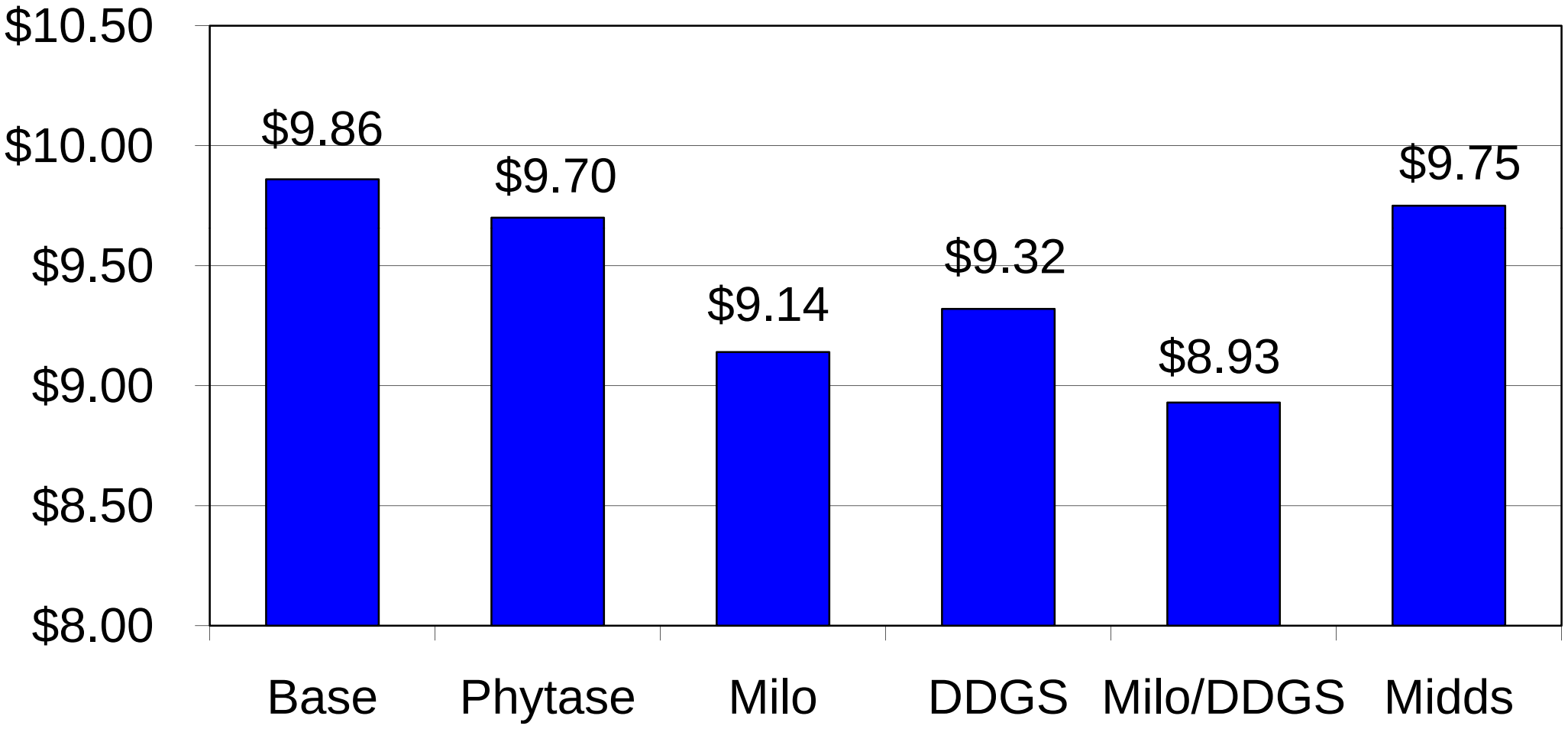
Welcome to Swine Day!

K-STATE

- Reducing sow feed cost
- Remember the importance of iron
- Recent copper/zinc data
- Antibiotic regimens in the nursery

K-STATE

Impact of diet ingredient options on gestation feed cost per weaned pig



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Impact of sow productivity on feed cost per weaned pig

		PSY, $ or lb / weaned Pig		
Item	$ or lb /sow	20	22.5	25
Gestation	$197	**$9.85**	**$8.76**	**$7.88**
Lactation	$84	$4.20	$3.73	$3.36
Total	$281	$14.05	$12.49	$11.24
Feed	2,175	109	97	87

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Don’t Forget the Basics: Importance of Iron Injection at Birth

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Trial Design

Peters and Mahan, 2008

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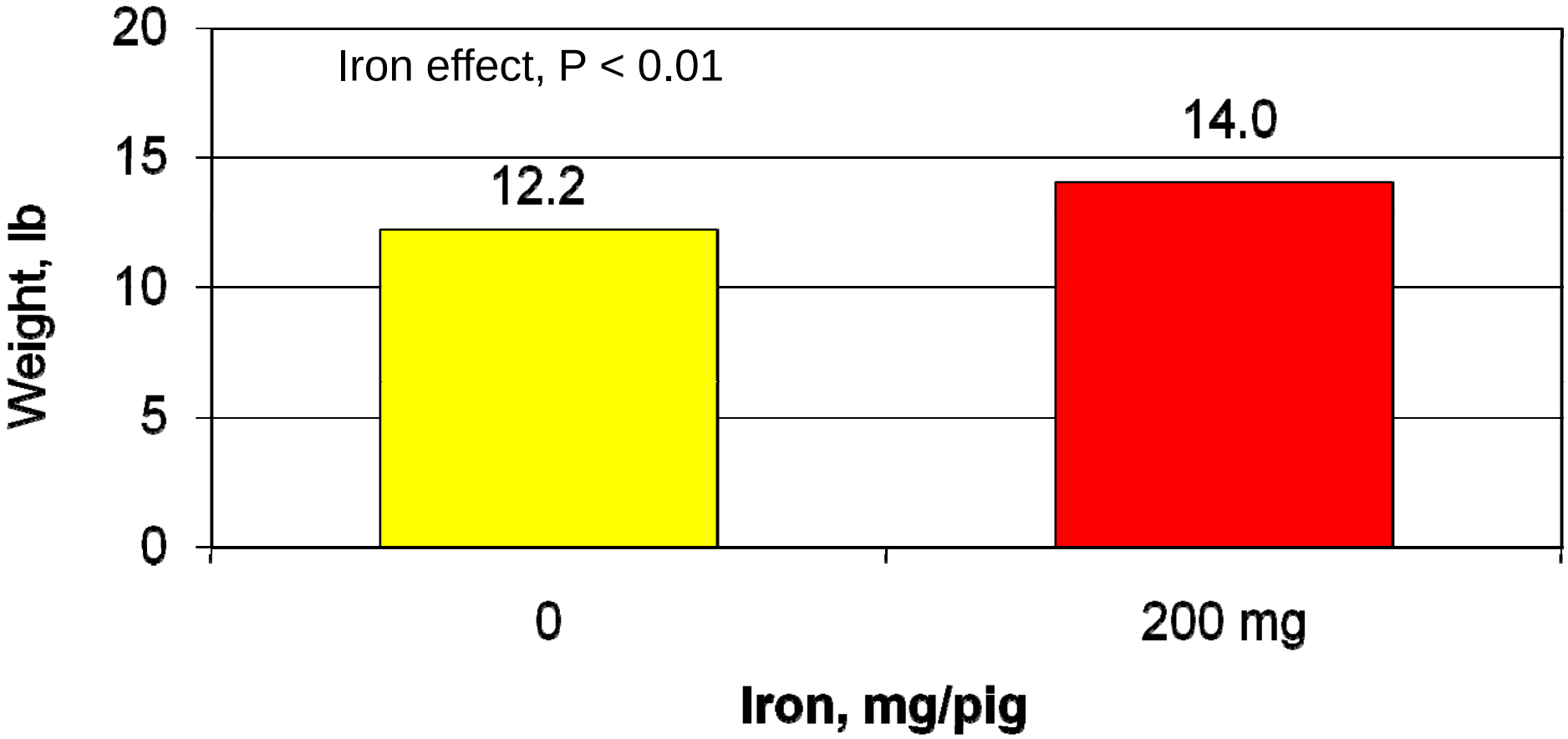
Influence of injected iron at birth on piglet weaning weight



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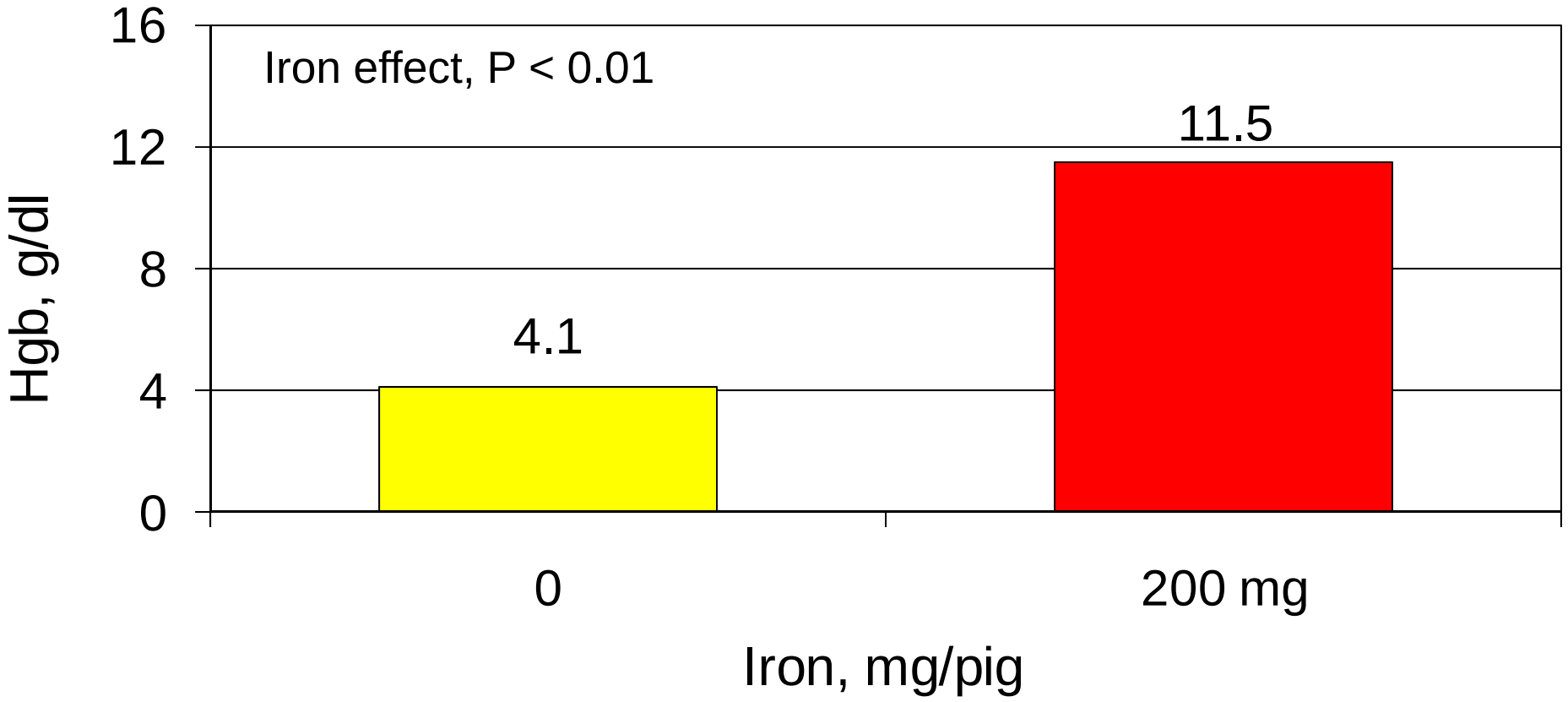
Peters and Mahan, 2008

Influence of injected iron at birth on piglet hemoglobin at weaning



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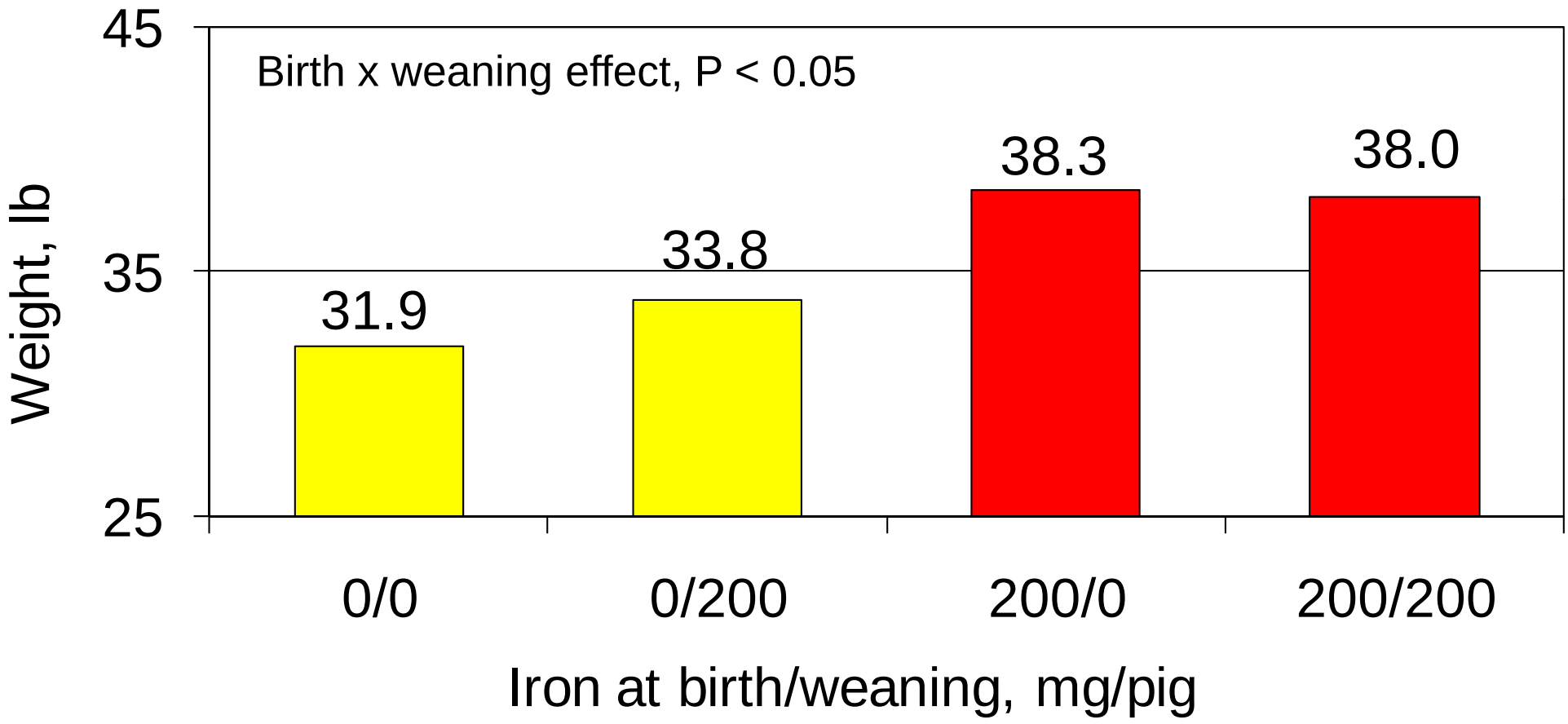
Peters and Mahan, 2008

Influence of injected iron at birth and weaning on weight at d 28 after weaning



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Peters and Mahan, 2008

Copper Zinc Data

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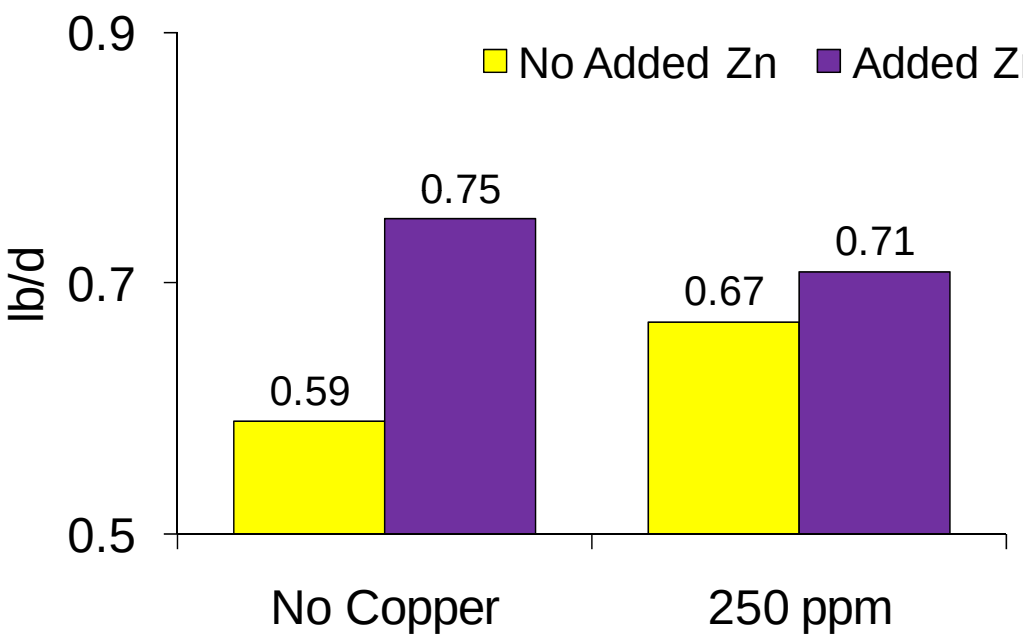
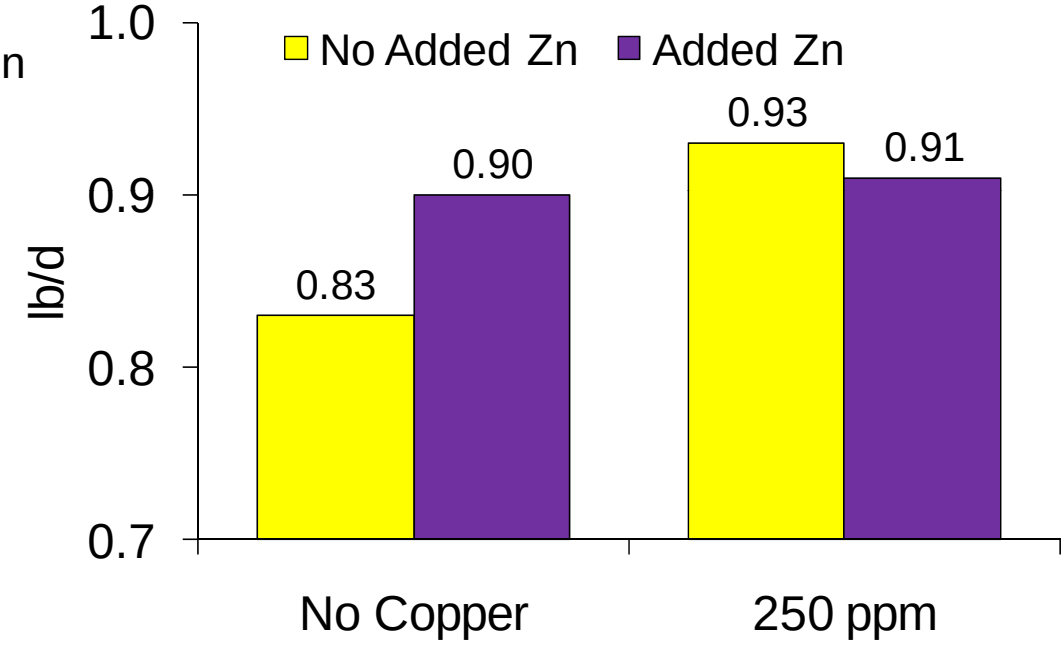
Interaction between high zinc and copper for nursery diets

Zinc × Copper (P < 0.01)



Smith et al., 1997



NCR 42 and 145 Regional Committees, 2000

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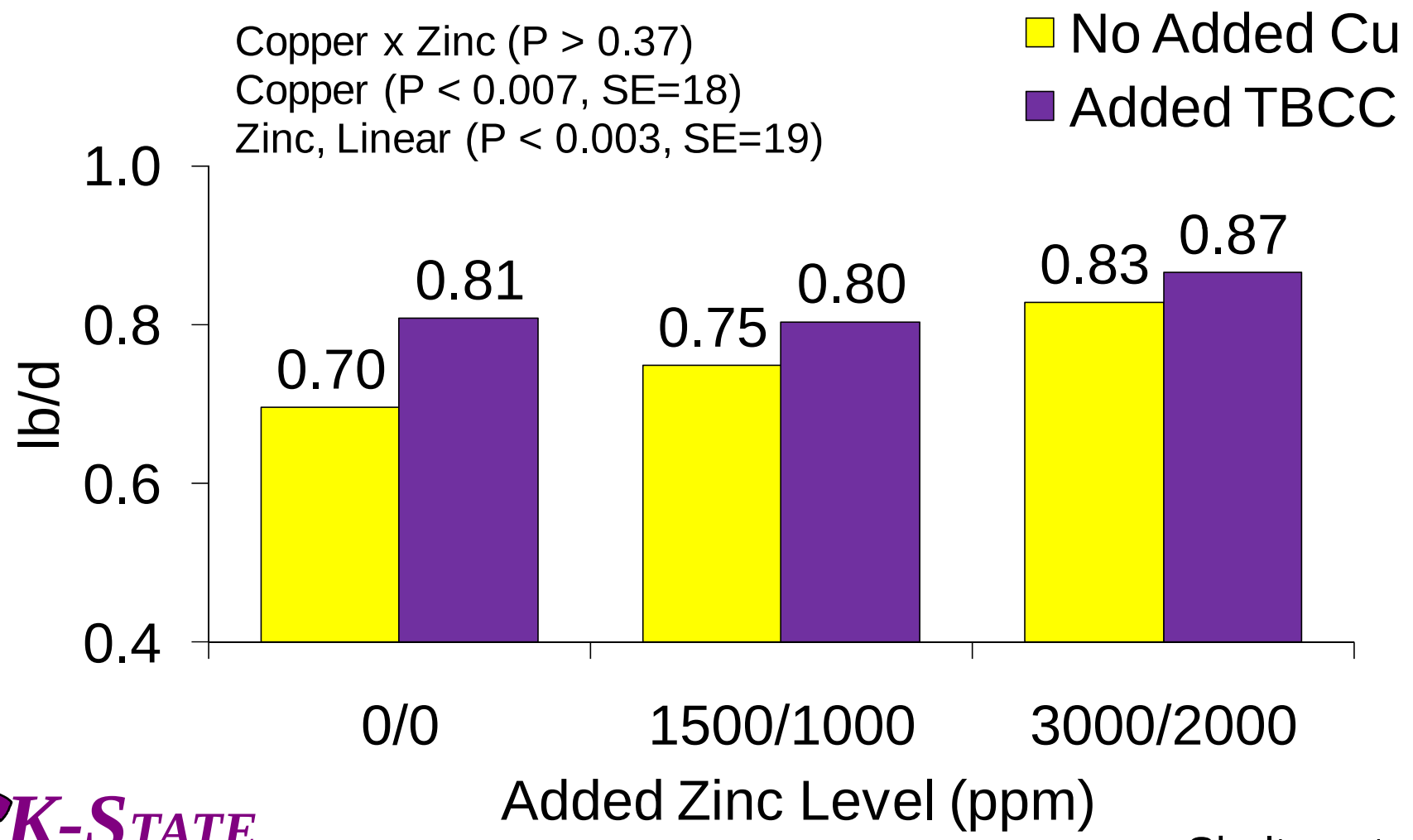
Effect of adding ZnO and copper chloride (TBCC) on ADG from d 0 to 28 (Trial 1)



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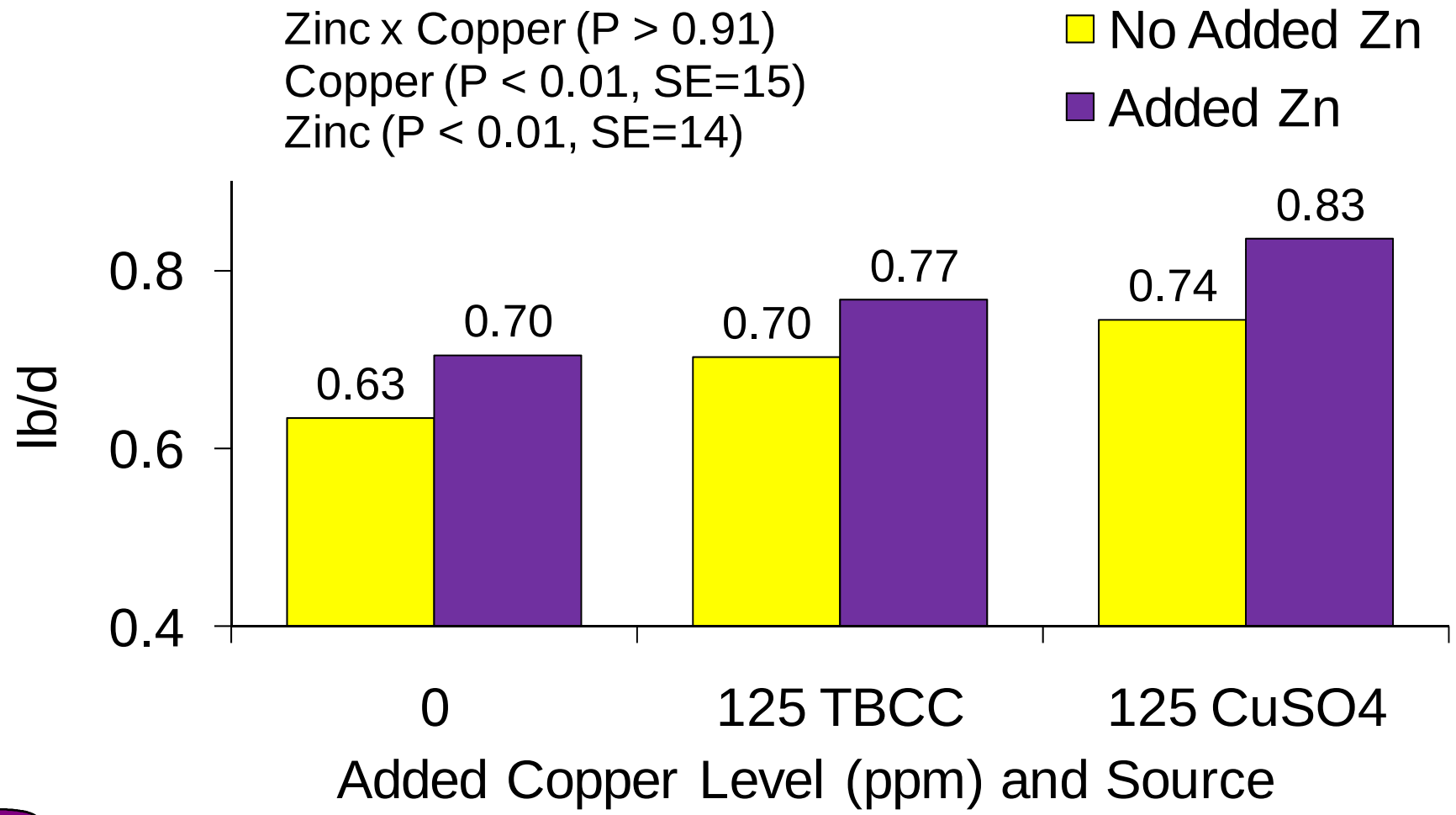
Shelton et al., 2008

Effects of dietary zinc and copper source on ADG from d 0 to 28 (Trial 2)



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Shelton et al., 2008

Conclusions

- Our recent studies have shown additive responses to feeding high levels zinc and copper in weanling pigs diets.
- This is in contrast to our earlier work and work of others that indicated a lack of additive response
- More research is need to validate the circumstances as to why the change in the response.

