of the CHP
- The dimensioning of the power cable is too small → cable fire in the ground
- Poor communication with energy supplier

# Challenges

- Poor building ground → pillar foundation necessary for digester tanks
- Foundation was constructed without pillars and in bad quality
- Digester foundation had to be done again on a new place (site layout had to be changed)



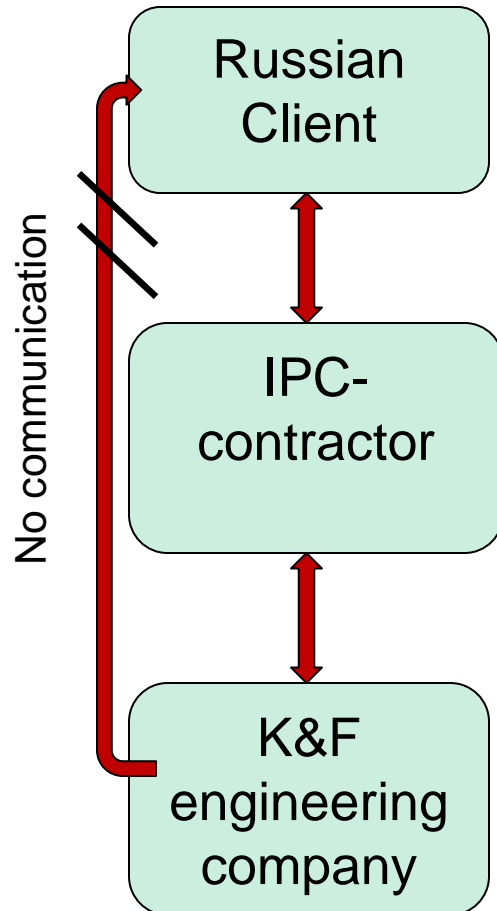
Digester had to be placed at a different location



Digester foundation could not be used

- Foundation of sec. Digester: first layer above reinforcement had to be removed (600 m<sup>2</sup>)

# Project organisation



- BD agro: project organization, communication with client, knowledge of local structures
- K&F did the main work as project leader

## Customs

A complete piece of biogas plant was delivered to Russia

→ Increased effort for the clearance at customs: every part, to the smallest screw, had to be listed in the customs documents. 2 persons have been working on this 2 month!

Duration of customs clearance 4-6 weeks →

Special problems in case of subsequent delivery

Projects in Russia are only possible with experienced partners



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