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Digestibility & net energy of - chicory pulp & - corn gluten feed: pregnant sows vs. fattening pigs

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Presentation

1. Introduction:
2. Objective
3. Materials and methods
   - Digestibility trials with total collection
4. Results and discussion
5. Conclusions

1. Introduction

Why net energy needed?

- To formulate diets for pigs & sows according to requirements

- Tabular values: CVB table
  - BUT: no data for chicory pulp
  - BUT: data for corn gluten feed based on trials with fattening pigs

1. Introduction

Different NE for sows vs. pigs:

Digestibility of energy & nutrients (esp. DF) ↑ with ↑ BW for fibre rich diets & ingredients

Reason: rel. to BW lower feed intake for sows ⇒ ↑ retention time of digesta, ↑ fermentation

Difference: depends on the botanical origin

(Le Goff, van Milgen, Noblet, 2002. Anim. Sci. 74: 503-515)

1. Introduction

Interest in fibre rich diets for sows:

* Ad libitum feeding of pregnant sows for group housing conditions

* Part of project: Evaluation of different dietary fibre sources for their capacity to restrict the voluntary net energy intake

(see also next presentation, same session)

2. Objective

To study the digestibility of the nutrients and the net energy of chicory pulp and corn gluten feed for pregnant sows versus fattening pigs.

3. Materials and methods

Cross-over design

Treatments:

* Control diet: 14.5% CP, 5% CF, 8.6 MJ/kg NE
* Test diet = 75% control + 25% fibre source

DE & NE calculated by difference technique

Animals:

* 6 sows/treatment: 5 to 13 weeks pregnant
  on average 4.5th parity, 210 kg
* 6 fattening pigs/treatment: on average 48 kg

3. Materials and methods

Sows: fed at requirement level

- 2.6 kg control diet and 2.6 kg CP diet and 2.8 kg CGF diet per day

Pigs: fed at 3 times maintenance level

- 1,7 kg feed per day

* 2 meals/day, mixed with water (2.5 x [feed]) + 1.5l
* Adaptation period: 18 days
* Total collection of faeces & urine: 10 days

3. Materials and methods

Data:

- **Urine & faeces production: amount & DM**
- **Digestibility of nutrients of CP and CGF,**
- **to be used for NE estimation with CVB-regression formula**