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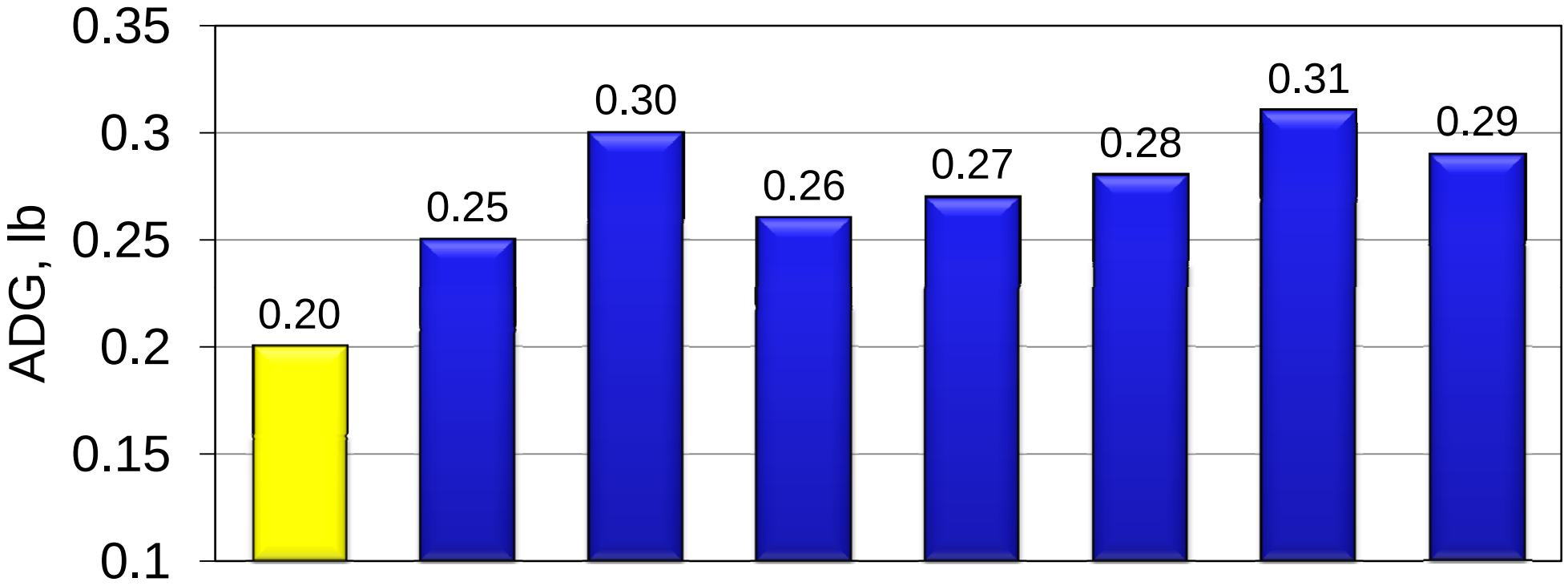
Influence of dietary antibiotics on ADG (d 0 to 10)



d 0 to 10	No med	Den/CTC	Den/CTC	Den/CTC	Den/CTC	Den/CTC	Den/CTC	Den/CTC
d 10 to 21	No med	Mec/OTC	Mec 50 g	Mec/OTC	Mec 50 g	No med	Den/CTC	Den/CTC
d 21 to 42	No med	Den/CTC	Den/CTC	No med	No med	Den/CTC	Den/CTC	No med

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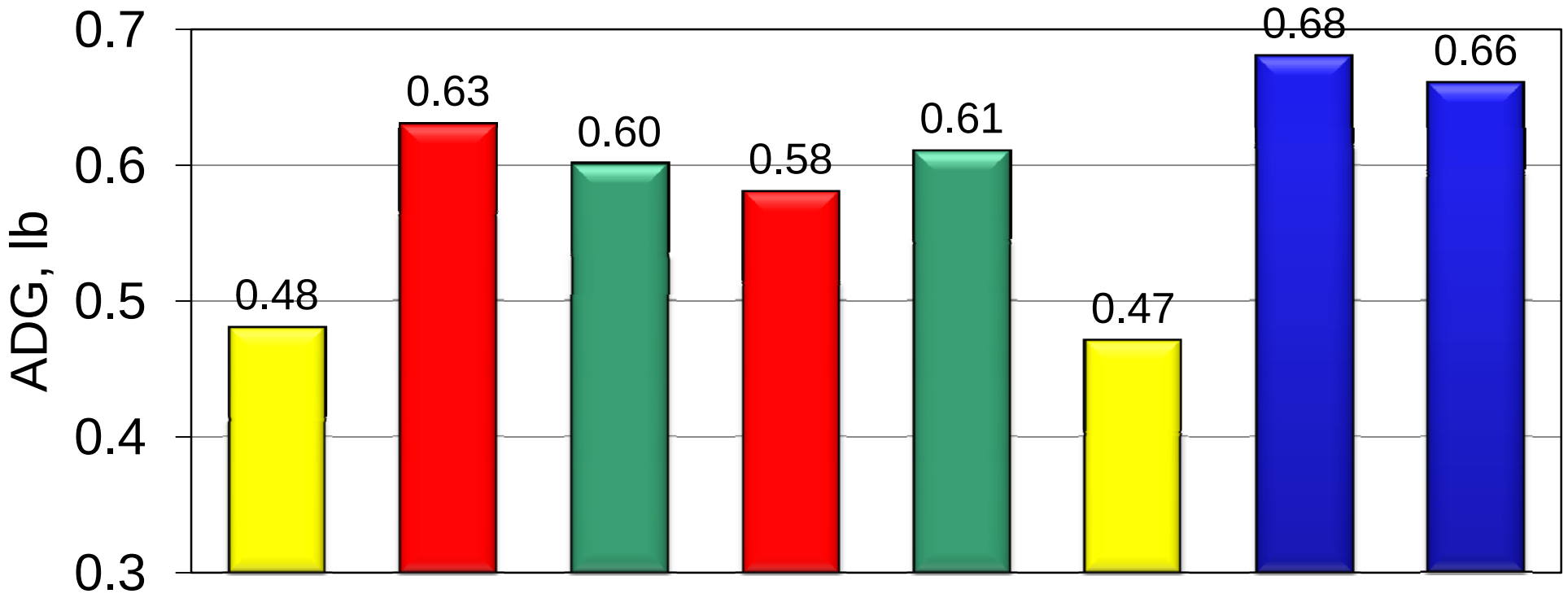
Steidinger et al., 2008

Influence of dietary antibiotics on ADG (d 10 to 21)

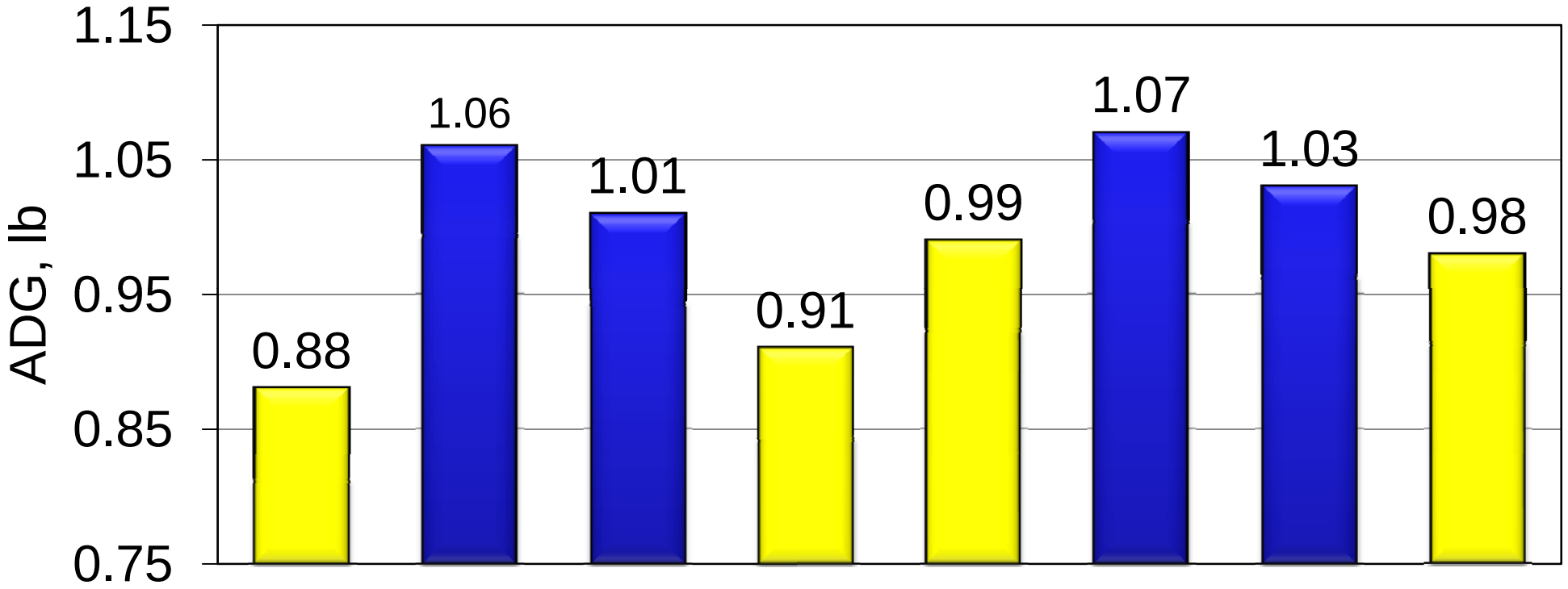


d 0 to 10	**No med**	**Den/CTC**	**Den/CTC**	**Den/CTC**	**Den/CTC**	**Den/CTC**	**Den/CTC**	**Den/CTC**
d 10 to 21	**No med**	**Mec/OTC**	**Mec 50 g**	**Mec/OTC**	**Mec 50 g**	**No med**	**Den/CTC**	**Den/CTC**
d 21 to 42	**No med**	**Den/CTC**	**Den/CTC**	**No med**	**No med**	**Den/CTC**	**Den/CTC**	**No med**

K-STATE

Steidinger et al., 2008

Influence of dietary antibiotics on ADG (d 21 to 42)

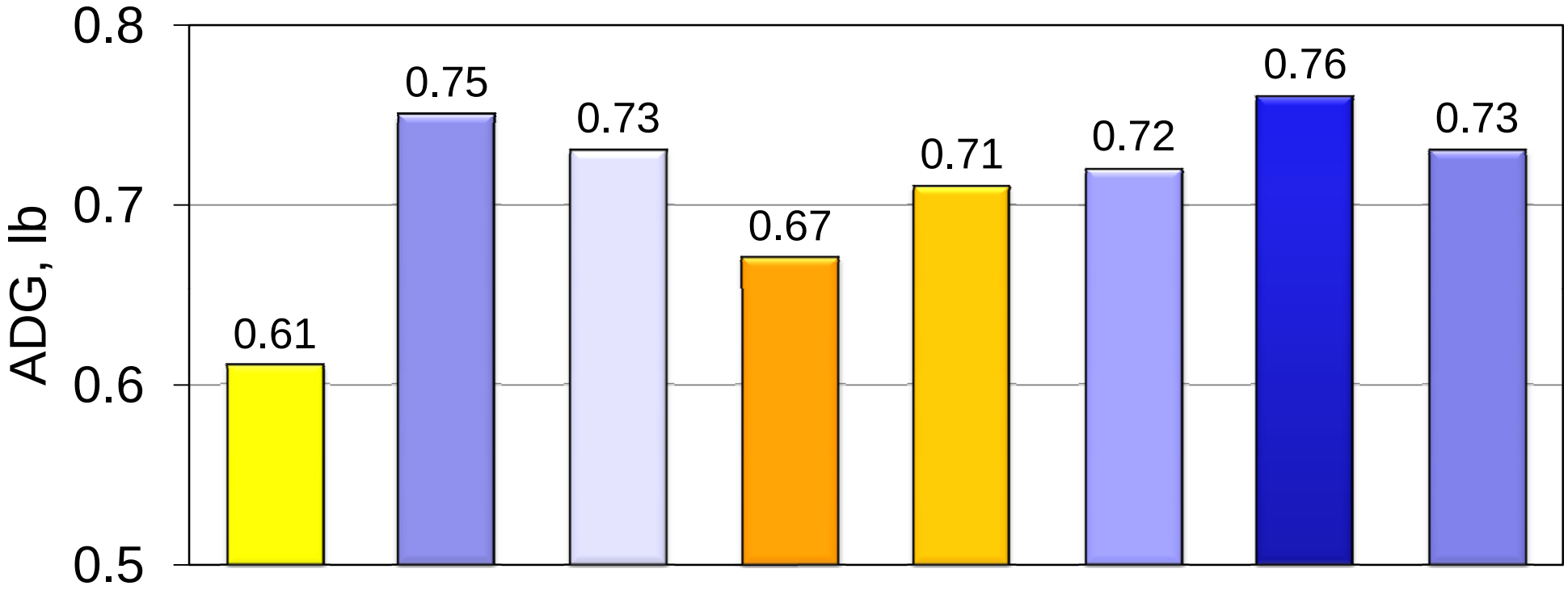


d 0 to 10	No med	Den/CTC	Den/CTC	Den/CTC	Den/CTC	Den/CTC	Den/CTC	Den/CTC
d 10 to 21	No med	Mec/OTC	Mec 50 g	Mec/OTC	Mec 50 g	No med	Den/CTC	Den/CTC
d 21 to 42	No med	Den/CTC	Den/CTC	No med	No med	Den/CTC	Den/CTC	No med

K-STATE

Steidinger et al., 2008

Influence of dietary antibiotics on ADG (d 0 to 42)



d 0 to 10	**No med**	**Den/CTC**	**Den/CTC**	**Den/CTC**	**Den/CTC**	**Den/CTC**	**Den/CTC**	**Den/CTC**
d 10 to 21	**No med**	**Mec/OTC**	**Mec 50 g**	**Mec/OTC**	**Mec 50 g**	**No med**	**Den/CTC**	**Den/CTC**
d 21 to 42	**No med**	**Den/CTC**	**Den/CTC**	**No med**	**No med**	**Den/CTC**	**Den/CTC**	**No med**

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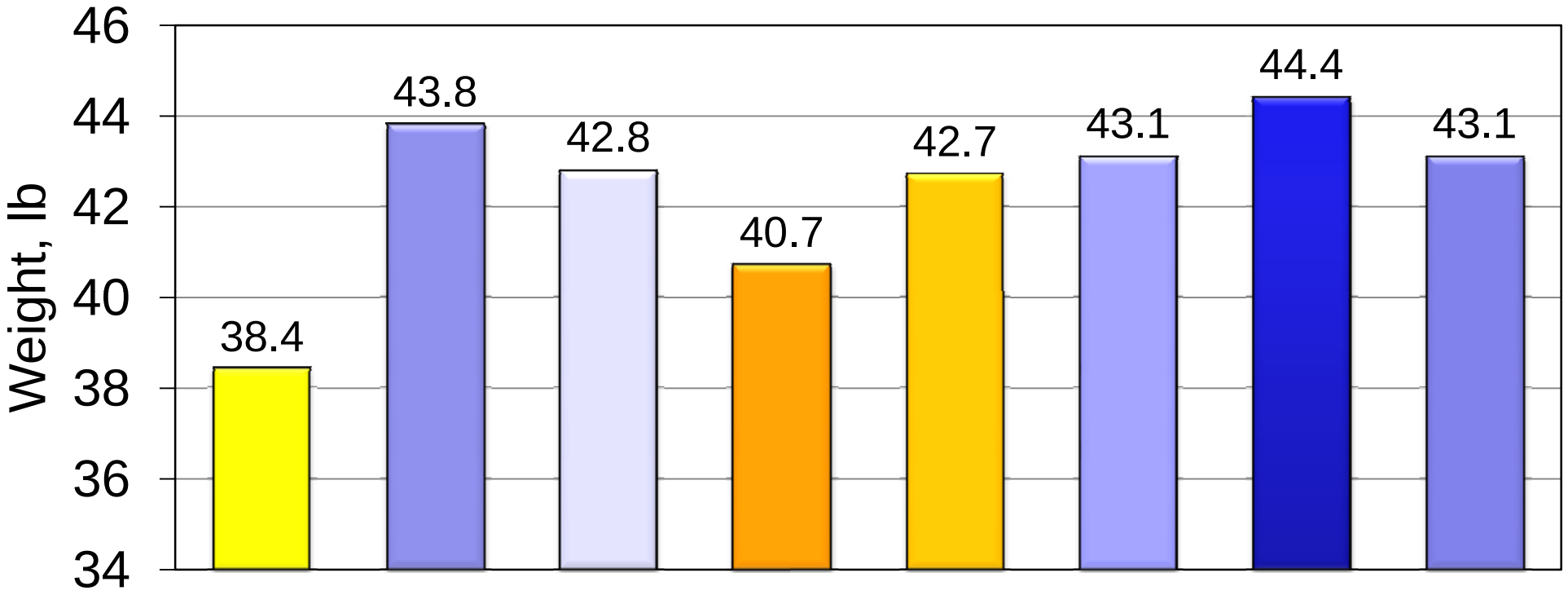
Steidinger et al., 2008

Influence of dietary antibiotics on pig wt (d 42)



d 0 to 10	**No med**	**Den/CTC**	**Den/CTC**	**Den/CTC**	**Den/CTC**	**Den/CTC**	**Den/CTC**	**Den/CTC**
d 10 to 21	**No med**	**Mec/OTC**	**Mec 50 g**	**Mec/OTC**	**Mec 50 g**	**No med**	**Den/CTC**	**Den/CTC**
d 21 to 42	**No med**	**Den/CTC**	**Den/CTC**	**No med**	**No med**	**Den/CTC**	**Den/CTC**	**No med**

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Steidinger et al., 2008

Diet Source and Vaccine Impact on Nursery Performance

- Exp. 1: Diet source x vaccination
- Exp. 2: PCV_2 vaccine source x *M. hyo* vaccine
- Exp. 3: PCV_2 vaccine response in wean-to-finish barn

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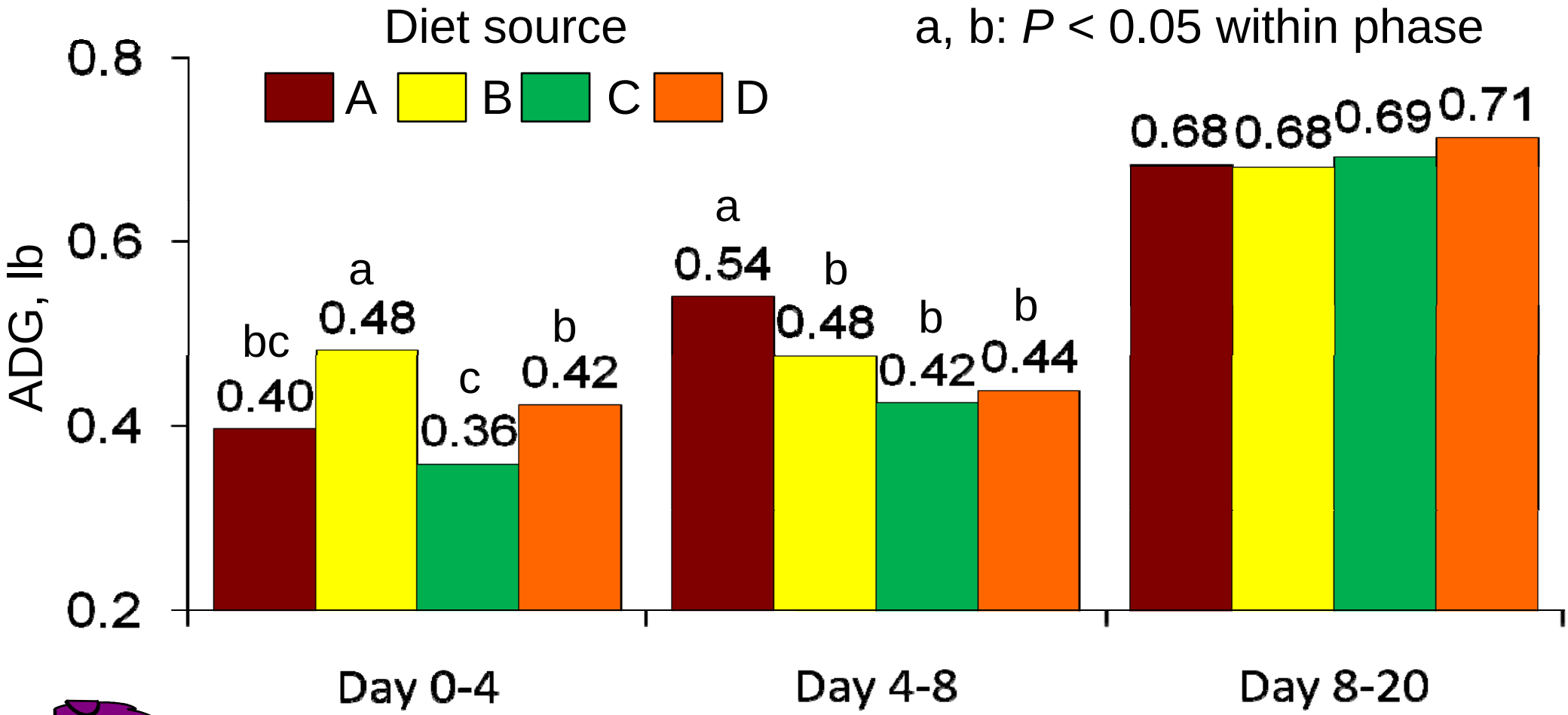
Effect of diet source on nursery ADG within diet phases (Exp. 1)



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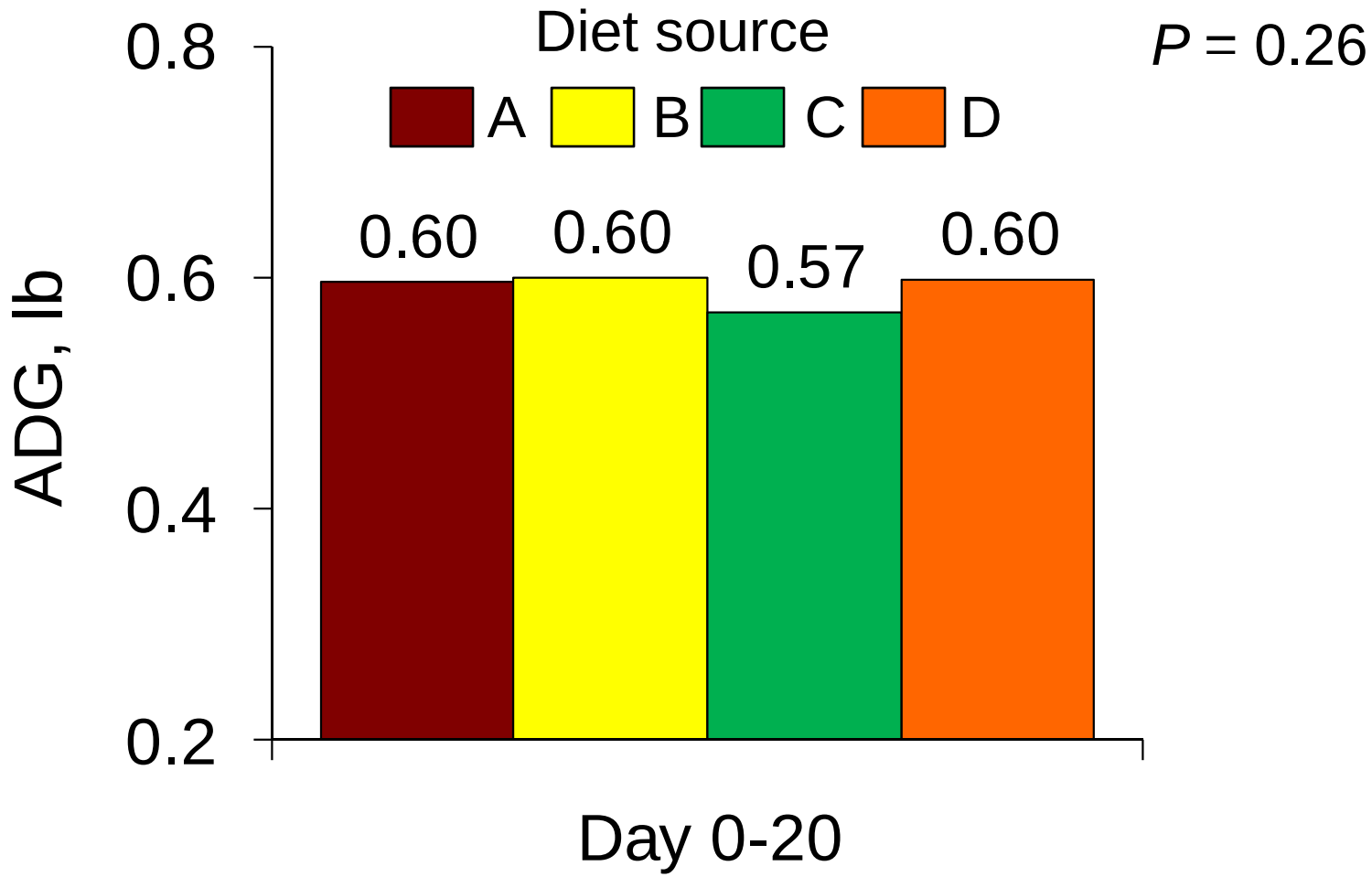
Kane et al., 2008

Effect of diet source on overall ADG (d 0-20) (Exp. 1)



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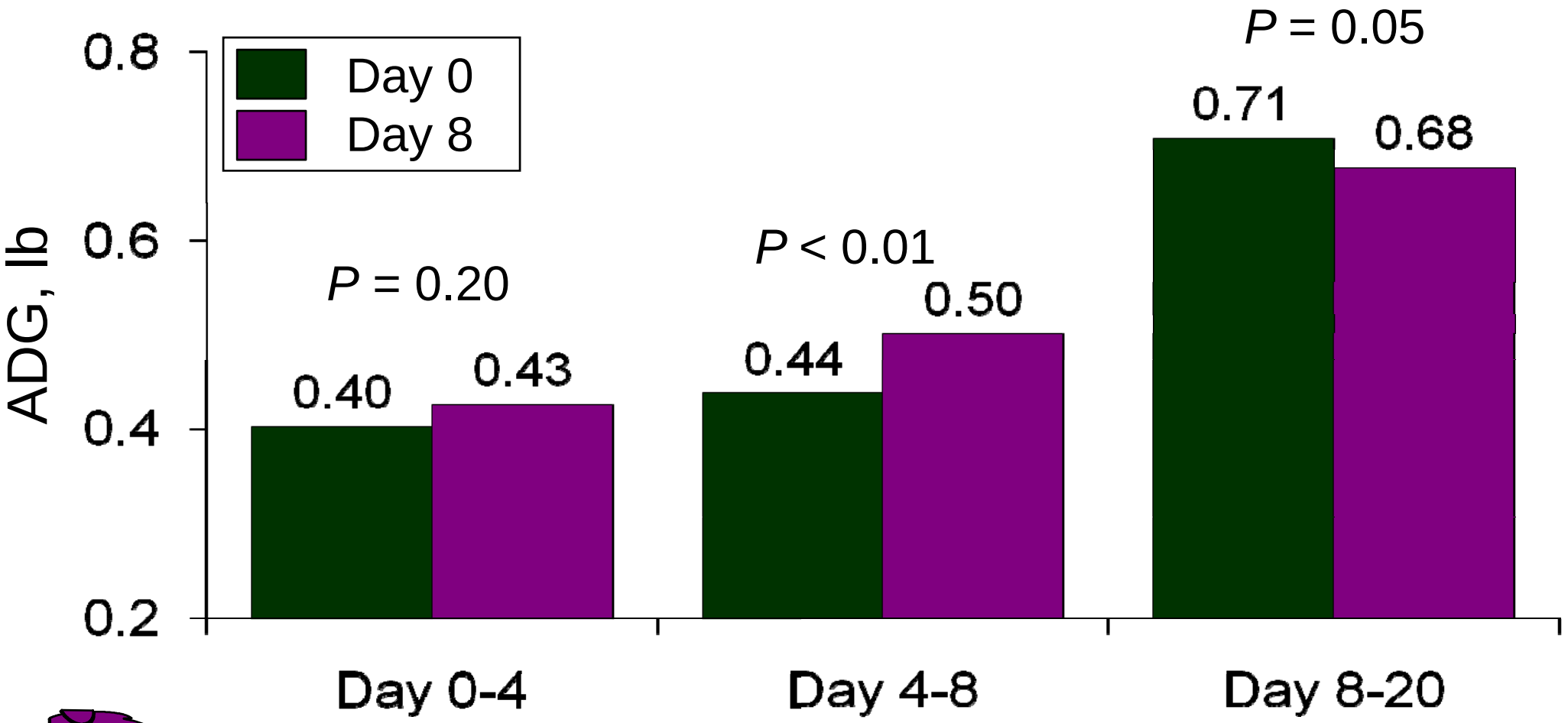
Kane et al., 2008

Effect of PCV2 vaccination timing on ADG within diet phases (Exp. 1)



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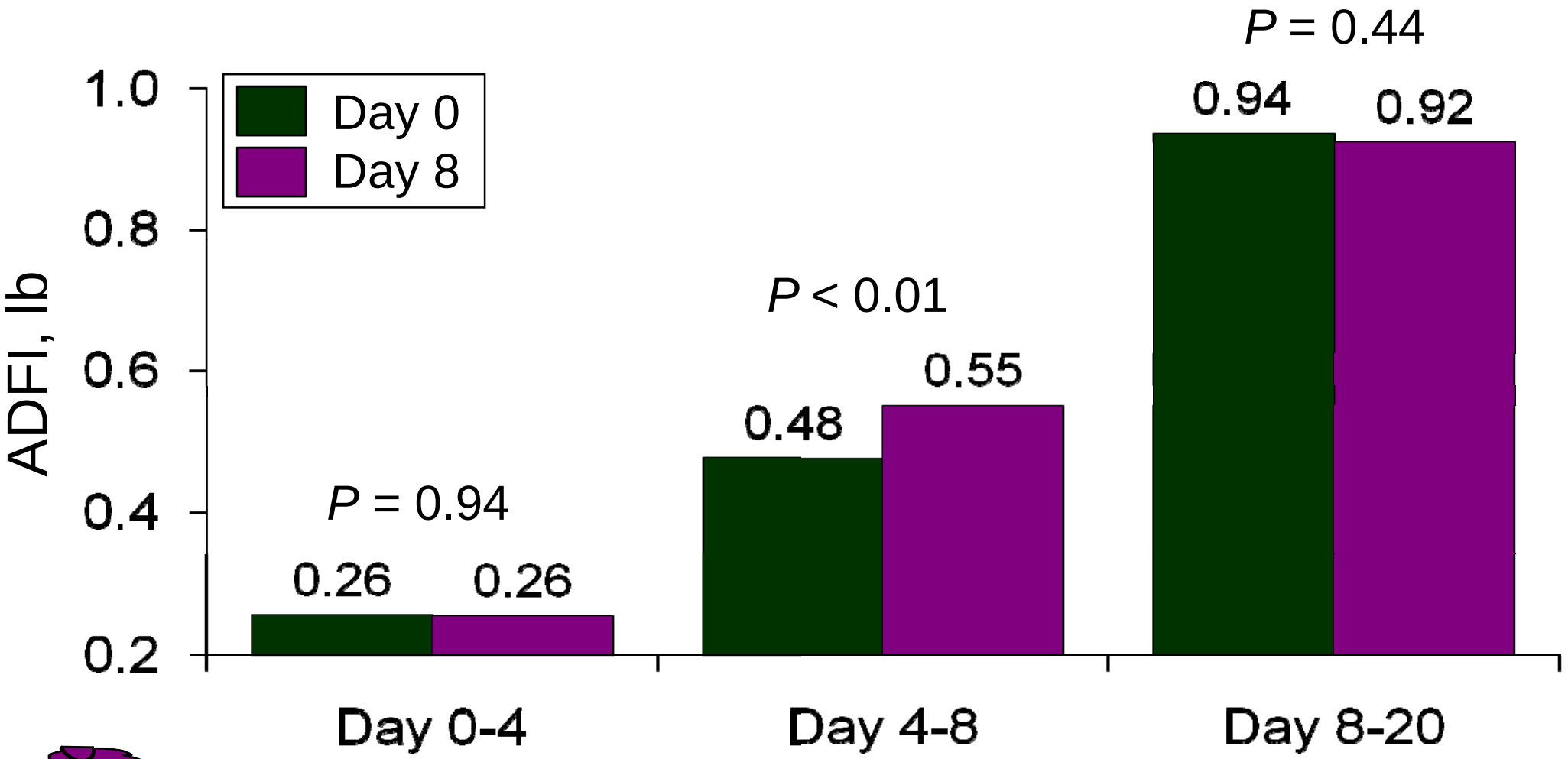
Kane et al., 2008

Effect of PCV2 vaccination timing on ADFI within diet phases (Exp. 1)



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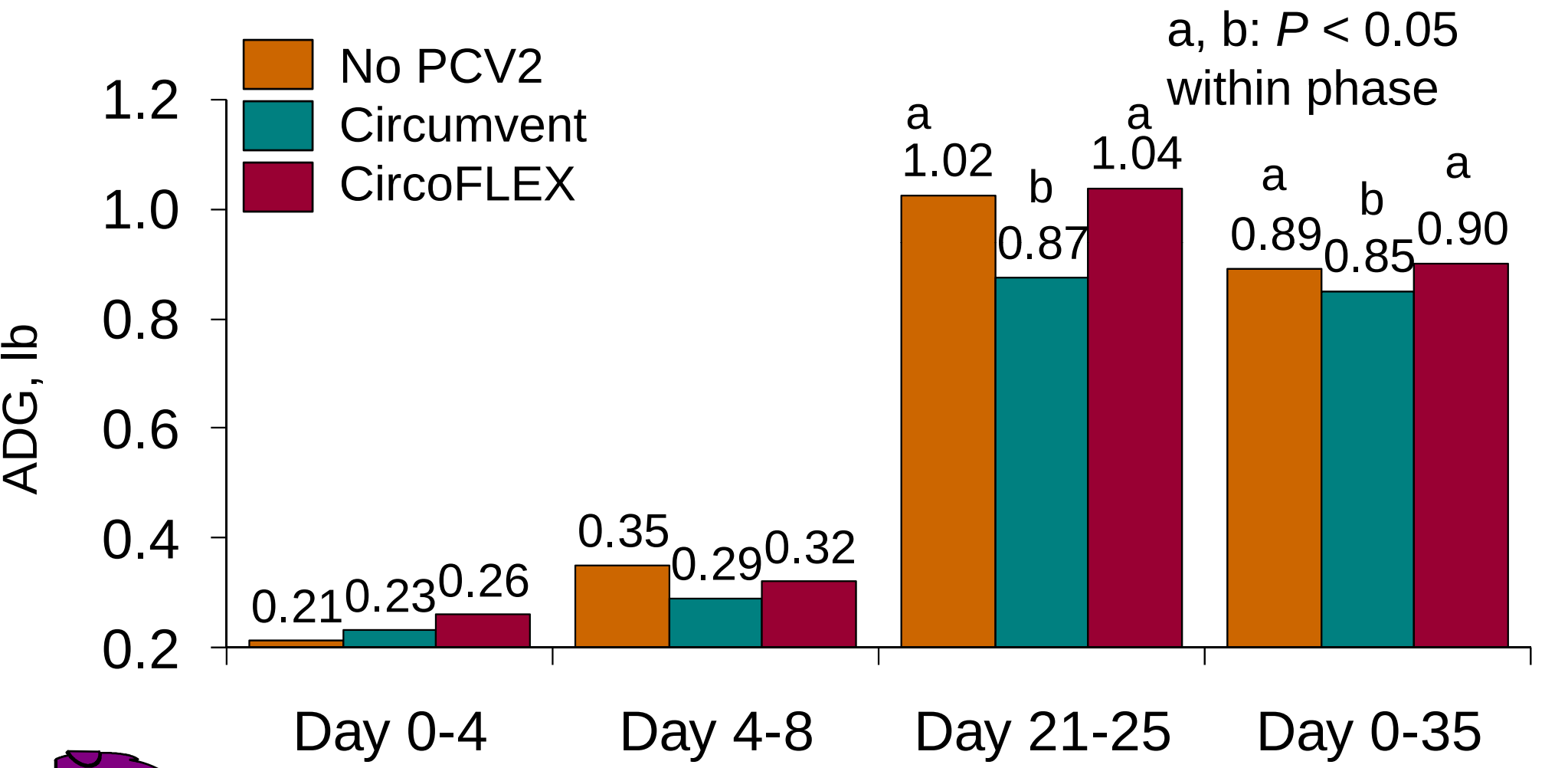
Kane et al., 2008

Effect of PCV2 vaccination on nursery pig ADG immediately after vaccinations and overall –Exp 2



