

Dietary Lecithin Improves Feed Conversion Ratio and Dressing Percentage in Finishing Gilts

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Soybean Lecithin

- Lecithin is a type of phospholipid containing phosphatidylcholine
- Lecithin is an emulsifier and it can improve fat (tallow) digestion and absorption
- Lecithin has anti-fibrogenic property and it can reduce hepatic collagen content in liver fibrosis

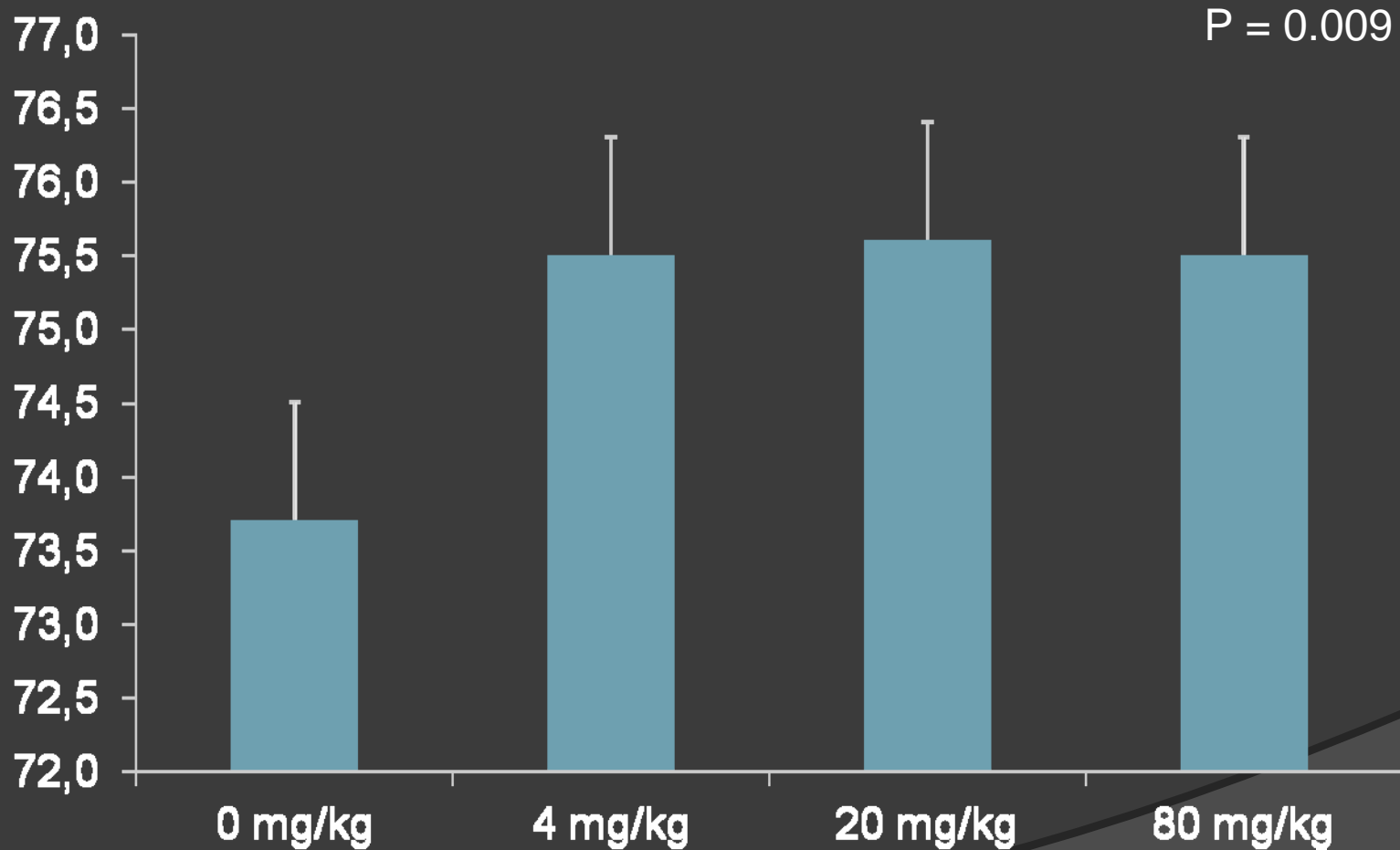
Background

- Dietary lecithin improves pig FCR and average daily gain (Kim et al. 2008; Overland et al. 1993)
- Dietary lecithin improves dressing percentage of finishing gilts (Akit et al., 2011)

