Feed intake cannot be used as predictor of stomach ulcers in lactating sows

T.S. Bruun[1], J. Vinther[1] and C.F. Hansen[2]

[1] Danish Pig Research Centre, Danish Agriculture & Food Council

[2] Dept. of Large Animal Science, University of Copenhagen

Dan Avl

ISO 9001 Management System Certification BUREAU VERITAS Certification Denmark A/S

Naturerhverv.dk

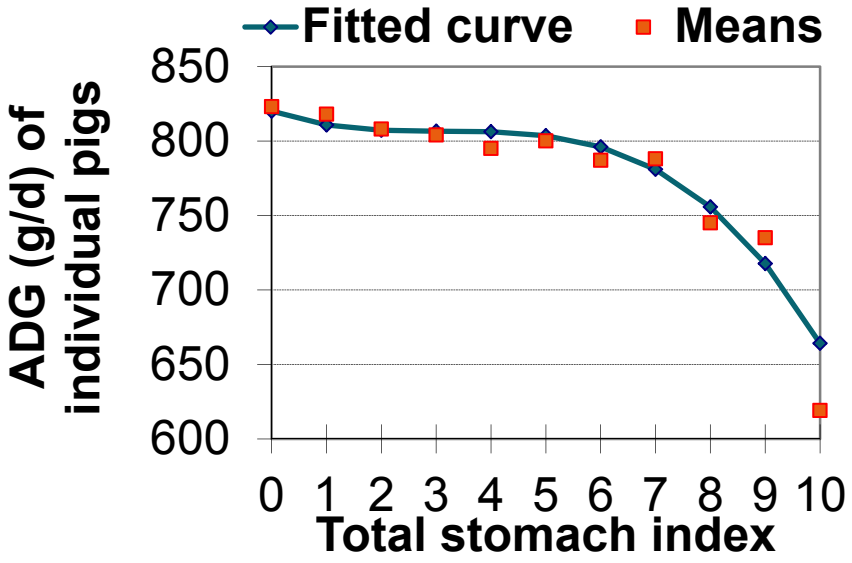
Danish Pig Research Centre

LANDBRUG FØDEVARER

Background

Danish Pig Research Centre

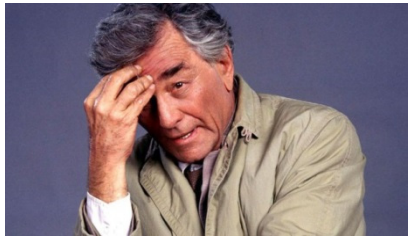
- **Stomach ulcers are examined on dead sows**
- **Variation in prevalence of stomach ulcers in sows**
  - 51% of sows with stomach index 6-10 in 1,023 stomachs from more than 36 herds
    (Nielsen et al. 2013)
- **Interesting results with slaughter pigs**
  (Sloth et al. 1998)



Objective and hypothesis

Danish Pig Research Centre

- **Objective**
  - To investigate whether feed intake in lactation may be a potential indicator of stomach ulcers



- **Hypotheses**
  - Higher prevalence of stomach ulcers in sows having a low feed intake compared with a high feed intake
  - Higher prevalence of stomach ulcers in sows showing a drop in feed intake compared with normal feed intake