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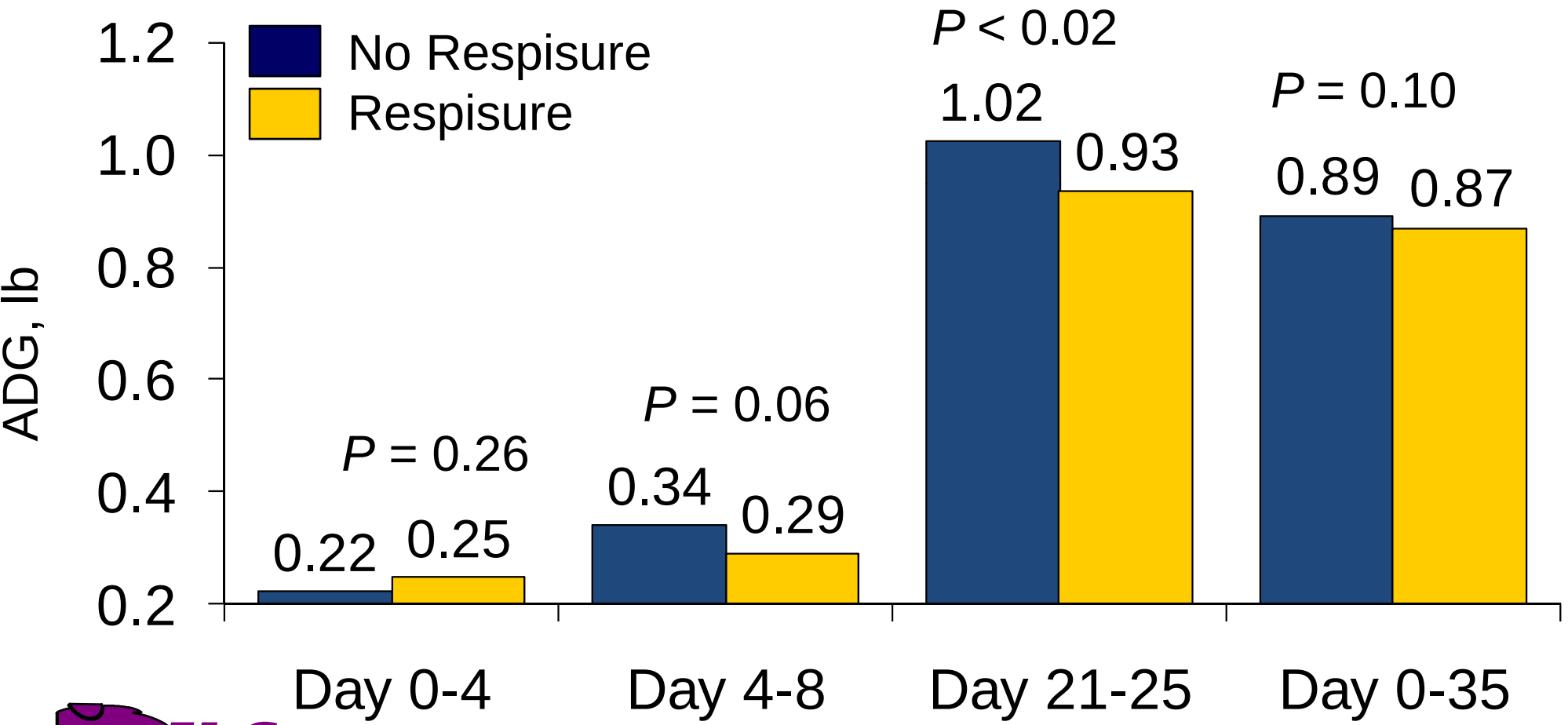
Potter et al., 2008

Effect of *M. hyo* vaccination on nursery pig ADG immediately after vaccinations and overall – Exp 2



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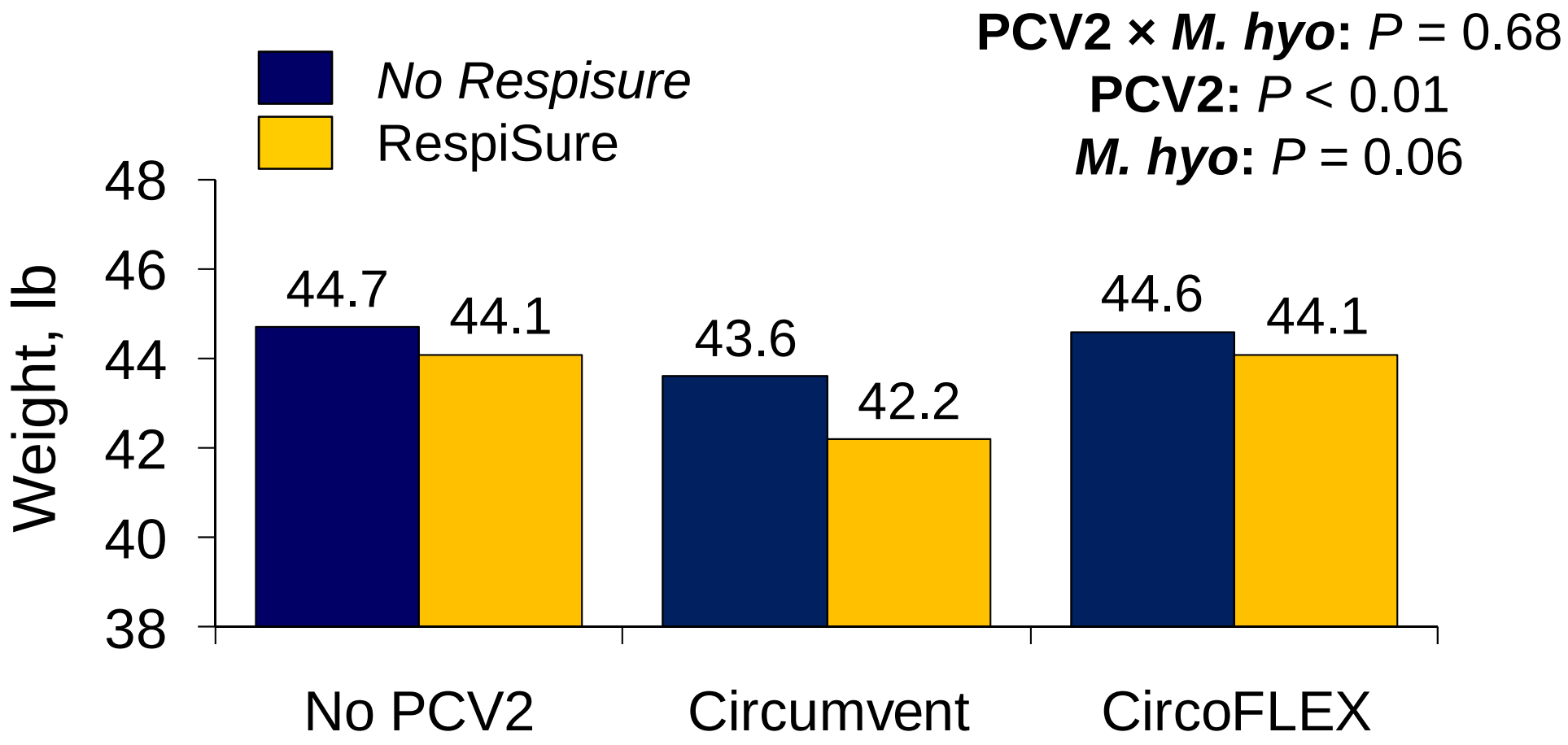
Potter et al., 2008

Effect of PCV2 and *M. hyo* Vaccination on Nursery Pig Weight (d 35; Exp. 2)



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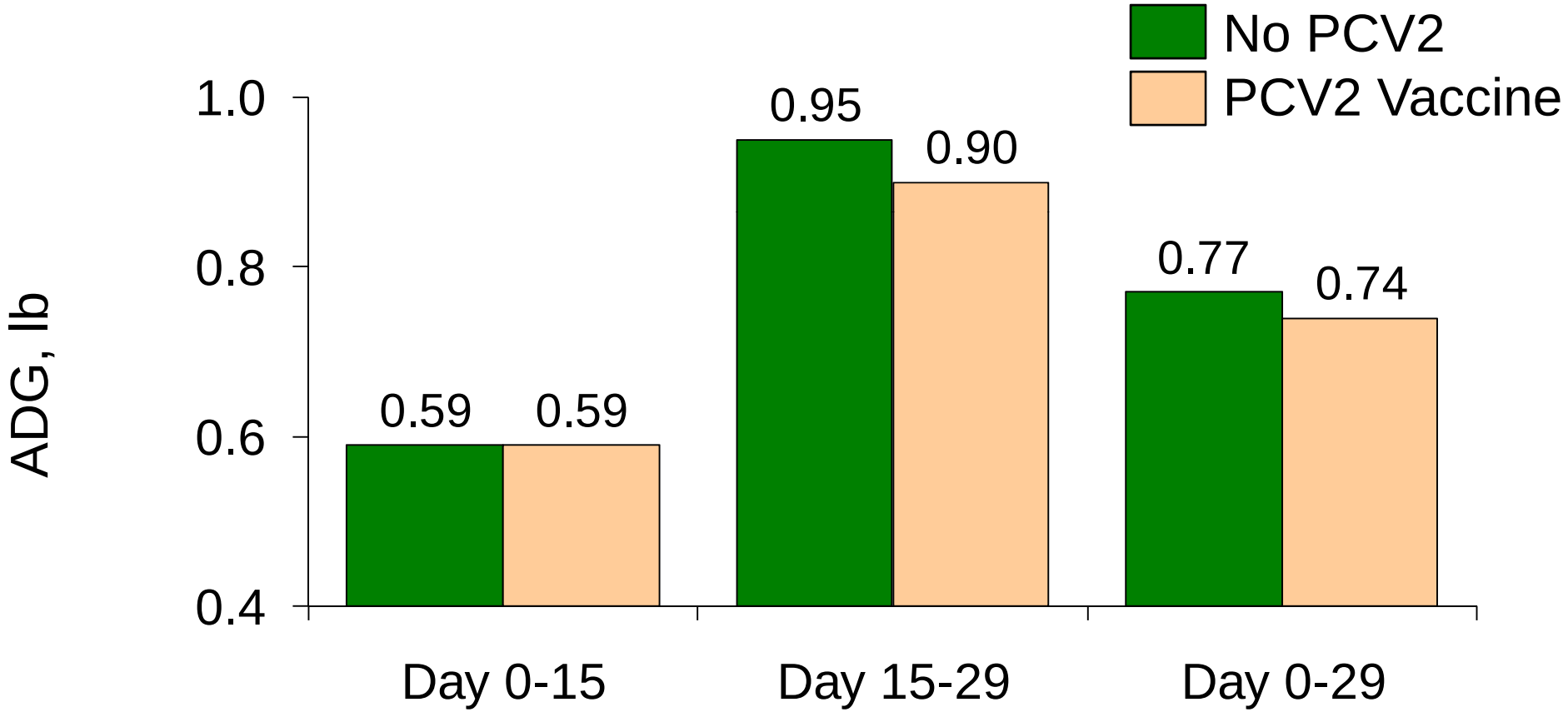
Potter et al., 2008

Effect of *PCV2* vaccination on nursery pig ADG in a commercial wean-to-finish barn (Exp. 3)



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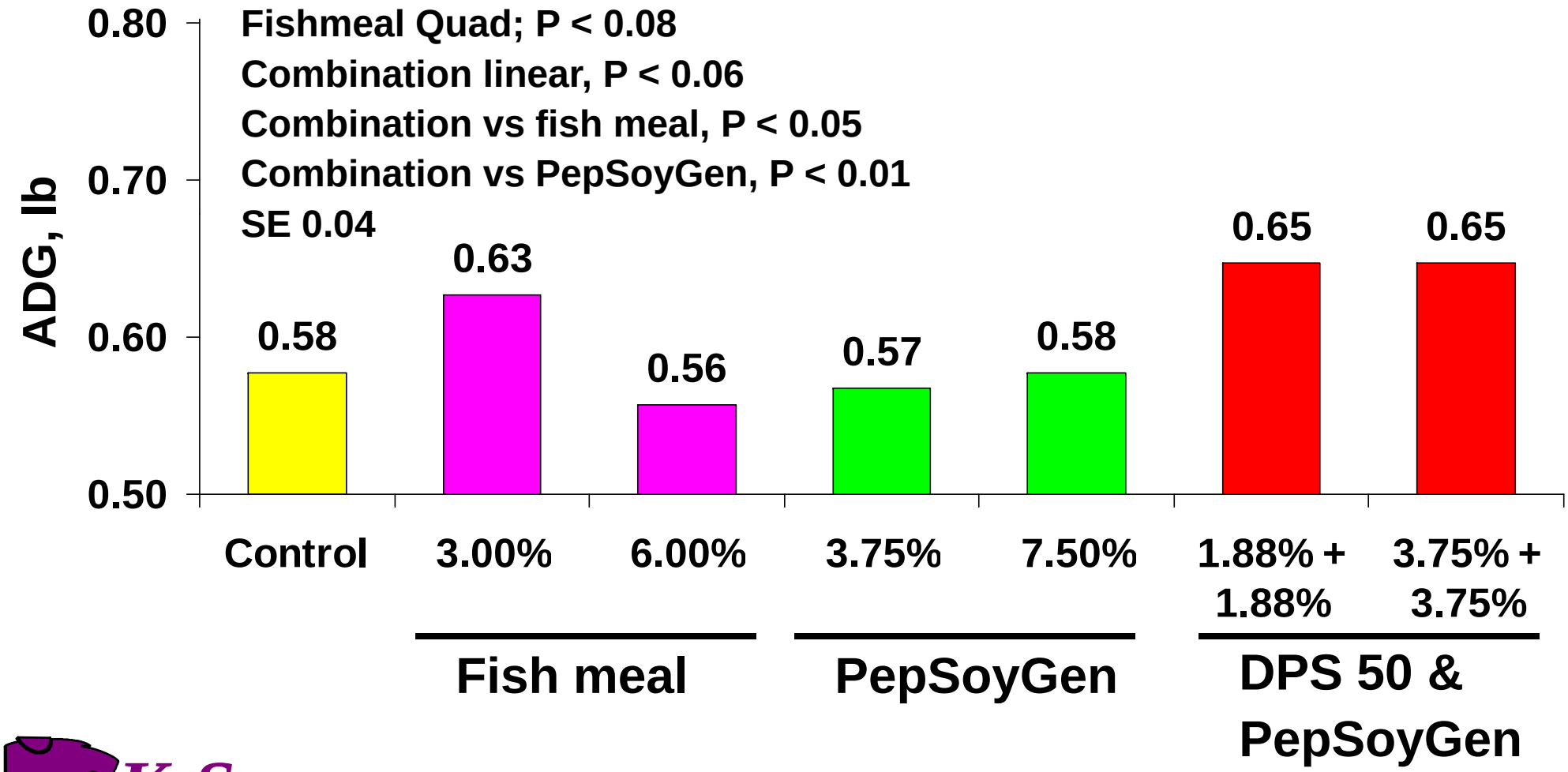
Potter et al., 2008

Influence of protein source on nursery performance (Exp. 1; Day 7 to 21 after weaning)



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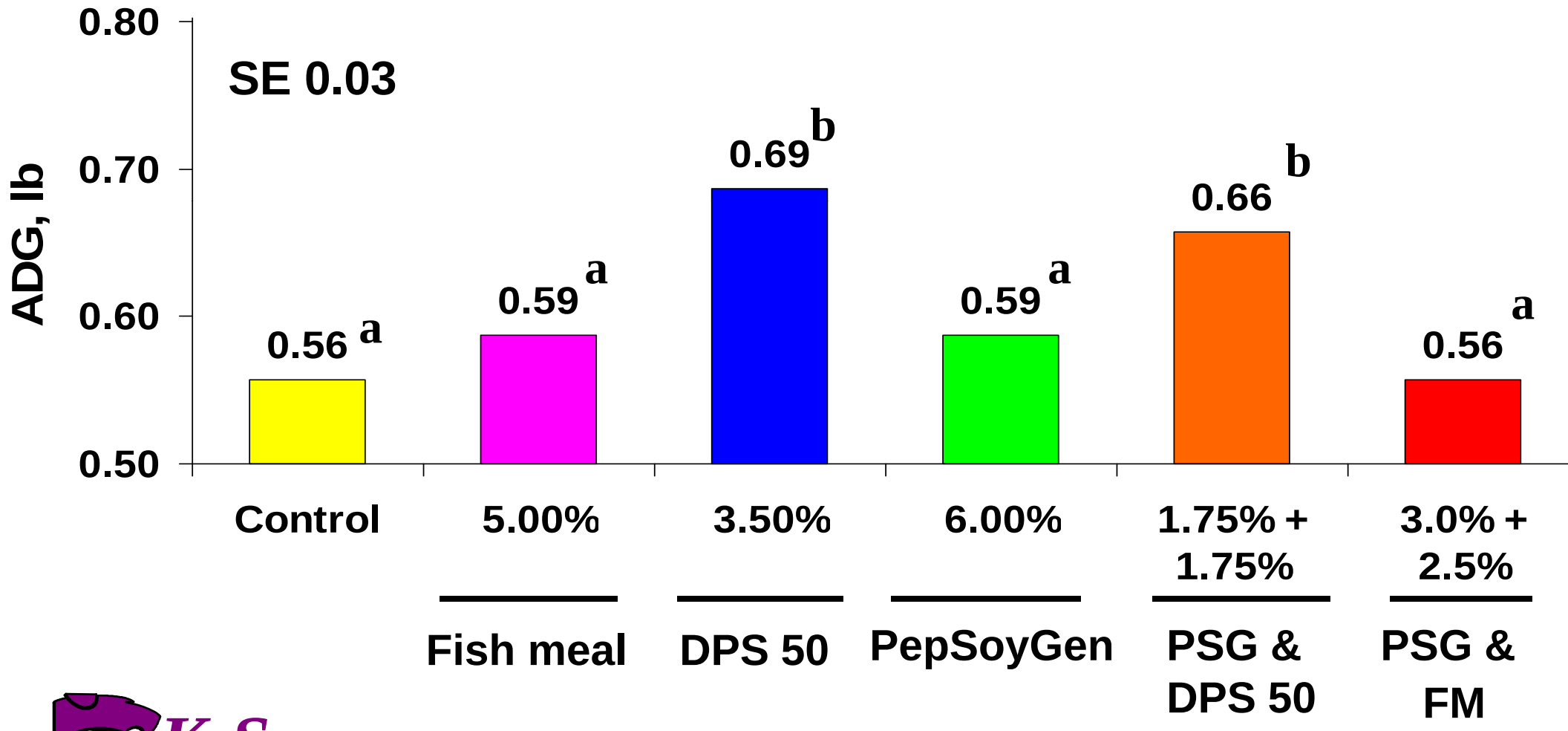
Jones et al., 2008

Influence of protein source on nursery performance (Exp. 2; Day 7 to 21 after weaning)



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Jones et al., 2008

Diet cost reduction

- Phytase sources
- DDGS
- Milo vs corn
- Fat

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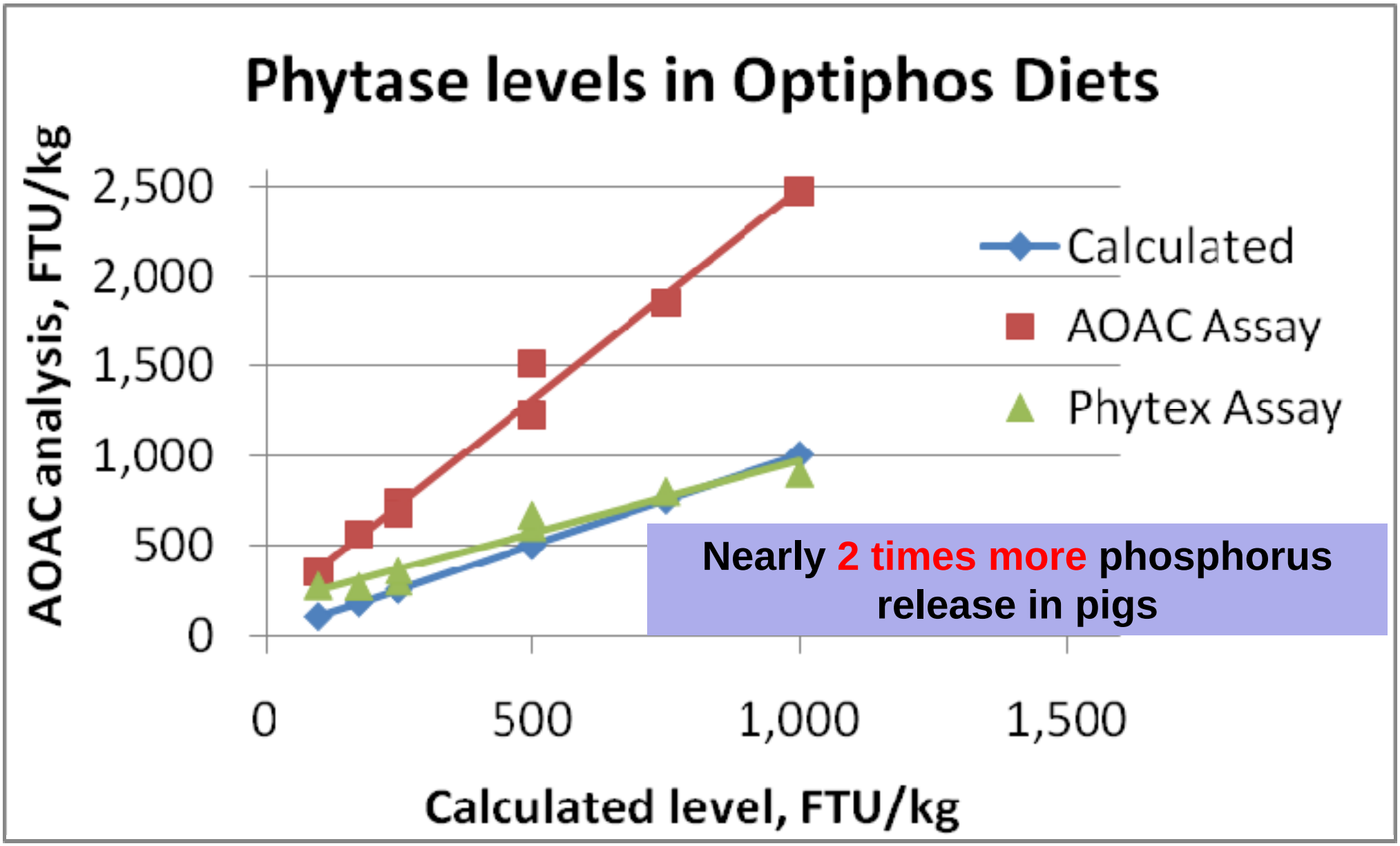

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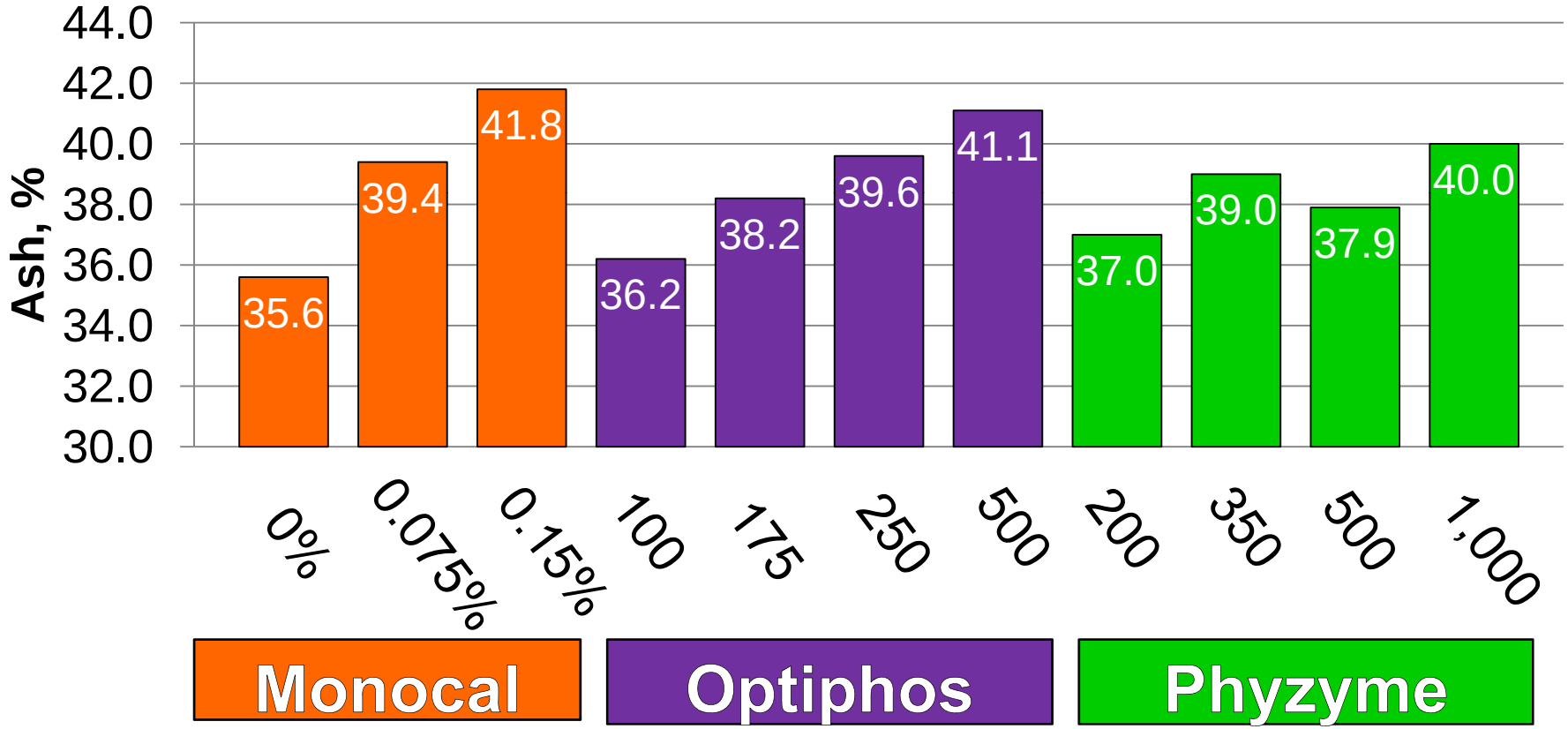
Jones et al., 2009

Influence of phytase source and level on bone ash (Exp. 1)



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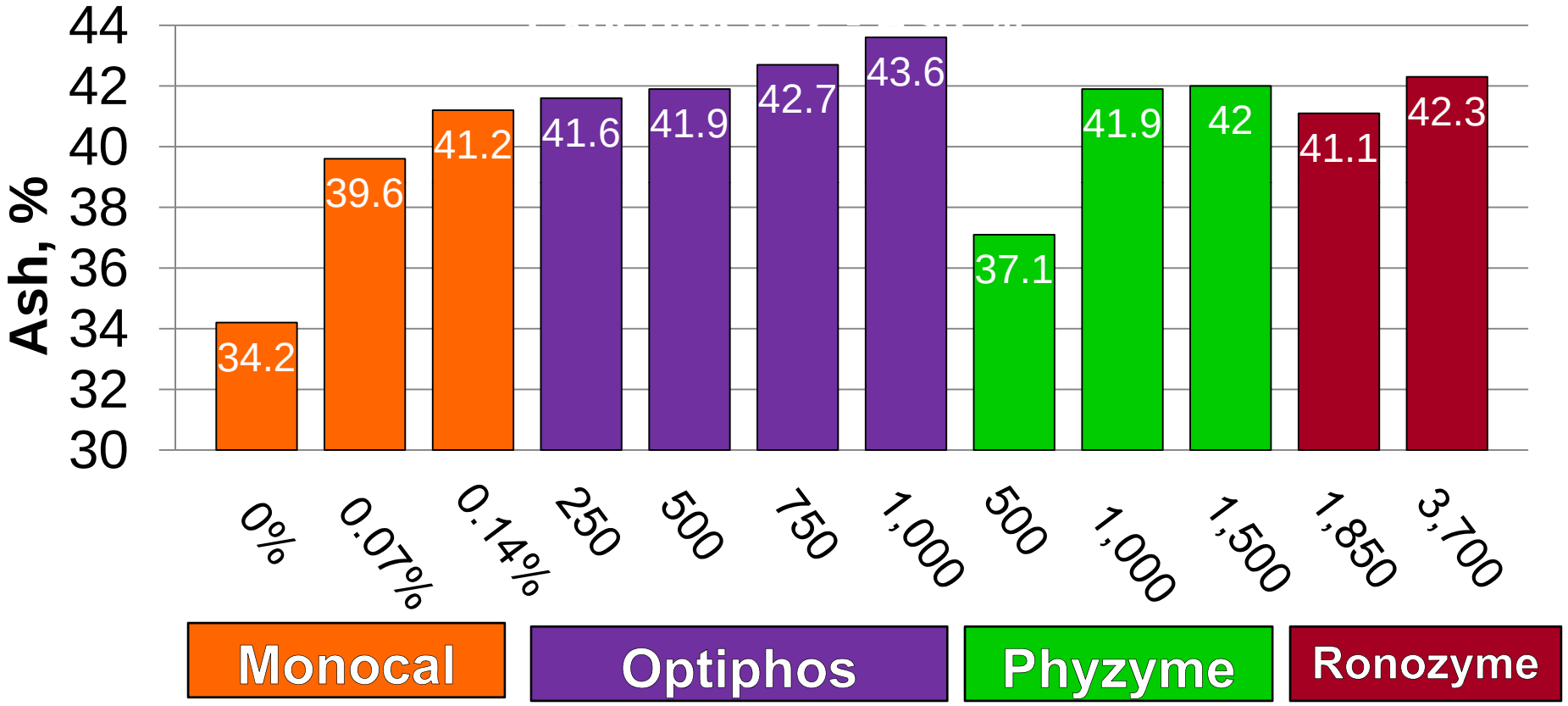
Jones et al., 2009

Influence of phytase source and level on bone ash (Exp. 2)



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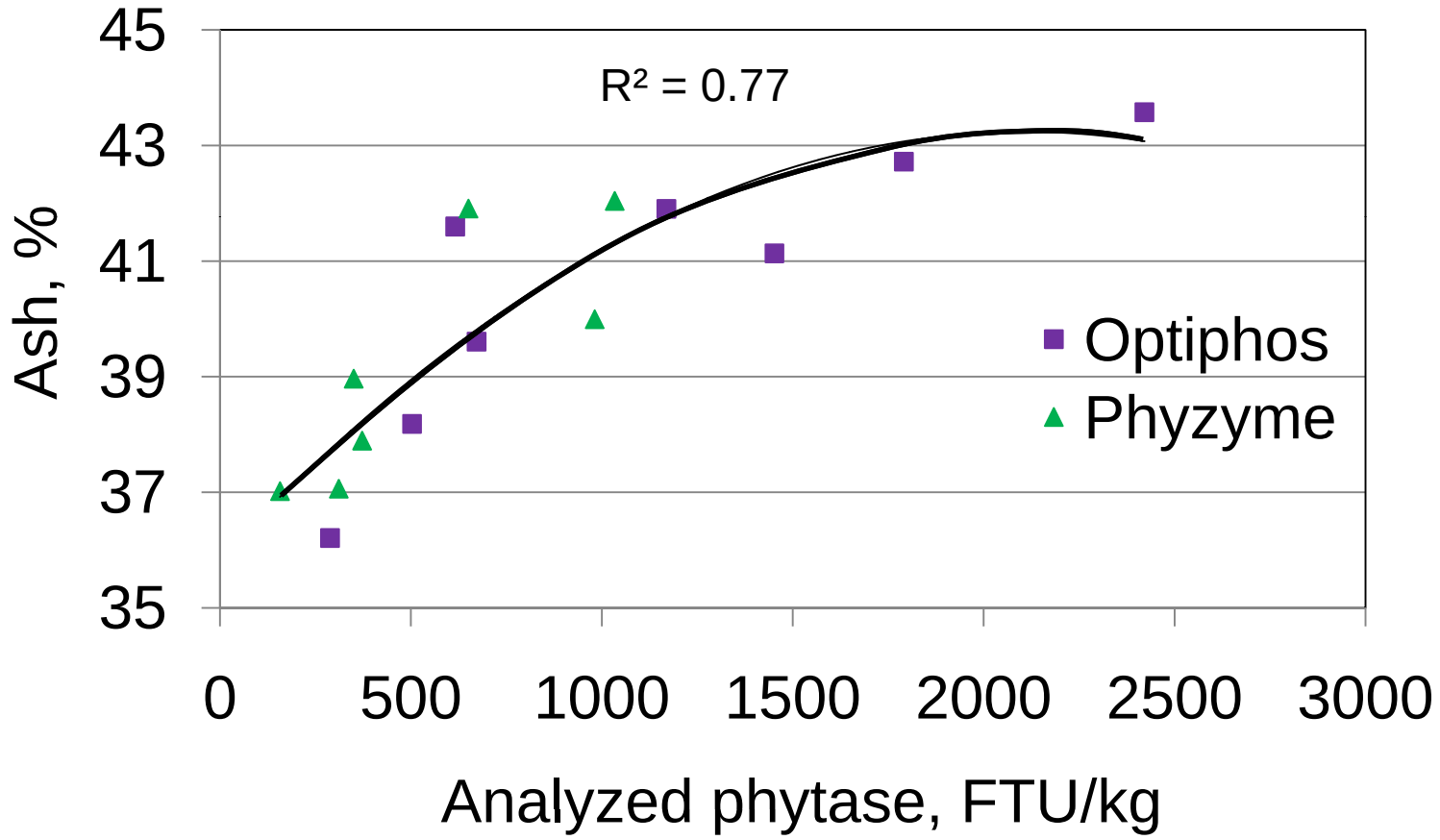
Jones et al., 2009