4. Results and discussion

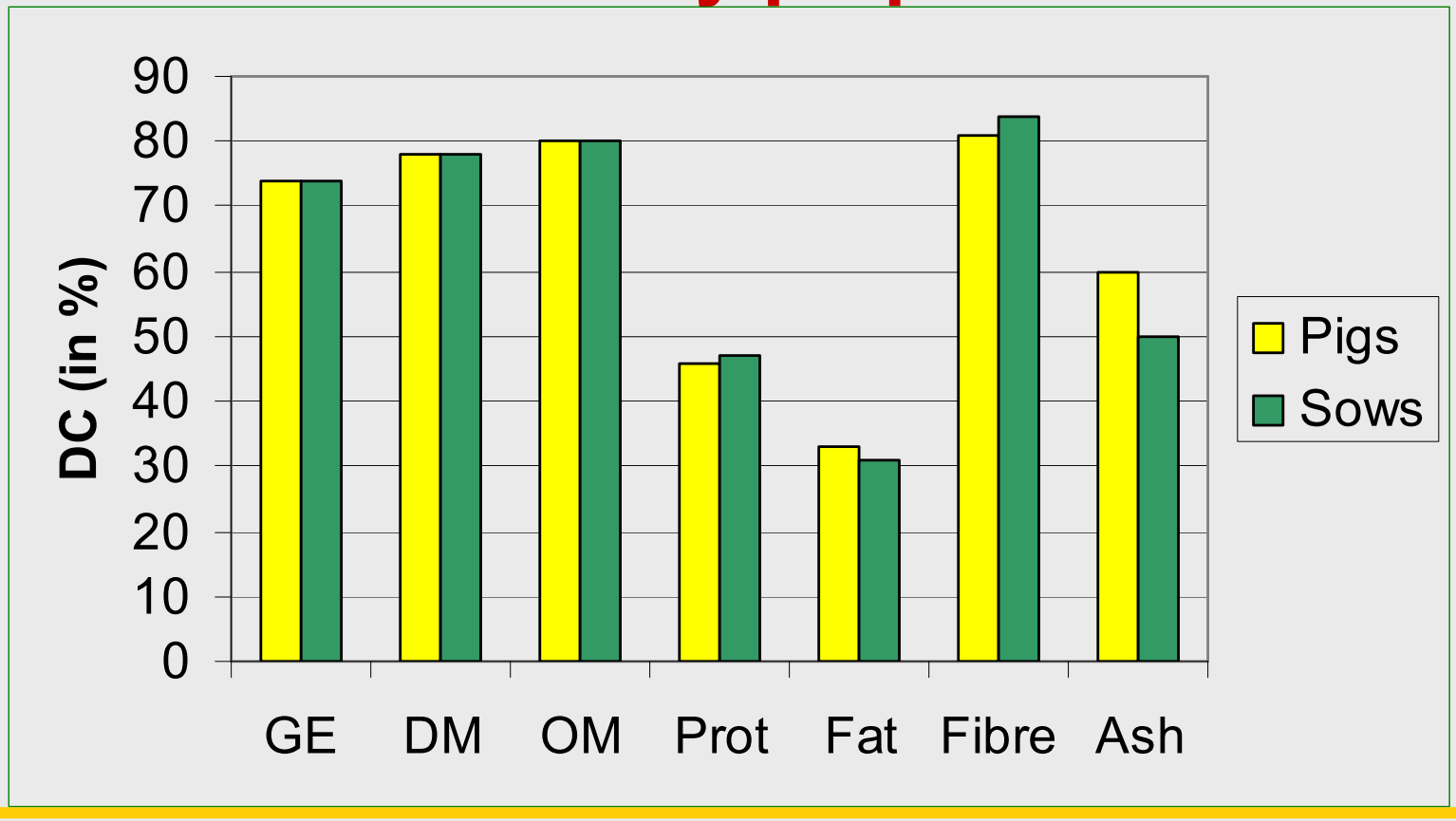
Chicory pulp	Fattening pigs		Pregnant sows	
	Control	CP diet	Control	CP diet
Faeces, kg/day	0.9[a]	1.2[b]	1.2[a]	1.4[b]
Faeces, % DM	28[a]	22[b]	30	27
Urine, kg/day	4.1[a]	3.7[b]	6.1	5.5
Faeces+urine, kg/day	5.0	4.9	7.3	6.9
Faeces+urine, % DM	4.8	5.3	4.8[a]	5.5[b]

4. Results and discussion

Corn gluten feed	Fattening pigs		Pregnant sows	
	Control	CGF diet	Control	CGF diet
Faeces, kg/day	0.7[a]	1.0[b]	1.0[a]	1.2[b]
Faeces, % DM	30	30	33	33
Urine, kg/day	3.9	3.7	6.1[a]	5.4[b]
Faeces+urine, kg/day	4.7	4.7	7.1	6.6
Faeces+urine, % DM	4.7[a]	6.3[b]	4.5[a]	6.2[b]

