



GERMANY

NQ ANLAGENTECHNIK GMBH

Germany - NQ Anlagentechnik GmbH 75 kW

Originally the farmer wanted to enlarge his animal stock, but the farm does not own enough land to spread the additional slurry. Instead he invested into a biogas plant that digests only the cow slurry and manure that is available on the farm. Energy crops are explicitly not part of the feedstock mix, which his colleagues in the vicinity appreciated, because this type of a biogas plant does not put stress on the leasing prices for land. At the same time the biogas plant allows the farm to grow and enlarge its business.

With NQ Anlagentechnik GmbH the farmer selected a company that is experiences with small biogas plants ranging from 30-75 kW and trusts that the high quality materials and the simple plant concept fulfills his expectations.

By using this simple sedimentation principle, it is possibly to increase the gas output from the manure.

A short description of the process

The biogas plant is a typical wet digestion plant for Germany and consists of a digester with concrete cover and a storage tank which is covered with a double-membrane gasholder roof.

Fresh manure from the cow stable is pumped directly into the digester. Additionally solid manure is fed into the digester four times per day using a solid feeder that is directly connected to the digester wall. A wheel loader loads the solid manure into the feeder. For better insulation and more convenient loading of the solid feeder both tanks are partially built into the ground. Between the tanks a pump corridor is installed to house the pumps, pipes with pneumatically operated gate valves, sample points and other technical equipment. A central pump transports the digester slurry into the storage tank.

The digester is equipped with a vertical mixer which is designed in a way that the upper paddles float at the top of the liquid level to break down the formation of crusts and swimming layers. In the storage tank submerged mixers are used to mix the digestate in regular intervals.

The CHP is housed in a pre-fabricated concrete building. This building contains a separate room for the control cabinets.

Key data:

Start of operation:	2014
Manufacturer:	NQ Anlagentechnik GmbH
Type of plant:	Wet Fermentation
Location:	58802 Balve
Amount of gas produced (m ³ per year):	321.000
Amount of biomass treated (tonnes per year):	7580
Investment costs (EUR):	600.000
Cost and benefit:	117.300(costs)
Payback period (years):	5

Feedstock

Liquid pig manure (tonnes per year):	0
Liquid cattle manure (tonnes per year):	6.800
Leftovers (tonnes per year):	0
Other (tonnes per year):	780(cattle dung)

Production data

Electric power of the gas engine (kW):	75
Generated thermal energy:	749.400 kWh(93 kW)
Utilization of heat:	Heating of digester, residential house and milking parlour
Generated electric energy (kWh):	630.000
Power consumption (electricity) of the plant itself (kWh):	44.100

Technical plant description

Operating temperature (dg):	38
Average retention time in digester (days):	40
Average expenditure of human labor (persons):	30 min/day
Size of reception facility (m ³):	60
Size of fermentor (m ³):	847
Size of end storage tanks (m ³):	2700
Annual operating hours CHP (h/a):	8400

The project BioEnergy Farm II wants to inform farmers about the benefits of micro scale digestion and give farmers a view on the feasibility of this technology for their business.

Are you curious about the feasibility of micro scale digestion on your farm?

From September 2015 we offer personal guidance at home! Our biogas experts have software tools to calculate the feasibility of micro scale digestion on your farm. Contact us!



www.BioEnergyFarm.eu



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