

ALG-AD : Valorisation of agri-food waste through anaerobic and microalgal technologies



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- Use excess nutrients (N & P) in digestate to cultivate algal biomass
- Three large scale pilot facilities
- Biomass transformed through enzymatic hydrolysis for use in animal and aquaculture feeds

THREE PILOT FACILITIES



Langage AD,
Plymouth



Cooperl, Lamballe



Innolab,
Oostkamp



THREE PILOT FACILITIES



Langage AD,
Plymouth

2.5% digestate (80 mg/L NH₄⁺)

Farm and food waste incl. Cat 3
ABPs

3 days of cultivation (mixo)

10 g/L glucose in mixo phase

12.5 g/L final biomass

98 mg/L/day N uptake

Membrane filtration



Cooperl,
Lamballe

2.5% digestate (70 mg/L NH₄⁺)

Agri waste - Pig manure

2 days of cultivation

20 g/L glucose, 2 g/L yeast
extract, 2 g/L peptone

4 g/L final biomass

35 mg/L/day N uptake

Tangential flow filtration



Innolab,
Ghent

2.5% digestate (50 mg/L NH₄⁺)

Plant based feedstock

7 days of cultivation

No external nutrients

1.7 g/L final biomass

20 mg/L/day N uptake

Paper filtration and UV
sterilisation

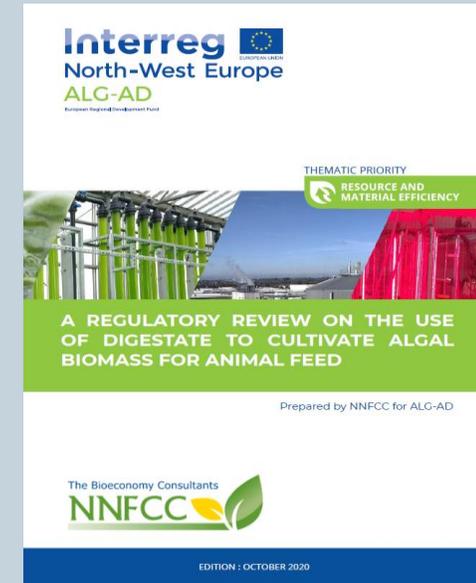
ALGAL BIOMASS ANALYSIS AND USE

- High concentration of proteins, pigments and fatty acids
- 70% of protein content
- Hydrolysis for the functional protein fraction
- Safety analysis of digestate & algal biomass, pending on hydrolysed biomass – no harmful pathogens or contaminants identified.
- Animal feed development and testing – trials in progress with piglets and fish



REGULATORY REVIEW - HIGHLIGHTS

- No specific framework for microalgae grown on digestate
- EC n°1069/2009 (animal by-products) : prohibition to use in animal feed the most common ABPs used in AD (Cat 1 & Cat 2: manure, slurry, slaughterhouse wastes...)
- EC n°767/2009 (marketing and placing on the market) : prohibition in animal feed of products consisting of faeces or urine
- Digestate from plant based inputs, or Cat 3 ABPs (excluding catering waste) **can** be used to cultivate microalgae
- Despite treatment of digestate, nutrients converted into microalgae, safety analysis data indicating no harmful pathogens or contaminants - regulations continue to apply - microalgae grown on non-compliant digestate prohibited in animal feed



ALG-AD PROJECT: KEEPING IN TOUCH

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