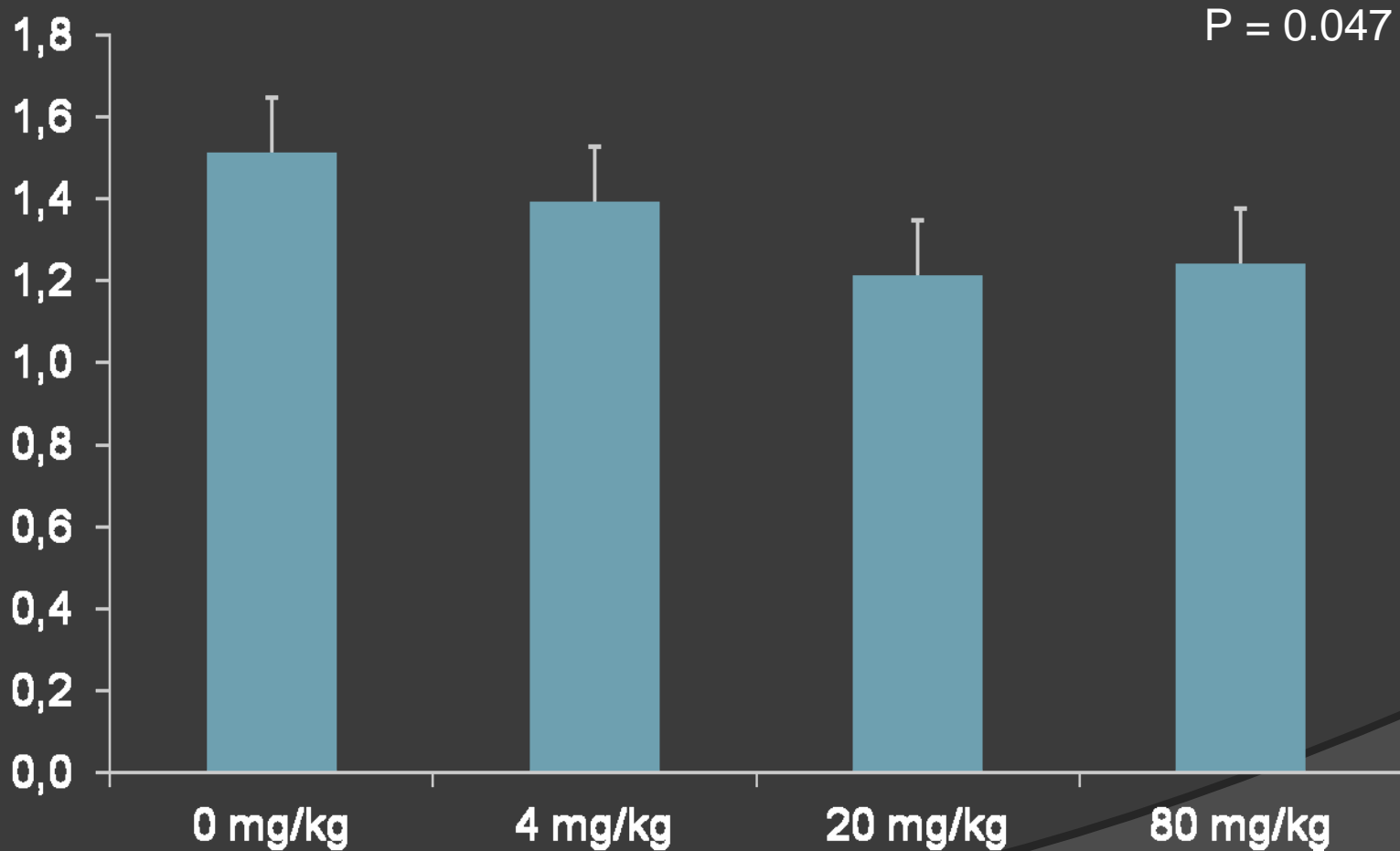
Background

- Dietary lecithin improves pork chewiness and hardness (Edmunds et al., 2005; D'Souza et al., 2012)
- Dietary lecithin improves pork chewiness through reduction of intramuscular collagen content (Akit et al., 2011)

