

Innovation Centre
for Organic Farming

Fresh Danish grass can revolutionize our agricultural production – and maybe also your dinner in the future?

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Morning Masterclasses in Agro Food Park, 28-02-2024



STØTTET AF
Promilleafgiftsfonden for landbrug

Ministeriet for Fødevarer,
Landbrug og Fiskeri
gudp



Photo: BioRefine

A need for green transition – people, climate, and environment



The screenshot shows the top navigation bar of the European Commission website. It includes the European Union flag and the text 'European Commission'. Below this is a blue navigation bar with the following links: Home > Strategy and policy > Priorities > The European Green Deal > Agriculture and the Green Deal. The main heading of the page is 'Agriculture and the Green Deal'. Below this, there is a sub-heading 'A healthy food system for people and planet'. The main text begins with 'The link between healthy people, healthy societies and a healthy planet puts sustainable food systems at the heart of the European Green Deal, the EU's sustainable and inclusive strategy. It is designed to boost the...' and is partially obscured by a news article snippet. The news snippet is titled 'President von der Leyen future of EU agriculture' and dated '25 January 2024'. The text of the snippet reads: 'President von der Leyen has today launched the Strategic Dialogue on the future of EU agriculture in the EU, a new forum to help shape a shared vision for the future of the EU's farming and food system. The Strategic Dialogue will bring together farmers, cooperatives, rural communities, consumer organisations and environmental groups, among others, to find together solutions to current problems facing farmers and the broader agri-food system.'



We need attractive solutions

Value creation from grass clover production



The need and relevance of green protein

Generally:

- EU policy on European self sufficiency on proteins – Reduction of the soy import.
- Trend towards more plant-based food in the future.
The need of more protein rich plant products of high nutritional value.
- More grassland for the reduction of nitrate leaching, and more carbon sequestration and biodiversity.
- Biobased raw materials for energy and products.



Photos: Erik Fog

The need and relevance of green protein

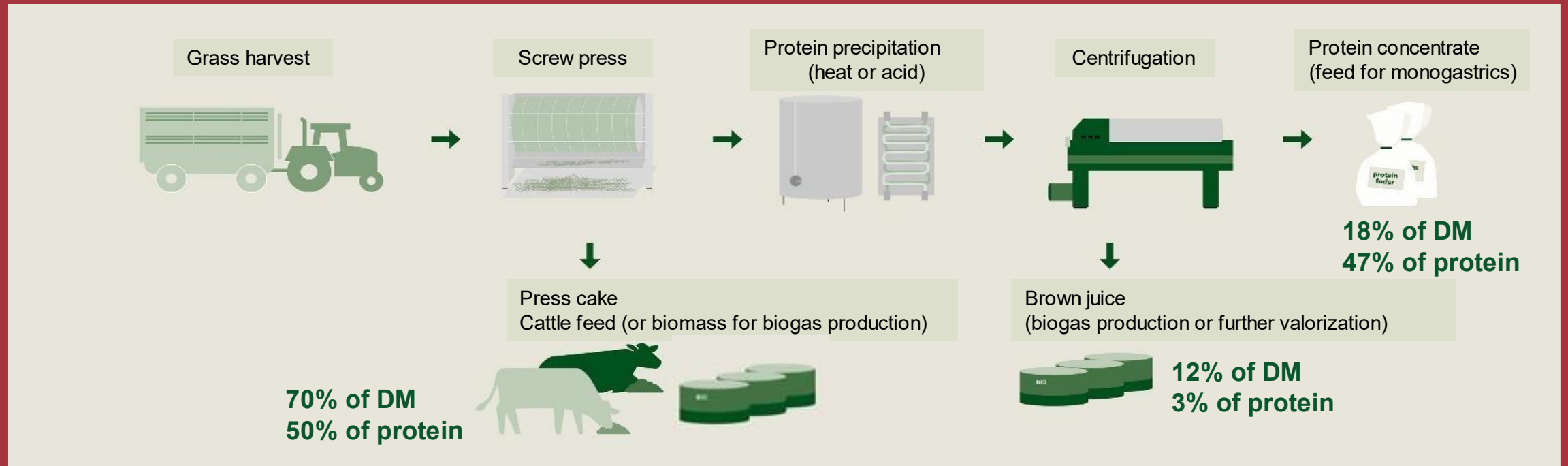
Organic farming:

- Lack of local and organic protein feed with the right amino acid composition.
- Better economy in green manure crops.
- Improved crop rotations and higher crop yields.



Photos: Erik Fog

The biorefining process



Pictures from Ausumgaard



Harvest



Loading



Refining



Screw press separation



Heating of green juice



Decanter separation



Grass pulp



Protein concentrate



Brown juice

Green protein is a valuable feed



- About the same feed value as soy protein
- Approximately 50 % crude protein in dry matter with a high content of methionine.
- Feeding trials with egg layers: Same egg yield and darker yolk colour with increasing amount of green protein in the diet.
 - Problems after introduction in commercial feedmixtures.
- Trials with slaughter pigs: Unaffected growth and meat quality with up to 15 % of green protein concentrate in the diet.

Status on grass protein development



Ausumgaard



16 feasibility projects + 2 applications for establishment grant

Installation price: 80-100 mio. kr.

