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Chicory pulp
Corn gluten feed
Rape seed meal

} Energy intake restrictors for ad lib dry sows?

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Presentation

1. Introduction:
   - Why/how ad libitum feeding?
2. Objective
3. Materials and methods
   - three intake trials
4. Results and discussion
5. Conclusions

1. Introduction

Why/how ad libitum diets?

- Legislation: group housing (2013): cost minimalisation conversion
- Legislation: besides energy rich also fibre rich and bulky diet
- Sow welfare!!
- Diet composition? Except for sugar beet pulp, few scientific data

1. Introduction

Advantages fibre rich diets:

* ↓ Activity, stereotypies, agression – ↑ calm
* ↑ Intake time, ↓ intake rate, ↑ GIT filling,
  ↑ fermentation colon, ~ blood sugar level →
  ↑ satiation
* ↑ GIT development → ↑ feed intake lactation,
  ↓ constipation before farrowing
* ↓ Water use/waste
* Shift of N-excretion: urine → faeces
  ⇒ ↓ NH3-emission

1. Introduction

Disadvantages fibre rich diets:

* ↑ Storage and transport costs
* Availability vitamins and minerals?!
* ↑ manure amount (if ad libitum)
  ↑ dry matter content of manure
  ⇒ problems with the slurry removal?!
* Ad lib: Δ feed intake & ↓ control of condition

2. Objective

Challenge:

To formulate a balanced fibre rich diet, which leads to an acceptable ad voluntary feed intake, without impairing the condition of the sows.

3. Materials and methods

Animals: hybrid sows, 5 wks pregnant:

- **3 intake trials with each 3 ad lib. treatments:**
  - **chicory pulp: 15 sows**
  - **corn gluten feed & rape seed meal: 13 sows**
  - **chicory pulp & corn gluten feed: 18 sows**
- **Latin square design**
  - **14 days of adaptation & 7 days registration**

3. Materials and methods

Trial	Treatment 1	Treatment 2	Treatment 3
1	Control	25% CP	50% CP
2	Control	55% CGF	25% RSM
3	44% CP	47% CGF	22%CP+23,5%CGF

Chicory Pulp, Corn Gluten Feed, Rape Seed Meal

3. Materials and methods

Parameters:

- **INTAKE registration during 7 days:**
  feed & net energy
- **CONDITION during 21 days:**
  weight gain & P2 backfat thickness
- **Daily water use (sub-population sows)**

4. Results and discussion

	Trial	Tr. 1	Tr. 2	Tr. 3
Treatments	1	Con	25%CP	50%CP
	2	Con	55%CGF	25%RSM
	3	44%CP	47%CGF	CP+CGF
Feed intake (kg/d)	1	5.2^{a}	3.8^{b}	2.7^{c}
	2	5.0^{a}	2.8^{b}	4.7^{a}
	3	3.5	4.5	4.3

