

Biogas plant „St. Georgen“ Biogas Kicker GmbH & Co KEG

The farm owned by the Kicker family is located on the outskirts of the town Mitterlabill. A couple of years ago they specialised their production on the raising of chickens for fattening. The stables for the roughly 70,000 chicks used to be heated using oil/gas in order to maintain a comfortable room temperature of around 32-33 °C.

The high heating costs of around 35,000 €/a first led the owners to consider switching to a wood chips heating system, but it quickly became apparent that a biogas plant would offer more advantages: the agricultural crop land for growing corn could again be used for the own needs (prior to that the corn was sold). The need for a liquid manure tank would also seize to exist. With the biogas plant it is now even possible to produce energy from the poultry manure and reduce the bad smell otherwise caused. The plant was built around 300 m away from the residential house. The feedstock is added to the digester 10 times a day, the corn (milled corn cobs) is directly and regularly added through the mill. The first digester contains a paddle agitator that is only turned on when substances are being added. The second digester contains two propeller agitators that are turned on for a period of around 20 minutes every two hours. The substrate is transported to the final storage after a total retention time of 90 days. The spreading of the substrate takes place twice a year.



Biogas Plant St. Georgen © LEA

Manfred Kicker (operator)

The gasholder has a volume of 150 m³. The gas is converted into energy using a 330kW_{el} CHP-engine. The electricity is in its entirety fed into the public grid. The waste heat is primarily used to heat the chicken coop, but also the pig pen, pig feeding, during winter the residential house and also warm water (summer + winter).

“The idea of building a biogas plant emerged from the high costs for heating the chicken coops. With it, many problems could be solved: the corn silage, that had to be sold after no longer raising pigs, could be again used to the own ends. A liquid manure tank was no longer necessary for the chicken fattening. And besides the heat, which we direly need to run our business, we are able to sell the generated electricity. The bad smell nuisance has also significantly decreased: all in all, the biogas plant was an optimal investment! ”

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Biogas Regions Shining Example



key data

Start of Operation.....	October 2002
Type of corporation.....	Ltd. Company & Co KG
Amount of gas produced.....	4500 m³ per day
Investment costs.....	1 160 000 €

feedstock

Liquid manure (pig).....	4680 m³ per year
Grass silage.....	270 tons per year
Maize silage.....	1800 tons per year
Milled corn cobs.....	950 tons per year
Spent grains (breweries).....	1260 tons per year
Poultry manure.....	585 tons per year

production data

Available area for the output of the biogas fertilizer.....	160 ha
Thermal power rating of the gas engine.....	420 kW
Generated thermal energy.....	3 360 000 kWh per year
Utilisation of heat.....	Chicken coop Pigpen residential house warm water
Electric power rating of the gas engine	330 kW
Generated electric energy.....	7 525 kWh per day
Power consumption (electricity) of the plant itself	91 000 kWh per year
Annual delivery of electricity to the (regional) electric grid company	2 508 000 kWh per year

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technical plant description

Clamp silo	4000 m³
Digester	1000 m³
Second digester	1800 m³
Gas storage tank	700 m³
Residence time in the digester	~ 90 days (30/60)
Temperature of the anaerobic digestion (operational)	38 -39°C
Average expenditure of human labour	1.25 – 1.5 hours per day

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