

SmartCalfFat

Fat supplements to maximize calf productivity

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12/11/2021 2

Why this type of project?

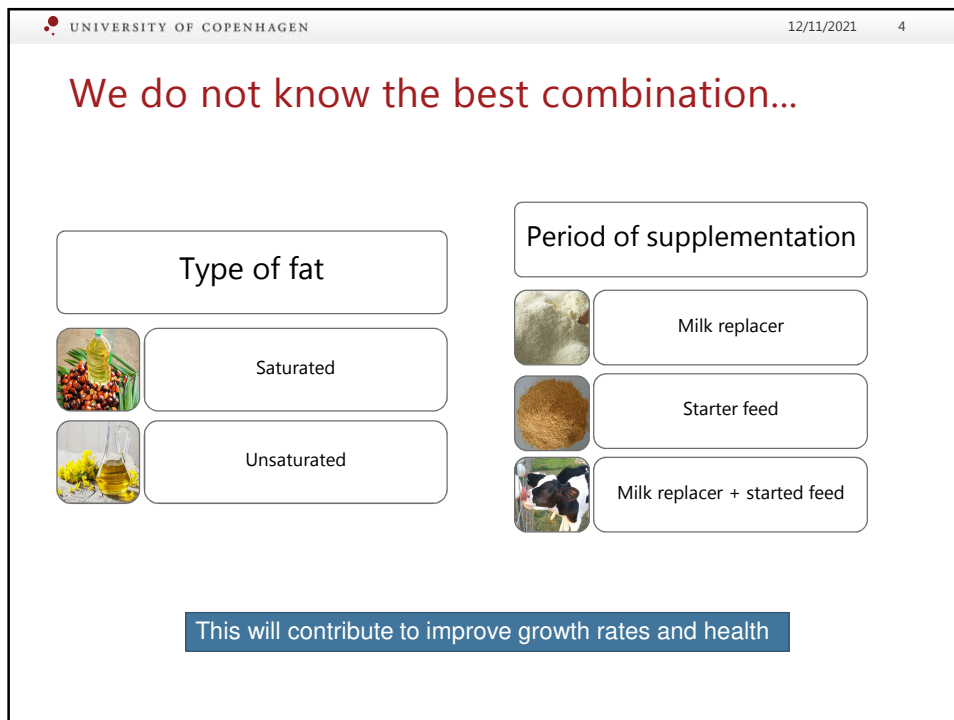
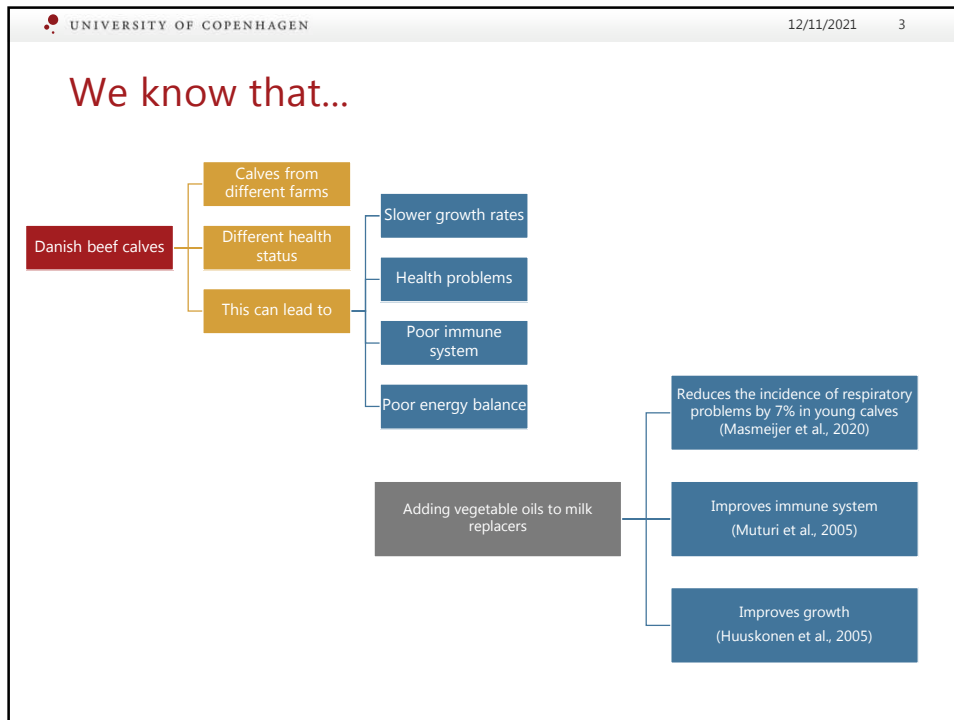
Lipid metabolism in ruminants

Nutrigenomics

Rumen microbiome


Fatty acids in dairy products

What about beef calves???




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Who?