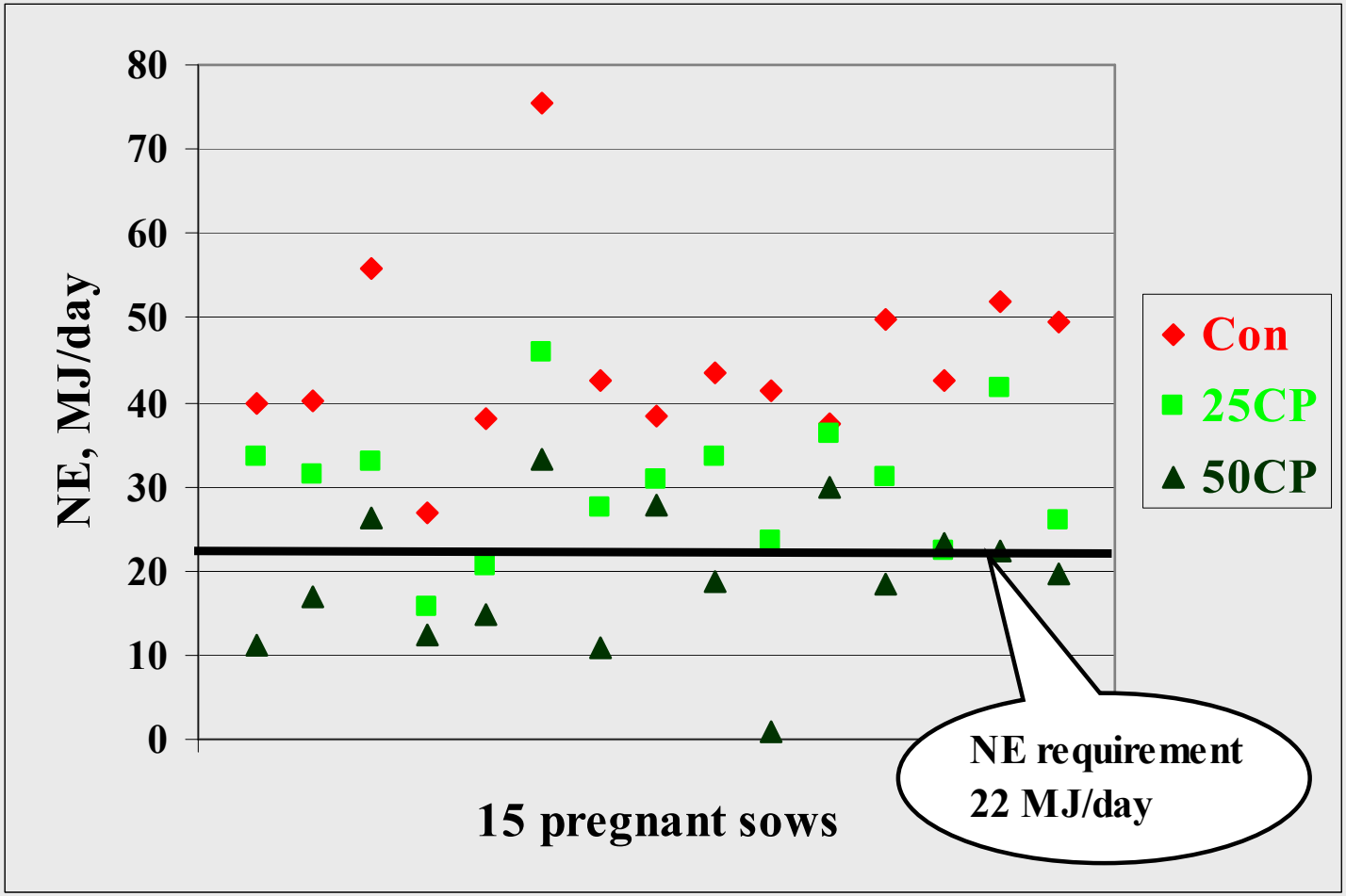
4. Results and discussion

	Trial	Tr. 1	Tr. 2	Tr. 3
Treatments	1	Con	25%CP	50%CP
	2	Con	55%CGF	25%RSM
	3	44%CP	47%CGF	CP+CGF
Net energy intake (MJ/d)	1	45^{a}	30^{b}	19^{c}
	2	43^{a}	21^{b}	37^{a}
	3	26^{a}	35^{b}	32^{ab}