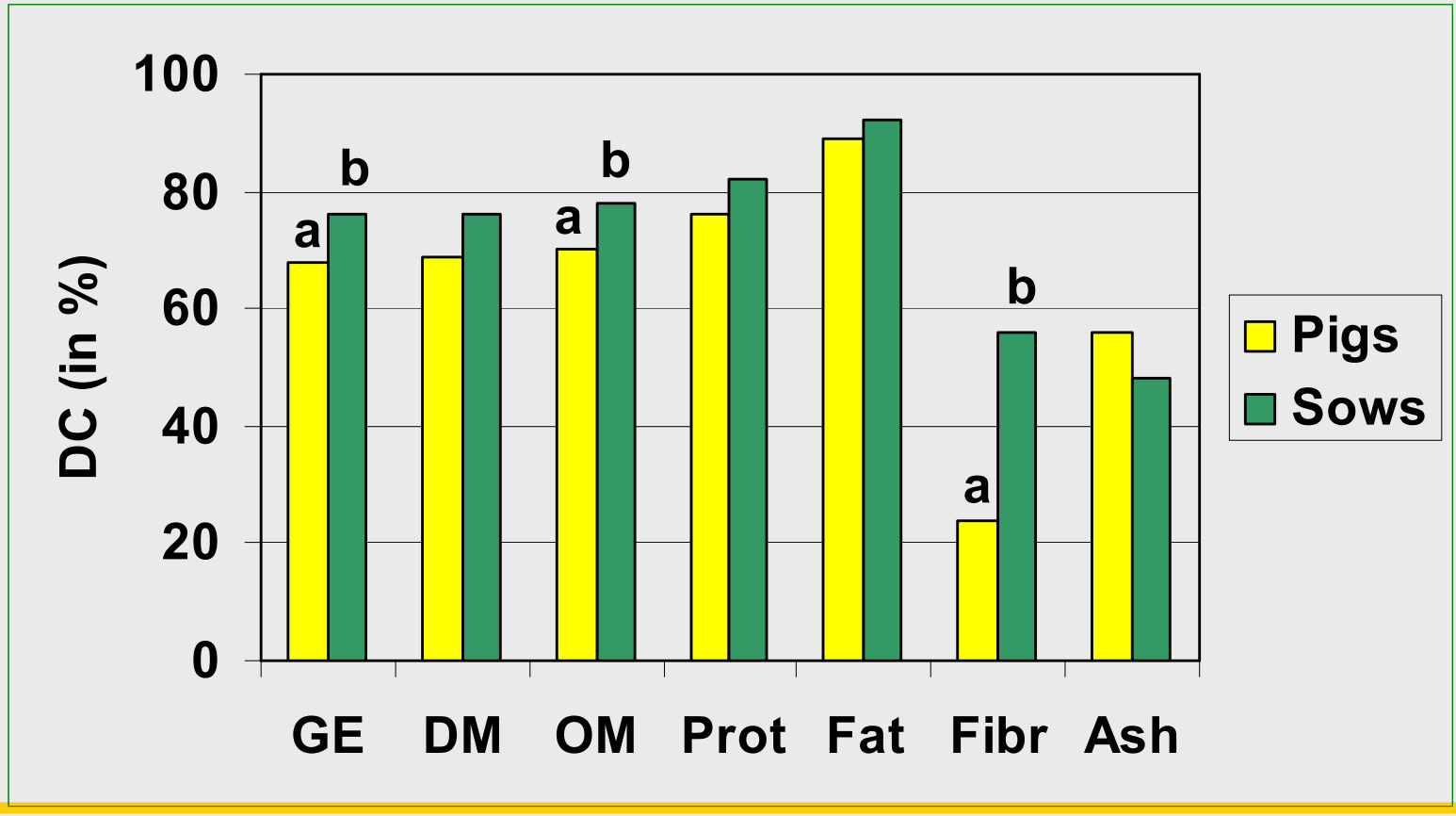
4. Results and discussion

Chicory pulp



4. Results and discussion

Corn gluten feed



4. Results and discussion

Chicory pulp

In MJ/kg fresh matter	Fattening pigs	Pregnant sows
Digestible energy	7.7 ± 0.5	7.7 ± 0.3
Net energy	6.8 ± 0.4	6.8 ± 0.3

Corn gluten feed

In MJ/kg fresh matter	Fattening pigs	Pregnant sows
Digestible energy	11.0^{a} ± 1.0	12.4^{b} ± 0.5
Net energy	7.1^{a} ± 0.5	7.8^{b} ± 0.3

5. Conclusions

The NE of chicory pulp was similar for sows and pigs: 6.8 MJ/kg

The NE of corn gluten feed was 10% higher for sows vs. pigs:

7.8 vs. 7.1 MJ/kg

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