Influence of *E. coli*-derived phytase source and level on percentage bone ash



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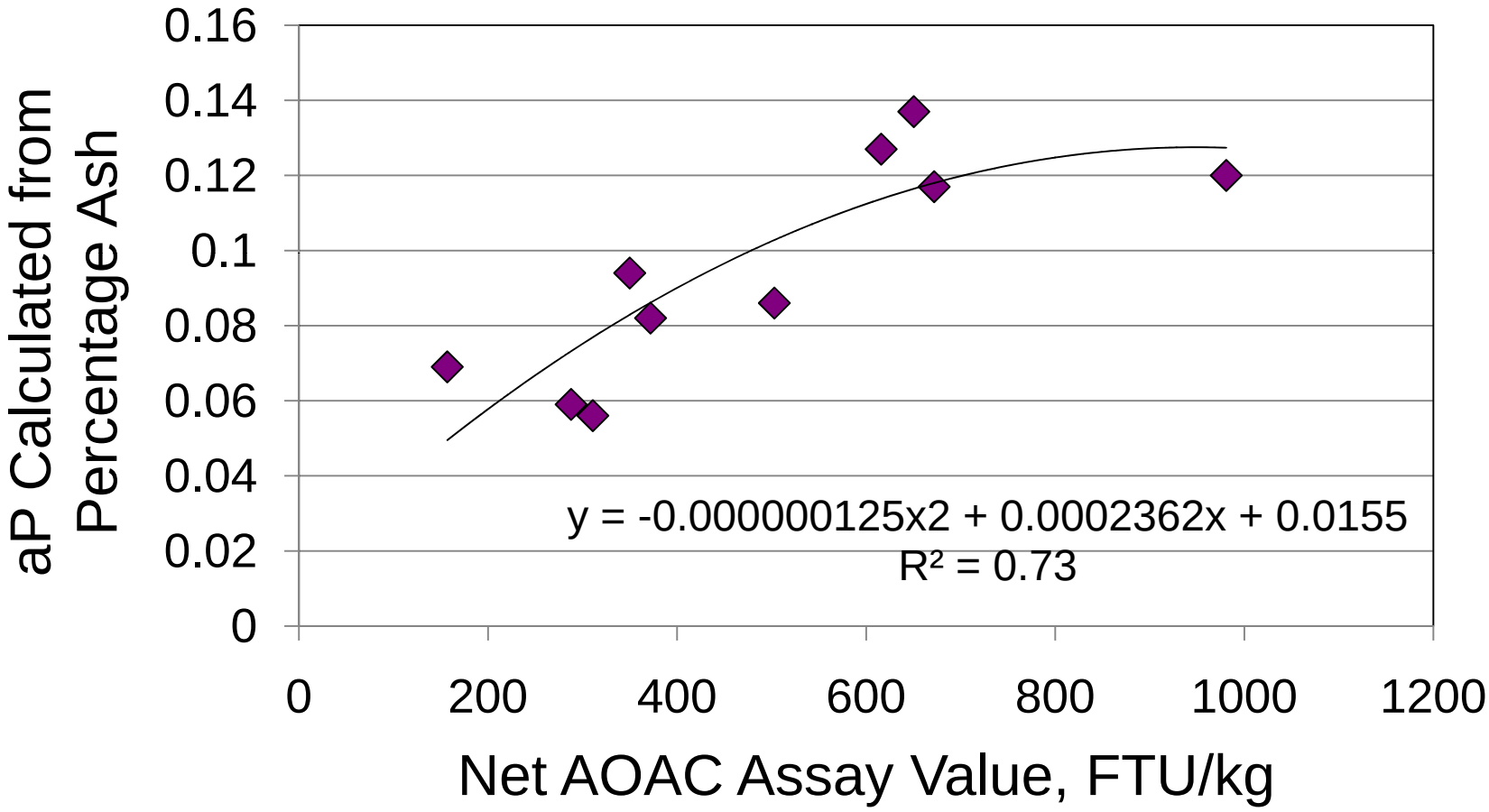
Jones et al., 2009

Available phosphorus release based on AOAC phytase assay



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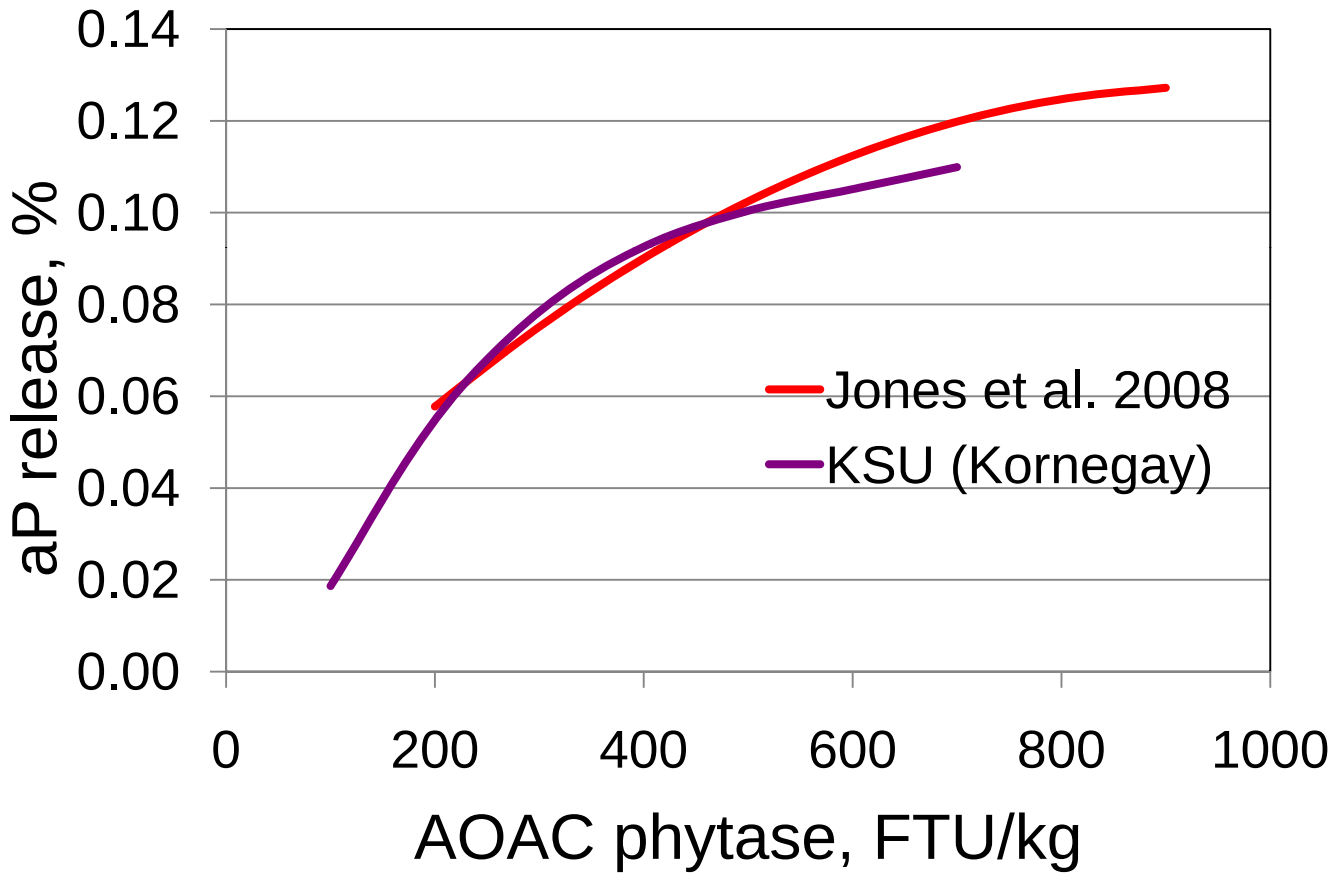
Jones et al., 2009

Available P release with phytase when analyzed on an AOAC basis



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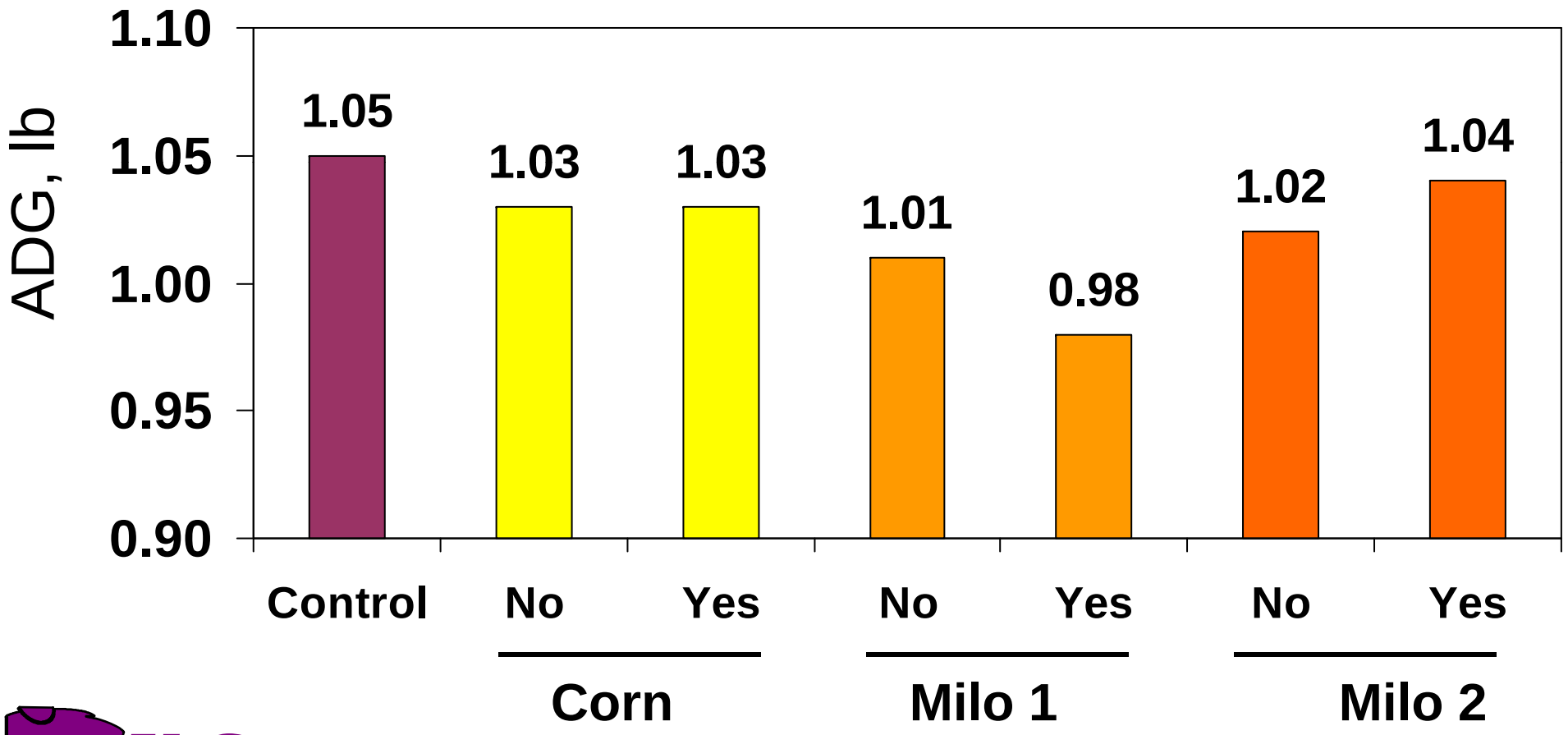
KSU curve adopted from Kornegay review

Effects of DDGS source and enzyme addition on nursery pig ADG



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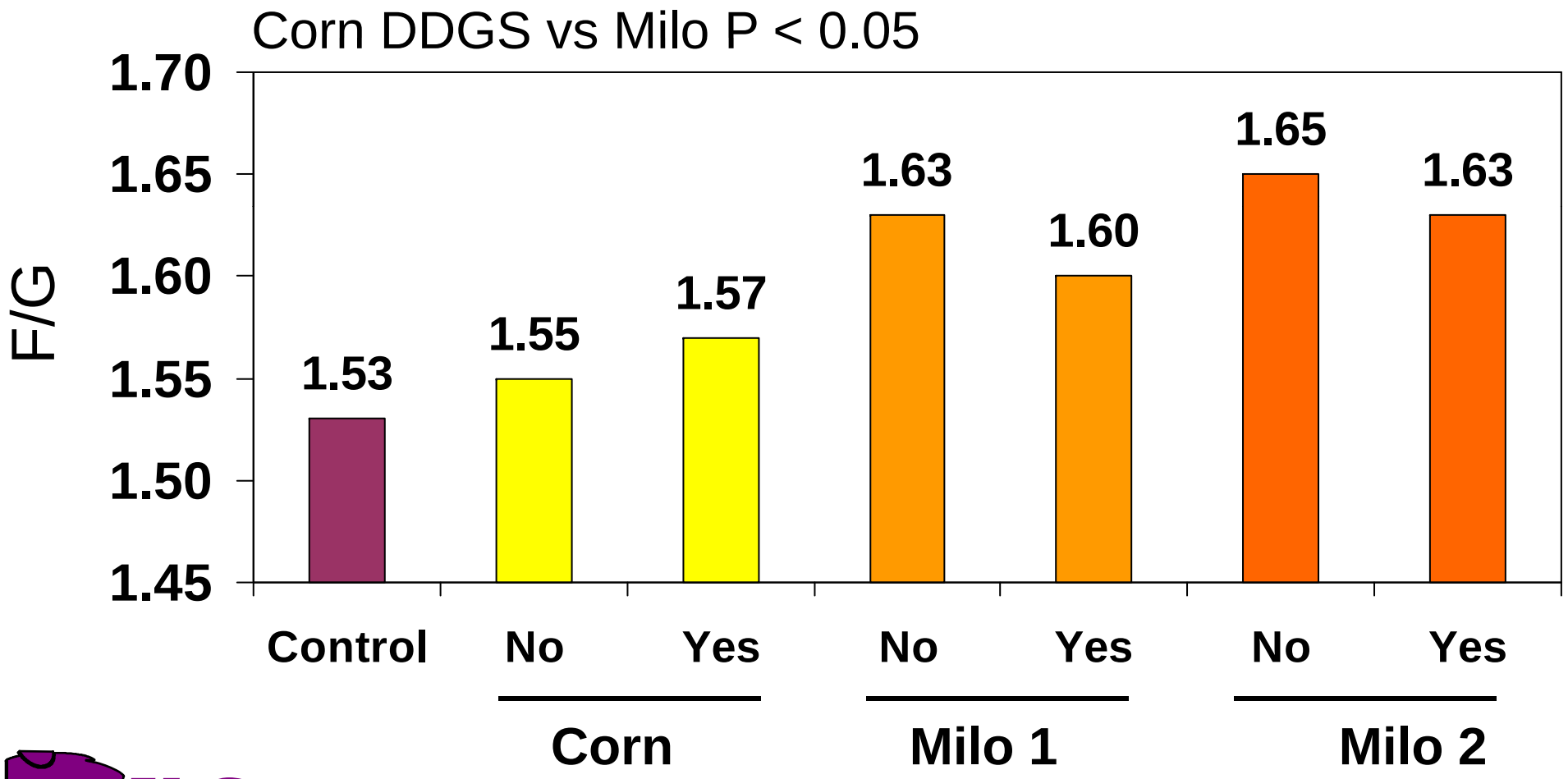
Jones et al., 2008

Effects of DDGS source and enzyme addition on nursery pig F/G



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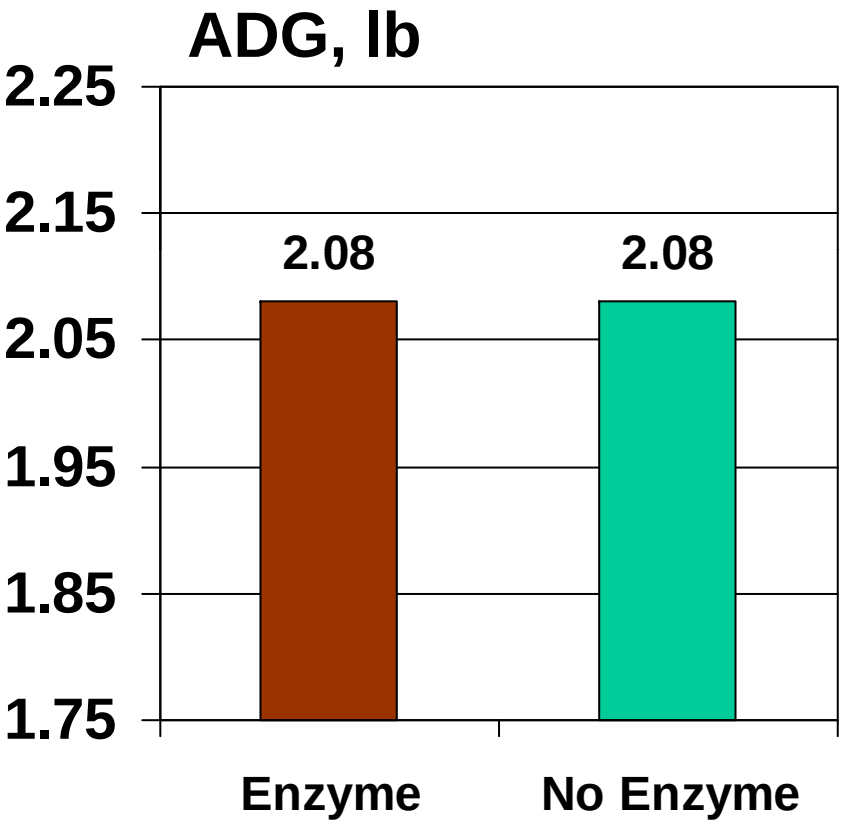
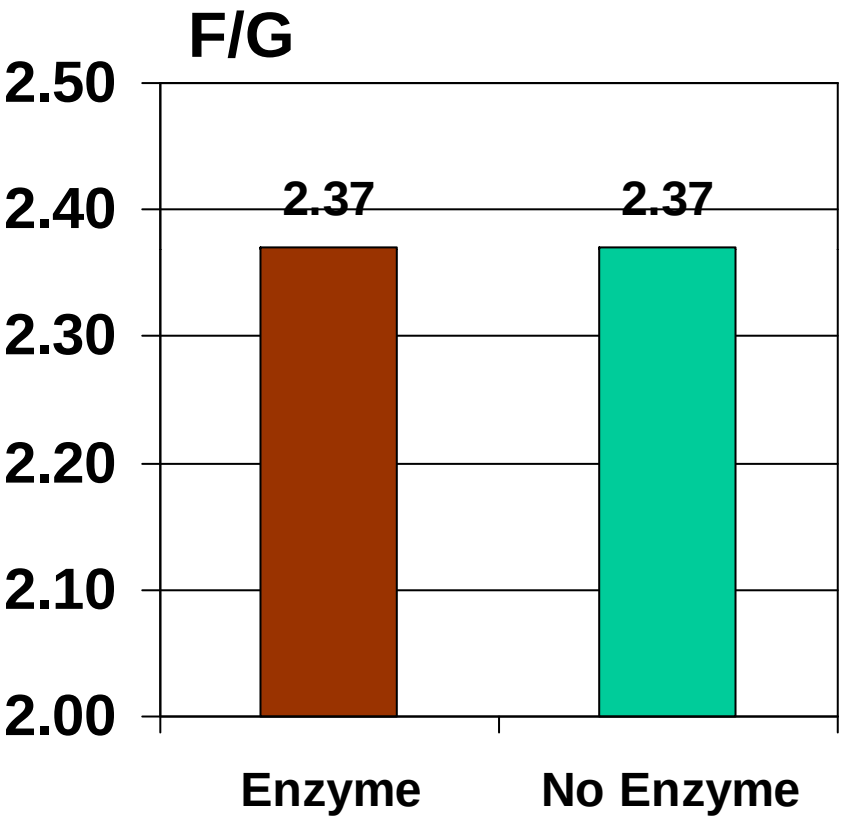
Jones et al., 2008

Effect of enzyme addition to 15% DDGS diets on pig performance





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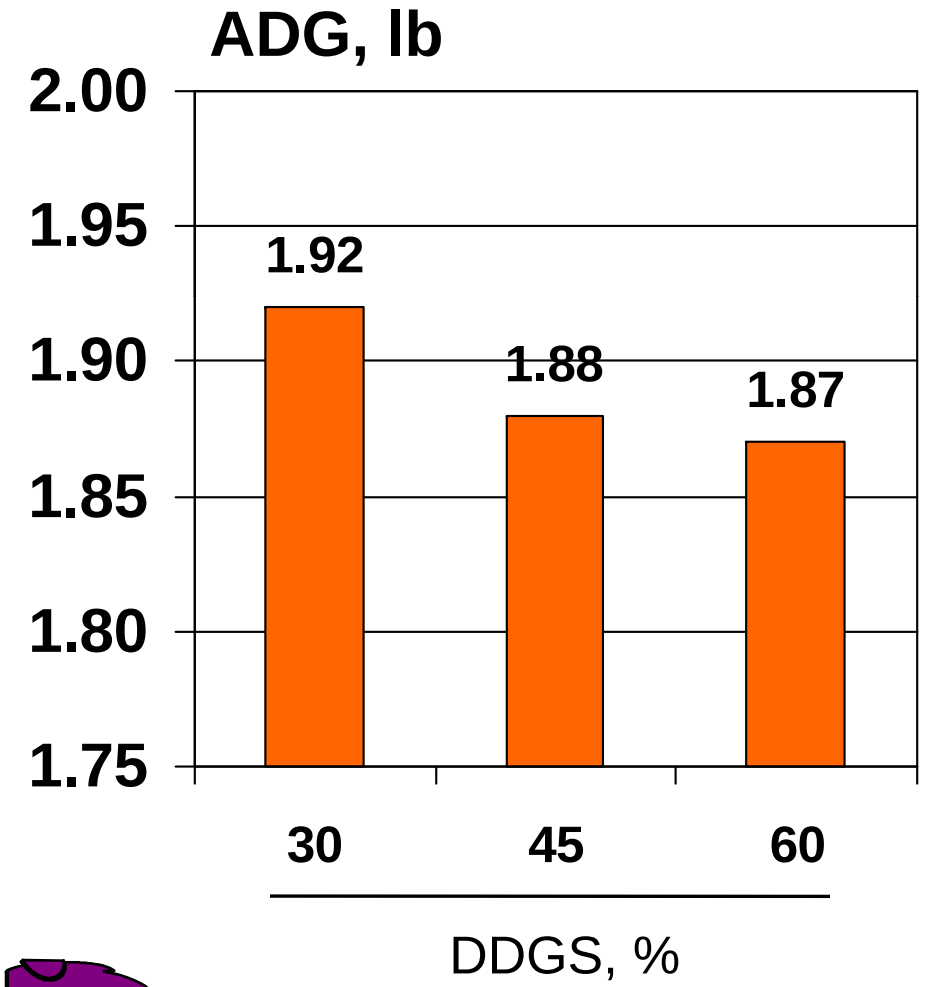
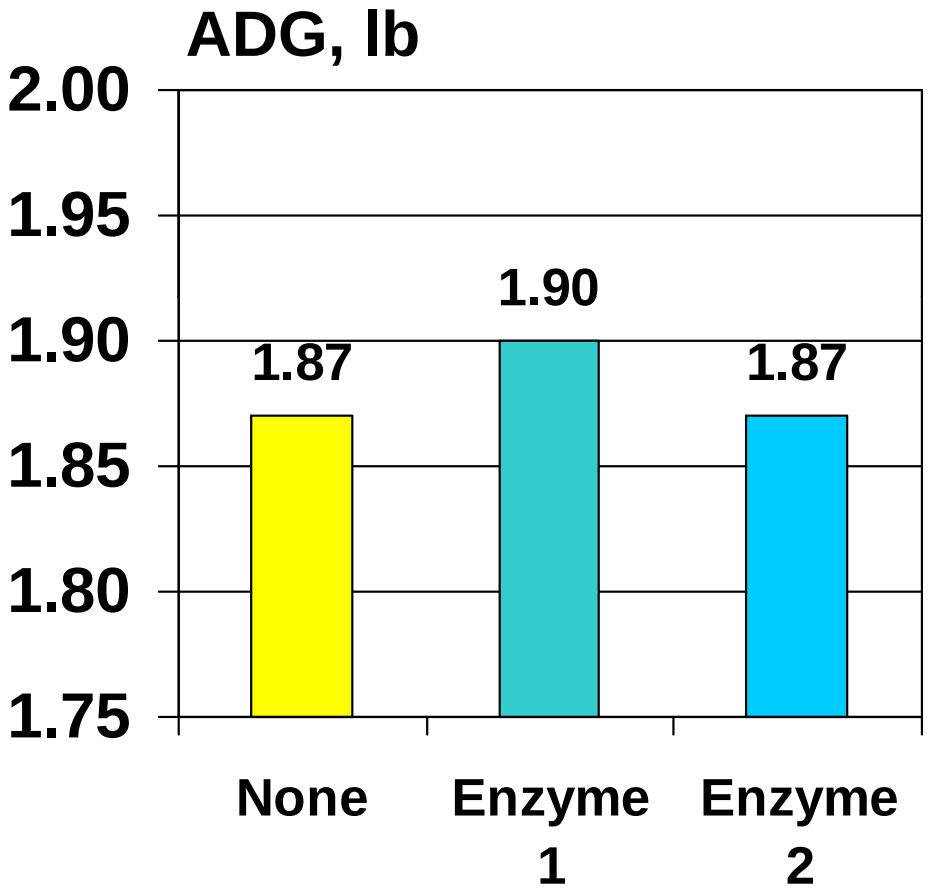
Jacela et al., 2008

Effect of DDGS level and enzyme addition on pig ADG





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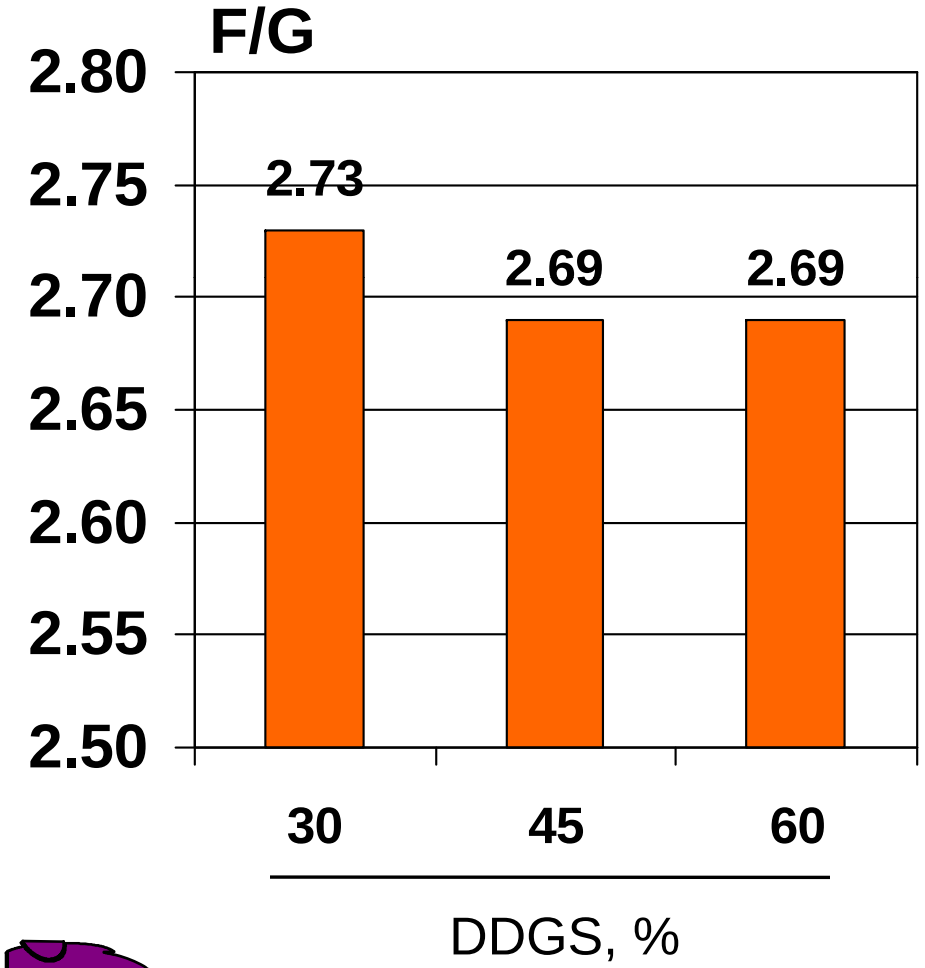
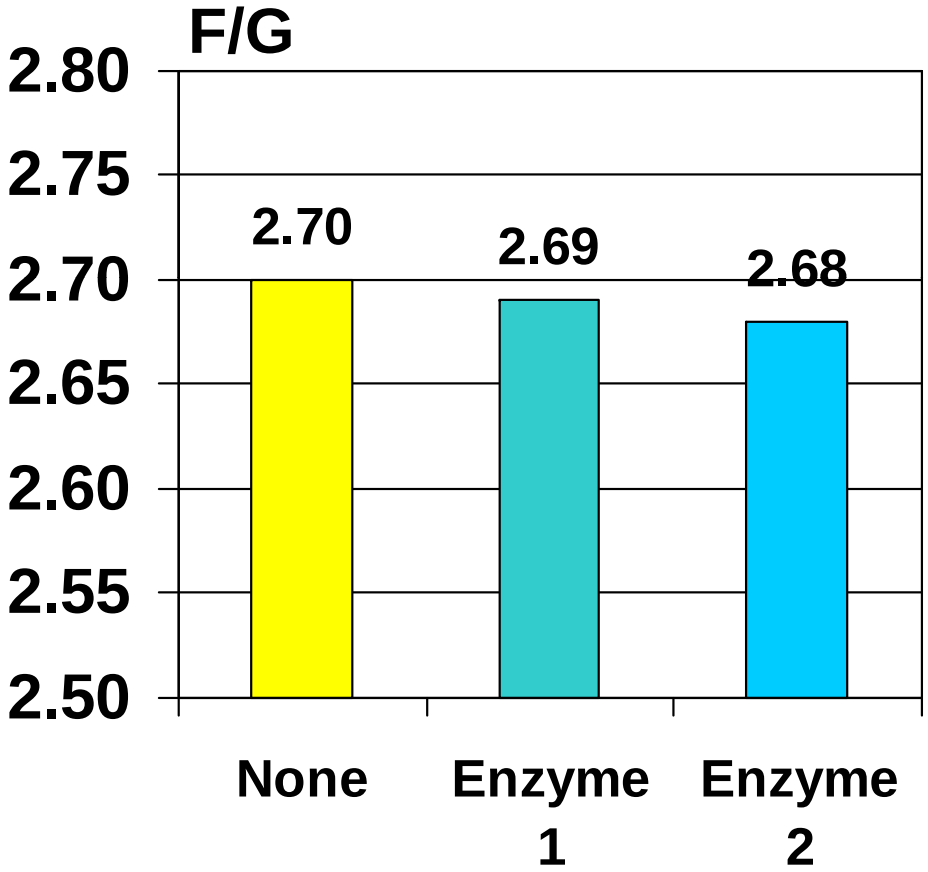
Jacela et al., 2008

Effect of DDGS level and enzyme addition on pig F/G





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Jacela et al., 2008

High Protein Distiller Grains

Item, %	Lifeline Foods, St. Joe MO	White Energy, Russell KS	Traditional DDGS
Crude Protein	36.5	44.5	27.2
Fat	5.4	3.2	10.7
Calcium	0.04	0.13	0.03
Phosphorus	0.32	0.82	0.71
Lysine, %	1.22	1.60	0.78
Lysine digest, %	67.8	56.9	62.3
ME, kcal/lb	1,392	1,479	1,551

As-fed basis

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Jacela et al, 2008
Frobose et al, 2008

DDGS Value Calculator with no performance change

Milo $/bu	$ 2.80
SBM, $/ton	$ 225.00
Monocal, $/ton	$ 900.00
Limestone, $/ton	$ 40.00
Lysine HCl, $/lb	$ 0.95
DDGS, $/ton	$ 170.00

	DDGS, %		
	10%	**20%**	**30%**
Change in diet cost, $/ton	**$1.78**	**$4.65**	**$9.35**
Approximate savings, $/pig	**-$0.53**	**-$1.40**	**-$2.81**
Breakeven price, $/ton	**$152.19**	**$146.73**	**$138.82**