Materials and Methods

Danish Pig Research Centre

Conducted in 3 herds using liquid feed

1. Farrowing date
2. Weaning date
3. Moving of sows

1. Daily feed allowance recorded on PC

1. Removal of stomachs
2. Unique ID tagging

1. Visual inspection
2. Calculate index

Materials and Methods

Danish Pig Research Centre

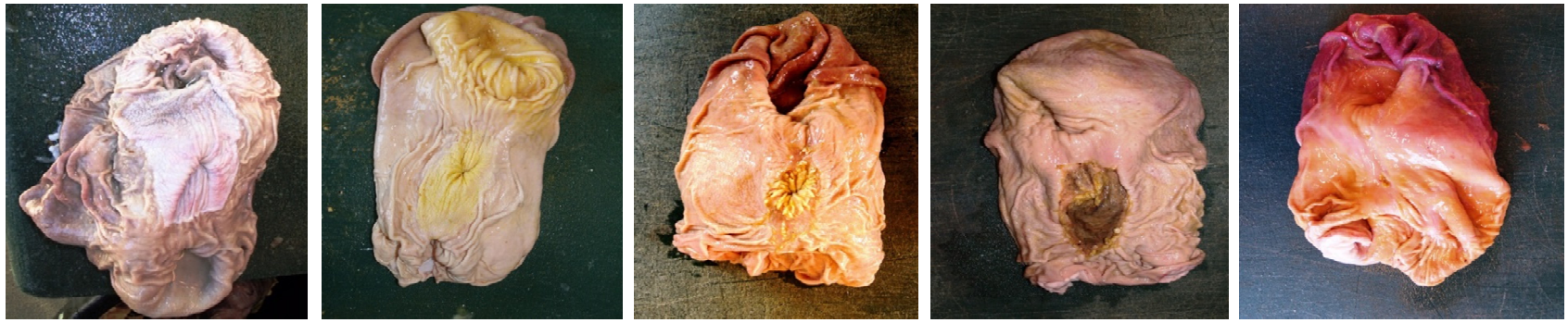
- **Inclusion criteria within herds**
  - 21 to 28 d of lactation
  - Slaughter 0 to 5 d after weaning

Materials and Methods

Danish Pig Research Centre

- **4 evaluations are combined to an index**
  - Index 0: No pathological changes in Pars Esophagea
  - Index 1-3: Degree of parakeratosis of PE