(KU) Einar VBP
Principal investigator and coordinator and administrator of the project, supervision of the experiments






(KU) Hanne H. Hansen Co-investigator

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First year (2021)

- 4 *in vitro* fermentation experiments of 24 hours
 - Rumen fluid from calves under and over 3 months of age
- Milk replacers (**mælkeerstatninger**; MS) and calf feed (**kalvefoder**; KF) used to feed calves under and over 3 months
 - Commercial powder supplements
 - Bovi LM (Lipitec) (40% stearic acid, 40% palmitic acid)
 - Bovi 85 (Lipitec) (45% palmitic, 40% oleic acid based on palm oil)
 - F-100 (Bergafat) (90% palmitic acid)
 - Glyco fat (Lipitec) (45% palmitic, 40% oleic acid based on palm oil and refined glycerol)
 - Rapeseed and sunflower oils

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Work done

Mælkeerstatninger

2 milk replacers + 6 fat supplements

13 samples (including no supplement)
Tested as triplicates in each of two fermentations

Lipid supplemented at:
25 and 27 % of OM

Kalvefoder

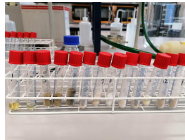
2 starter feed (peas and oats) + 6 fat supplements

13 samples (including no supplement)
Tested as triplicates in each of two fermentations

Lipids supplemented at:
12 and 15 % of OM

Proximate analysis from milk replacers (% dry matter)

	Yellow	Red
Dry matter	95.9	96.6
Crude protein	23.9	24.0
Ether extract	17.9	15.7
Ash	7.0	6



Proximate analysis from starter feeds (% dry matter)

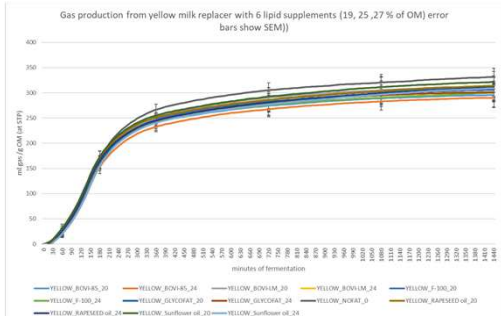
	Starter < 3 m	Starter > 3 m
Dry matter	85.3	85.0
Crude protein	20.3	18.3
Ether extract	3.2	2.9
Neutral detergent fiber	17.4	16.7
Acid detergent fiber	7.3	6.2
Acid detergent lignin	1.0	1.0
Ash	8.9	6.8

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Results

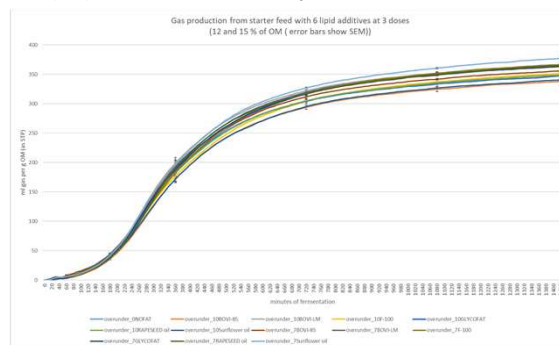
- Milk replacer + added lipids
 - decreased ($P = <0.001$) organic matter degradability
 - Bovi-85 and Bovi LM were closer to no fat treatment
 - did not affect ($P = >0.05$)
 - in vitro* total gas production
 - total volatile fatty acids
 - individual proportions of volatile fatty acids

Gas production from yellow milk replacer with 6 lipid supplements (19, 25, 27% of OM) error bars show SEM))

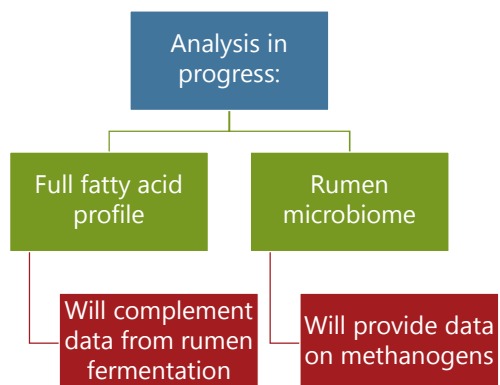


Results

- Starter feed + added lipids
 - did not affect ($P = >0.05$)
 - *in vitro* total gas production
 - organic matter degradability
 - total volatile fatty acids
 - individual proportions of volatile fatty acids



Work in progress



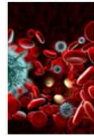
Objectives for 2yr-project

To improve calf's:



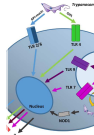
Performance

- Average daily gain, feed conversion rate, body weight, hip height, wither height, hip width, and heart girth



Metabolic health

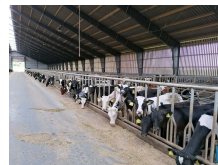
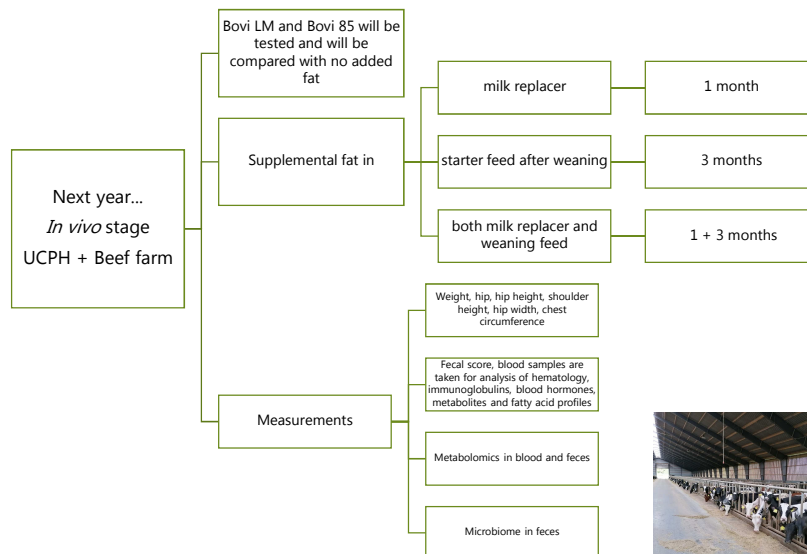
- Blood metabolites and blood hormones



Immune system

- Hematology variables and immunoglobulins

Where and How?



Spørgsmål???

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