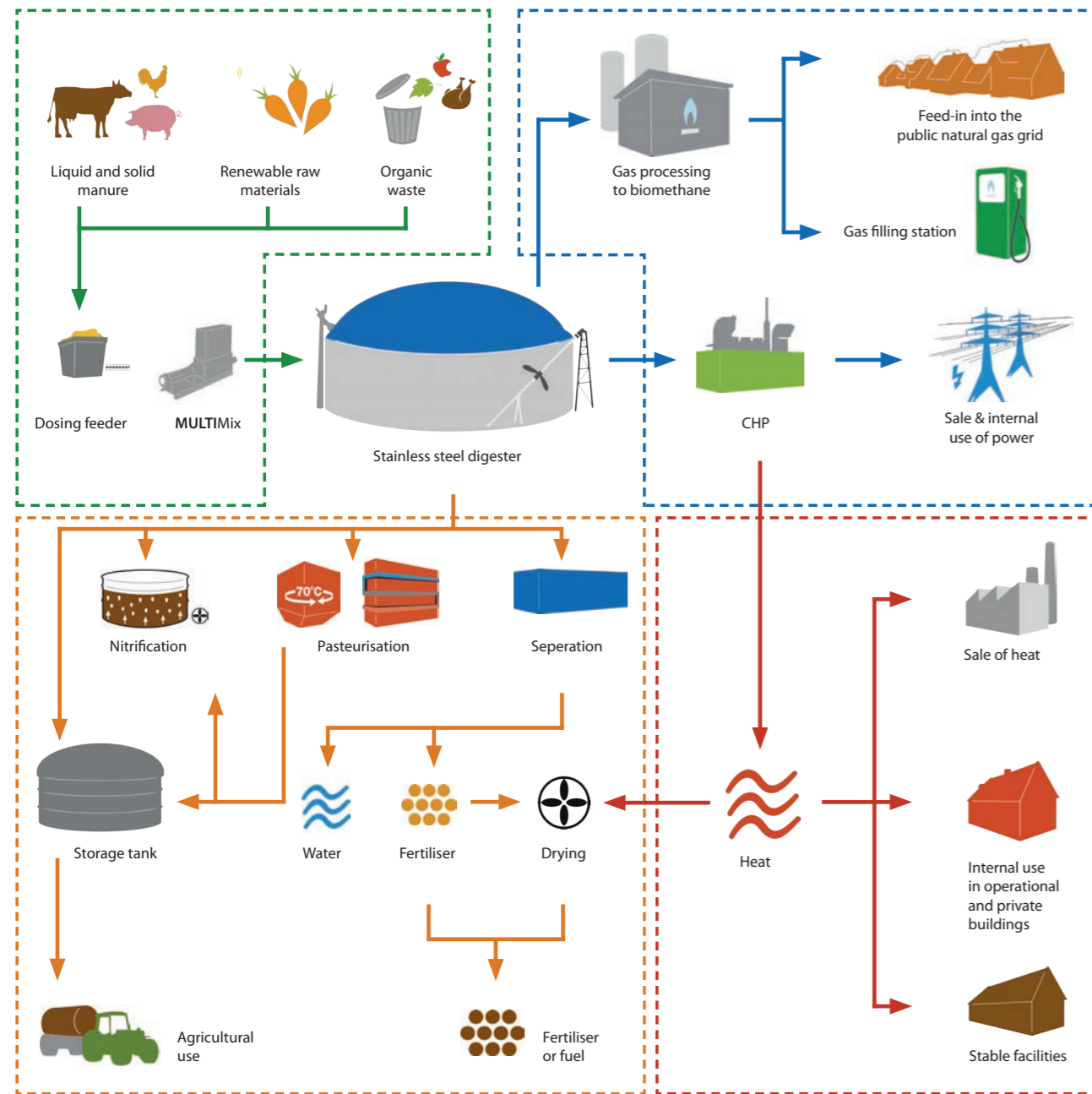


# Biogas production and utilisation process

## Energy plants for the agricultural sector



Organic energy worldwide

# Agricultural References

Since 2001, WELTEC BIOPOWER has designed and implemented more than 300 biogas plants. In more than 25 countries, WELTEC plants deliver energy from organic substances.

