THE LATEST UPDATES IN SWINE NUTRITION

Prairie Swine Center 2026 Producer Meetings

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- Research facilities Mb and Qc
- 45-50 trials/year
- 700 trials in the last 20 years

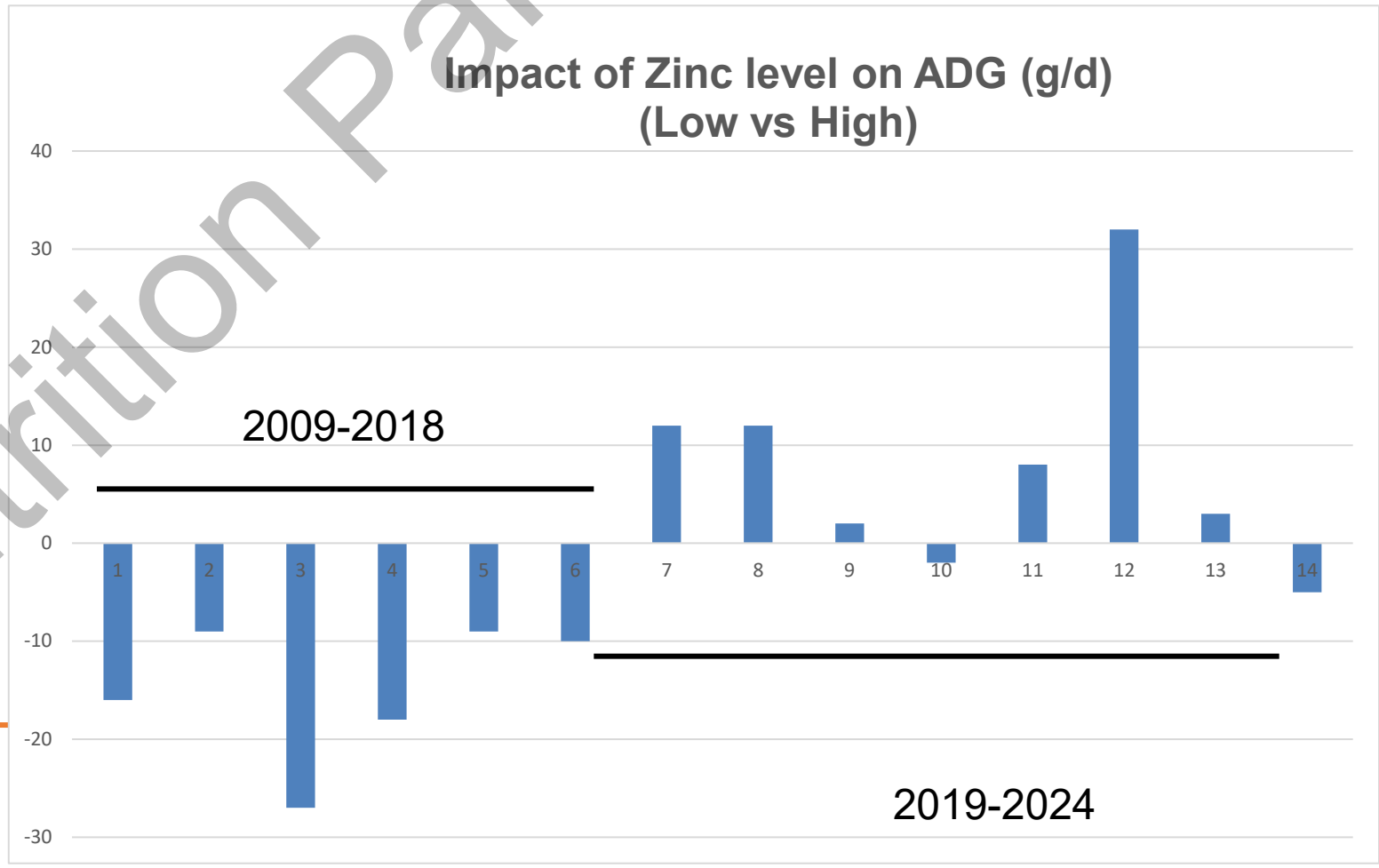
Nursery

Low Zinc in nursery

- June 2027 zinc oxide will not be allowed in feed at more than **300ppm total** (approx 250ppm added)
- Concerne of antibiotic resistance
- Currently most early phase nursery feed has **2500-3000 ppm (10X)**
- Used for enteric challenge (diarrhea post weaning)

A good start in nursery without high zinc oxide is possible?