  - Index 4-5: Degree of erosion of PE
  - Index 6-8: Degree of ulcers and/or scars in PE
  - Index 9-10: Stenosis of the esophageal lumen

Index 0 | Index 1-3 | Index 4-5 | Index 6-8 | Index 9-10



Materials and Methods

Danish Pig Research Centre

- **Feed allowance**
  - All sows classified within month and parity into:
    - **HIGH (20% highest ADFI)**
    - **LOW (20% highest ADFI)**
  - All sows included in following:
    - **NORMAL (sows not having a drop >30%)**
    - **DROP (sows having a drop >30%)**

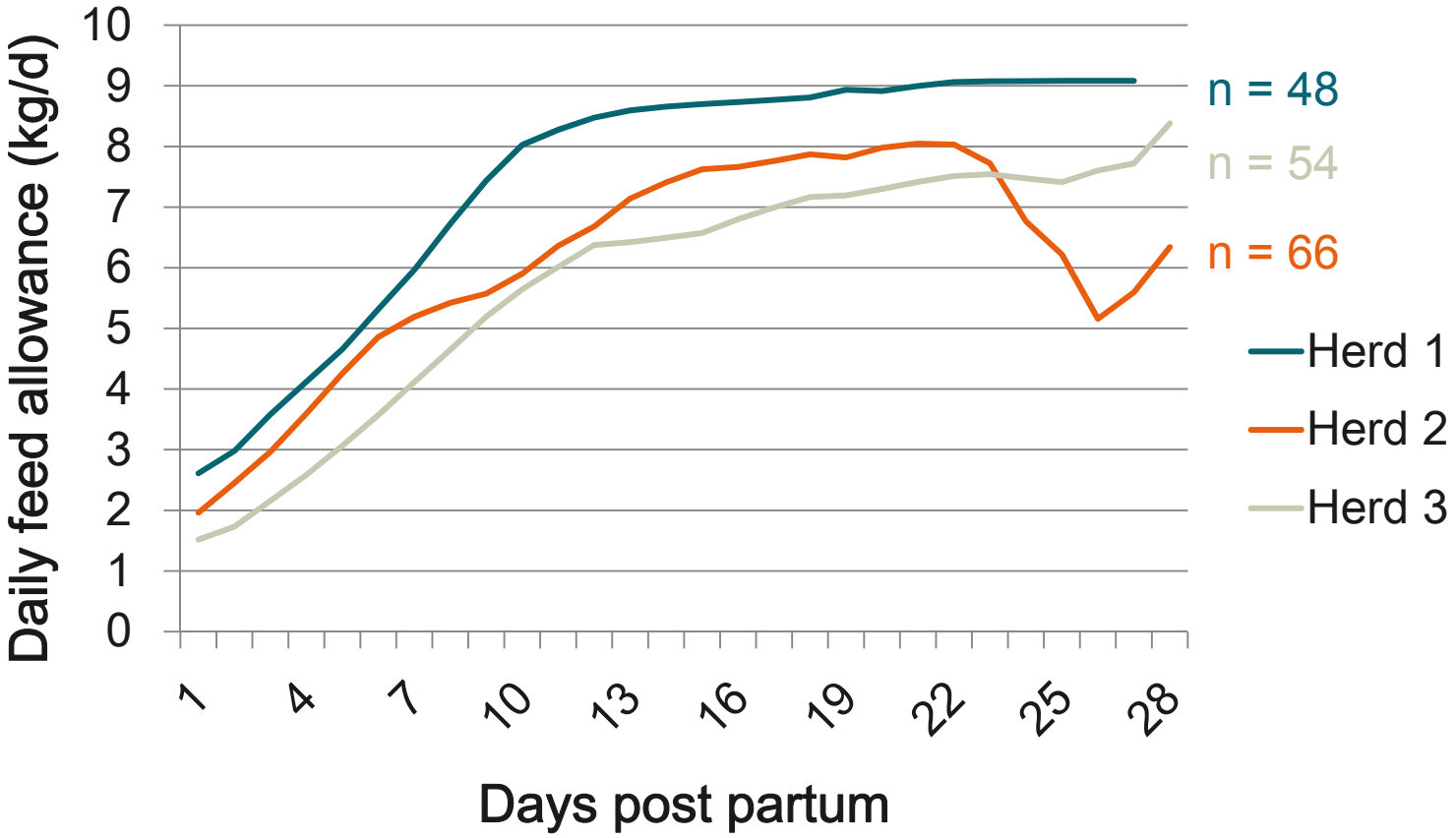
- **Stomach ulcers**
  - Logistic regression
    - 2 levels of stomach ulcer index (i.e. 0-5 vs. 6-10)
    - Herd included as a fixed effect