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www.KSUswine.org

DDGS Value Calculator with no performance change

Corn, $/bu	$ 3.50
SBM, $/ton	$ 225.00
Monocal, $/ton	$ 900.00
Limestone, $/ton	$ 40.00
Lysine HCl, $/lb	$ 0.95
DDGS, $/ton	$ 170.00

	DDGS, %		
	10%	**20%**	**30%**
Change in diet cost, $/ton	**$0.31**	**$1.35**	**$4.07**
Approximate savings, $/pig	**-$0.09**	**-$0.40**	**-$1.22**
Breakeven price, $/ton	**$166.89**	**$163.26**	**$156.42**

DDGS Value Calculator with no performance change

Corn, $/bu	$ 3.50
SBM, $/ton	$ 225.00
Monocal, $/ton	$ 900.00
Limestone, $/ton	$ 40.00
Lysine HCl, $/lb	$ 0.95
DDGS, $/ton	$ 130.00

	DDGS, %		
	10%	**20%**	**30%**
Change in diet cost, $/ton	**-$3.69**	**-$6.65**	**-$7.93**
Approximate savings, $/pig	**$1.11**	**$2.00**	**$2.38**
Breakeven price, $/ton	**$166.89**	**$163.26**	**$156.42**

Milo price relative to corn

2007	100 to 110%
2008	70 to 80%

Keys: Particle size (roller mill)

Replace corn lb/lb

F/G will be 5 to 7% higher

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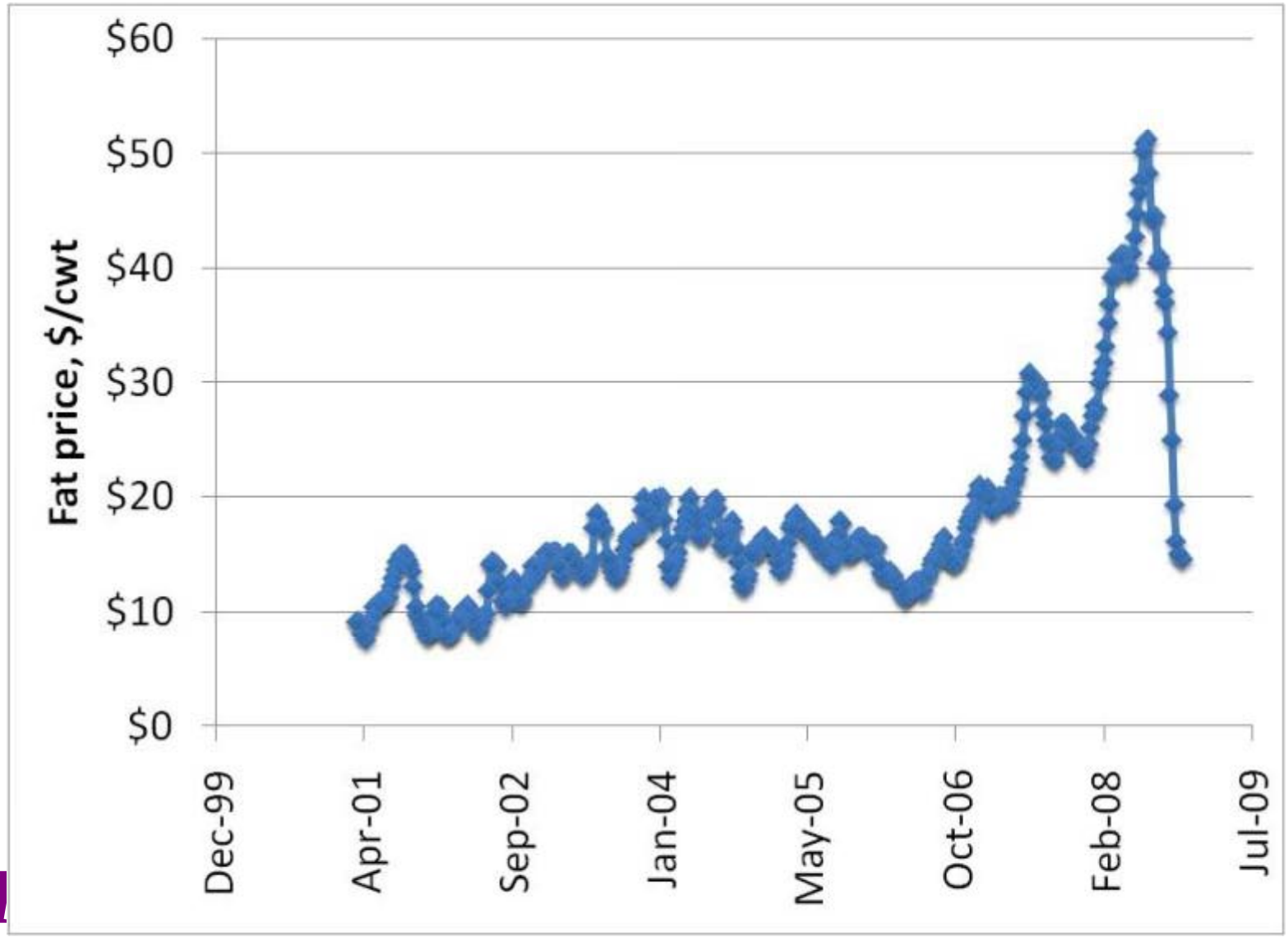
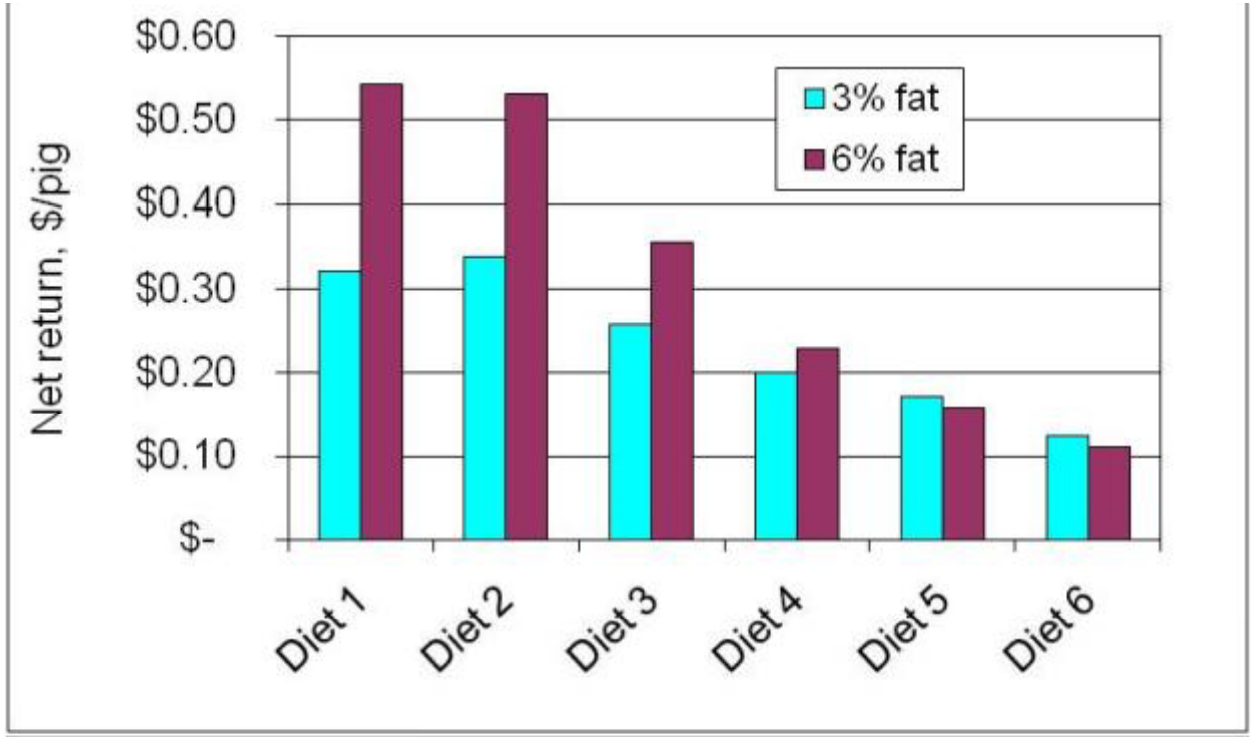
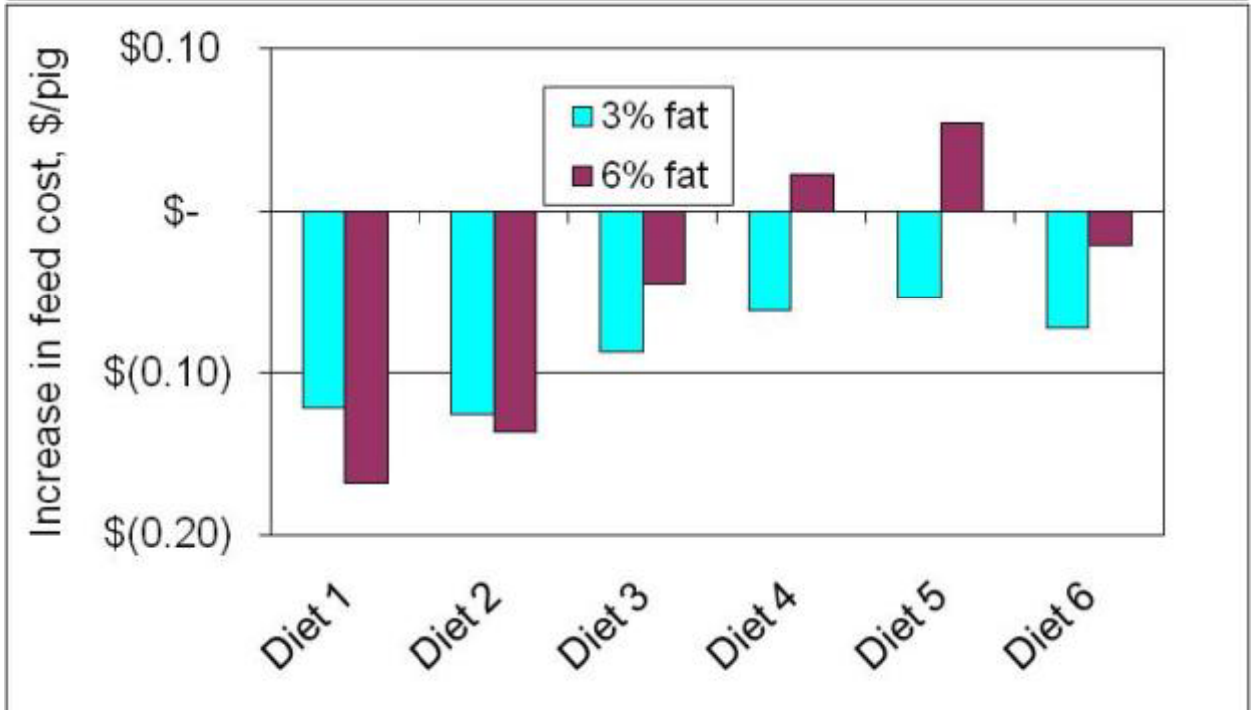
Historic choice white grease price



	Prices
Corn, $/bu	**$ 3.50**
SBM, $/ton	**$ 225.00**
Fat, $/cwt	**$ 16.00**
GMD, $/ton	**$ 12.00**

www.KSUswine.org





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	Prices
Milo, $/bu	$ 2.80
SBM, $/ton	$ 225.00
Fat, $/cwt	$ 18.00
GMD, $/ton	$ 12.00

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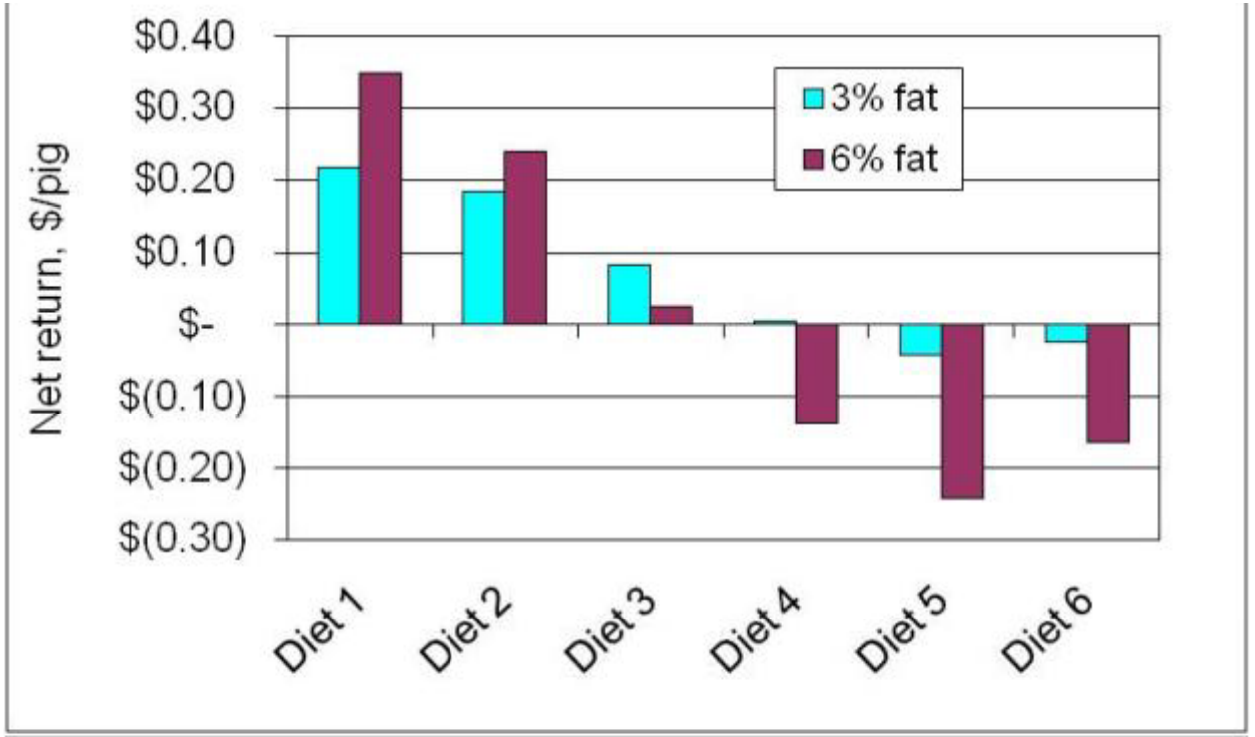

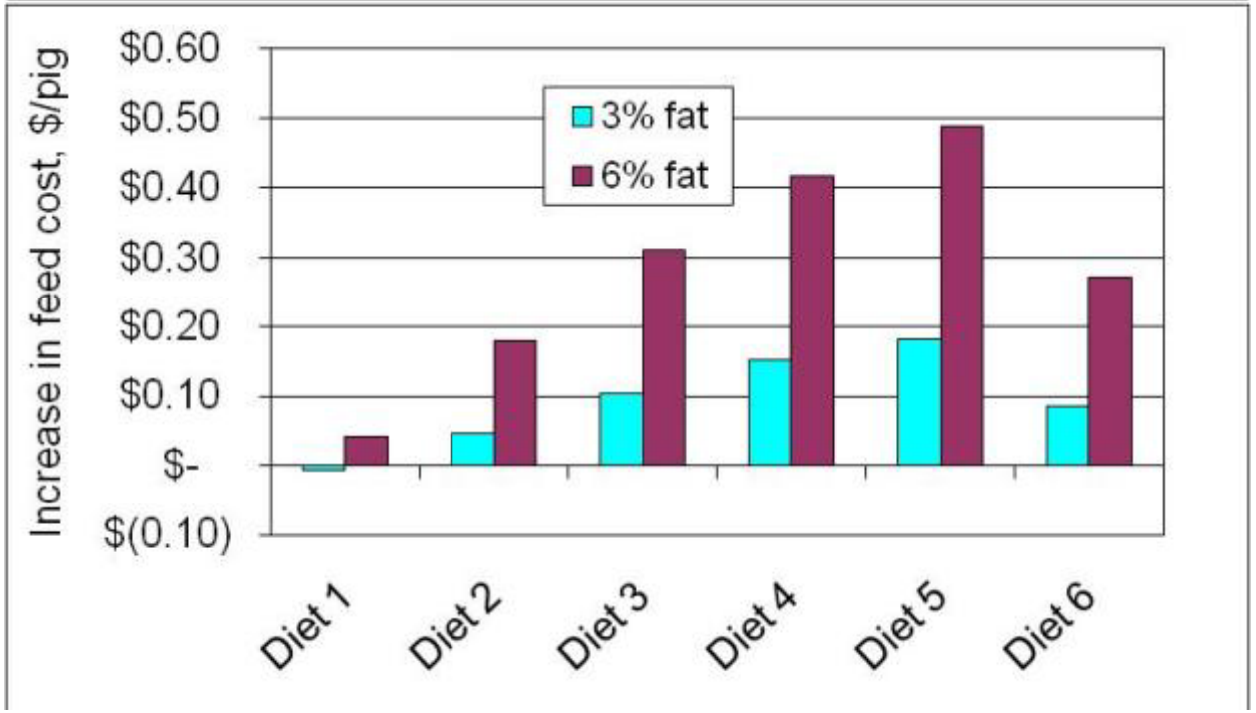

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	Prices
Corn, $/bu	**$ 4.80**
SBM, $/ton	**$ 400.00**
Fat, $/cwt	**$ 18.00**
GMD, $/ton	**$ 12.00**

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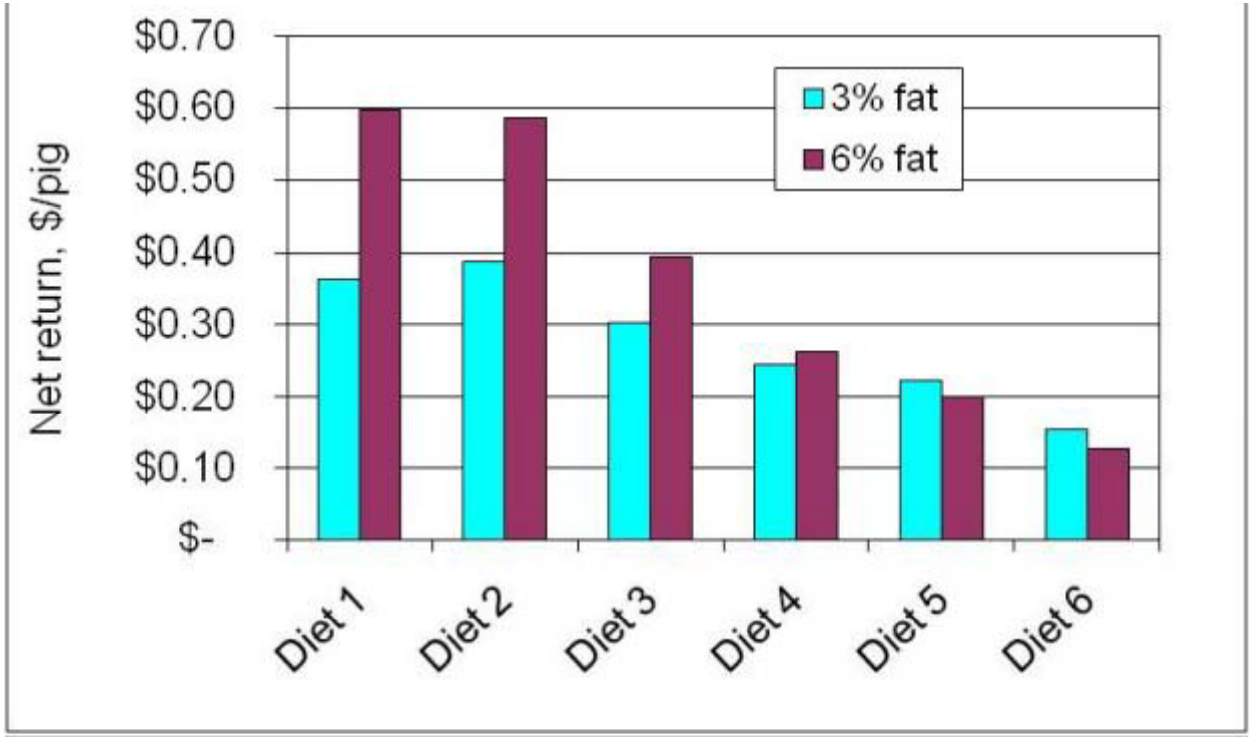

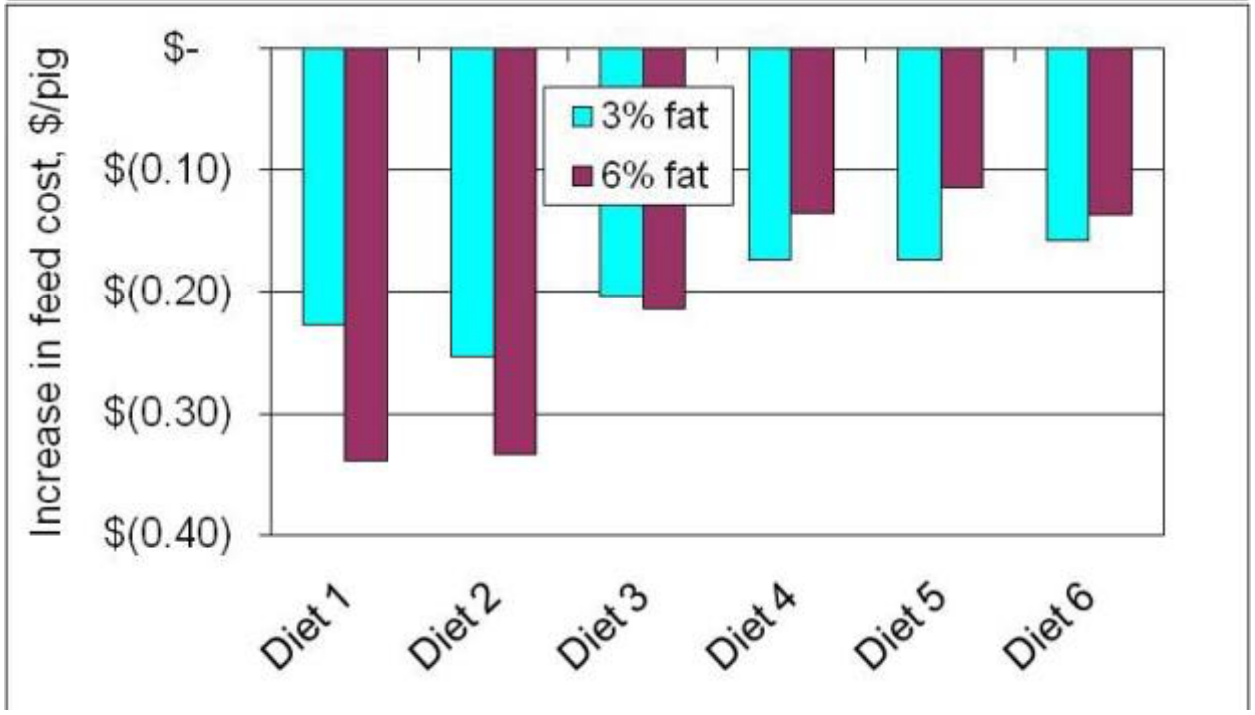

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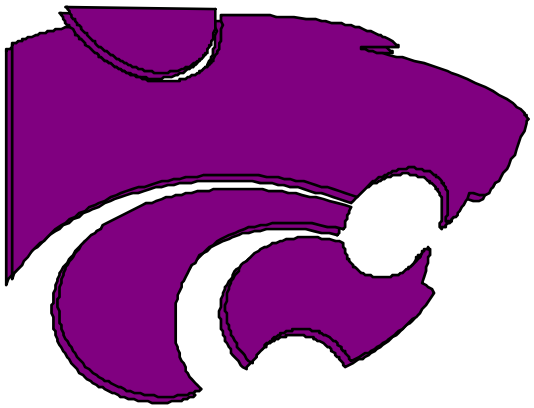
Thank you to J-Six Farms
Our new field research partner

How to Improve F/G by Feed and Feeder Management



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and
EXTENSION

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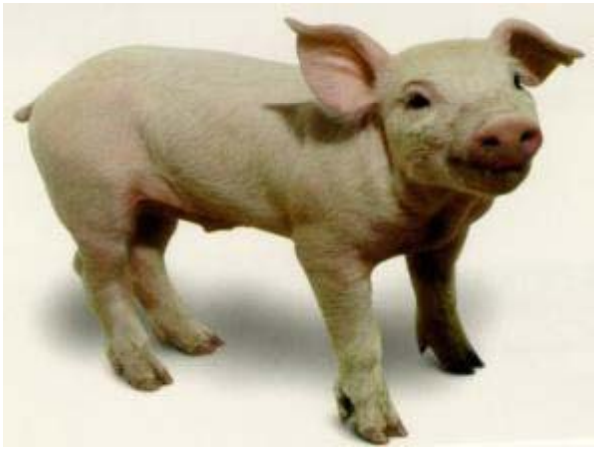
Feeder management and feeder type

- Feeder adjustment
- Wet/dry vs dry feeders
- Byproducts with wet/dry feeders



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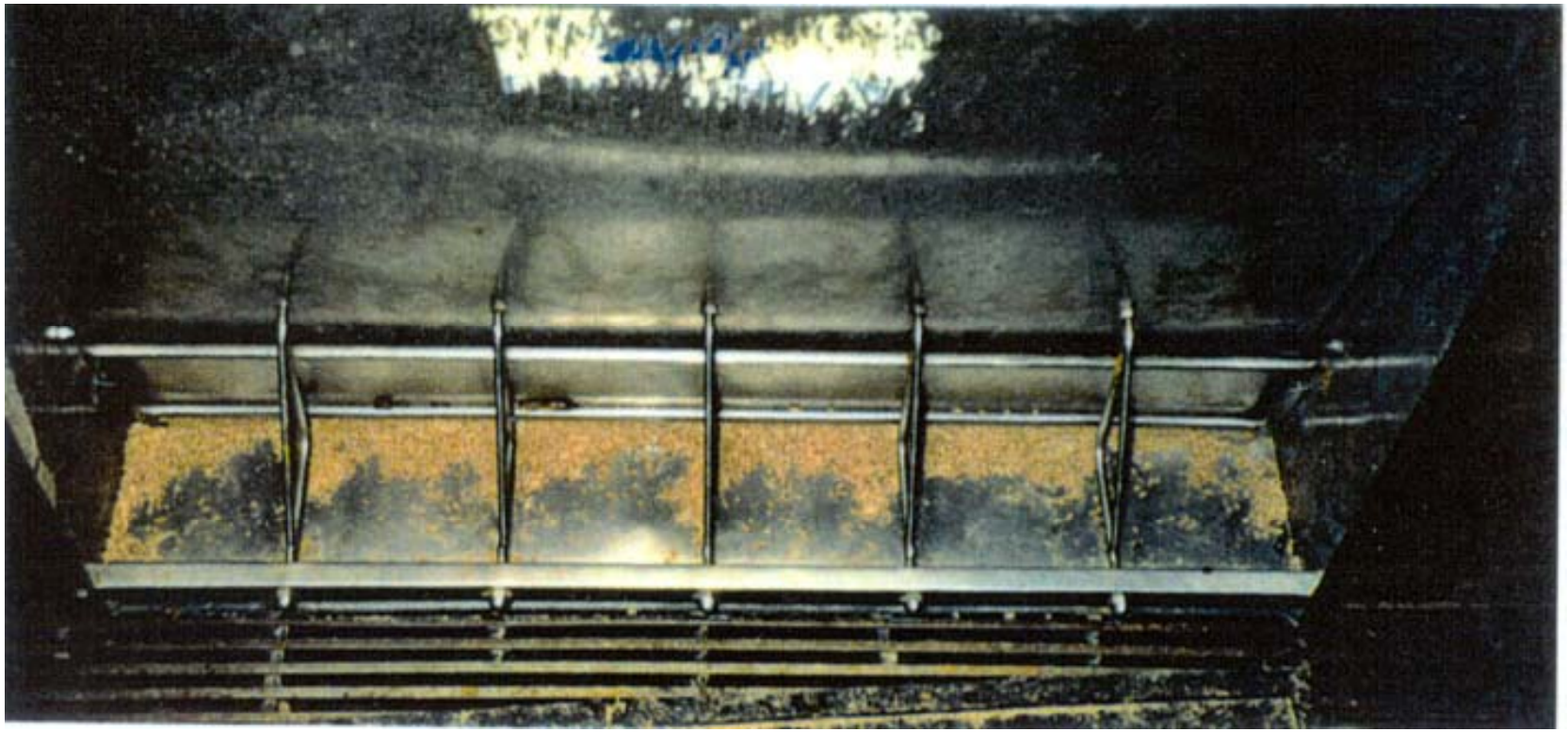
Impact of feeder adjustment setting on growth rate and feed efficiency



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Methods Exp.1

- Each pen is fed with:

  1 Staco/Choretime dry feeder
  - 60 inch feeder with 5 feeding spaces
  - Feeders have 5 Settings (1 to 5)
    - Pens were randomly assigned to feeder settings of:
      - 1, 2, 3, 4, 5
      - With 1 being the most gap width and 5 being the least

Feeder Setting 1

95%

80%

65%

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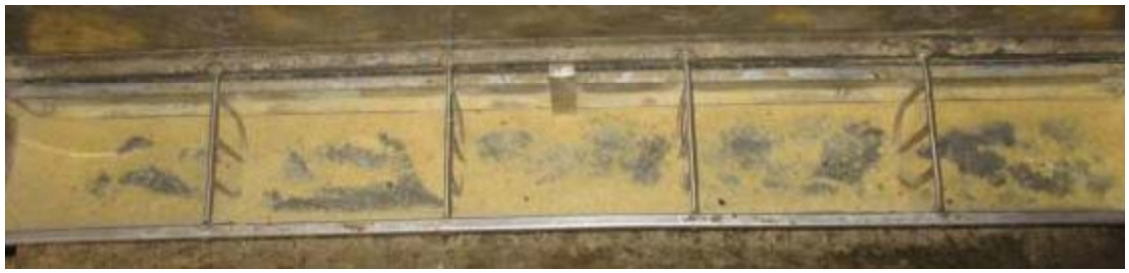
Feeder Setting 3

75%



55%

35%

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Feeder Setting 5

5%

15%

25%

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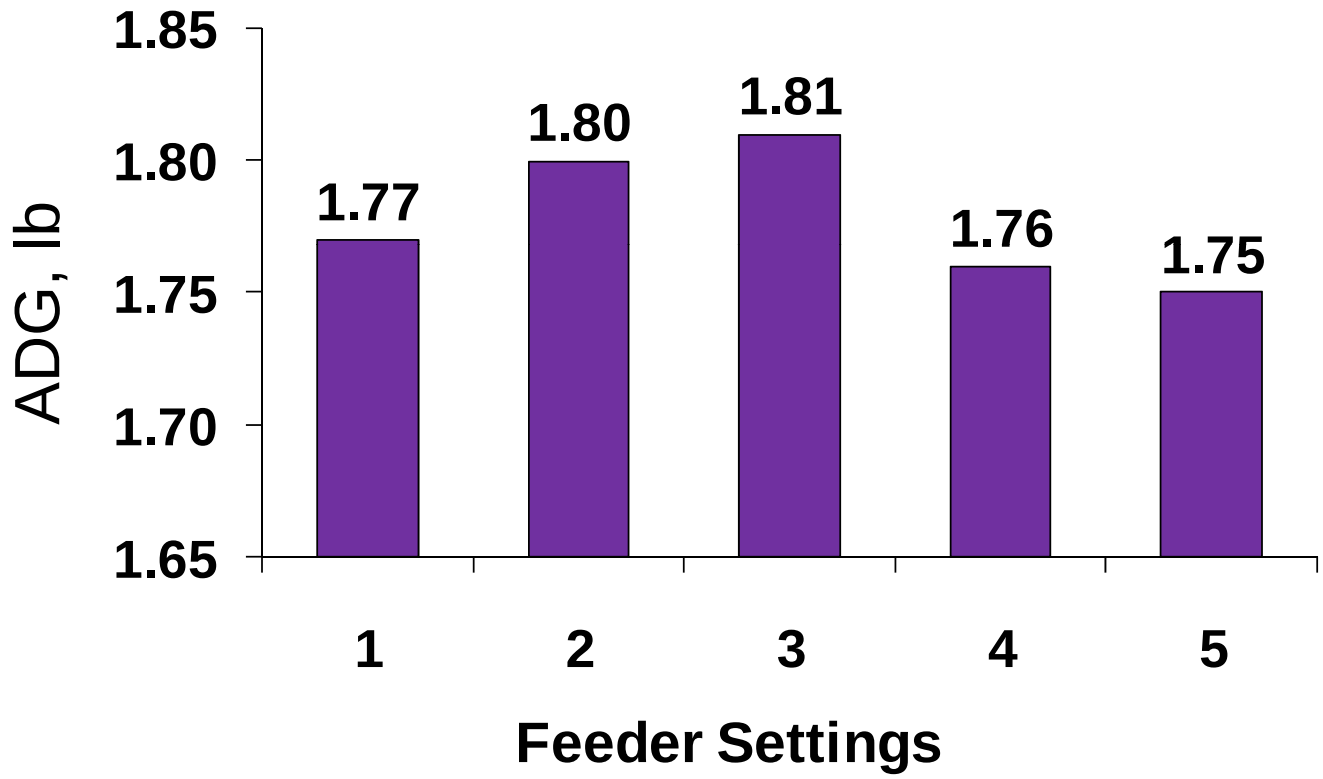
Influence of feeder setting on ADG, Exp. 1