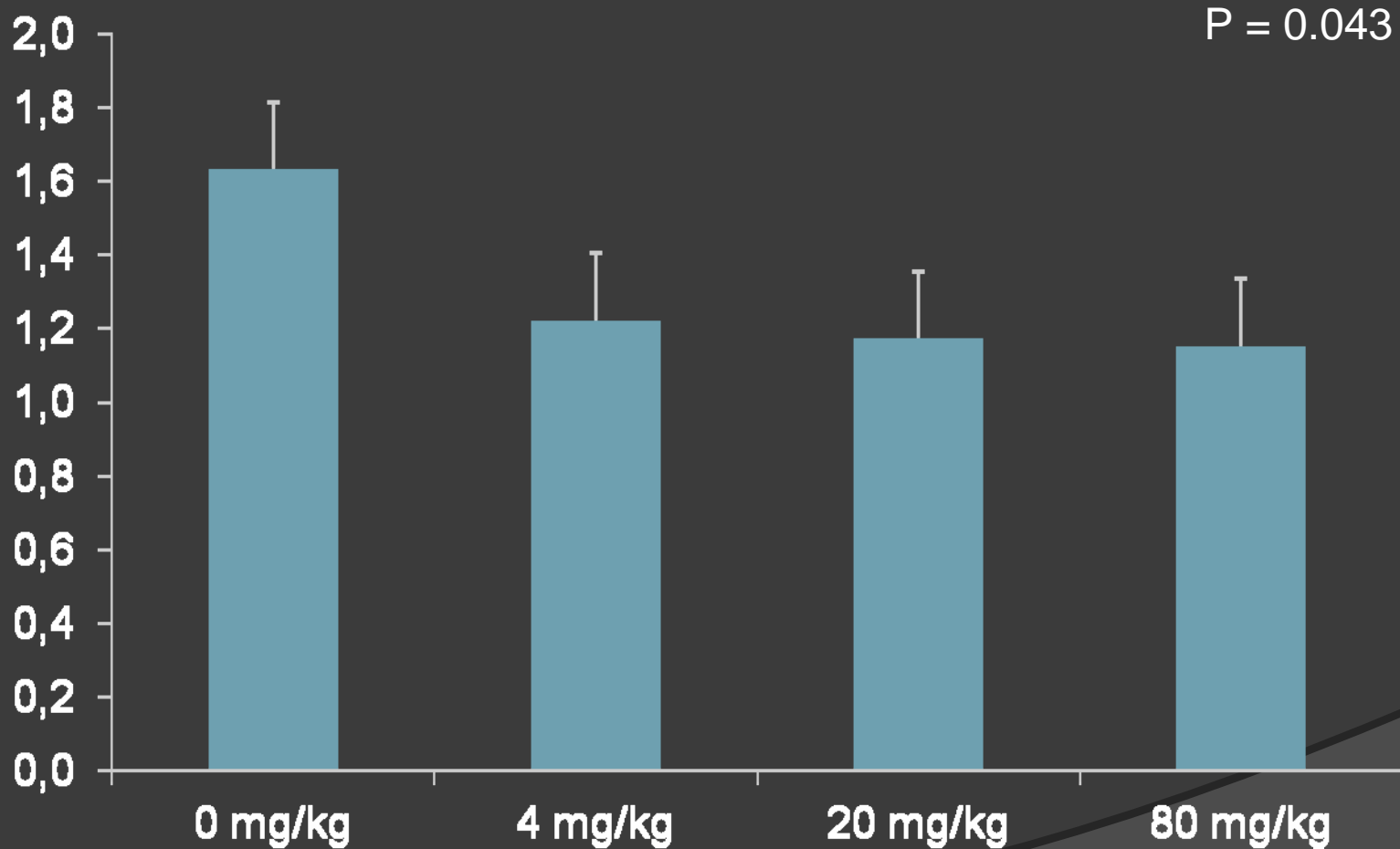
Dietary lecithin improves dressing % in finisher gilts



Dietary lecithin reduces pork chewiness from finisher gilts



Dietary lecithin reduces muscle hydroxyproline ($\mu\text{g/ml}$) in finisher gilts