Excerpt from the reference list of agricultural projects:

**Coleraine | Northern Ireland | 850kW**

Grass silage, cow slurry, maize silage, dairy waste

**Durazno | Uruguay | 800kW**

Cow slurry, fodder leavings

**Cullompton | England | 500kW**

Pig and cow slurry, maize silage, sugar beets, chicken manure, grass silage

**Jilemnice | Czech Republic | 340kW**

Grass silage, whole crop silage, solid cattle manure, barley, cow slurry, maize silage

**Suring | USA | 250kW**

Cow slurry, mixed fats

**Gamleby | Sweden | 255kW**

Cow slurry and manure

**Vechta | Germany | 770kW**

Maize silage, cereals, straw, cow and pig slurry

**Ottonville | France | 190kW**

Cow manure and slurry, whole crop silage, cereal dust, sewage sludge, food waste

**Coleraine, Northern Ireland**  
Output 850 kW



**Vechta, Germany**  
Output 770 kW



▶ **Long plant life**

▶ **Permanently high yield**

▶ **Individual planning**

▶ **Flexible, modular structure**

▶ **Cutting edge technology**

▶ **Variable raw material input**

▶ **24/7 service**

**Flexible stainless-steel energy plants:**  
**As individual as you!**

Modern agricultural plants from WELTEC BIOPOWER produce green energy from diverse renewable raw materials and agricultural waste. Customised solutions are the strength of WELTEC BIOPOWER: The engineering expertise is reflected both in the technical plant design and in the substrate mix. In this way, flexible concepts can be developed for every customer

The digesters of WELTEC BIOPOWER are made of stainless steel. This high-quality material ensures a long plant life. At the same time, the building costs are minimised by means of the smart modular setting. This quality standard also applies to the production. Most of the plant and control modules are self-developed and tuned to each other.

Upon completion of the plant, the biological and mechanical service team of WELTEC BIOPOWER continues to provide the customer with competent support. This is a key factor that ensures the profitability of the energy plant.

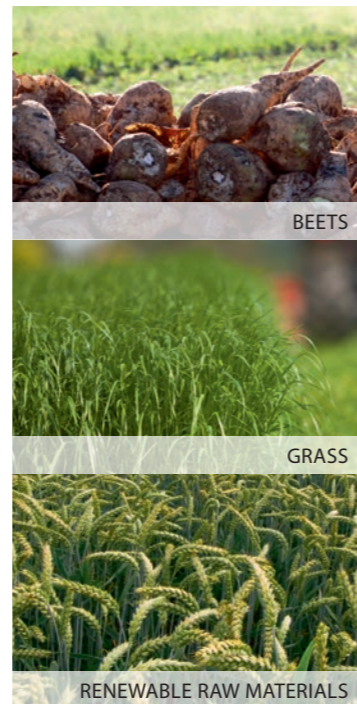
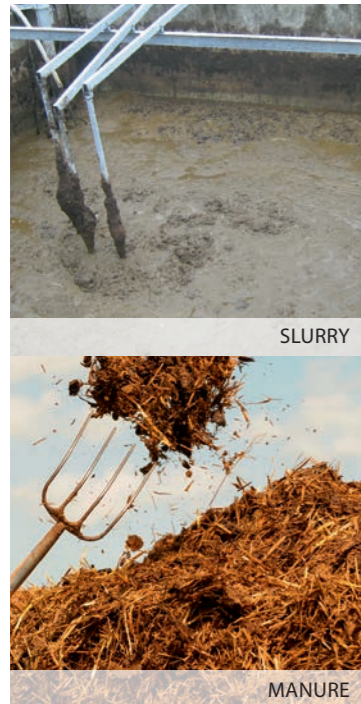
Every WELTEC plant is as individual as the operator. But in one area, all plants are equal: Day by day, they deliver top performance!

# Structure of a WELTEC energy plant

## Input technology

Agricultural plants from WELTEC BIOPOWER run on numerous substrates: liquid and solid manure, dry chicken manure as well as renewable raw materials like grass, beet, whole plant silage, maize or straw.

In this context, use of the right input technology is important with regard to the substrate availability for the bacteria in the digester. For this reason, WELTEC offers different systems, such as the **MULTIMix**, which ensures optimum shredding and mixing of long-fibre material.



## Tank technology

Special attention is paid to the material from which the tanks are made. The biogas that develops in the digester contains aggressive hydrogen sulphide and ammonia compounds. Therefore, WELTEC BIOPOWER uses high-quality stainless steel for the digester and other components.

As every plant and every customer has different needs, WELTEC biogas plants are characterised by a modular structure. This enables individual and flexible solutions and short building time.



## Process flows

In WELTEC plants, the transport of the substrates takes place via a central pump. Moreover, a bundled, custom-developed control system ensures smooth communication between the individual components.

The biogas can be converted to heat and power in a combined heat and power (CHP) unit or be refined to the natural gas equivalent biomethane with the help of various processing methods.



COMBINED HEAT AND POWER (CHP) UNIT AND EMERGENCY FLARE



EXTERNAL GAS DESULPHURISATION



CENTRAL PUMP BLOCK



CONTROL PANEL



PROCESSING TO BIOMETHANE

## Digestate processing

WELTEC BIOPOWER offers various solutions for the utilisation of the digestate. Thanks to its high nutrient content, the digestate can even be used as high-quality agricultural fertiliser without any processing.

If processing is required, WELTEC can install suitable technology under consideration of the respective needs: a separation, a digestate dryer, a pasteurisation or a solution for processing the liquid stage.



STORAGE TANK



SEPARATION



DRYER



AERIAL VIEW OF AN AGRICULTURAL 250 kW PLANT