Average daily feed intake

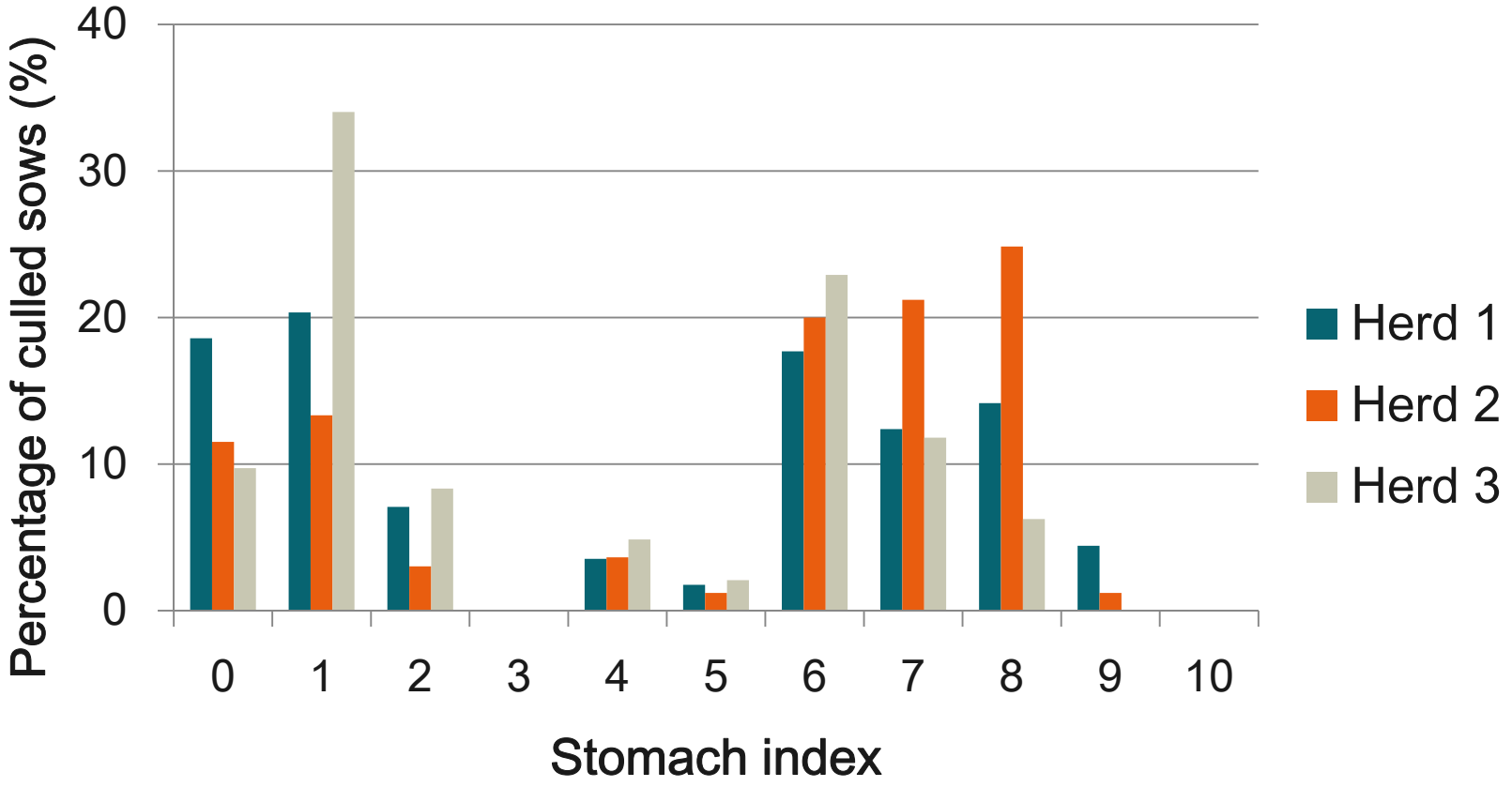
Danish Pig Research Centre

	Herd 1		Herd 2		Herd 3	
	n	ADFI (kg/d)	n	ADFI (kg/d)	n	ADFI (kg/d)
HIGH	24	**7.5**	32	**6.8**	24	**6.0**
LOW	24	**6.9**	34	**5.1**	30	**4.3**
DROP	-	-	79	6.1	102	5.4
NORMAL	-	-	86	6.1	42	5.4