No Difference (P > 0.10)



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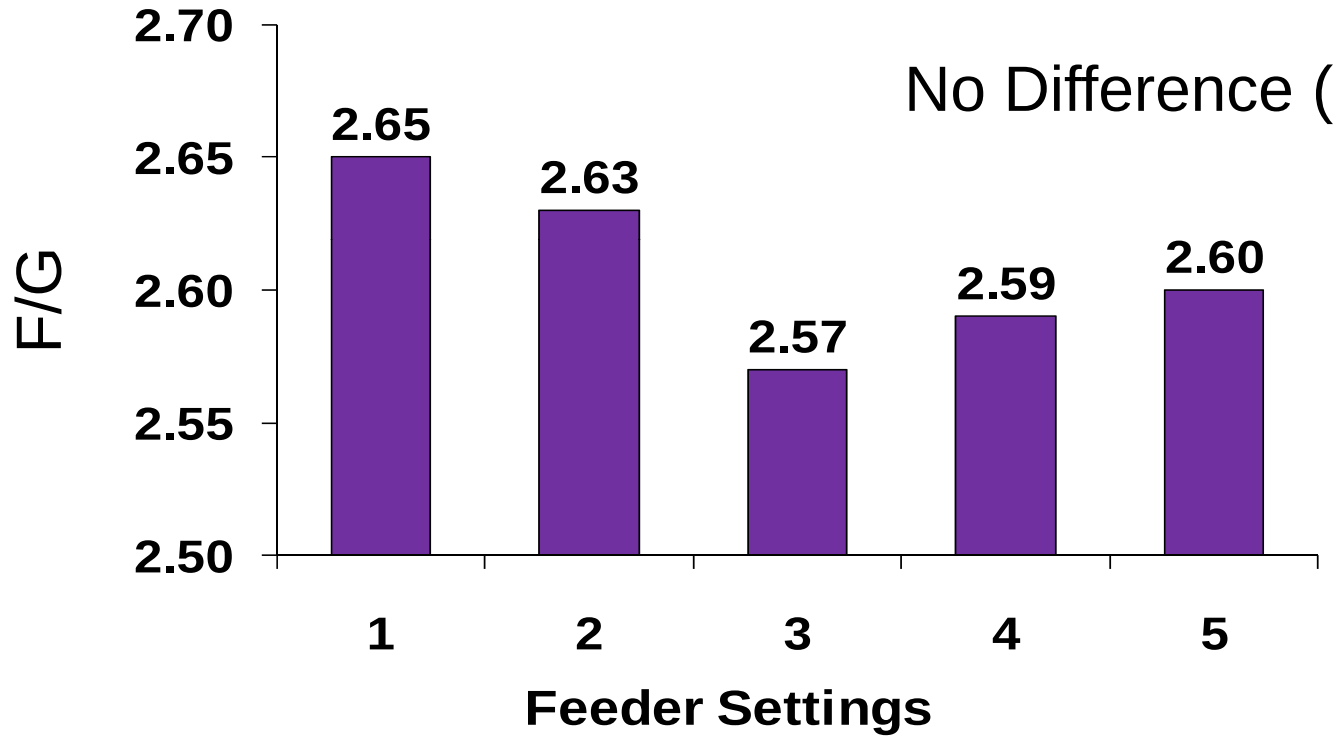
Influence of feeder setting on feed efficiency, Exp. 1



No Difference (P > 0.10)

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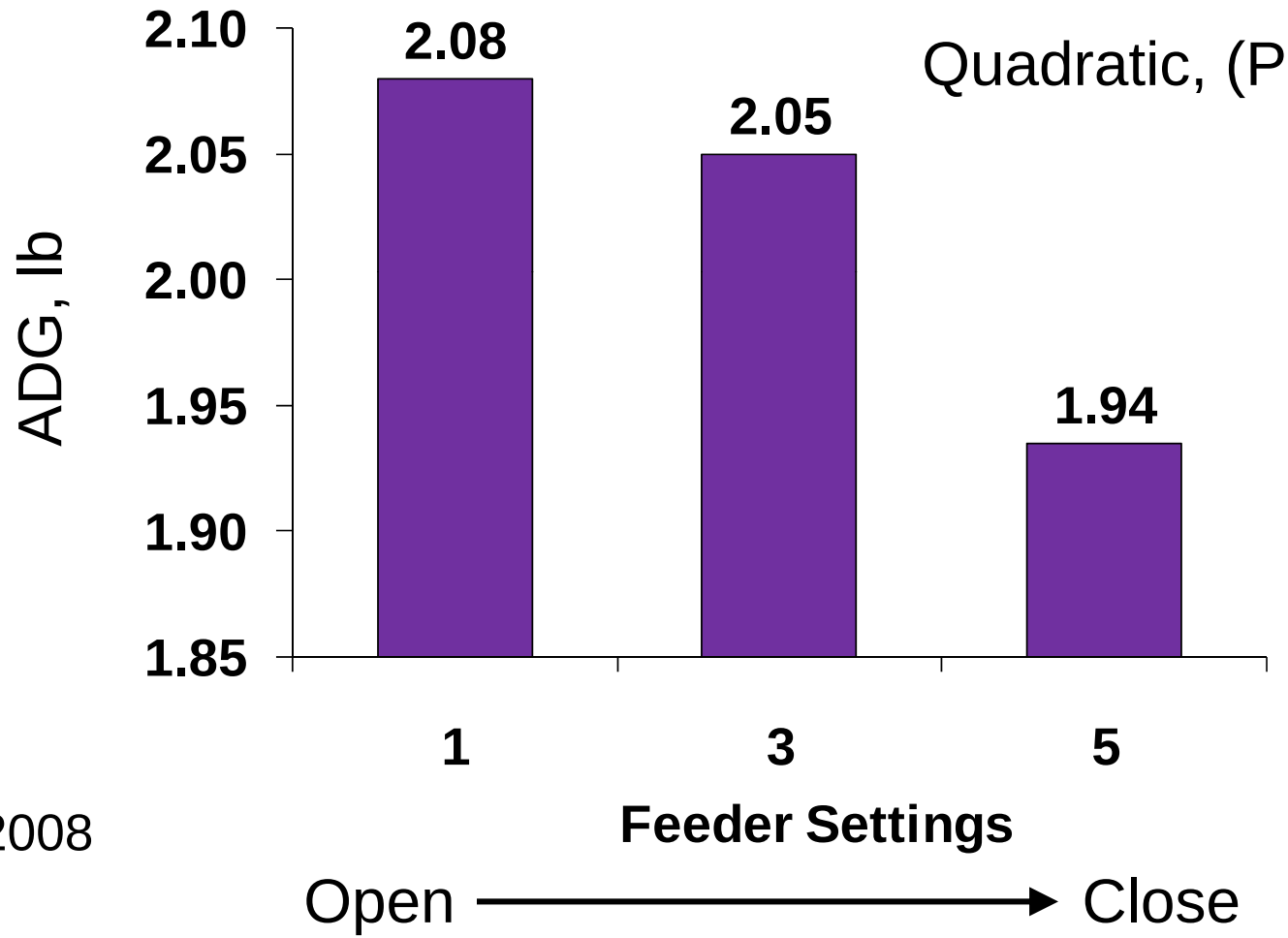
Influence of feeder setting on ADG, Exp. 2



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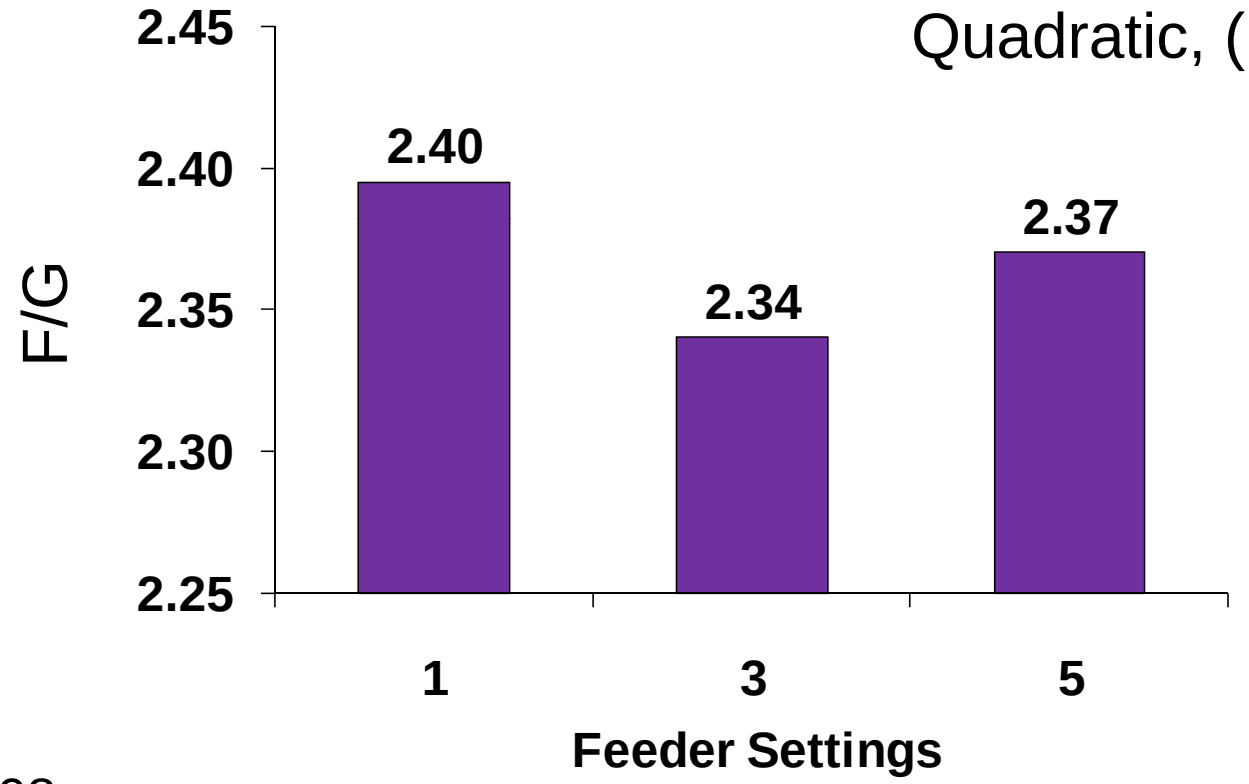
Influence of feeder setting on feed efficiency, Exp. 2



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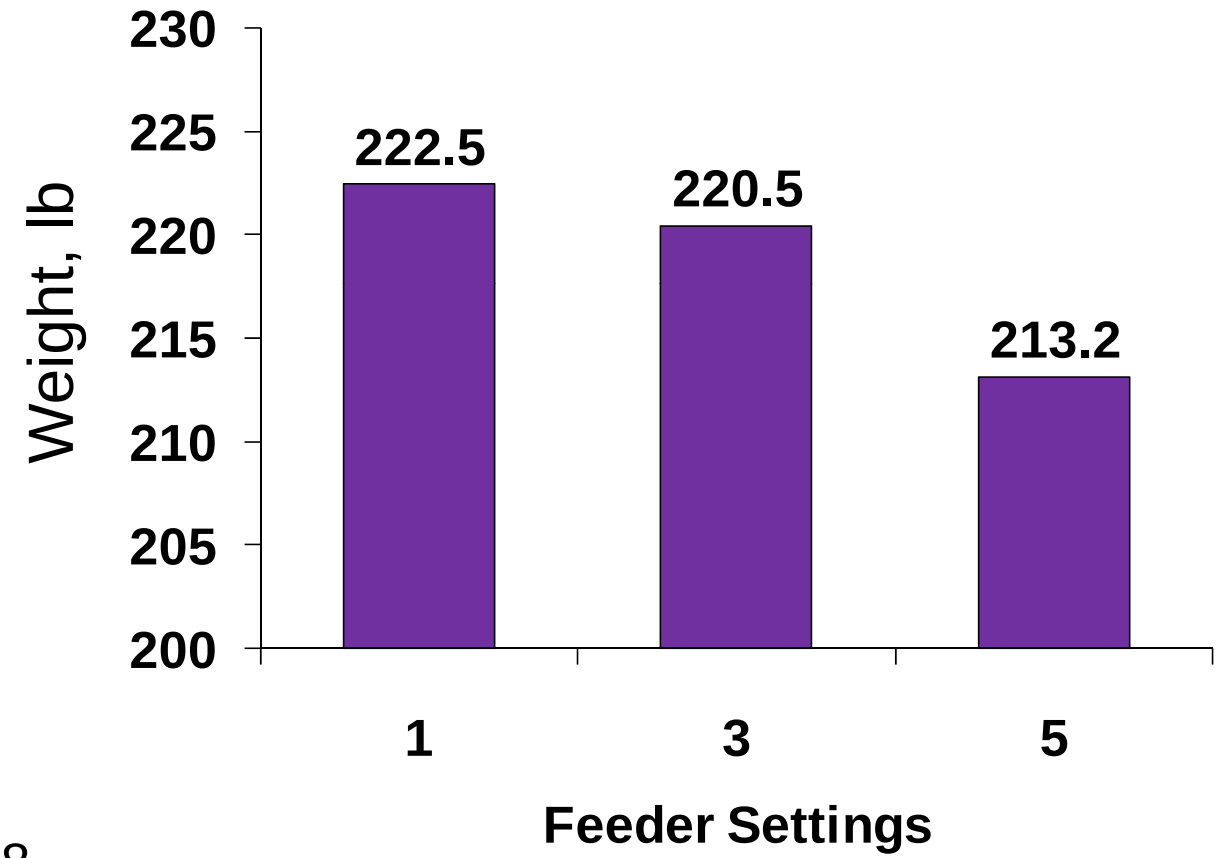
Influence of feeder setting on off test weight, Exp. 2



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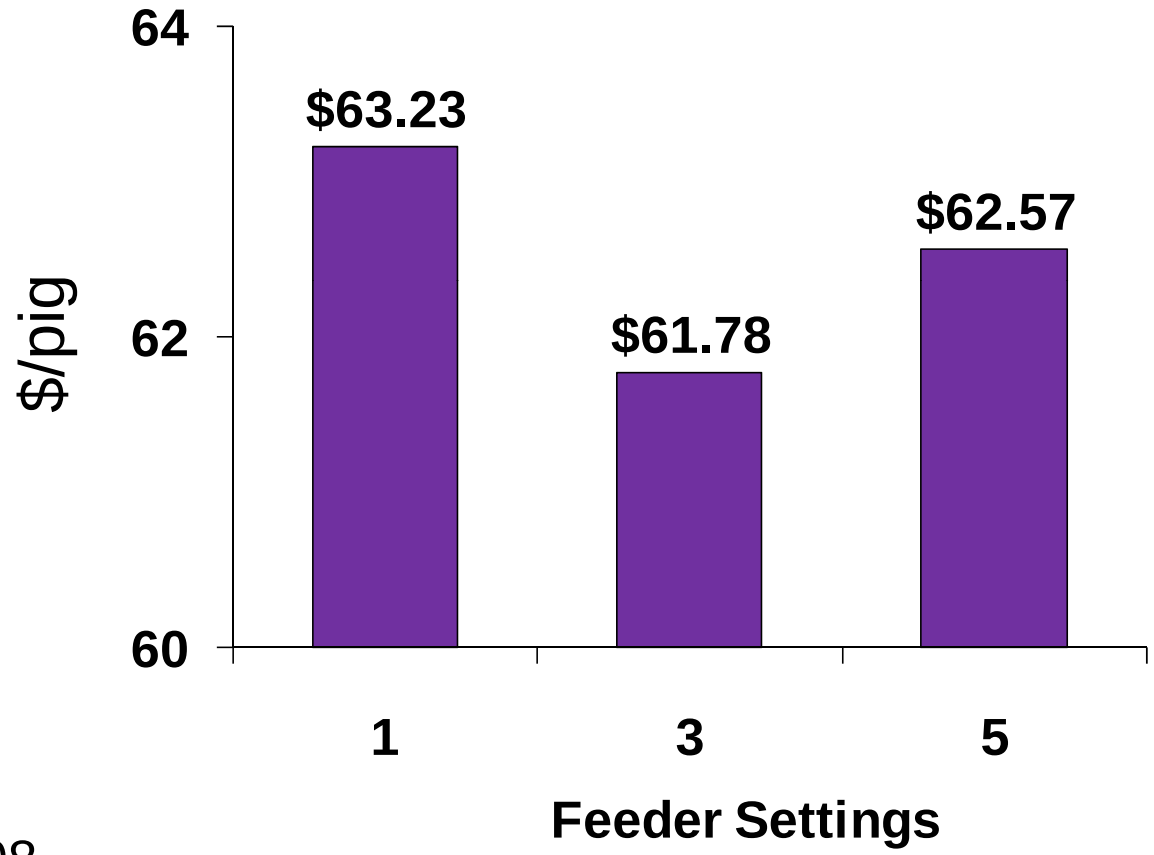
Influence of feeder setting on feed cost, Exp. 2

Assuming 220 lb of gain and feed at $.12/lb



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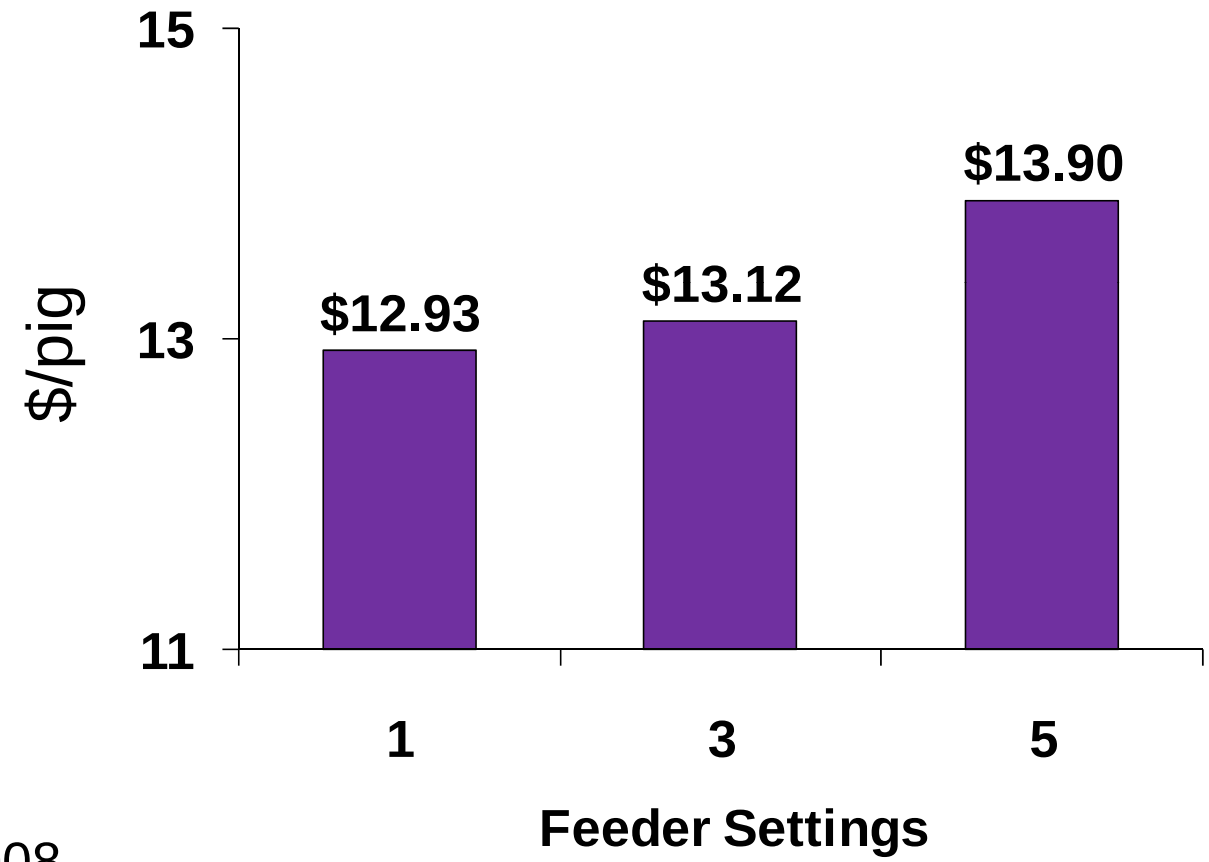
Influence of feeder setting on facility cost, Exp. 2

Assuming 220 lb of gain, $.11/day and 90% Barn utilization



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Influence of feeder setting on feed and facility cost, Exp. 2

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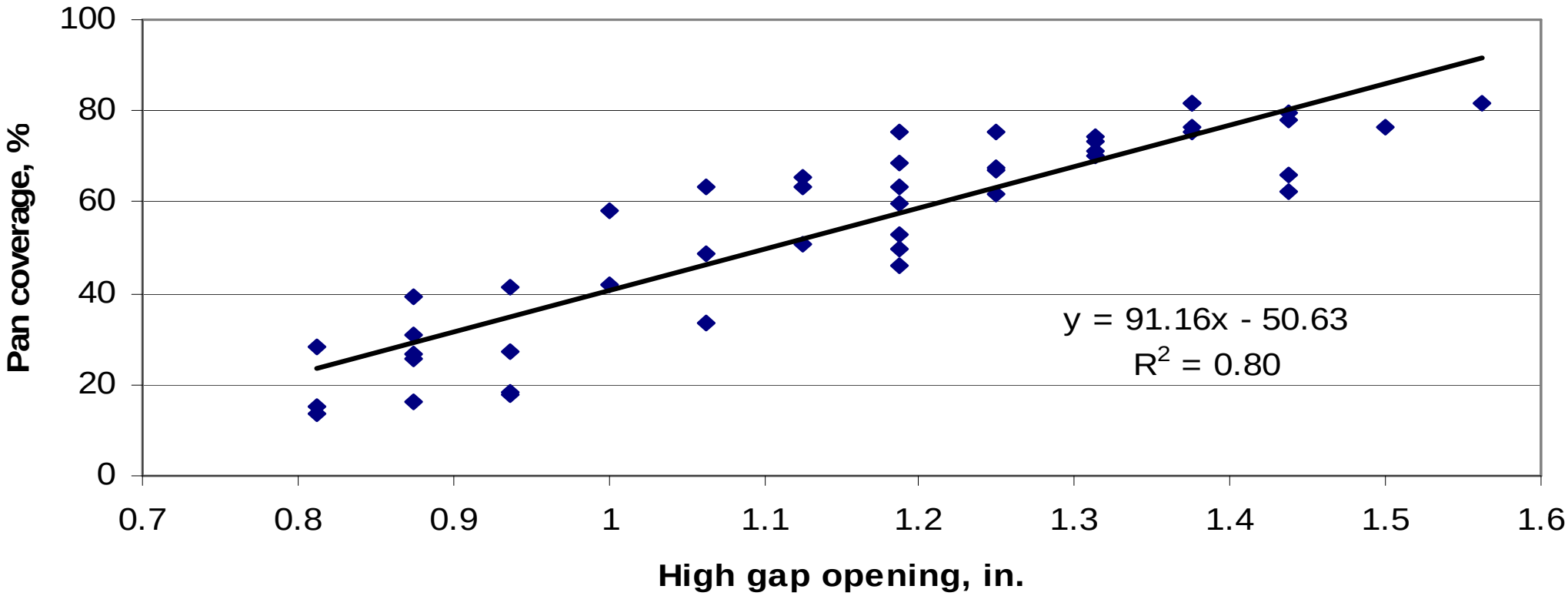
Percentage of pan covered with feed at different high gap opening measurements



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Feeder adjustment conclusions

- On the basis of this data, our recommendation is for feeders to be adjusted to allow feed to cover slightly more than half of the feed pan without feed accumulating in the corners.

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Effects of feeder type on finishing pig growth

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Bergstrom et al. 2008

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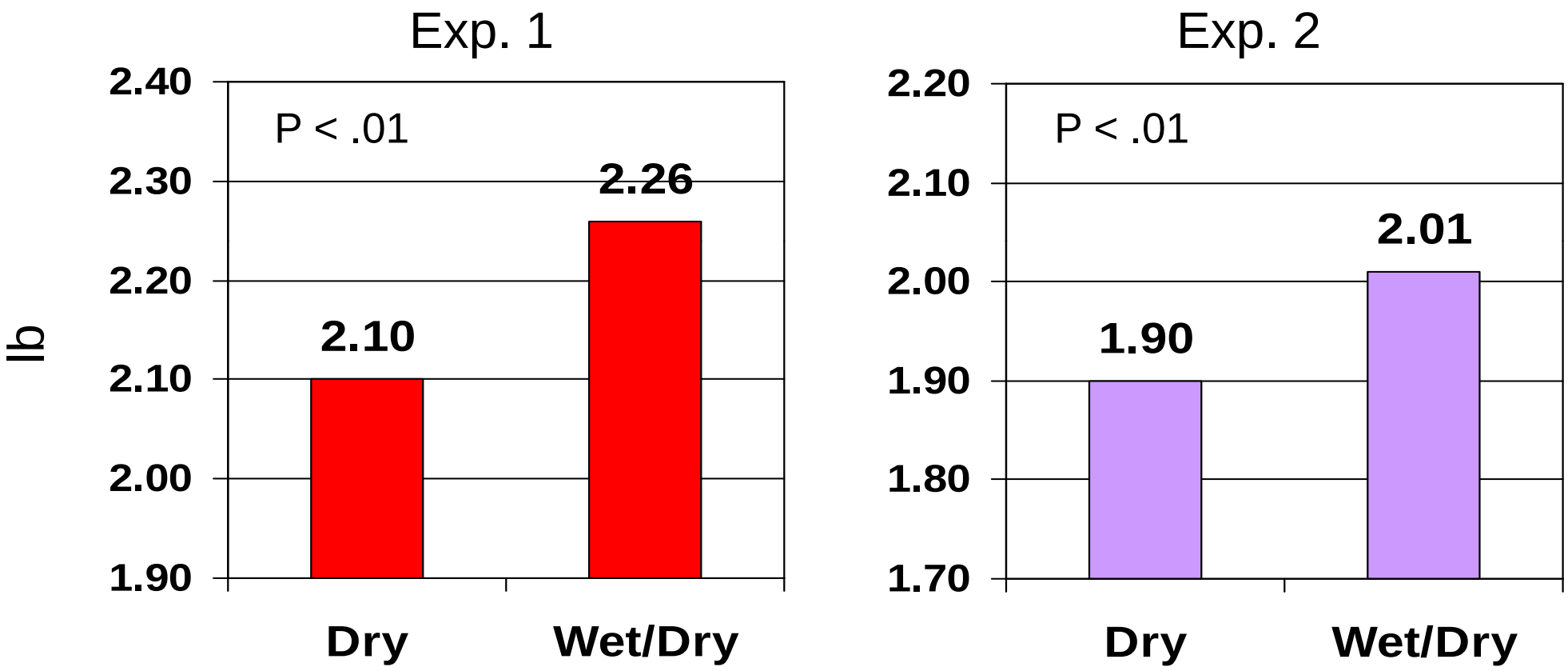
Effects of feeder type on ADG



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Bergstrom et al. 2008

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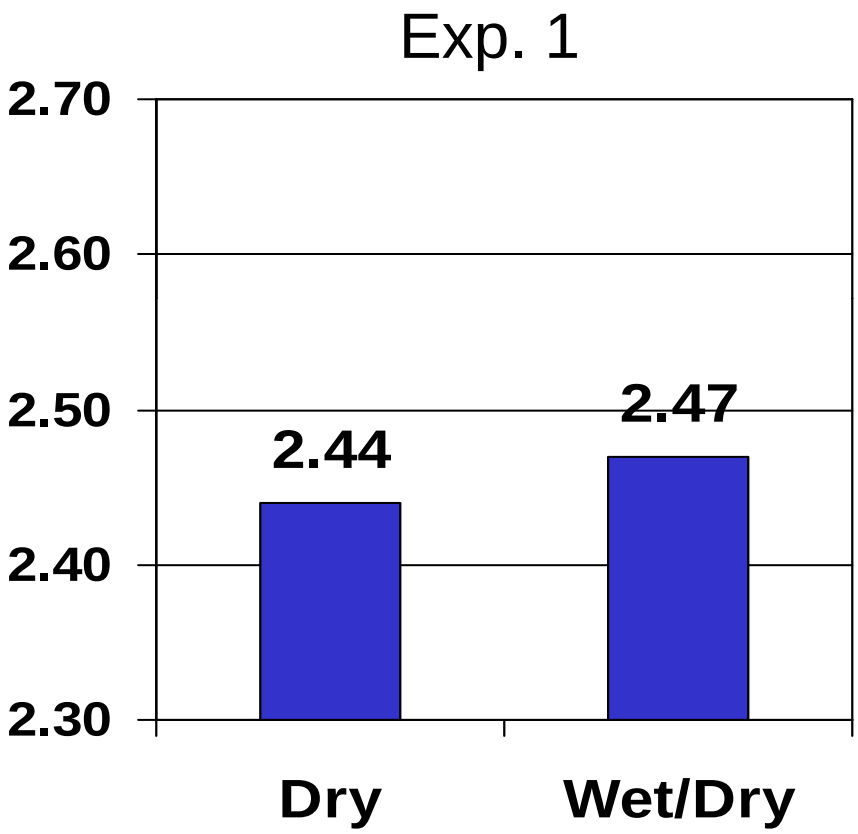
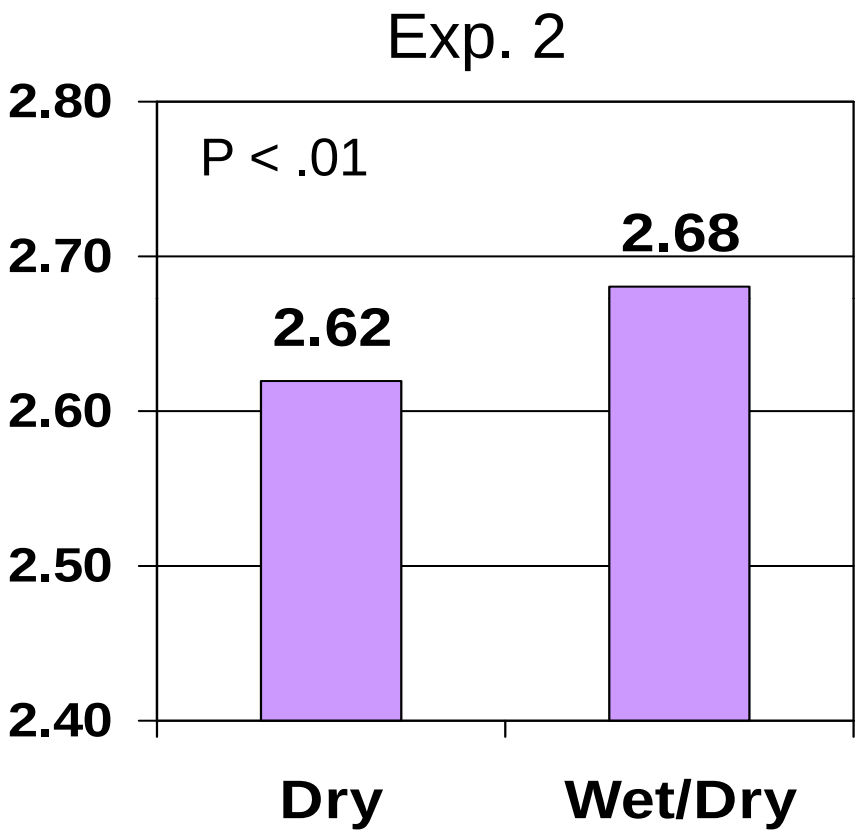
Effects of feeder type on F/G