Objectives

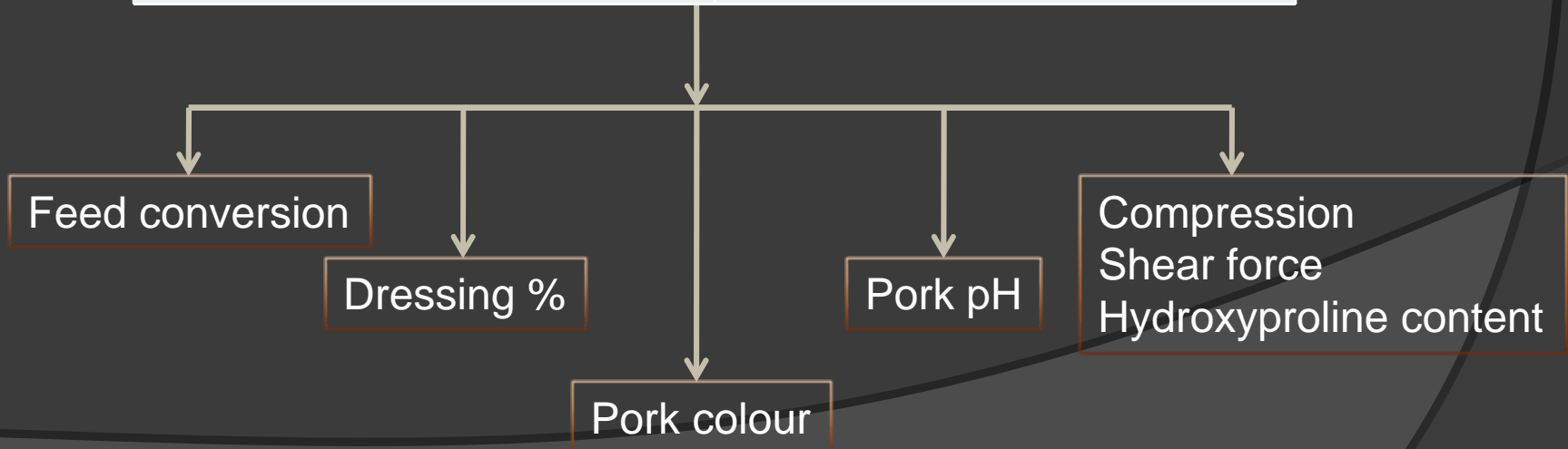
- ① Investigate the effect of lecithin and pig sex on growth performance and dressing percentage of finisher pigs fed high amount of fat (tallow)
- ② Investigate the effect of lecithin and pig sex on pork tenderness and intramuscular collagen content

Hypotheses

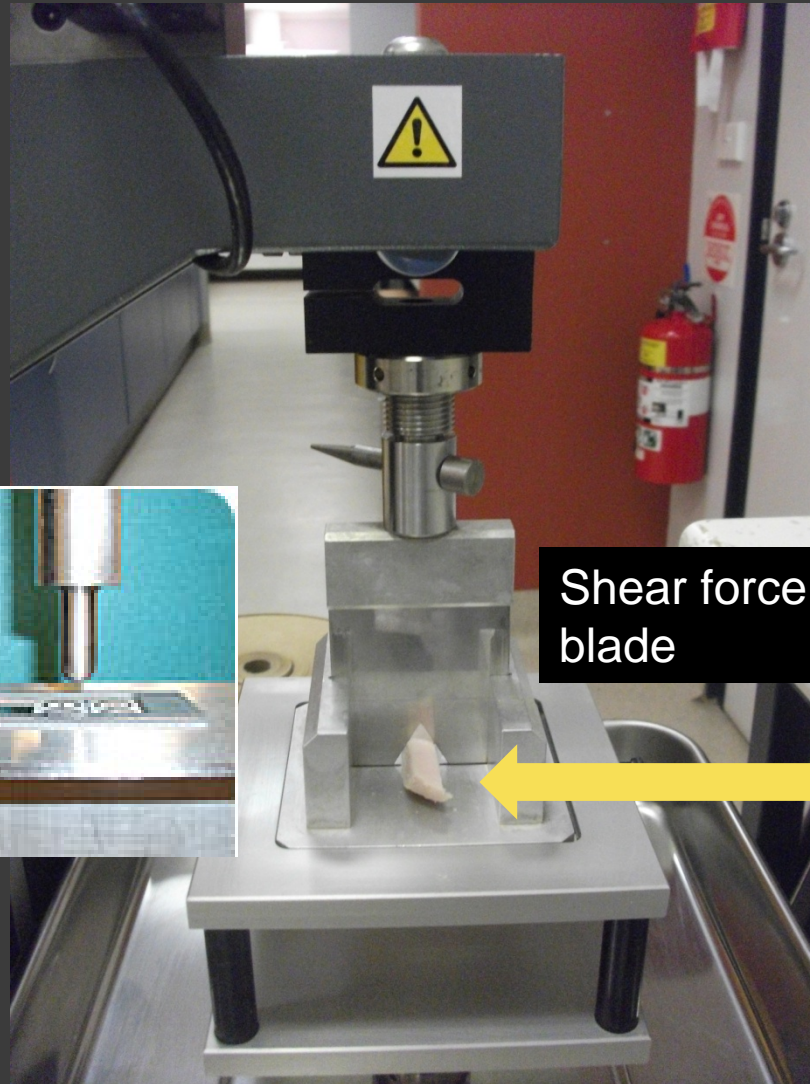
- ① Lecithin can improve pig FCR and dressing percentage
- ① Lecithin can improve pork tenderness and reduce intramuscular collagen content