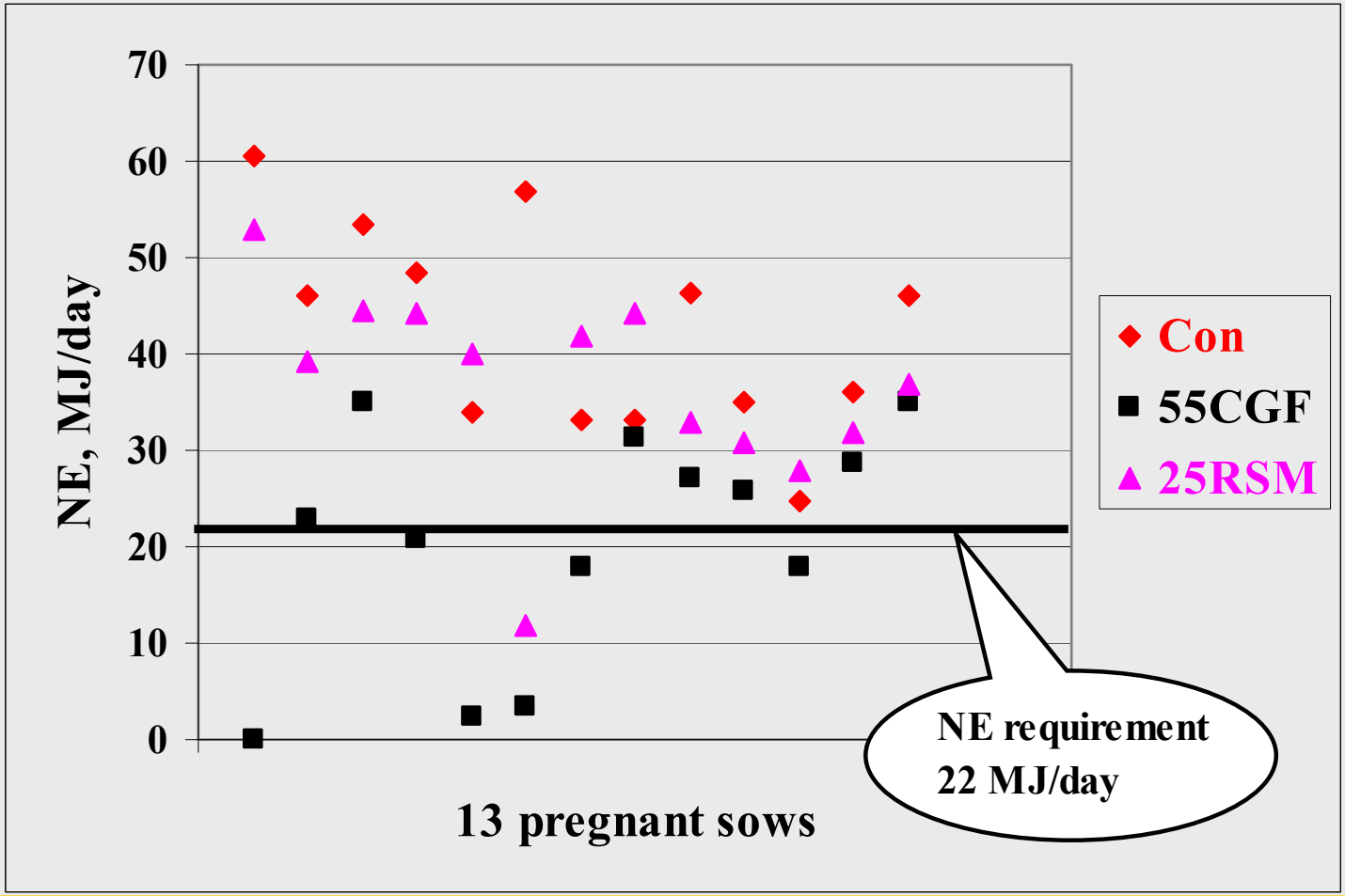
4. Results and discussion

	Trial	Tr. 1	Tr. 2	Tr. 3
Treatments	1	Con	25%CP	50%CP
	2	Con	55%CGF	25%RSM
	3	44%CP	47%CGF	CP+CGF
Times energy norms	1	2.0^{a}	1.4^{b}	0.9^{c}
	2	1.9^{a}	0.9^{b}	1.7^{a}
	3	1.2^{a}	1.6^{b}	1.5^{ab}

