FIELD LAB: FEEDING PIGS SILAGE

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AIMS

Reduce production costs

- improve *financial resilience*

Improve gut health

- improve animal welfare

Reduce the reliance on soya as a source of protein

- reduce the environmental impacts associated with soya production & *improve environmental resilience*

SILAGE

FEEDING PIGS SILAGE

Why not?

- Pigs are categorised as *monogastrics* – like poultry and humans
- Monogastrics are mainly fed concentrates – the main source of protein is usually soyabean meal (SBM)

SOYABEAN MEAL

FEEDING PIGS SILAGE

Why not?

- Silage is a bulky feed – digesting it has an energy cost
- Lower liveweight gain?
- Lower killing out percentage?
- Poorer carcass grade?

FEEDING PIGS SILAGE

Why?

- Pigs are actually *hindgut fermenters*
- Bugs can digest fibrous feeds in their hindgut
- Silage can be produced in Scotland
- Soya is imported
- Silage is cheap, SBM is expensive

GRASS / CLOVER

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FEEDING PIGS SILAGE

Why?

- Additional behavioural substrate – allows expression of natural behaviours
- Better for their gut – finely milled feeds are associated with gastric ulcers

METHODOLOGY

Pigs of the same age, sex, and <u>breeds</u> were split into 2 groups

- Group A, ration 1 (control)
  - Ad-lib access to proprietary feed pellets (includes wheat & soyabean meal)
- Group B, ration 2 (experimental)
  - Ad-lib access to 50/50 pellets & barley mix, **<u>and</u>** ad-lib access to red clover silage

METHODOLOGY

- Ration B diluted the protein content (by having more barley)
- This reduced amino acid supply
- Encourages seeking out of high protein feeds elsewhere, i.e. silage
- Other studies tend to keep the full diet on offer, as well as silage
  - No incentive for pigs to seek lysine (an amino acid)

PROTEIN

	DM (%)	CP (%)	Lys (%)	Met (%)
Earthworms†	26.02	51.66	3.36	0.94
Arthropods†	38.58	39.13	2.24	0.60
Molluscs†	14.01	62.59	3.70	0.92
Insect larvae†	25.23	48.09	2.96	0.86
SBM*	88.0	42.0	3.0	0.63*
Beans*	86.0	25.0	1.7	0.23*

†Crawley (2015) Fulfulling 100% organic pig diets: feeding roughage and foraging from the range

*Bikker et al (2014) Grass silage in diets for organic growing-finishing pigs

*Edwards (2002) Feeding organic pigs, a handbook

ASSESSMENTS

- Liveweight gain (lwg)
- Killing out percentage
- Carcass quality: grade
- Cost of feed (per g of lwg)
- Gut length: hindgut fermentation
- Eating quality – taste

ASSESSMENTS

- **Liveweight gain (lwg)**
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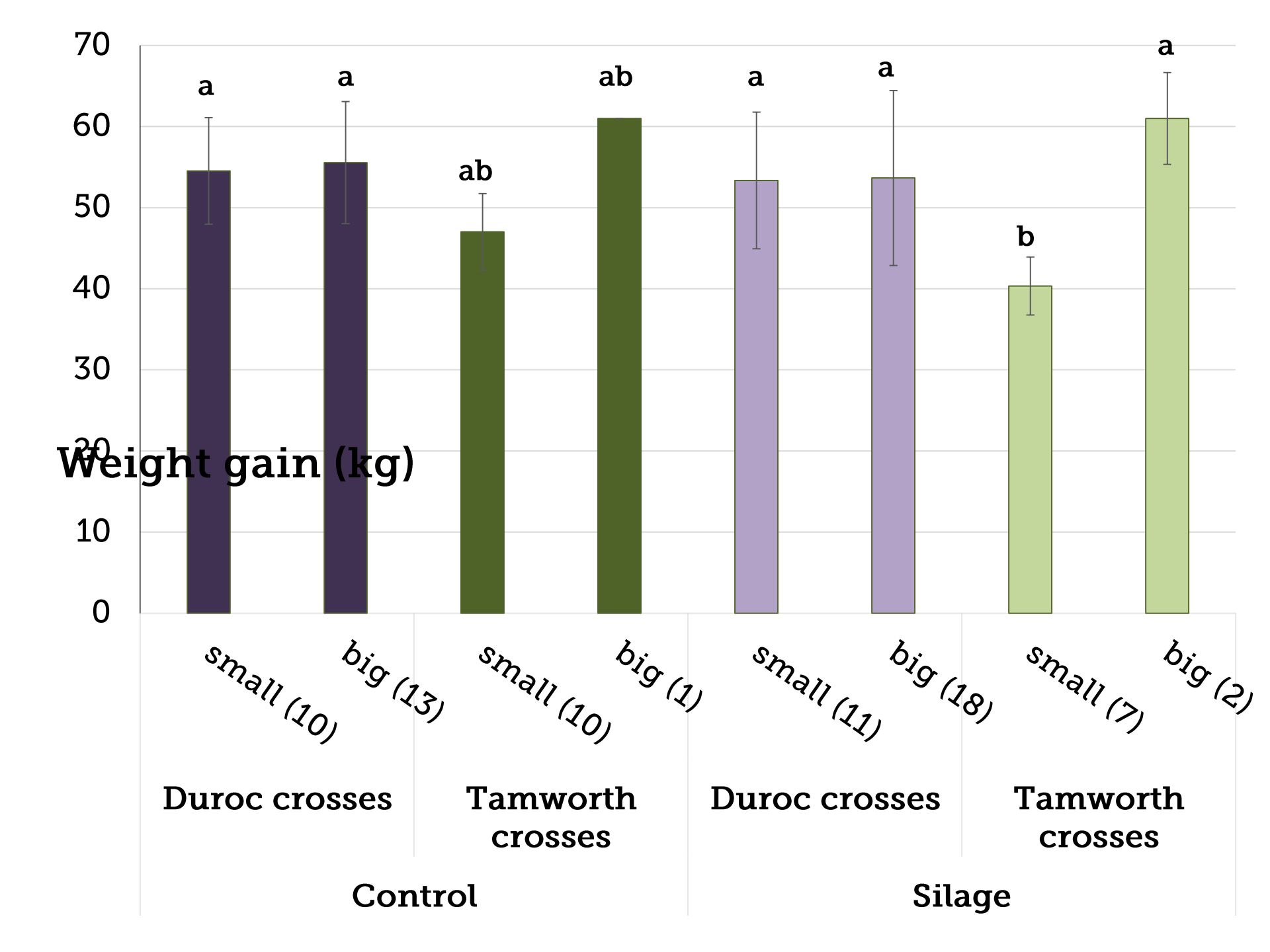
- Carcass quality: grade
- Cost of feed (per g of lwg)
- Gut length: hindgut fermentation
- **Eating quality – taste**