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Bergstrom et al. 2008

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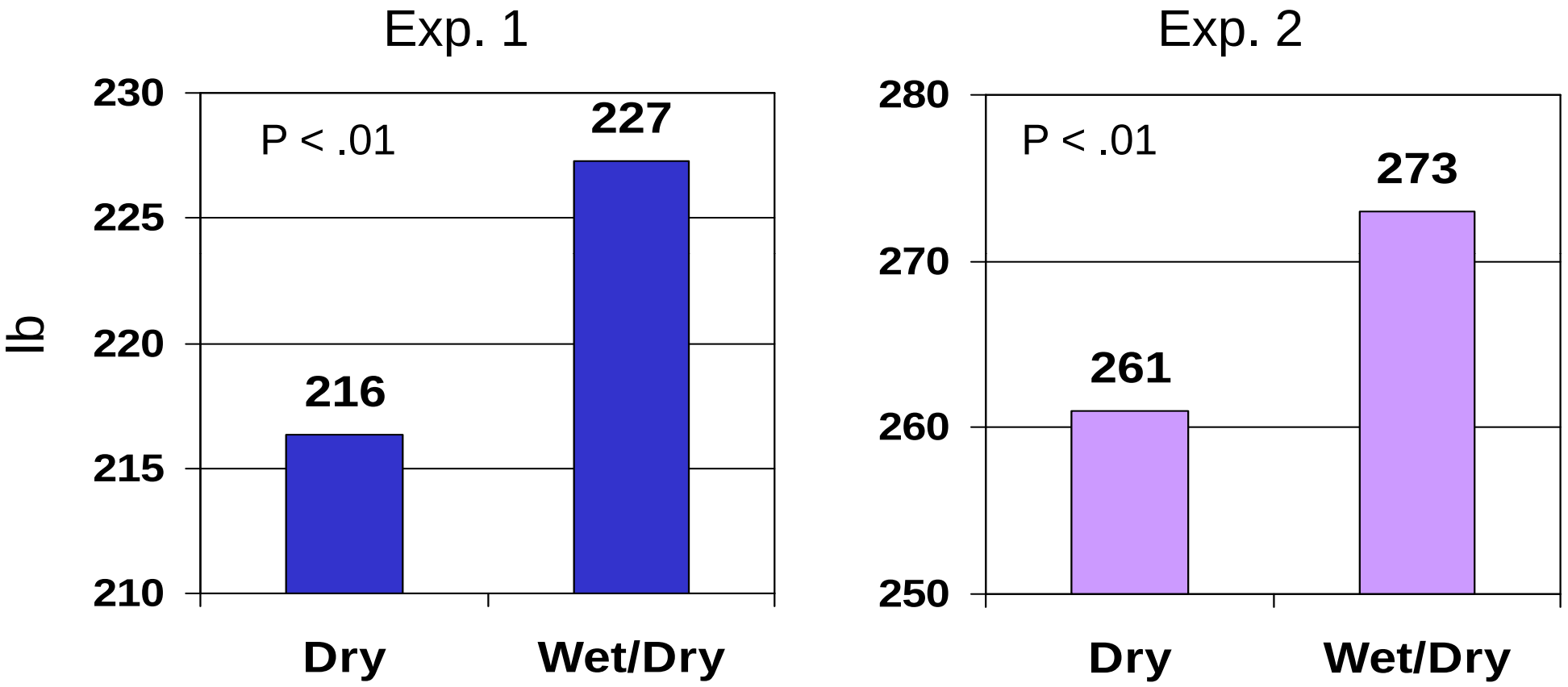
Effects of feeder type on final weight



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Bergstrom et al. 2008

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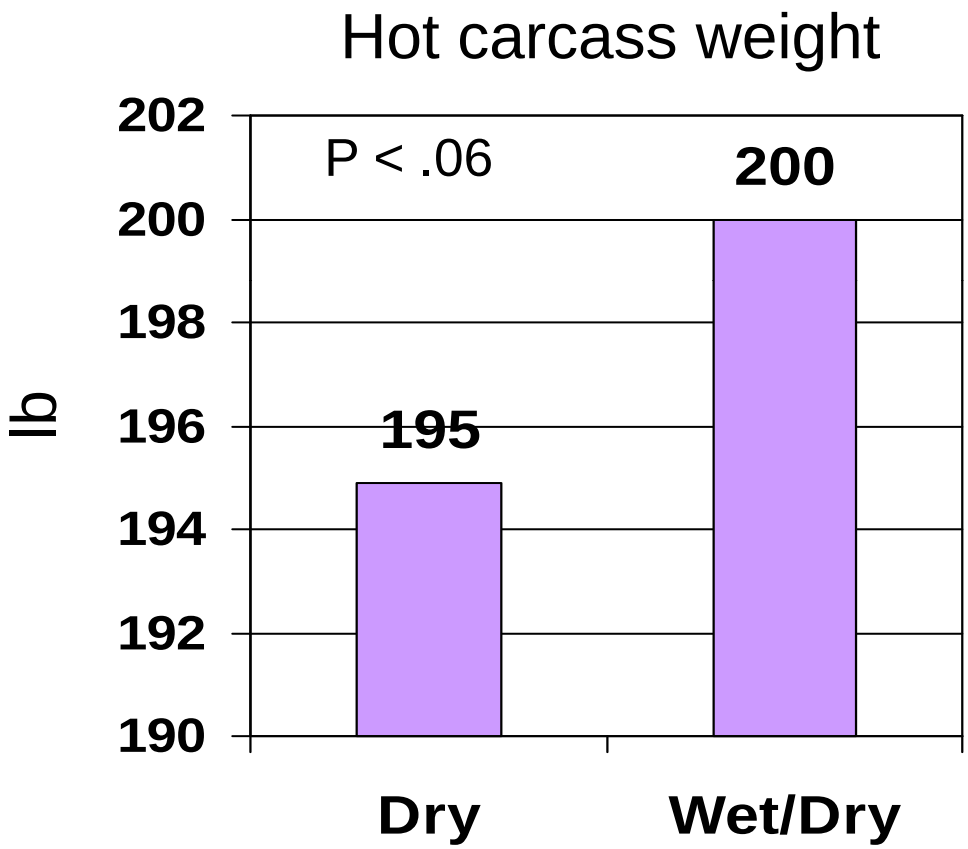
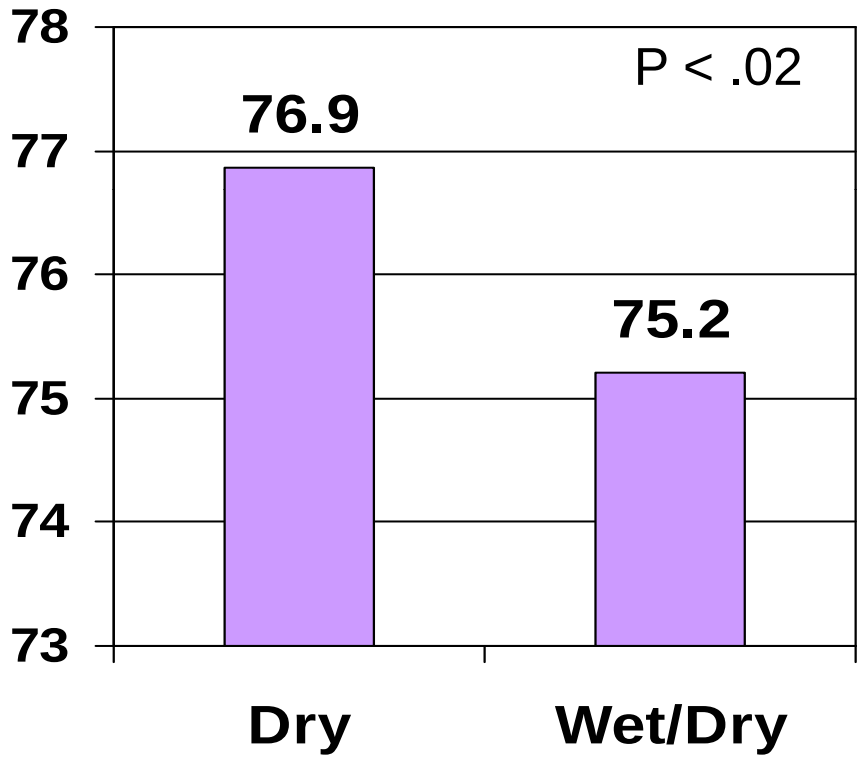
Effects of feeder type on carcass traits - Exp. 2





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Bergstrom et al. 2008

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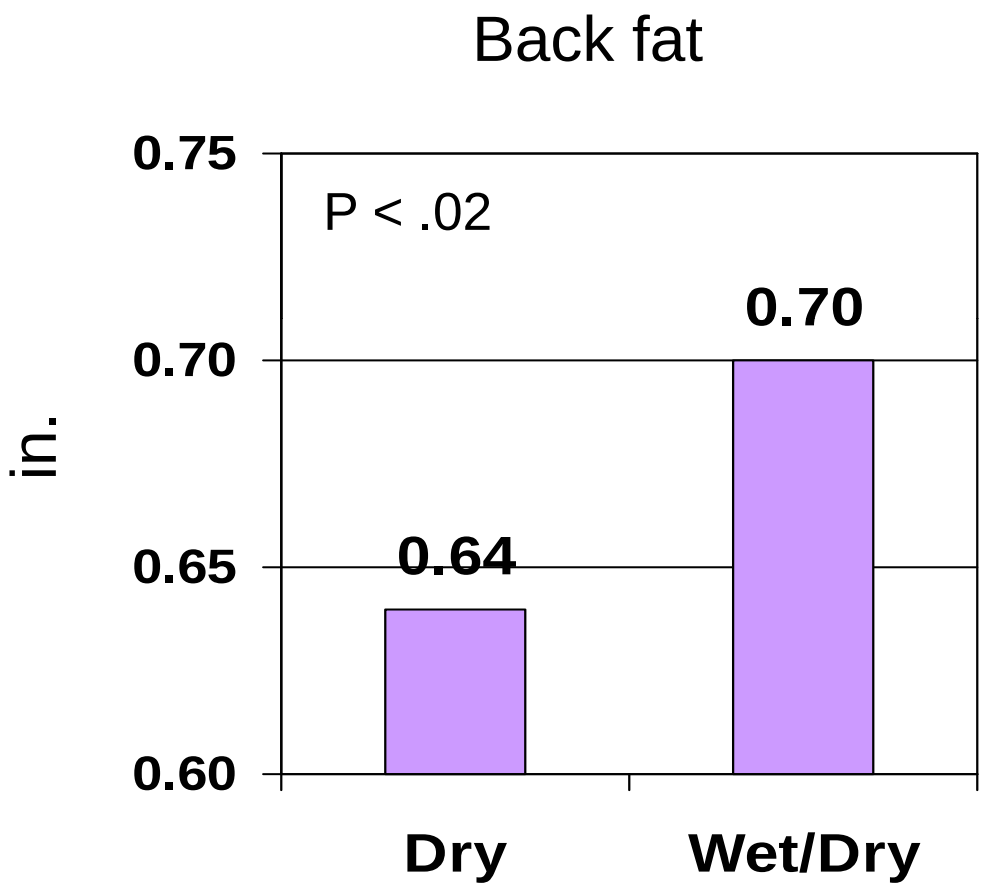
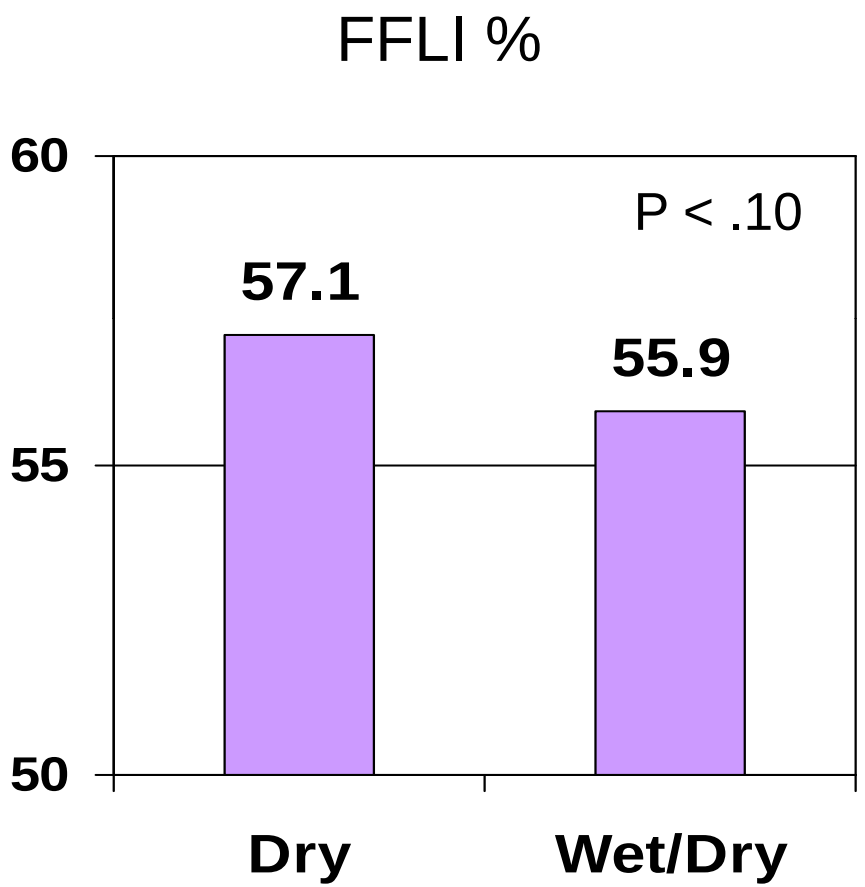
Effects of feeder type on carcass traits - Exp. 2





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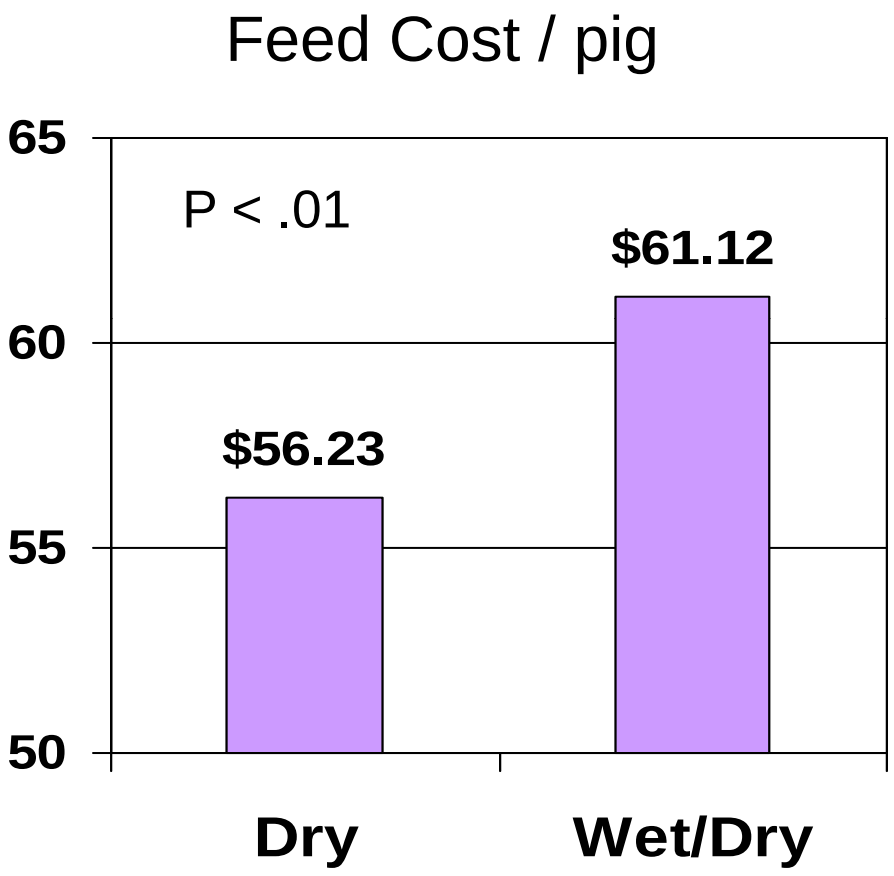
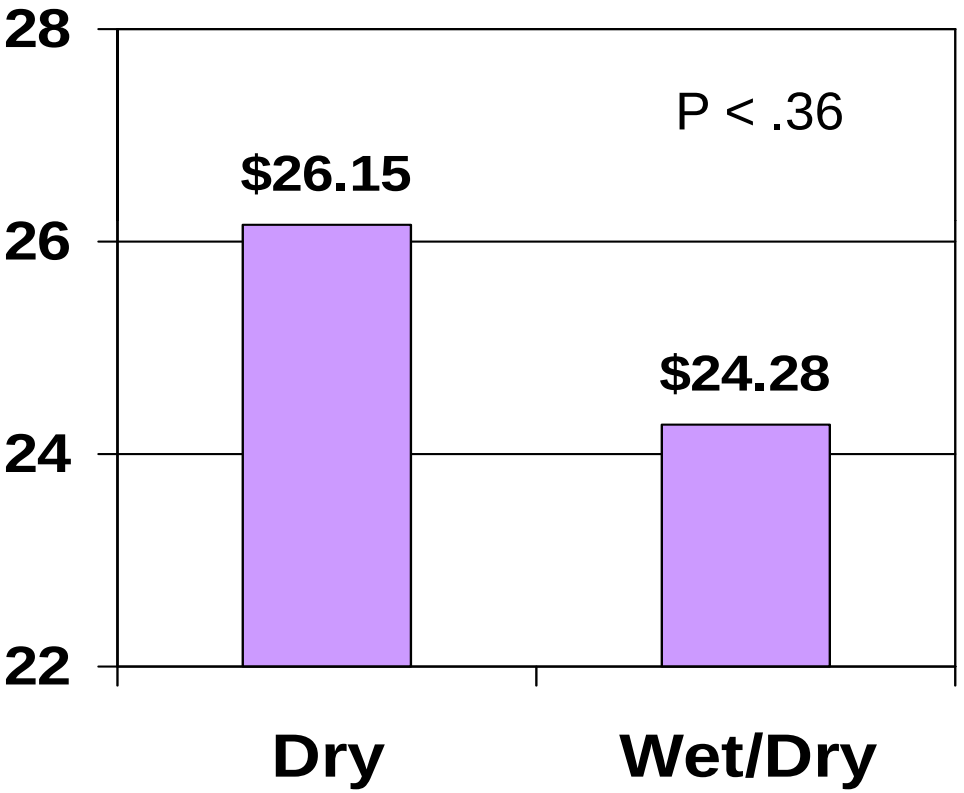
Effects of feeder type on carcass traits - Exp. 2





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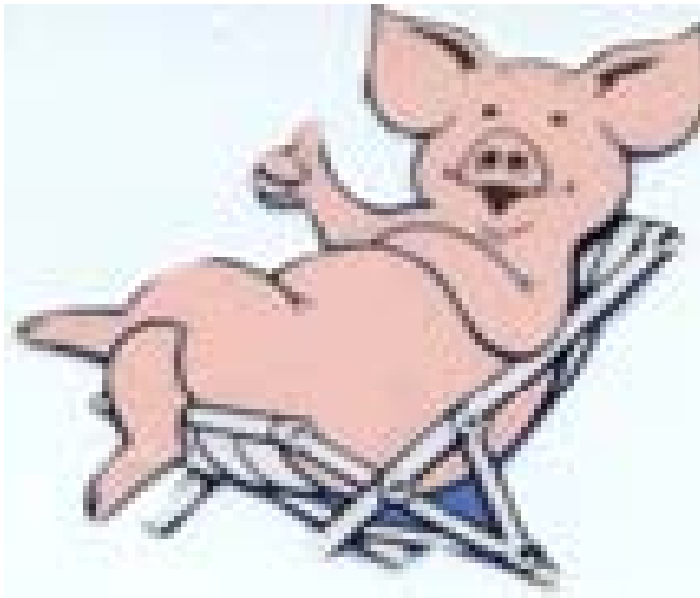
Bergstrom et al. 2008

NHF New Horizon Farms LLC

Take Home Message

- Feeder adjustment
  - 50% clear and no build-up at corners
- Feeder Type
  - Wet/dry = Greater ADG and ADFI
  - Dry = Improved F/G and carcass
  - More research needed



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Lysine studies

- Experiments with 85 to 130 lb and 185 to 245 lb gilts were conducted last fall, right before swine day.

- Experiment with 120 to 180 lb gilts was conducted this spring after the PRRS outbreak.

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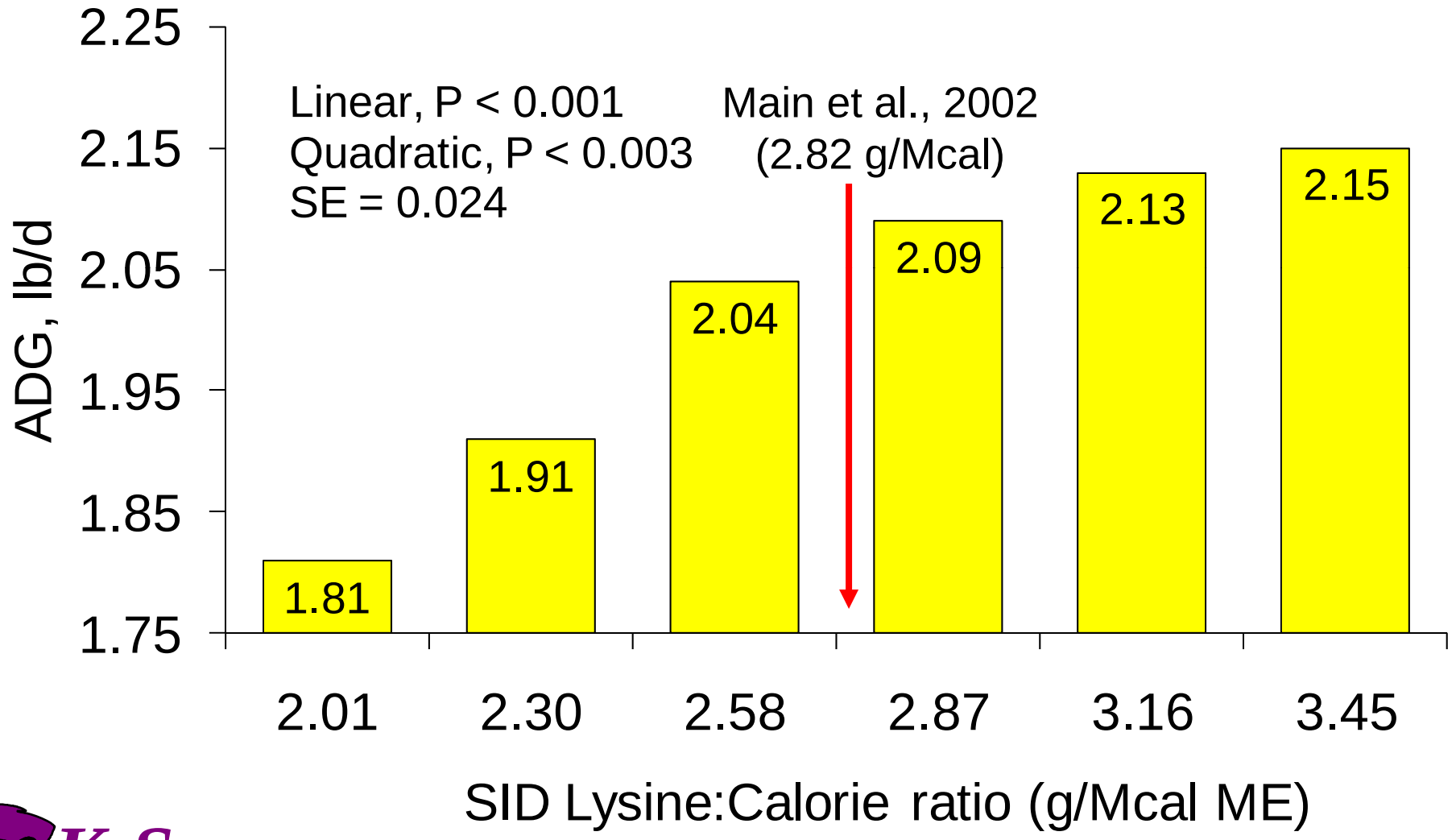
Influence of lysine level on performance of PIC 337 x 1050 gilts (85 to 140 lb)



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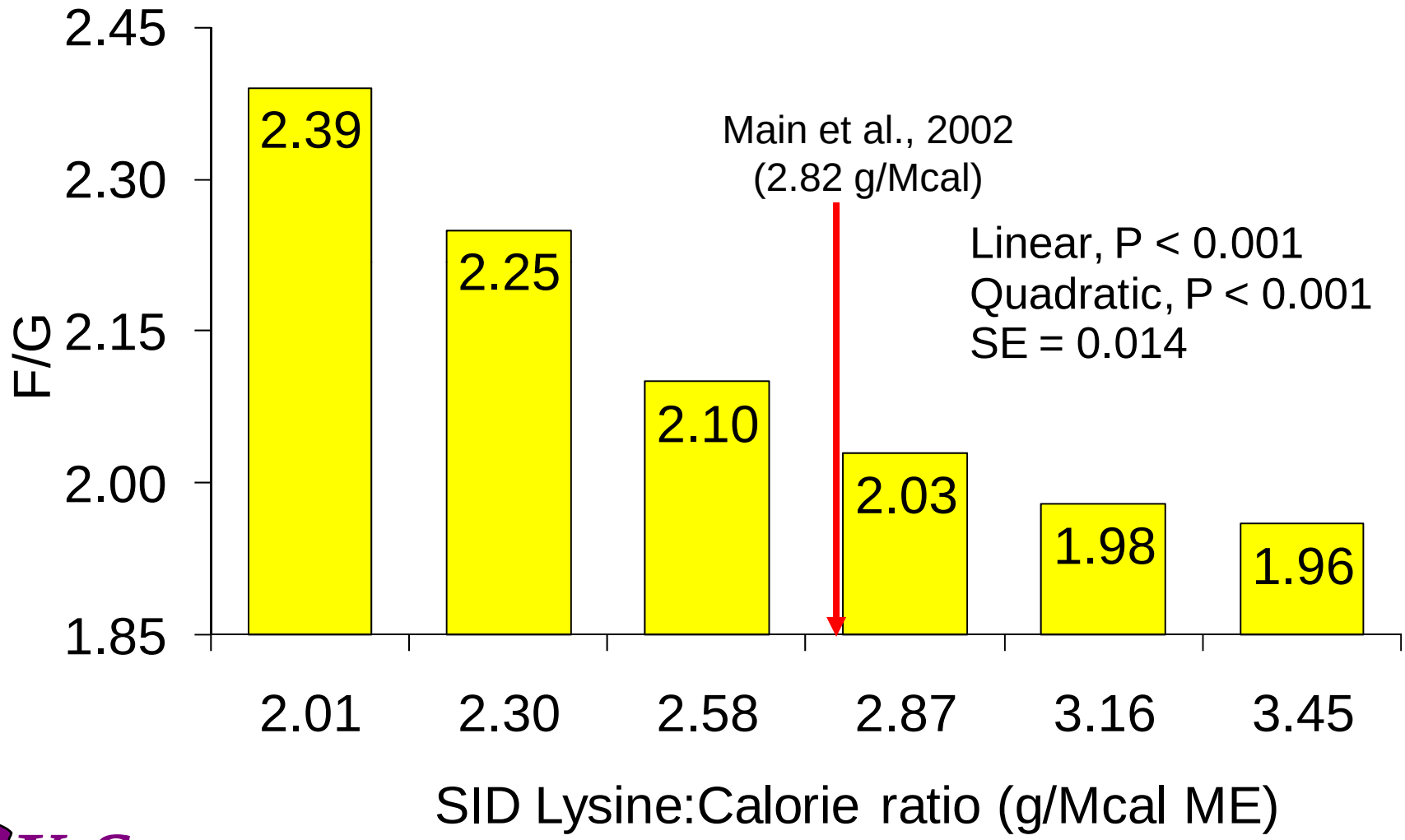
Shelton et al., 2008

Influence of lysine level on performance of PIC 337 x 1050 gilts (85 to 140 lb)



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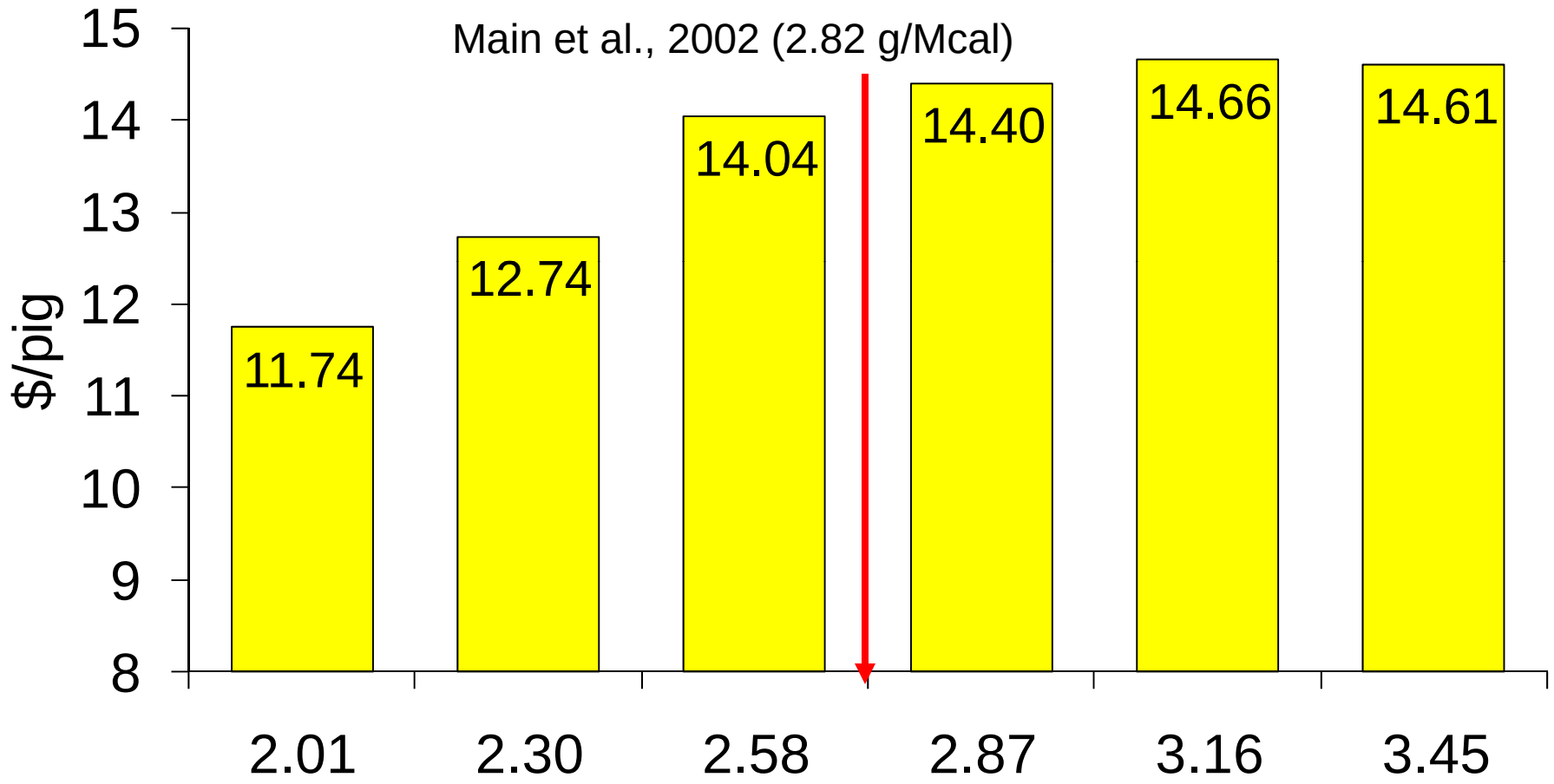
Shelton et al., 2008

Influence of lysine level on margin over feed cost for PIC 337 x 1050 gilts (85 to 140 lb)



