

Prizztech



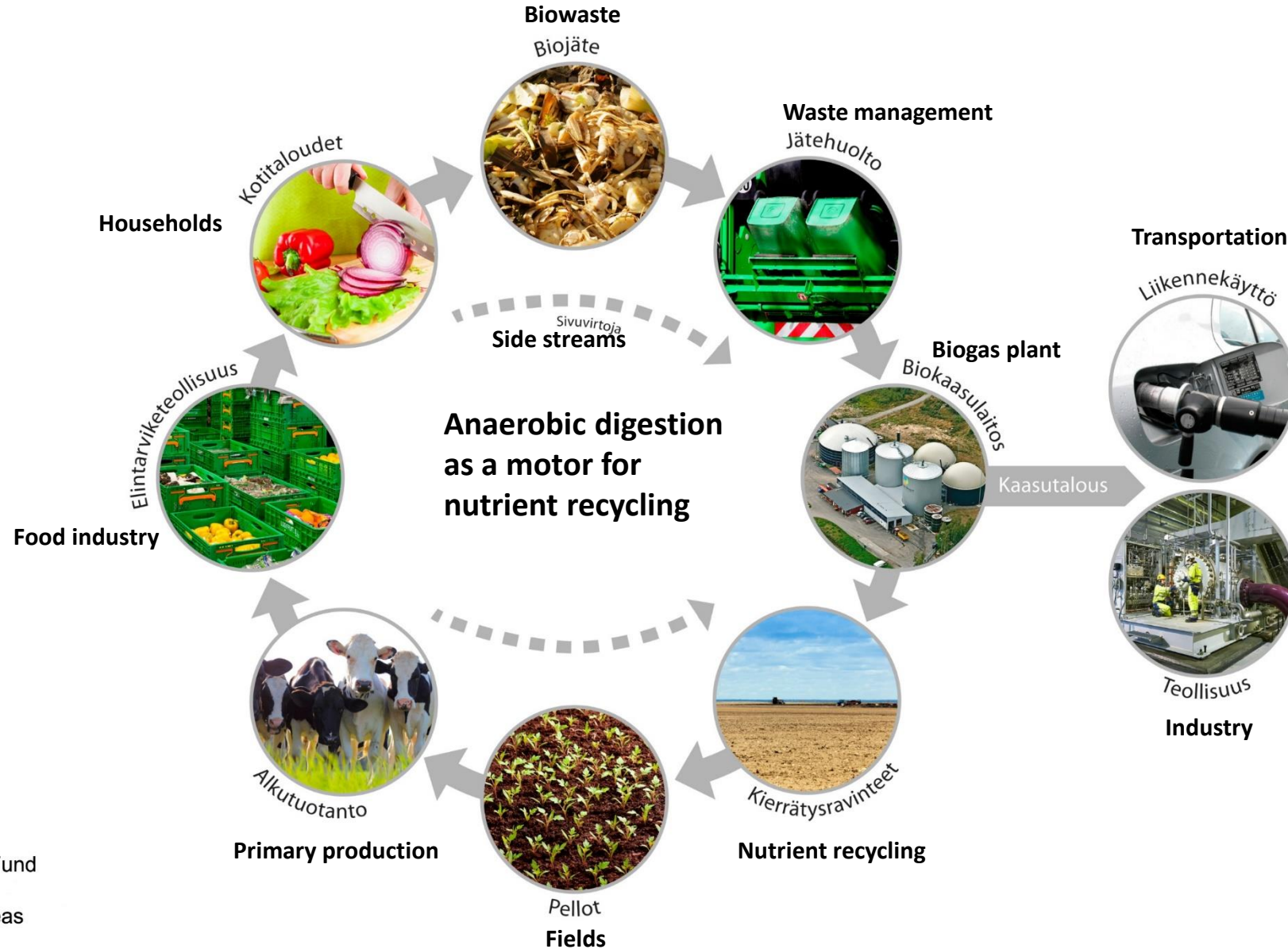
Biogas and nutrient recycling



The European Agricultural Fund
for Rural Development:
Europe investing in rural areas