RESULTS: PIG PERFORMANCE

- 72 Tamworth and Duroc crosses – boars and gilts
- 19 Aug ***initial*** weighing (31-68 kg)
  - 53% <50 kg (**small**)
  - 47% >50 kg (**big**)
- 13 Oct ***interim*** weighing (average 100 kg)
- **All** pigs grew better than expected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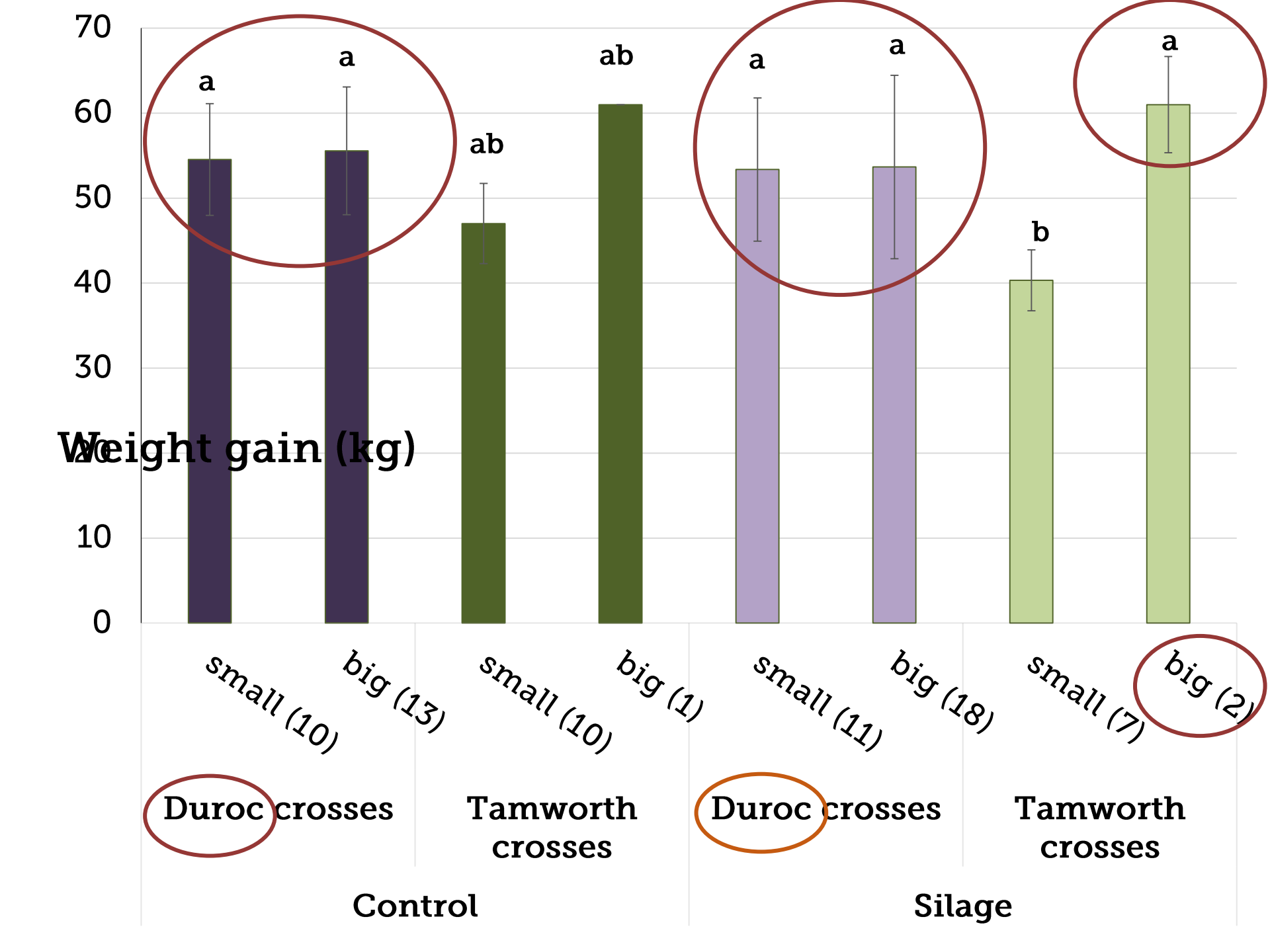
small (10)
big (13)
small (10)
big (1)
small (11)
big (18)
small (7)
big (2)
Duroc crosses
Tamworth crosses
Duroc crosses
Tamworth crosses
Control
Silage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Silage