Experimental design

No. of pig:	256
Sex:	Gilt or Immunocastrate
Breed:	Large White x Landrace
Finisher diet:	0 or 5 g/kg lecithin



Instron Universal Testing Machine



Plunger for
compression



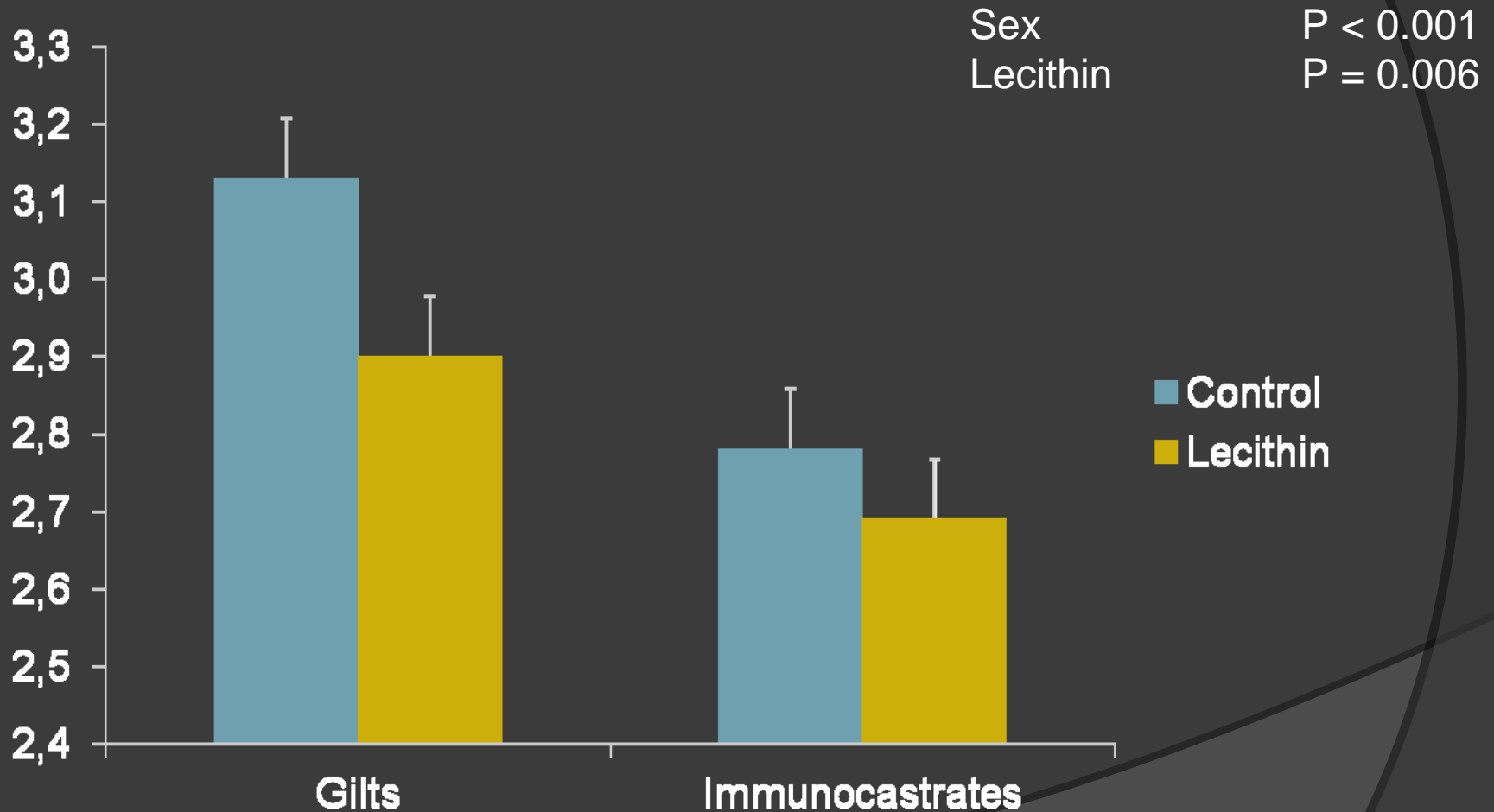
Shear force
blade

Muscle sample

Growth performance
