

GREEN TOMATOES

BACKGROUND

Tomatoes are the most popular vegetable in the world with approx. 190 million tons consumed annually. In some geographical areas, plants are grown all year round in huge high-tech greenhouses and can reach well over 10 m in length in a single season. This is growth that could not take place on uncovered farmland. Greenhouse production requires a great deal of energy, CO2 and nutrient fertilizer for efficient cultivation.

TASK AND TARGET

To optimize tomato production by reducing energy and recycling the green waste, a UK producer commissioned the construction of a biogas plant. This would produce bio-methane for energy, CO2 for re-introduction into the greenhouses, and digestate for fertilizer.

Green waste, including reject tomatoes, had to be introduced into the biogas plant in a suitable format for digestion. This meant that the waste had to be chopped up into small particle sizes to create a large surface area for the microorganisms to act on. To achieve this, a combined chopping and pumping system was needed.



In high-tech greenhouses tomatoes are grown all year round.

APPLICATION DETAILS

- Conveying green waste from tomato vines and rejects
- Capacity: 15 to 20 m³/h of green waste
- 200-300 mm initial particle size
- Pipe length: 50 m

KEY SPECIFICATIONS

- Lean process: 2 processes chopping and conveying with just 1 pump
- Optimally designed knives to reduce the particle size of the green waste to the optimum

COST SAVINGS REDUCED INVESTMENT COSTS

LOW OPERATING COSTS

SEEPEX PRODUCTS Pump type T, range BTM

PERFECT PARTICLE SIZE

SOLUTION AND RESULTS

A SEEPEX BTM open hopper pump was installed with an auger feed screw with integrated cutting blades for macerating and conveying the waste. The product is loaded into the pump hopper and conveyed with a specially designed auger feed screw into the cutting elements.

The knives are optimally designed to reduce the particle size of the rejected tomatoes and green waste, maximizing fermentation and enhancing anaerobic digestion and biogas production.

"SEEPEX worked with us to deliver the correct pumping and chopping technology for efficient digestion and optimal use of all our by-products", the consultant for the Biogas Industry explains.

BENEFITS

- Optimized biogas production
- Lower investment costs: from a single pumping and cutting unit
- Lower operating costs due to use of renewables (energy, fertilizer and CO2)