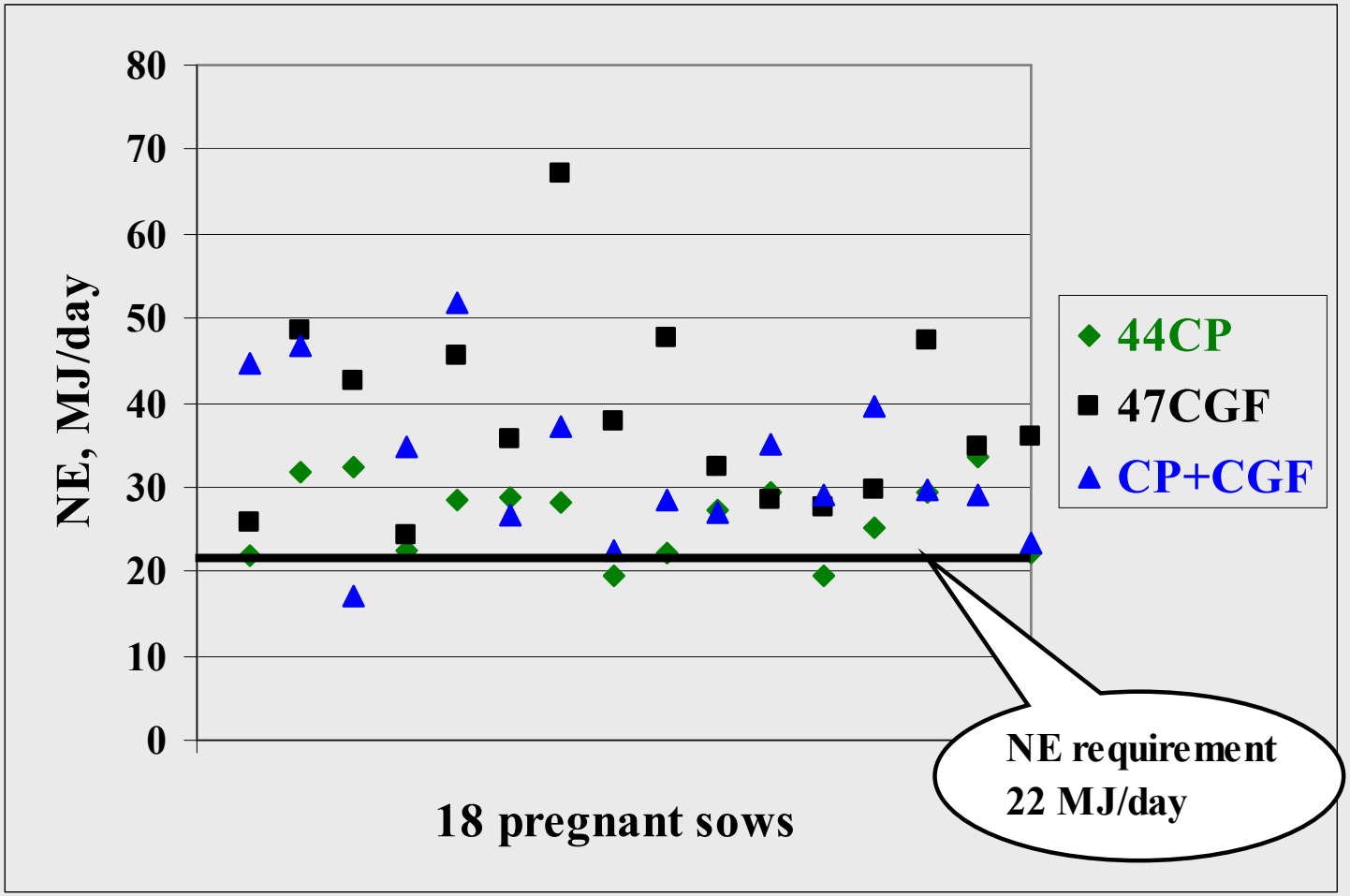
4. Results and discussion



4. Results and discussion



4. Results and discussion



4. Results and discussion

Condition: confirms intake results (except for trial 3)

Advised: 0.39 kg/day weight gain (NRC, 1998), 0.03 – 0.04 mm/day P2 gain

Water use: according to requiments for trials 1 & 3, exceeded for trial 2

Advised level: 2.8 l/kg feed (CVB, 2004)

5. Conclusions

Chicory pulp at 44 to 50%: succesful voluntary energy intake restrictor.

High levels of corn gluten feed in the gestation diets → variable intake

Rape seed meal: not useful as voluntary energy intake restrictor for sows

Addendum

Chicory pulp can replace sugar beet pulp in ad libitum gestation diets.

It contains about

8% crude protein,
20% crude fibre,
2.4% crude fat,
6.8 MJ/kg net energy

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