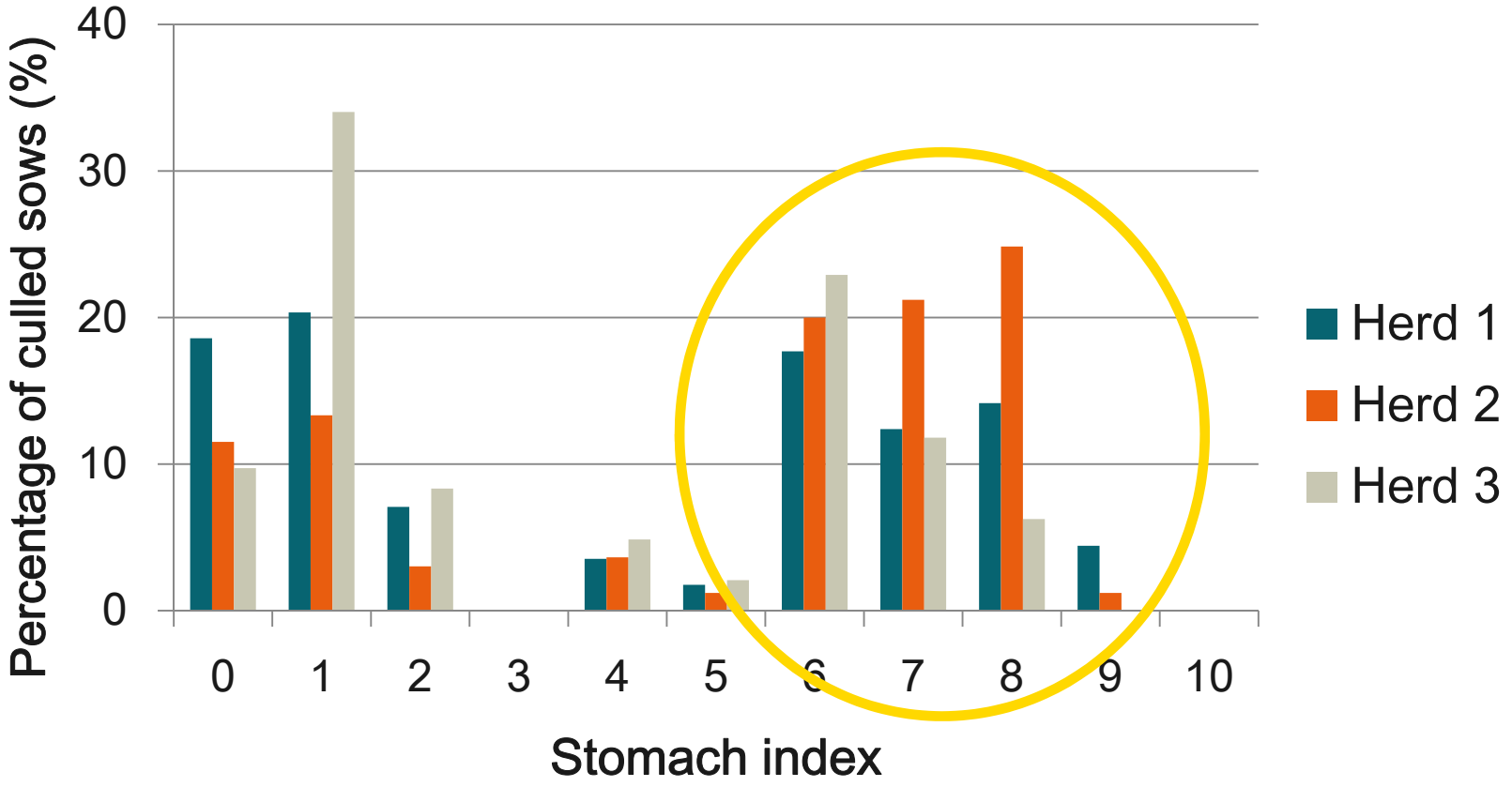
Average daily feed allowance



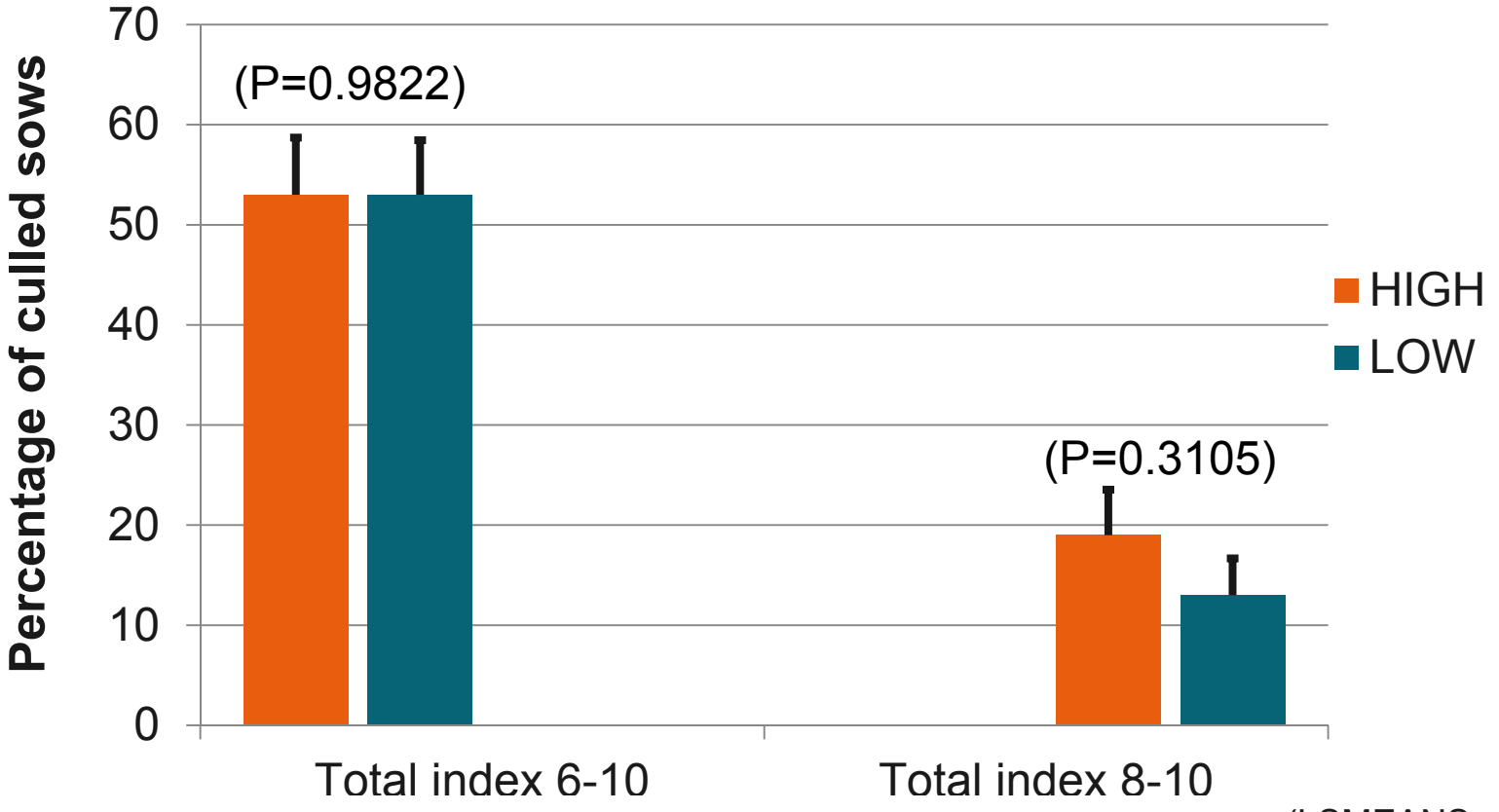