Dressing percentage
Objective eating quality

RESULTS & DISCUSSION

Dietary lecithin improves FCR in finisher gilts and immunocastrated males

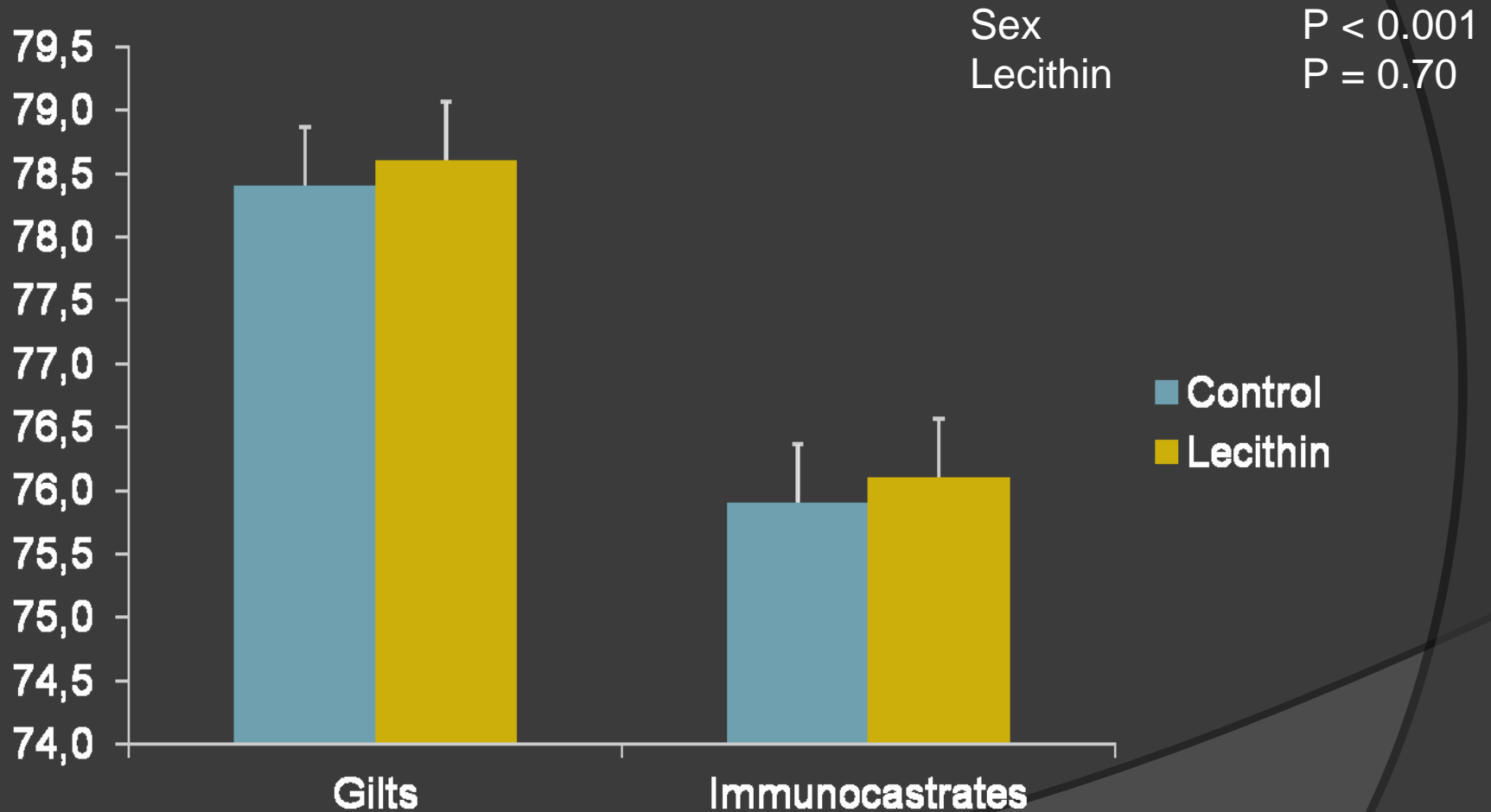


Lecithin as tallow emulsifier

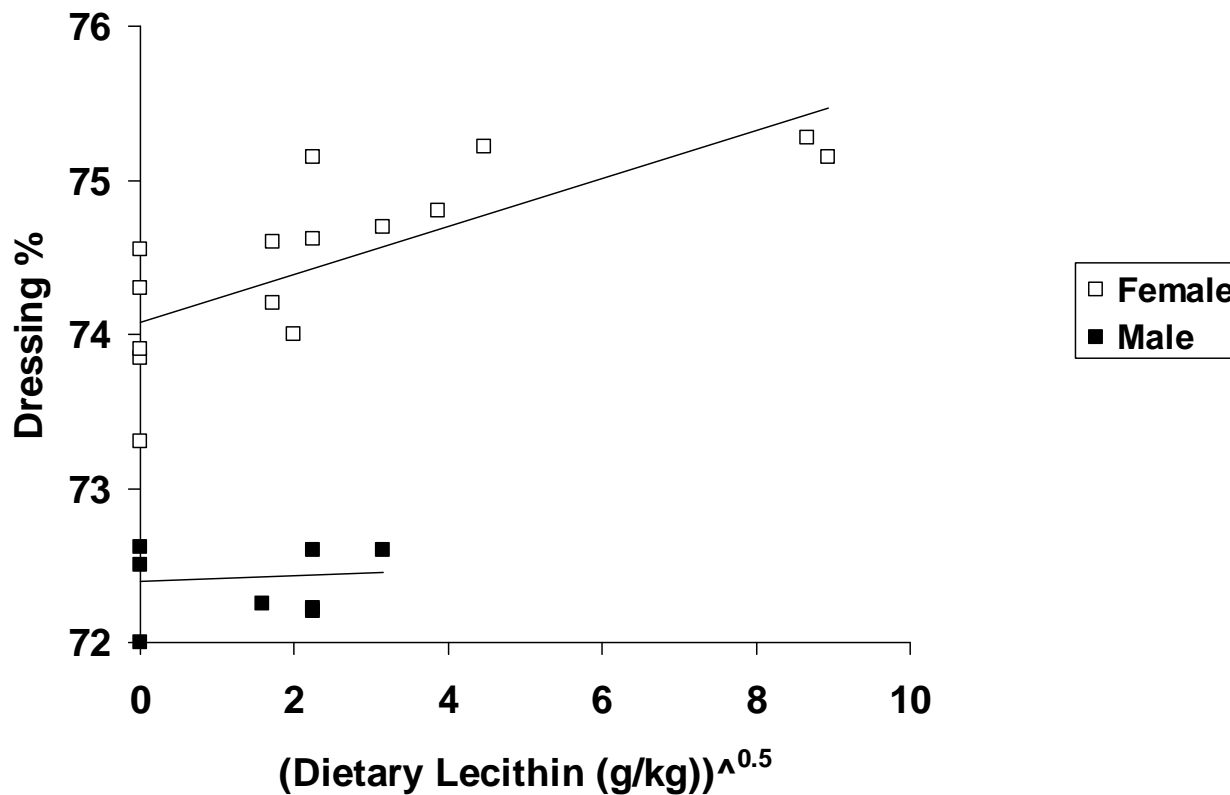
- Lecithin supplement to pig diet containing tallow as fat source for energy, improved tallow digestibility (Jones et al., 1992; Kim et al. 2008)

Lecithin improves feed efficiency because of its emulsifying property to improve tallow digestibility

Dietary lecithin had no effect on dressing % in finisher gilts and immunocastrated males