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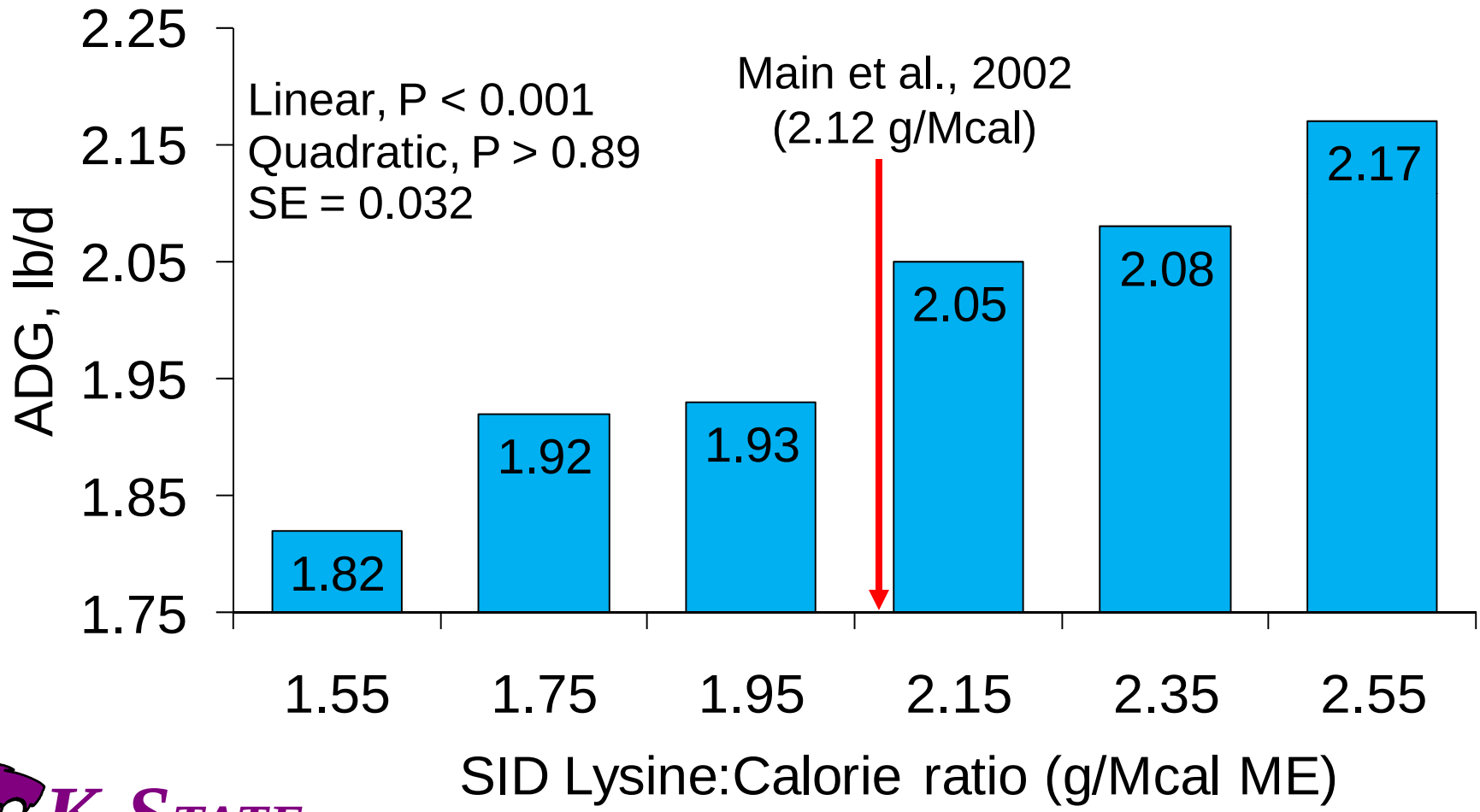
Shelton et al., 2008

Influence of lysine level on performance of PIC 337 x 1050 gilts (185 to 245 lb)



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Shelton et al., 2008

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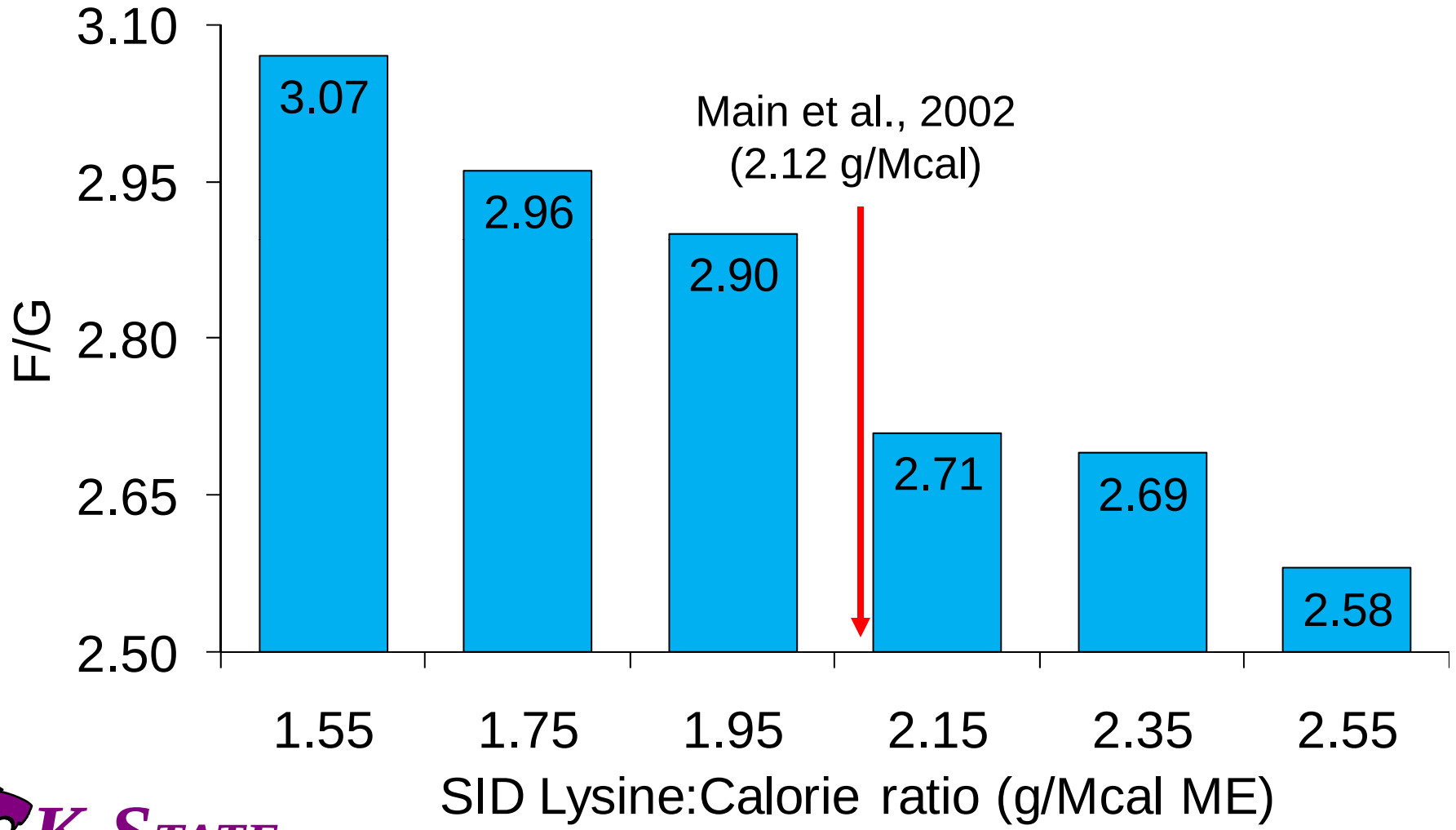

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Shelton et al., 2008

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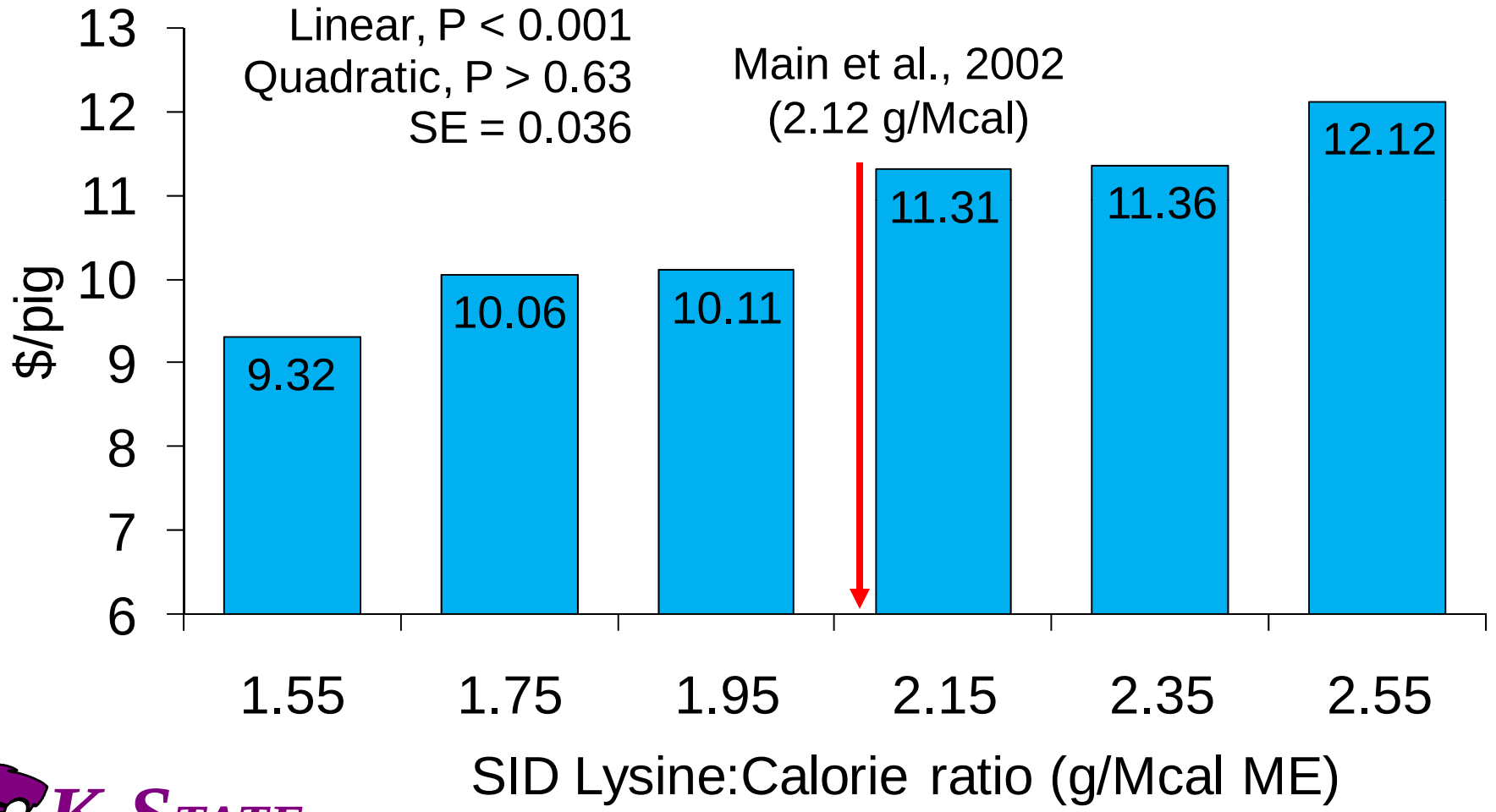

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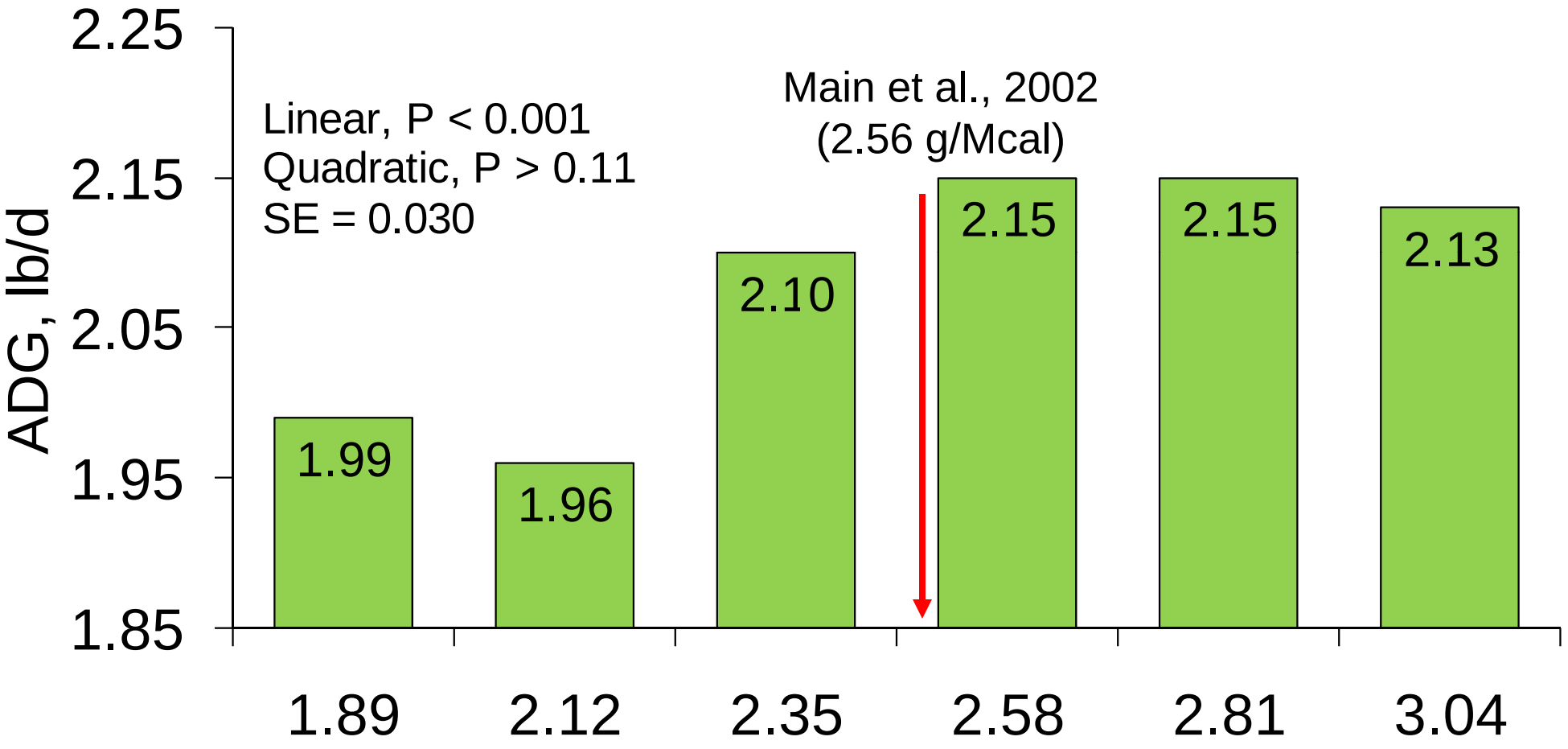
Shelton et al., 2008

Influence of lysine level on performance of PIC 337 x 1050 gilts (120 to 180 lb)



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Shelton et al., 2008

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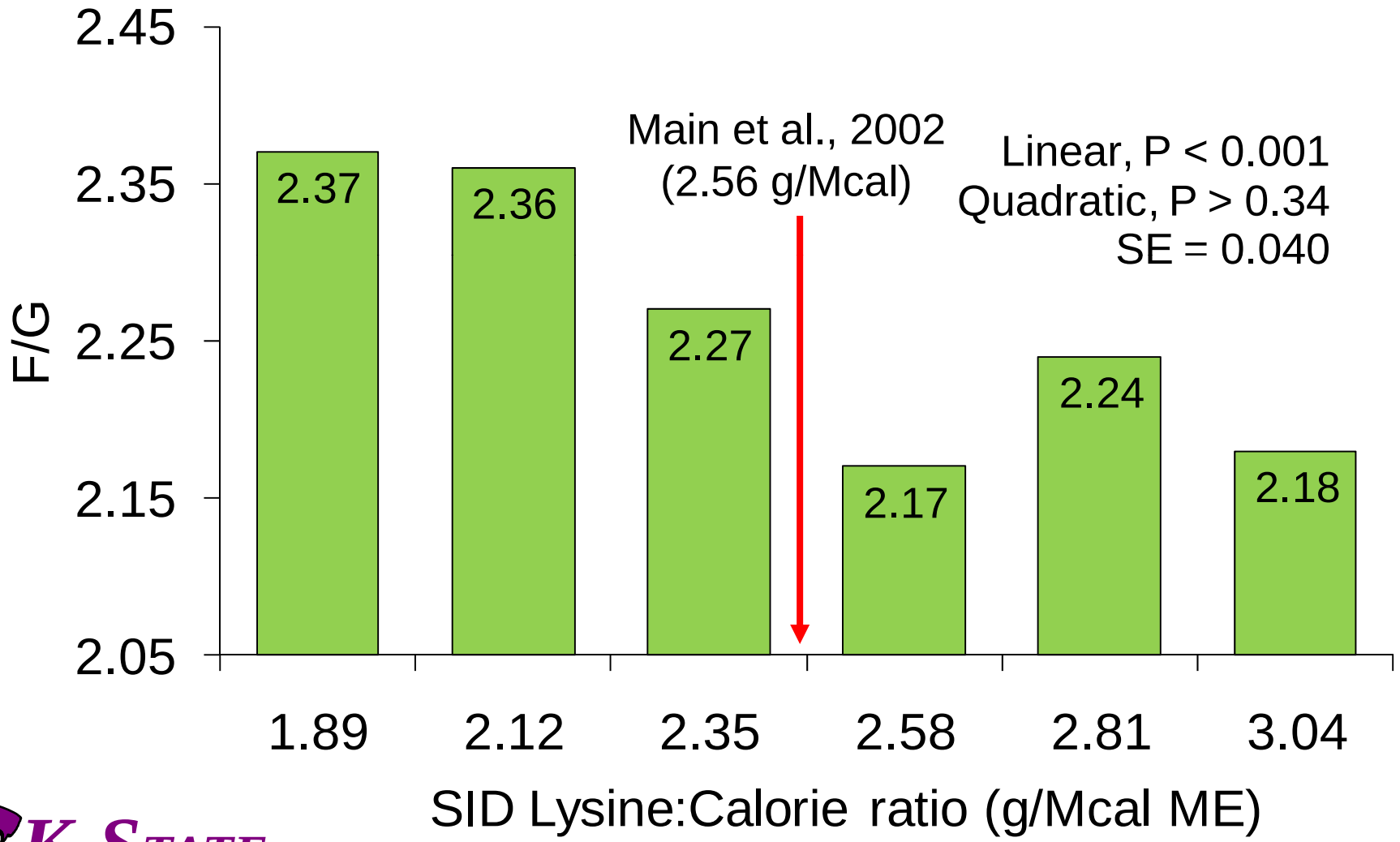

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Shelton et al., 2008

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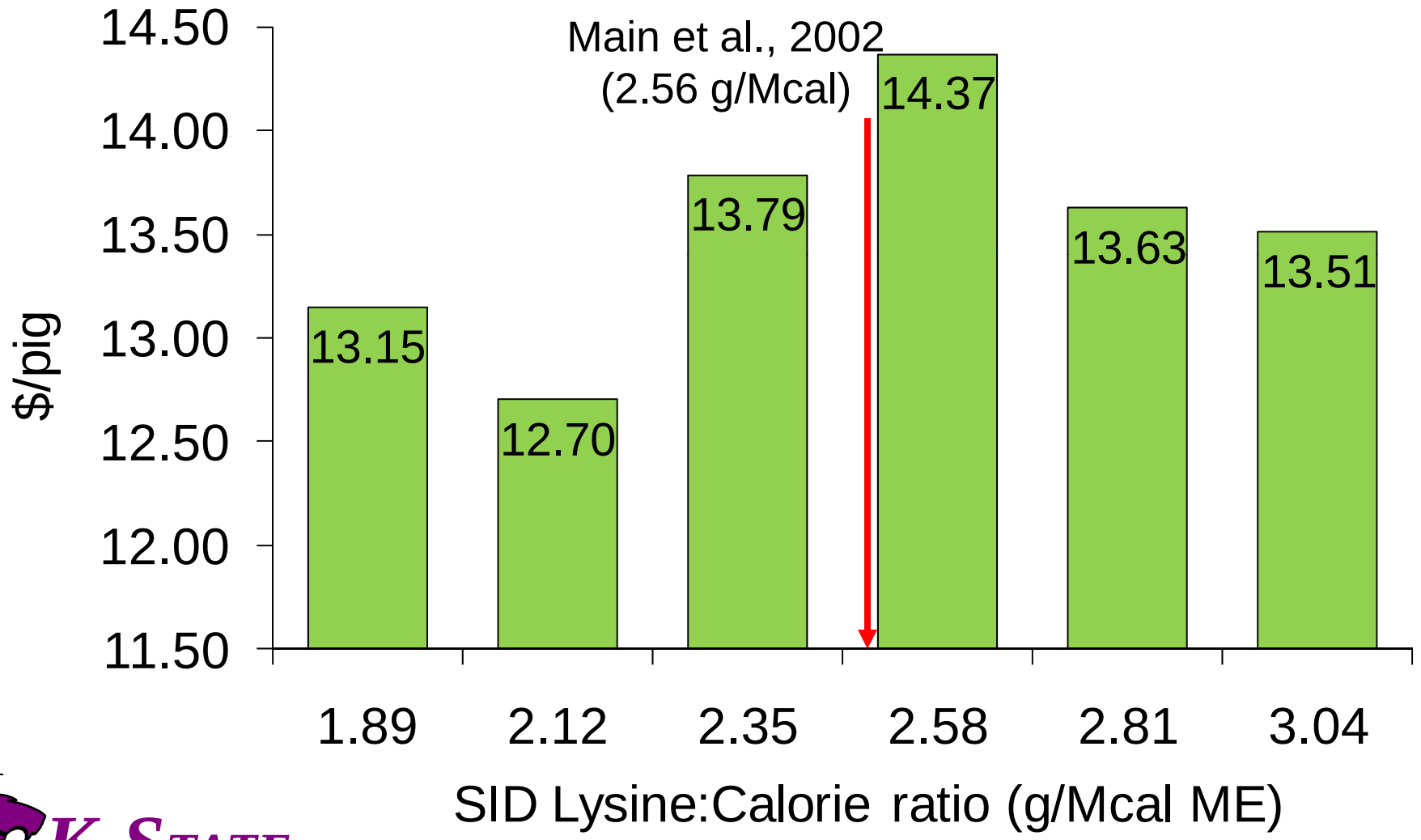

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Shelton et al., 2008

Lysine Requirement x PCV2 Vaccinated or Unvaccinated Study Underway

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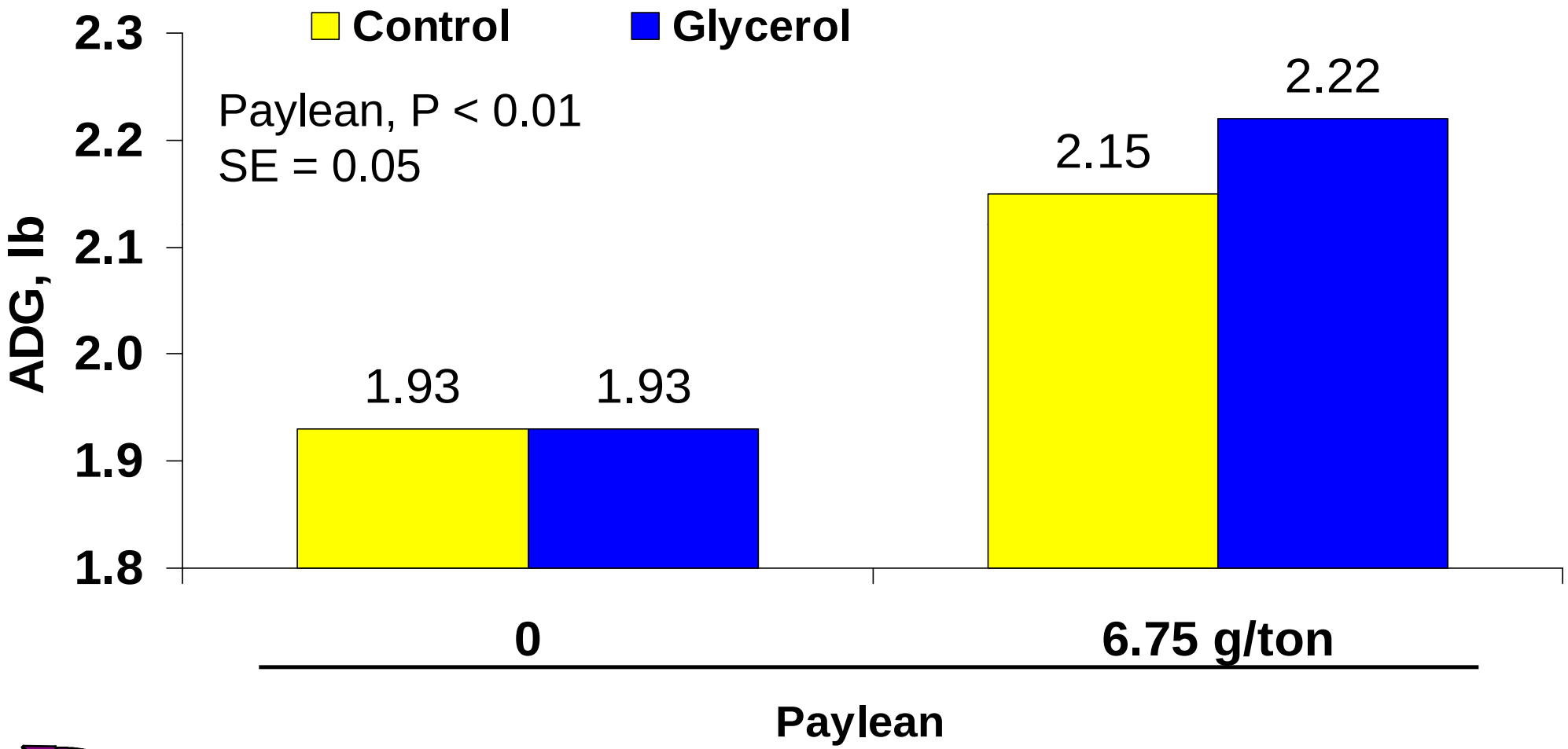
Effects of glycerol and Paylean on growth performance of finishing pigs (28 days)



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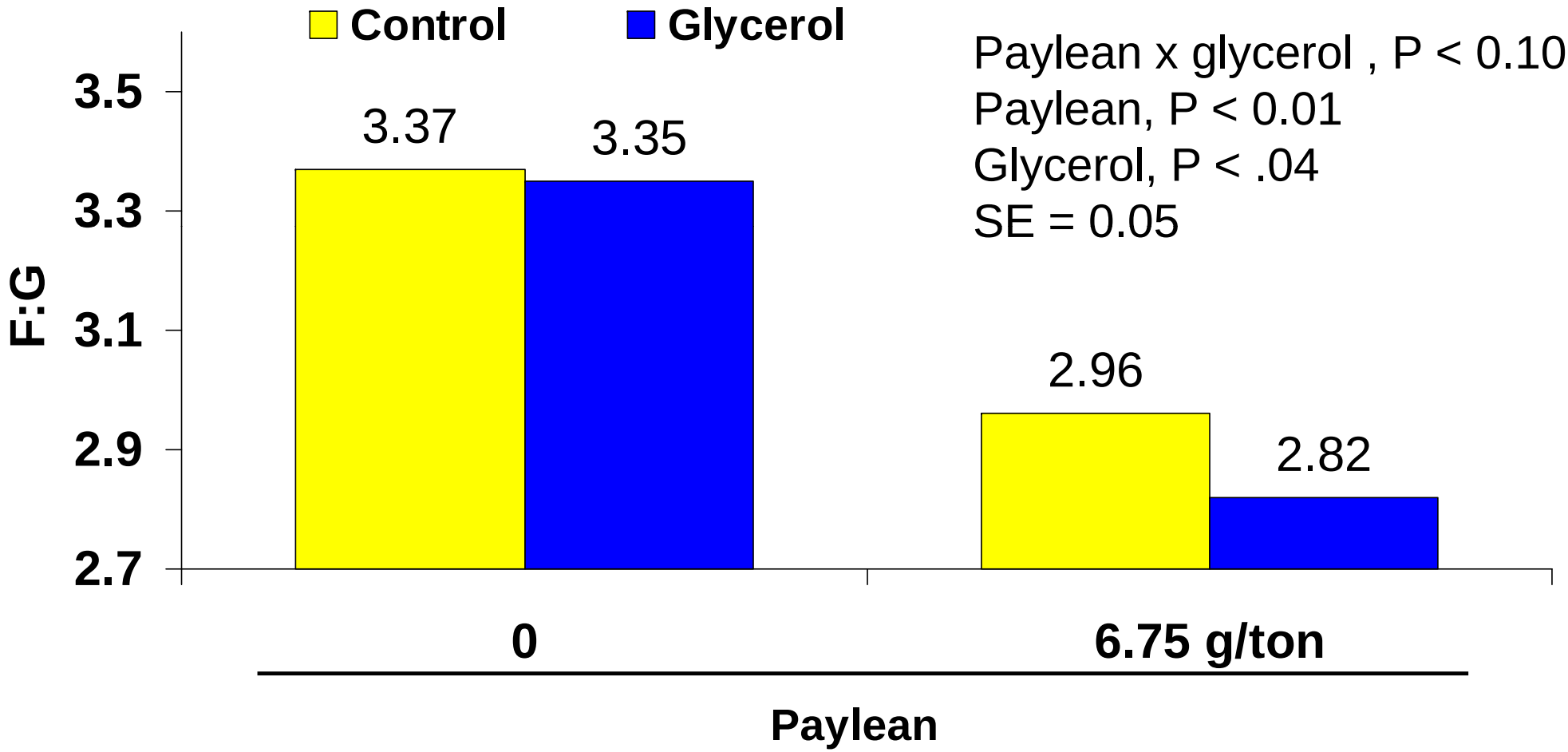
Duttlinger et al., 2008

Effects of glycerol and Paylean on growth performance of finishing pigs (28 days)



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Duttlinger et al., 2008

Swine manure value

- Finishing pig with 2.90 F:G will excrete:
  - 9.1 lb N ($0.85 / lb value)
  - 3.6 lb P_2O_5 ($1.09 / lb value)
  - 119 total gallons

- The value of the manure accounting for nutrient loss (85% retained N) and application cost of $0.01/gallon is a manure value per pig = ~$7.50

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Dhuyvetter et al., 2008

Swine manure value

- Nursery pig with 1.70 F:G will excrete:
  - 0.96 lb N ($0.85 / lb value)
  - 0.64 lb P_2O_5 ($1.09 / lb value)
  - 20 total gallons

- The value of the manure accounting for nutrient loss (85% retained N) and application cost of $0.01/gallon is a manure value per pig = ~$1.00

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Dhuyvetter et al., 2008

Determining the Value of Livestock Manure: Based on the Cost of Commercial Nitrogen Fertilizer

Ver: KPA 1.08a

FROM: Your Manure Analysis:

MANURE ANALYSIS (from your report) -- liquid or solid				Liquid
Nutrient	mg/l	ppm	lbs/acre-in	lbs/ton
Total N	5090.0	5090.0	1152.9	0.0
Organic N	1930.0	1930.0	437.1	0.0
NH4-N	3084.0	3084.0	698.5	0.0
NO3-N	76.0	76.0	17.2	0.0
P2O5	1590.0	1590.0	360.1	0.0
		Manure Application Method:		Incorporated

Instructions:

Yellow Cells: Enter values from reports or price sheets

Light Blue Cells: Select from drop down list.

Manure values come from your manure analysis sheet.

Dry manure may be reported in %. If so, multiply % times 10,000

to get mg/kg (ppm)

Figuring Available N from manure analysis:

	Organic N x .33 Avail. 1st year			NH4-N x Availability			NO3-N
Liquid	437.15	0.33	144.26	698.5	0.75	523.89	17.2

	Available N				
	Organic N	NH4-N	NO3-N	Total N	
Liquid	144.26	523.89	17.21	685.37	(lbs/acre inch)
				25.38	(lbs/1000 gallons)*

Figuring P2O5 from manure the first year:

P2O5	13.34	(lbs/1000 gallons)*

April 9, 2008

April 10, 2008

April 13, 2008

May 9, 2008

August 13, 2008

August 15, 2008

September 22, 2008

October 15 , 2008

New KSU Swine Research Facility

A SPECIAL THANKS TO THE FOLLOWING DONORS TO THE KSU SWINE FINISHING BARN

- Kansas Pork Association
- Livestock and Meat Industry Council
- Lonza Inc.
- Eli Lilly and Company
- Frontier Farm Credit
- Henning Construction Co., Inc.
- Feedlogic Inc.
- PIC USA
- Ajinomoto Heartland LLC
- Henry's Limited
- Murphy Brown LLC
- Husky Hogs LLC
- Automated Production Systems
- Midwest Livestock Systems, Inc.
- Plymouth Industries
- Walters-Morgan Construction Inc.
- Energy Panel Structures, Inc.
- New Horizon Farms LLC
- Farmweld
- Land O'Lakes Foundation

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- Manuel De la Llata, Mankato, MN
- Joel DeRouchey, St. Mary's, KS
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- Rodger Main, Ames, IA
- Mike Tokach, Abilene, KS
- Terry Weeden, Esterville, IA
- Malachy Young, Wainwright, AB, Canada

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