More possibilities under development



Biomass Proteins pilot plant, photo: Mette Lübeck

Utilization of the side streams



Harvest



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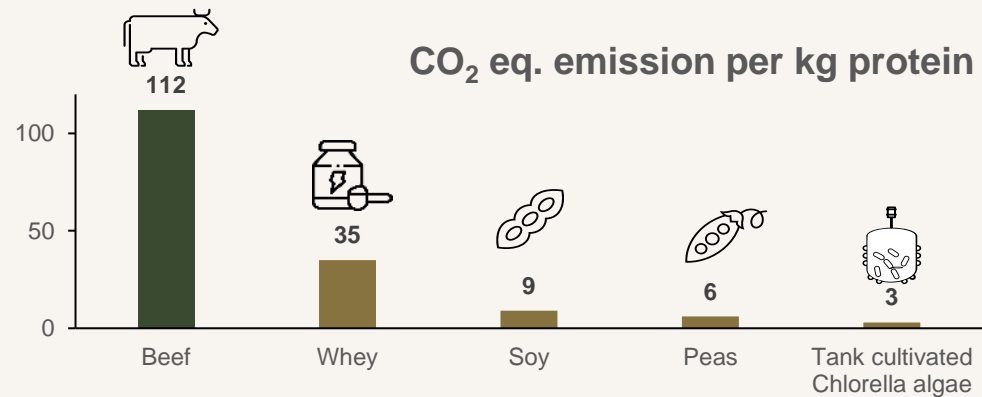


Protein concentrate

The EXTEND project

Sustainable food ingredients from Chlorella micro algae grown on substrate from grass protein side streams.

Huge CO₂ reduction potential in proteins from tank cultivated algae.



NATUREM BIOSCIENCE



The EXTEND project

Development of growing media from pulp and brown juice.

Selection of the best algae strain.



Photo: Erik Fog

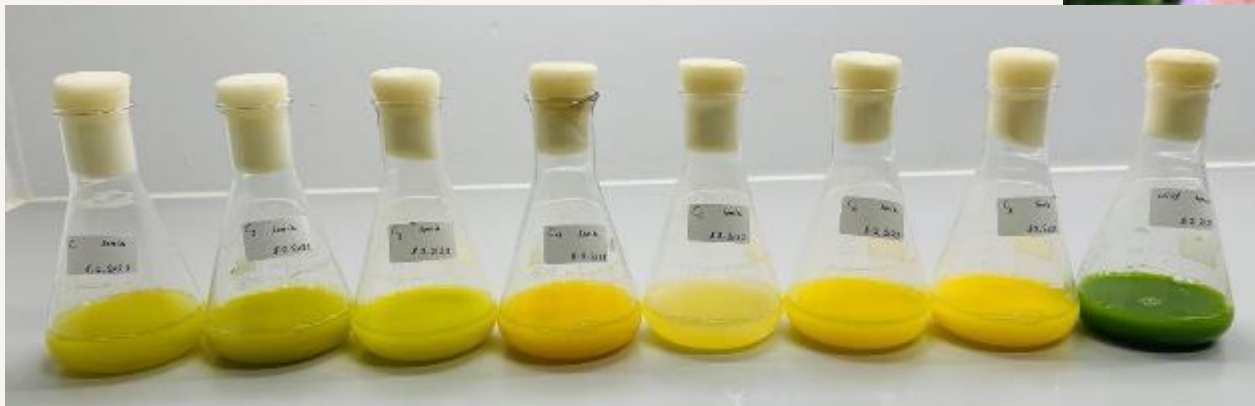
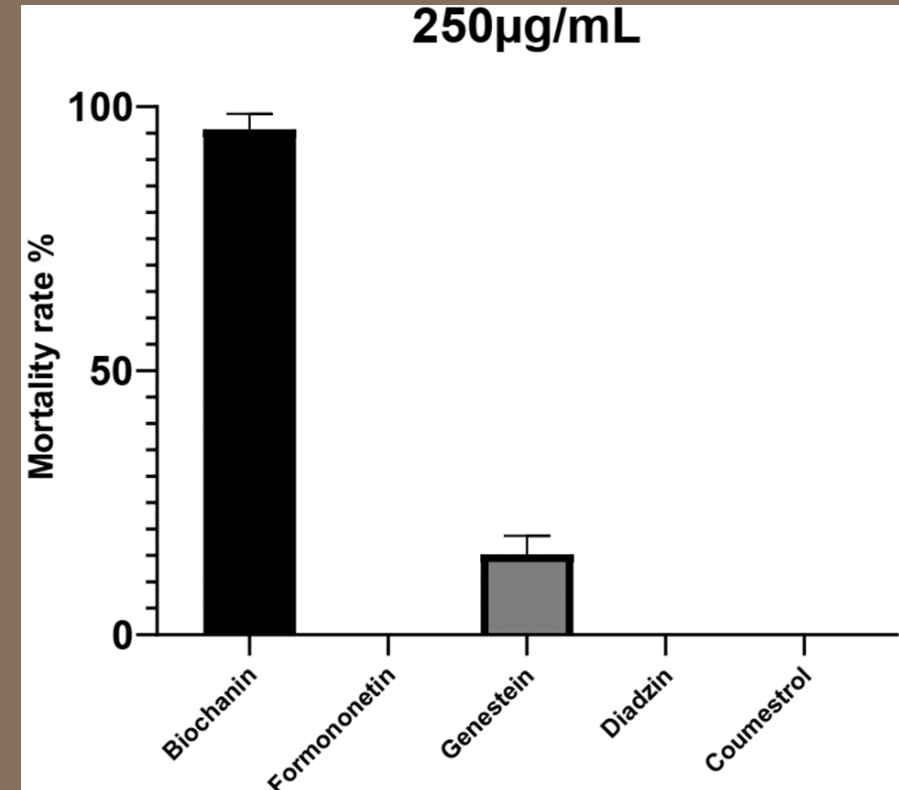


Photo: DTU

NATUREM BIOSCIENCE

Extract from grass pulp as feed additive

High effect as treatment against intestinal worms



Copenhagen University

“White protein” for food

Under development at Biomass Protein and
Aalborg University



Aalborg Universitet, Niels Krogh Søndergaard



Innovation Centre
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In your future meals

Grass protein hidden as ingredient



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