Overall distribution of stomach index



Overall distribution of stomach index

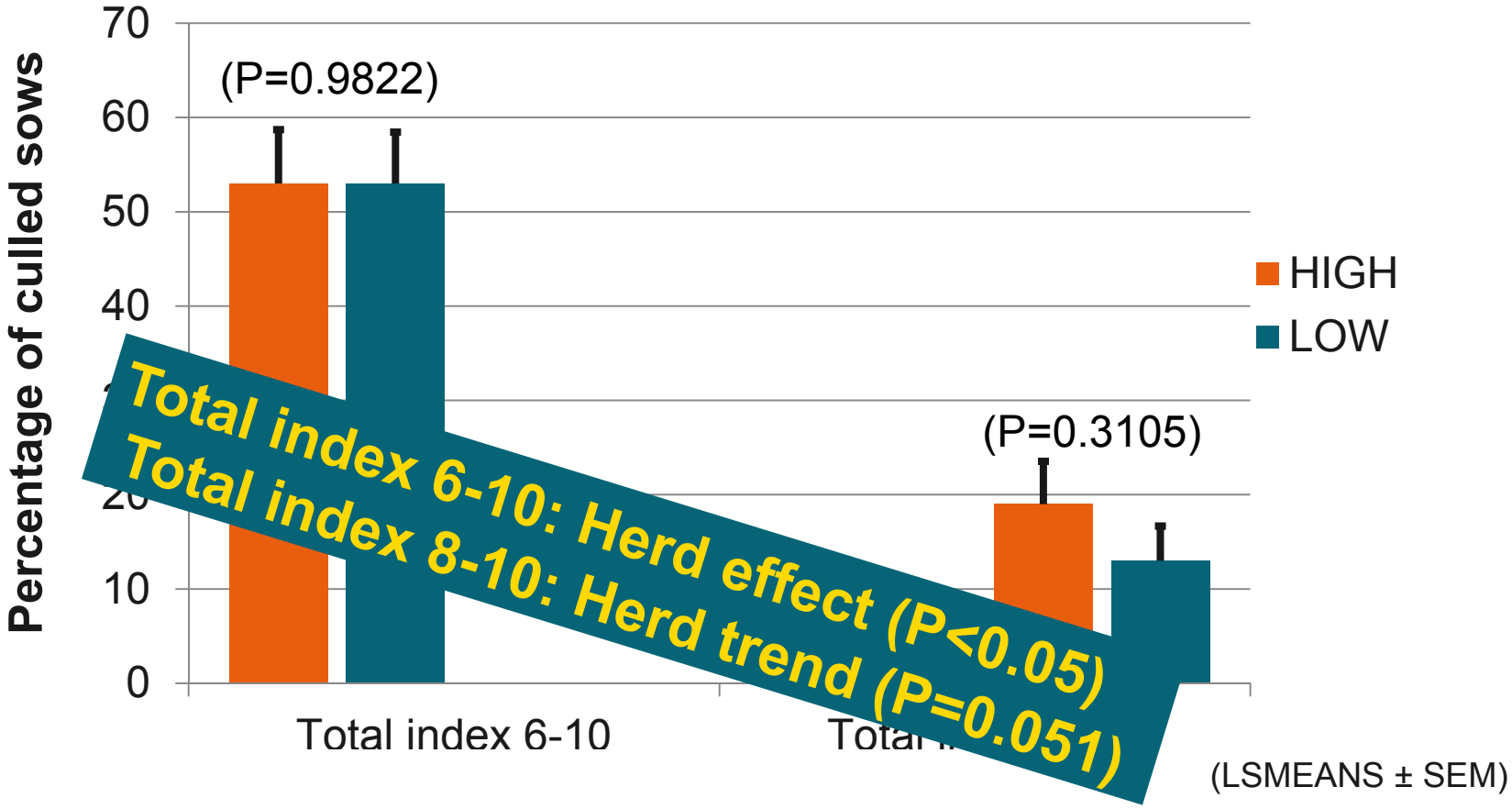


