



**FEED DESIGN LAB**  
HUNGRY FOR KNOWLEDGE



The research and education center for innovation and sustainability in the feed industry



**PROJECTS**



**EDUCATION**



**FACILITIES**

# Use of dry and wet algae in feed

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# ***IDEA at Feed Design Lab***

*INTERREG IDEA project*

*Literature research on algae*

*Research works on algae at Feed Design Lab:*

*Technological application in feeds*

*Effects on animals*

# *Work on algae at FDL*

Exploration

Algae in broilers:  
performance

2015

In Vitro

'feed' with  
25% protein  
source:  
SBM, FM,  
BSFL, algae

2017



# *Experiment in the pilot plant with dry algae*

November 2018

Feed production for INTERREG IDEA with 2% Chlorella Vulgaris to gain experience on processing with all types of dosing dry and wet algae in feed.



Dry Chlorella Vulgaris was mixed in meal diet and pelleted in different ways.

# *Experiment in the pilot plant with dry algae*

2% dry *Chlorella Vulgaris* in water mixed and sprayed on a kibble in the vacuumcoater



# *Experiment in the pilot plant with wet algae mix*

*Frozen algae mix was defrosted and made totally liquid in the cutter. Then dosed in the conditioner producing an extruded kibble.*



# ***Experiment in the pilot plant with wet algae mix***

*Wet algae mix was sprayed on a kibble in the vacuum coater*





# *Experiment in the pilot plant with dry algae*

December 2018

Feed production for INTERREG IDEA with 2% Chlorella Vulgaris in piglet feed.

Feed which was left over was used in a 1 week experiment in piglets of 20 kg.

Results:  
Healthy pigs, and  
better growth/animal/day



# *Experiment in the pilot plant with dry algae*

*Analysis performed in algae and feed samples:*

*Physical properties*

*Chemical analysis*

*Microbiological analysis*

**What is the best way to use algae in feed?**

# Literature on effects on health

Ruminants	Performance	Immunity
Chlorella Vulgaris	-	+
Spirulina	+0	+0
Nannochloropsis gaditana	-	

Poultry	Performance	Immunity	Antibacterial	Antiinflammation
Chlorella Vulgaris	+	+	+	+
Spirulina	+	+		
Porphyridium	0		+	+

Pigs	Reproduction	Performance	Immunity	Antibacterial
Chlorella Vulgaris	+	+	+	+
Spirulina	+	+		

# Research

*Literature research on health effects of algae in ruminants, pigs and poultry:*

*Using algae for positive health in animals: use algae as an additive in feed!*

Exploration

Algae in broilers:

Health and growth

In Vitro

'feed' with 25%  
protein source:  
SBM, FM, BSFL, AP

Challenge

**No Go:** expensive experiment

# *Experiment*

**Aim: Health promoting effects of algae in dogs**

**1 treatment positive control**

**1 treatment 0.5% Porphyridium, washed**

**1 treatment 0.5% Chloromonas, disrupted**

**Analytic check algae products and feeds**

**Results:**

**Performance**

**Manure score**

**IgA in manure: anti inflammation effects**



*Thank you for your attention*