Minna Haavisto

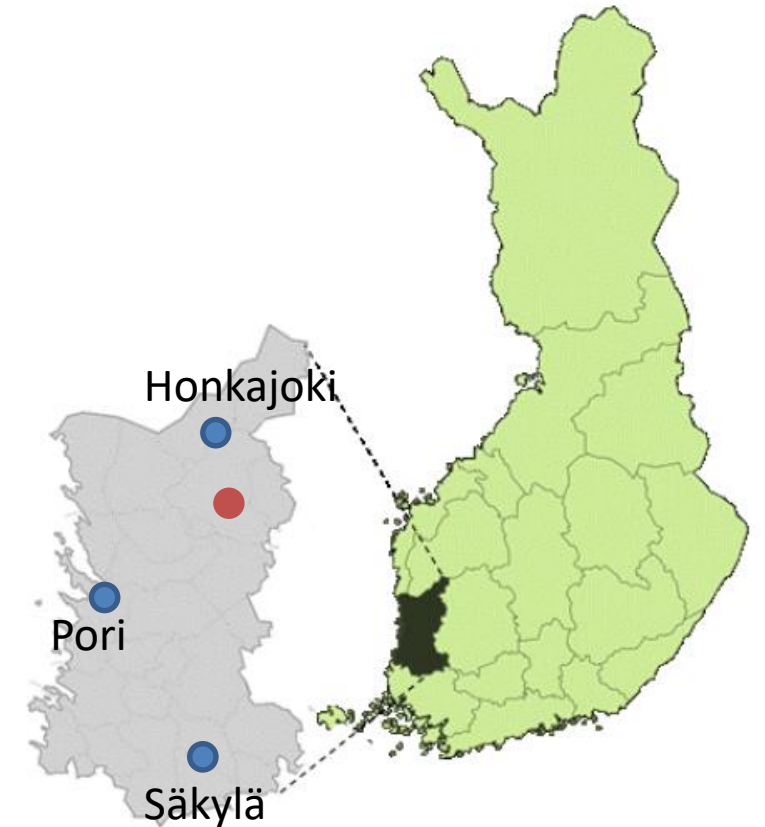
Biogas plants as motors for nutrient recycling



The European Agricultural Fund for Rural Development: Europe investing in rural areas

Project: Optimized nutrient recycling and logistics of residual sludge of biogas plants

- Aims to optimise of the use of residual sludge as a fertilizer in agriculture
 - Optimization of the nutrient content of the product by processing
 - Optimization of storage, transportation and distribution
- Examination of three biogas plants in Satakunta-region
 - Honkajoki
 - Pori
 - Säkyä



Honkajoki biogas plant

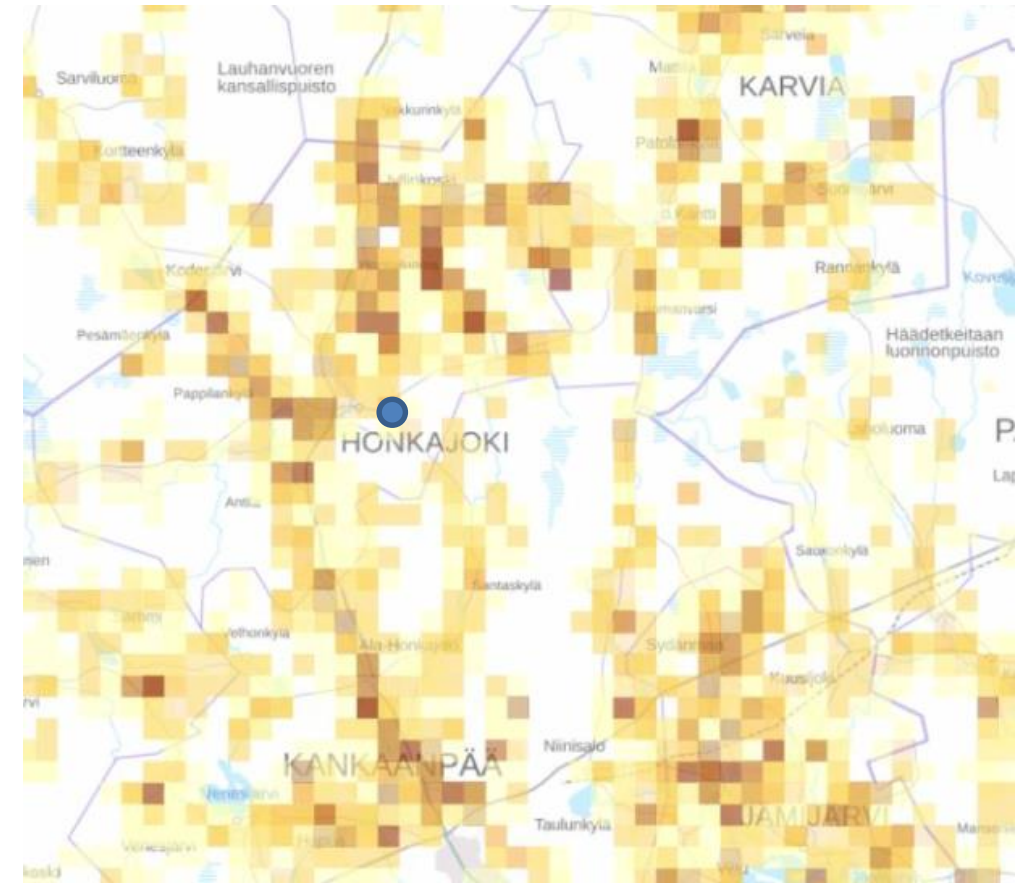
- Owner Gasum Oy
- Plant was built in 2014
- Processing capacity 60 000 tons/year
 - Biowaste from households, restaurants and supermarkets
 - Organic waste from food industry
- Energy production 34 GWh/year
 - Pipeline (1 km) to CHP (Combined Heat and Power)-plant
 - Electricity and process steam for the industry
- Organic fertilizer production 60 000 tons/year
 - Phosphorus 120 tons
 - Nitrogen 300 tons