Feed allowance vs. stomach ulcers

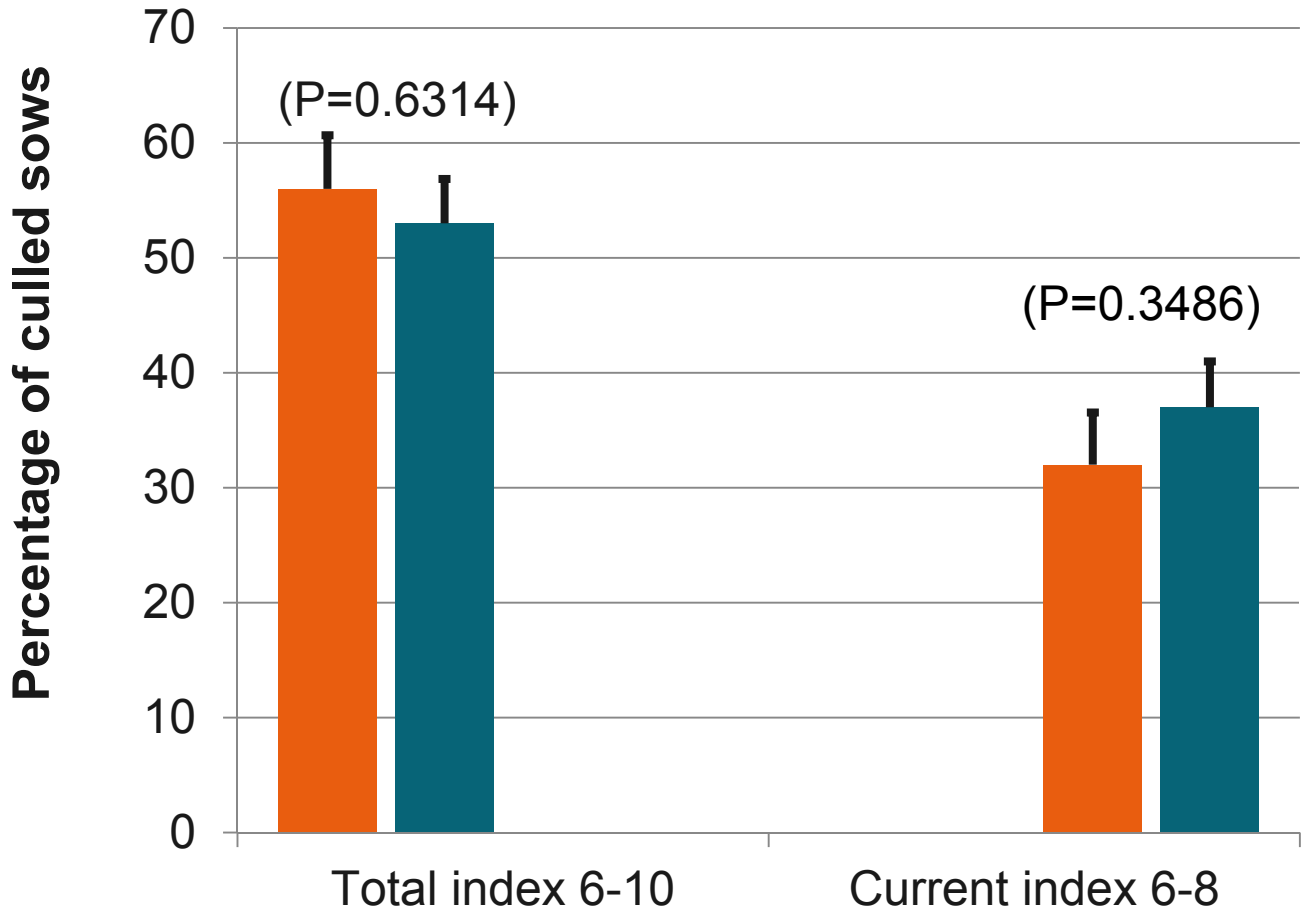


(LSMEANS ± SEM)