RESULTS: PIG PERFORMANCE

- For the Duroc crosses
  - No significant difference in weight gain between rations
- For the Tamworth crosses
  - No significant difference in weight gain between rations for 'big' animals
  - A difference in weight gain between 'big' and 'small' with the silage diet
- All pigs grew better than expected

TASTE TEST

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RESULTS: TASTE TEST

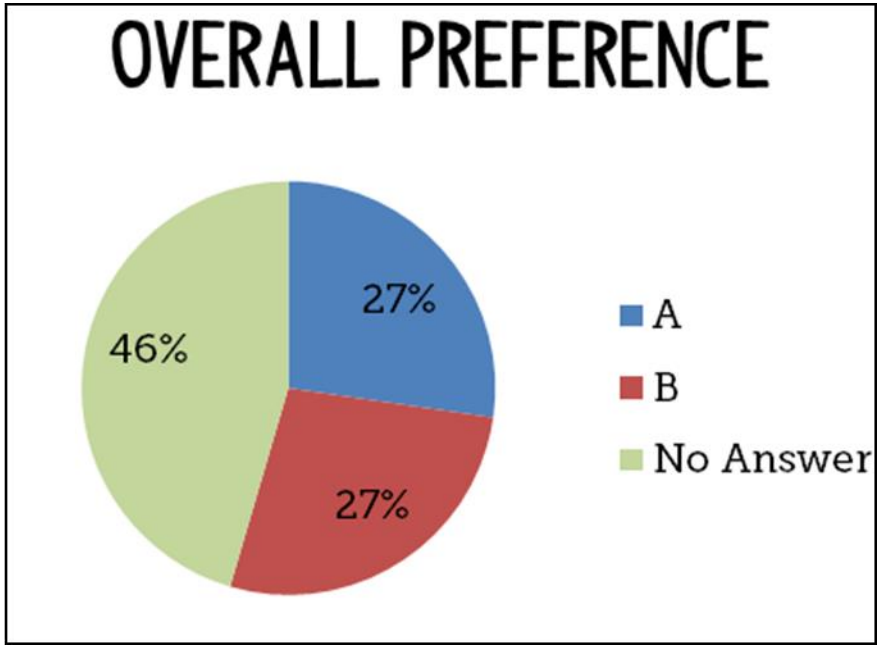
- Attendees were asked to score each type of pork (A and B) on a scale of 1-5

  1 = least like-able; 5 = most like-able

Criteria scored:

- **Appearance raw**
- **Appearance cooked**
- **Cooking quality**
- **Aroma**
- **Texture in mouth**
- **Flavour**

RESULTS: TASTE TEST



CONCLUSIONS

- In this trial…
- Silage is an effective source of feed for pigs with mainly Duroc genetics
  - No significant impact on weight gain
- No impact on taste

- **<u>Potential to reduce imported protein by using home grown silage for pigs</u>**

REFERENCES

- Green pig: defra-funded LINK project
  - SRUC, University of Nottingham, NIAB, BOCM Pauls, BPEX, Evonik, Harbro, MPP, PGRO, Premier Nutrition, QMS, Soil Association, UNIP
- Improved Contribution of Local Feed to Support 100% Organic Feed Supply to Pigs and Poultry (ICOPP)
  - Aarhus University, Wageningen UR, the Organic Research Centre, Swedish University of Agricultural Sciences, Boku University of Natural Resources and Life Sciences, Johan Heinrich von Thunen Institut, Louis Bolk Institute, Natural Resources Institute Finland, Weihenstephan-Triesdorf University of Life Sciences, FAI, FIBL, INRA, Lithuanian Institute of Agrarian Economics, LFZ, ITAB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