Biomass atlas

- Open service which collects the location data of biomasses under one, single user interphase
- Developed by Natural Resources Institute Finland Luke by the funding of the Finnish Ministry of Agriculture and Forestry
- The service enables calculations of the amount of biomass in a given geographical area
- Data is planned to support investment decisions and sustainable use of natural resources

Field acreage in cereal farming in the vicinity of the Honkajoki biogas plant



11 600 hectares at the distance of 30 km from the Honkajoki biogas plant



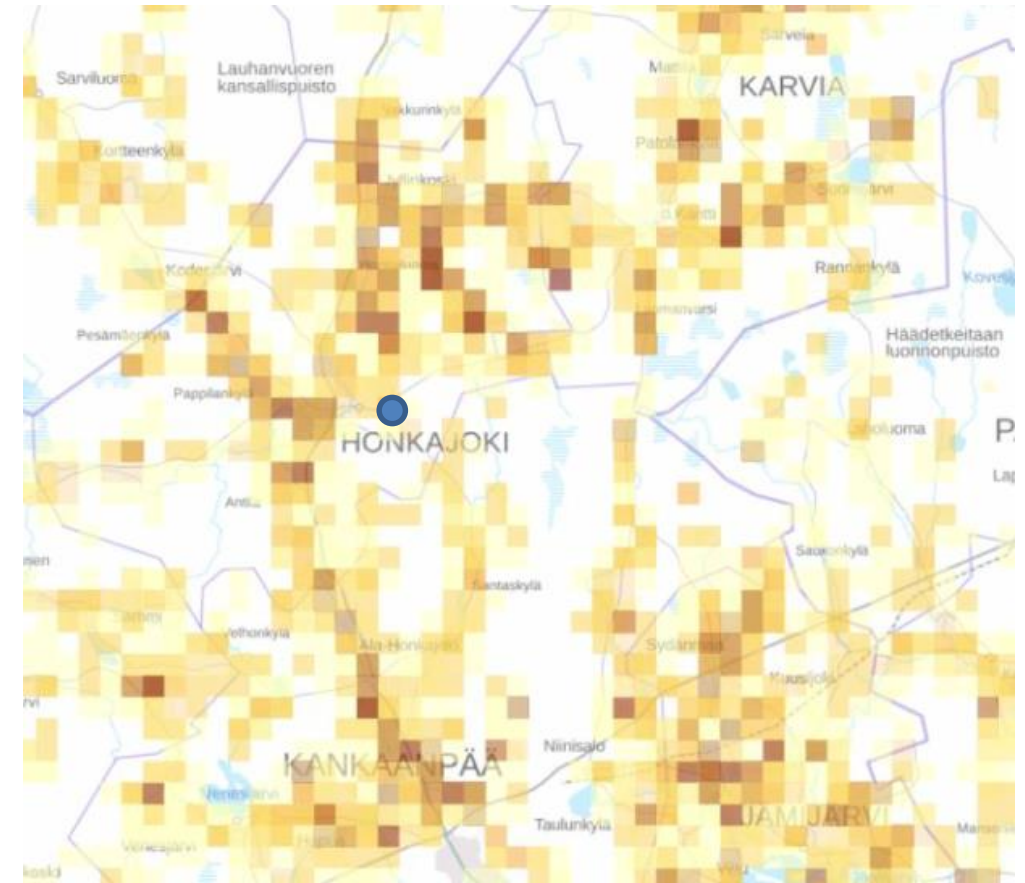
Utilizing biomass atlas

Honkajoki biogas plant

Full capacity 60 000 t/a	Amount	Nitrogen	Phosphorus	Hectars needed
	t/a	t/a	t/a	(max. N: 120 kg/ha/a, P: 15 kg/ha/a)
Fluid with nitrogen	45 800	204	14	1 700
Solid humus	23 800	147	121	8 067

Max distance from the biogas plant	Hectars in cereal farming
30 km	11 600
50 km	25 200
65 km	44 800

Max distance from the biogas plant	Amount of manure produced t/a	Hectars needed to ditribute the manure
30 km	81 000	2 725
50 km	218 400	7 346
65 km	355 700	11 964