Feed allowance vs. stomach ulcers

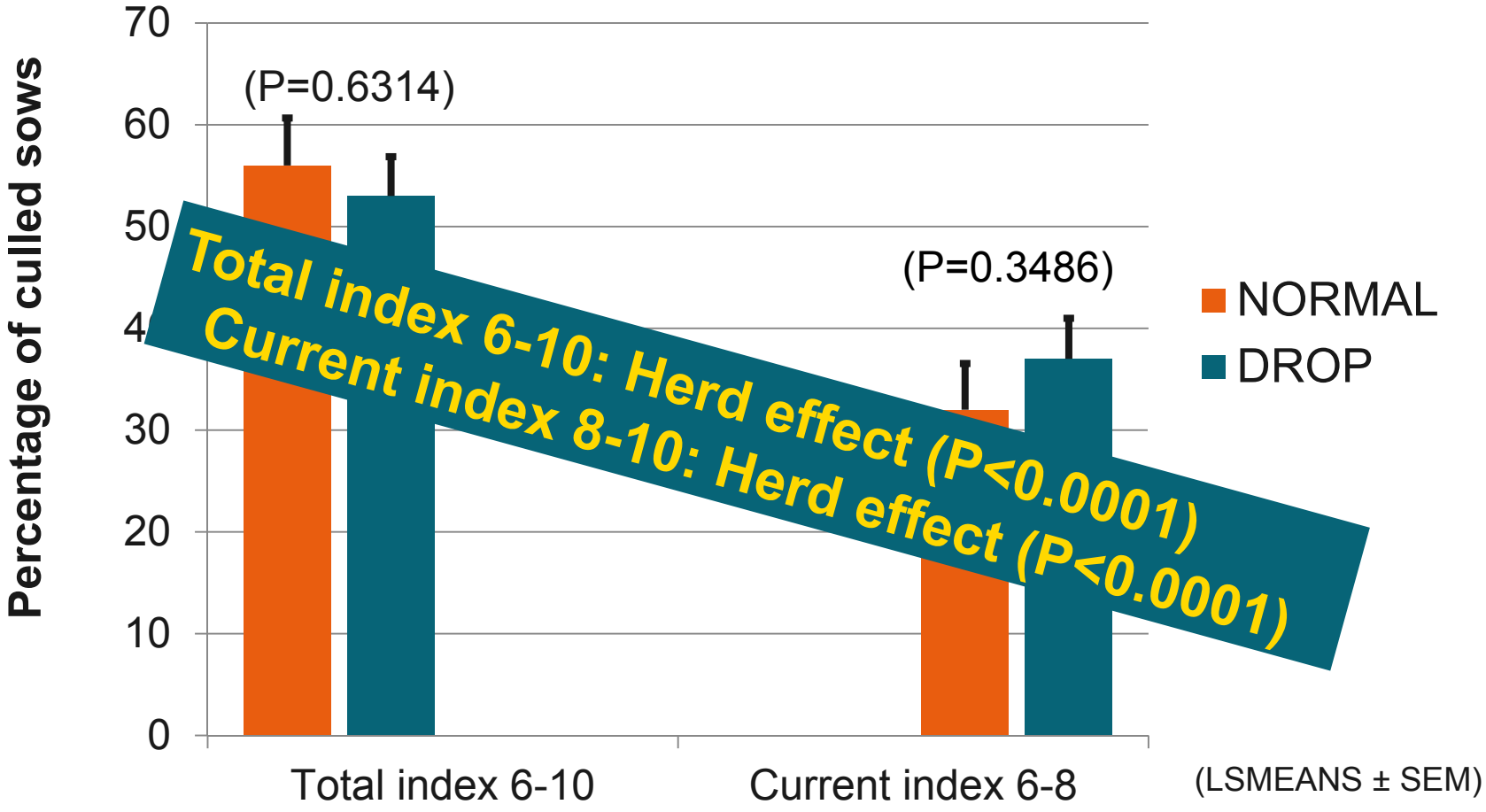


DROP and stomach ulcers



(LSMEANS ± SEM)

DROP and stomach ulcers



Discussion

Danish Pig Research Centre

- **Level of total stomach index was in accordance with a large Danish cross-sectional survey**
- **In herd 2, a general decrease in feed intake was observed before weaning**
  - Both HIGH and LOW showed this
- **Prevalence of stomach ulcers with index >8 was generally low**
  - At least compared with a recent study (Bruun and Vinther 2013)

Conclusion

Danish Pig Research Centre

- No correlation between HIGH or LOW feed intake and stomach ulcers
- A DROP is not an indication of stomach ulcers
- Based on this survey we cannot use feed intake to predict the occurence of stomach ulcers

Questions ?

Contact: tch@lf.dk

Dan Avl

ISO 9001
Management System Certification
BUREAU VERITAS
Certification Denmark A/S

Danish Pig
Research Centre

LANDBRUG FØDEVARER