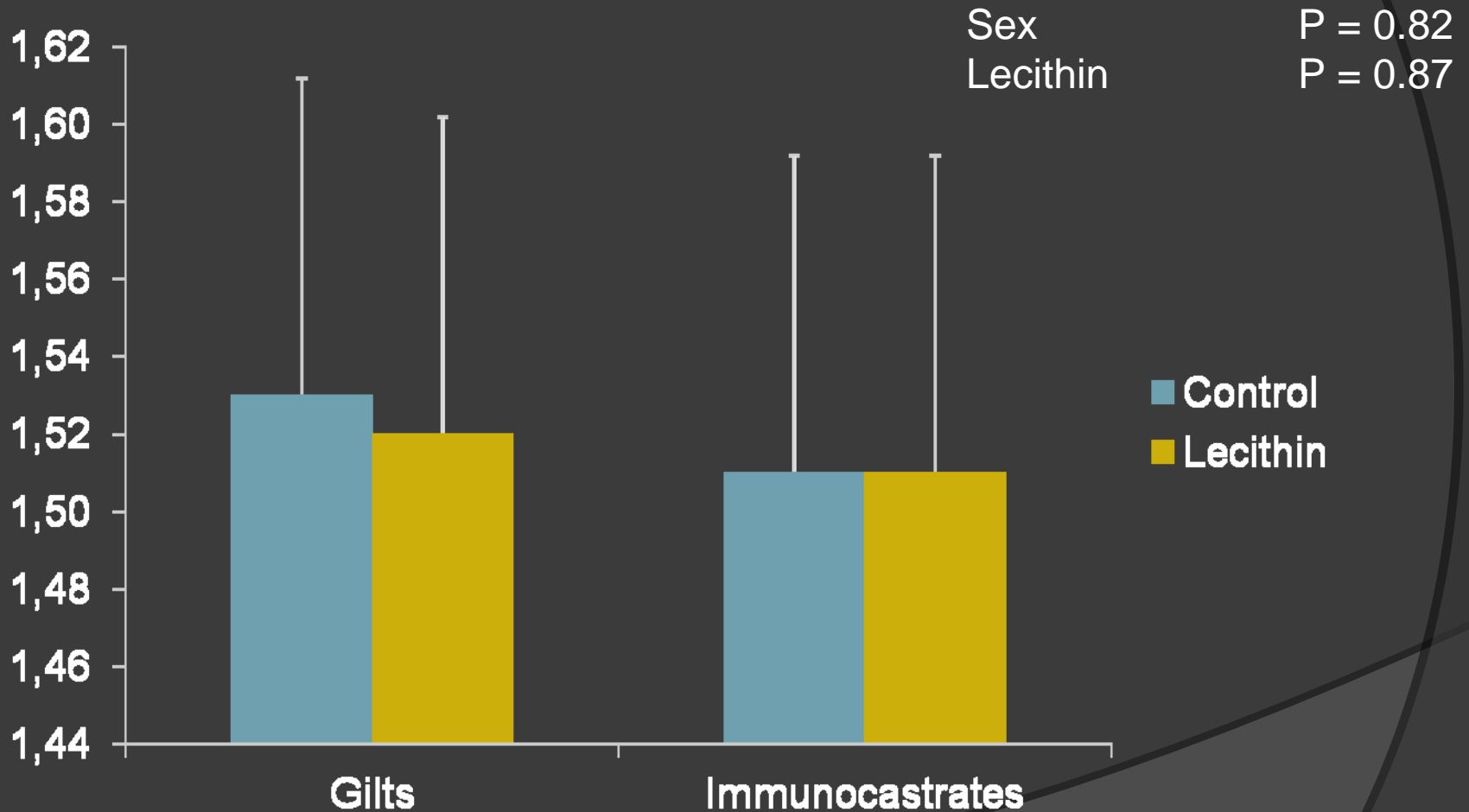


Dietary lecithin improves dressing percentage in finisher gilts but not males



Data are from D'Souza et al. (2005), Edmunds et al. (2005), Kim et al. (2008), Edwards (unpublished), lecithin first pig experiment and the present experiment.

Dietary lecithin had no effect on chewiness in finisher gilts and immunocastrated males



Why lecithin had no effect on dressing percentage or pork tenderness?

Dietary lecithin at 3 g/kg of feed improves *semitendinosus* muscle chewiness and hardness (D'Souza et al., 2012)

Conclusions

- Dietary lecithin (at a dose of 5 mg/kg) improved pig FCR
- Dietary lecithin (at a dose of 5 mg/kg) had no effect on pork tenderness
- Meta-analysis study shows dietary lecithin improved dressing percentage in gilts in a dose-dependent manner