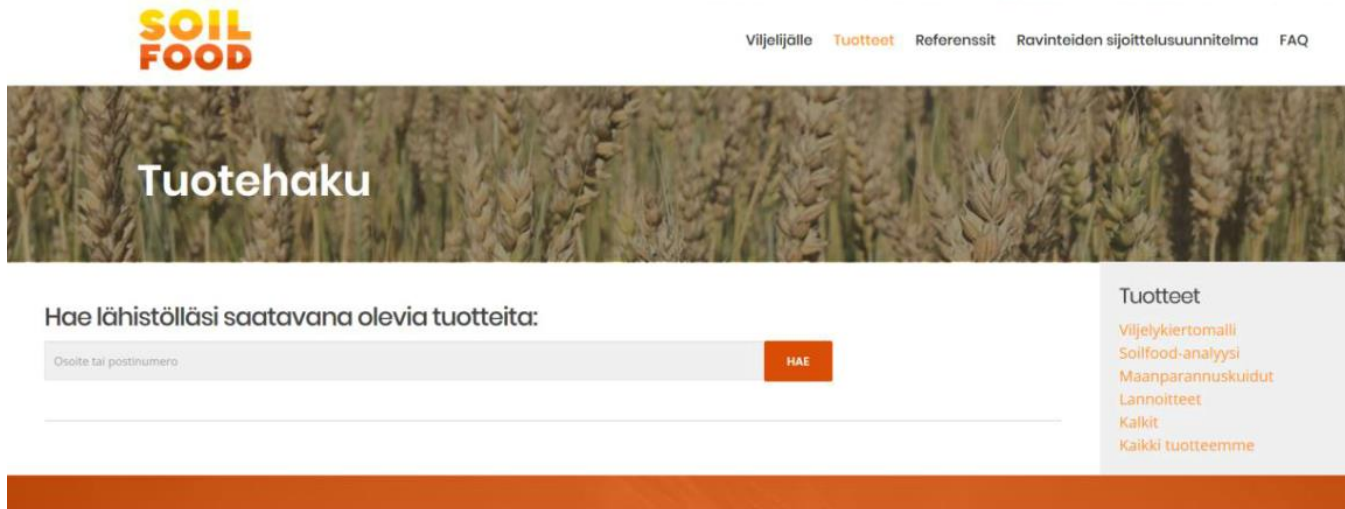
Logistics

- Biogas plan wants to get rid on the residual sludge
- Farmers want to have a specified fertilizer just on time spread to the field
- We need an operator which takes responsibility for the storage, transportation, processing and spreading the fertilizer

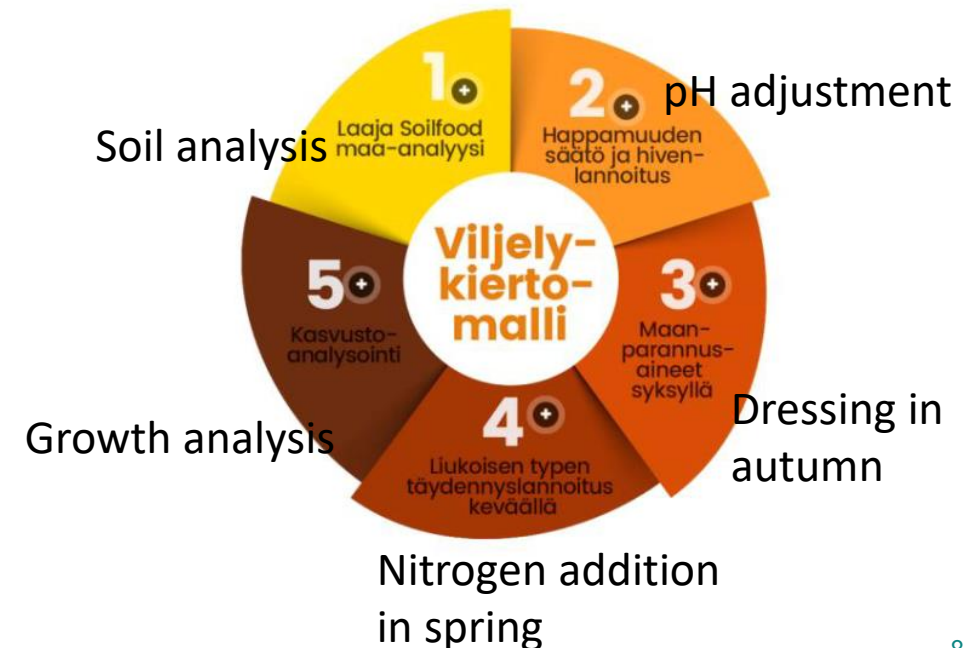


Soilfood Oy

- Agreement with Gasum
- Organizes transportation, storage and spreading, if needed
- Marketing and web-based services
- Optimization of nutrient content of the product by mixing it with mineral fertilizers



Farming cycle model



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Thank you!