- ABC (acid binding capacity)
- Low protein transition
- Feed acidification



What is ABC (acid binding capacity)

- Weaned piglets are not efficient in producing gastric hydrochloric acid (HCL) yet
- The little that they produce is neutralized in contact with highly buffering ingredients

Buffering ingredients (meq/kg):

- **Limestone: + 18 000**
- **Zinc oxide: + 18 000**
- Di-cal: + 1400 meq
- Soybean meal: + 440

Acidifying ingredients (meq/kg):

- Formic acid: -13 550
- Citric acid: -5600
- Ca Formate: + 2150 (32% Ca)

***Takeway**: The more the piglet can digest efficiently, the less substrats gets to the hind guts which can cause entiric deseases.*

Low crude protein (CP):

20% CP feed

- Synthetic amino acids (valine, Isoleucine)
- High quality protein (soy concentrates)

18,5% CP feed

Same growth
Less substrates reaching in hind guts

***Takeway**: Newly avalaible synthetic amino acids have help reduce the CP of the rations reducing substrats reaching hind guts*

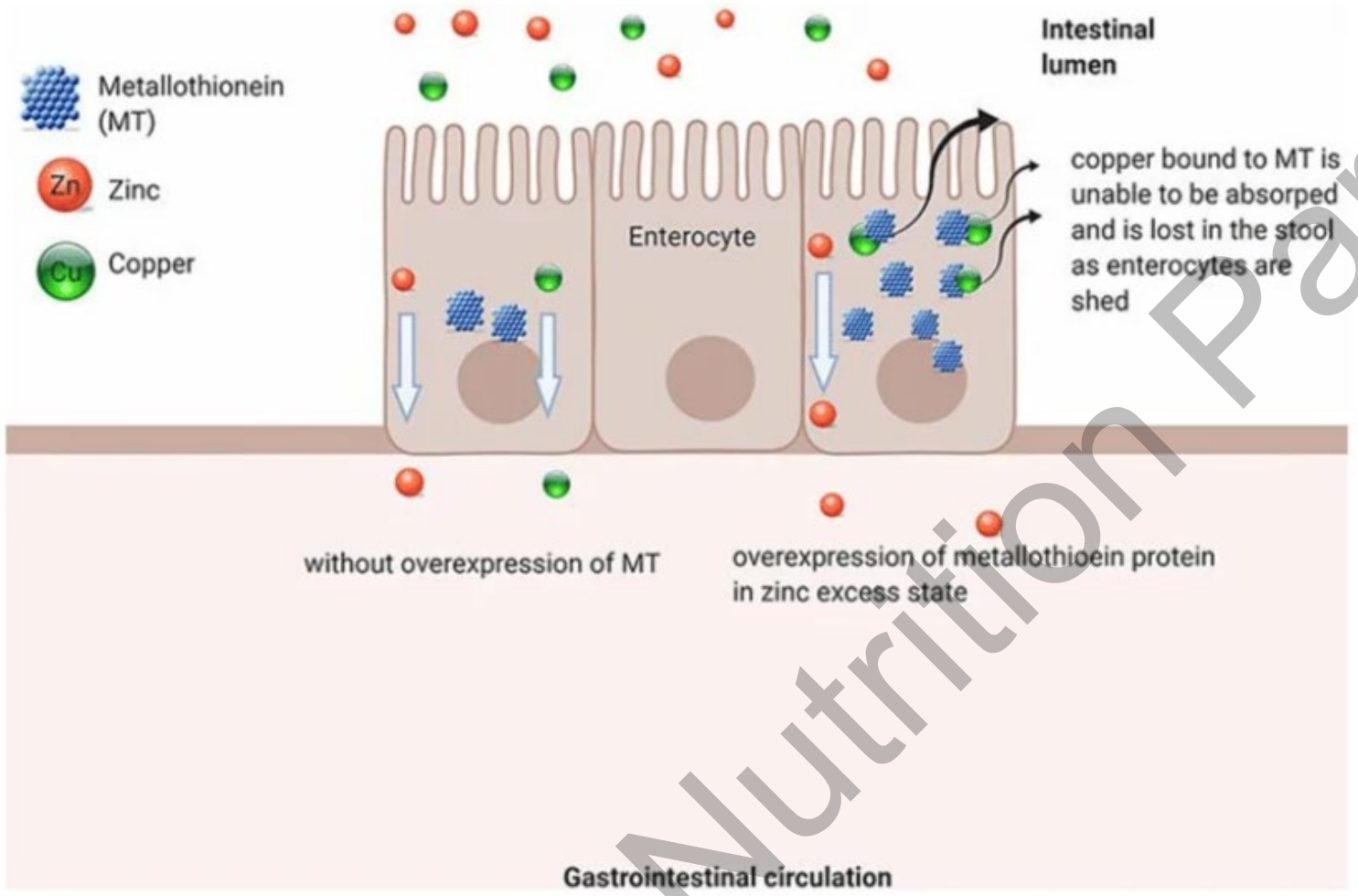
ZINC TRIAL A-199 (2025)

Group	A	B	C	P value
Creep	**2500**	**275**	**275**	
Starter 1	**2000**	**275**	**275**	
Start wgt (kg)	6.79	6.79	6.77	NS
End WGT(kg)	27.84	28.32	28.07	NS
ADG 0-21 jour (g/j)	303	304	312	NS
ADG total (g/j)	477	488	486	NS
FE 0-21 days (kg/kg)	1.21ab	1.22b	1.18a	<0.05
FE total (kg/kg)	1.42	1.40	1.40	NS
Mortality %	3.25	3.55	3.55	NS

21 days weaned piglets

***Takeway**: In our last trial on zinc, both treatments without zinc outperformed the feeds with zinc oxide*

Less Zinc is an opportunity for more copper digestion



CFIA now allows 225 ppm added
(2x more than previous laws)

Data from the literature
↑ Copper level = ↑ Growth

High copper in Nursery feed:

Groupe	A CuSO4/TBC	B CuSO4/TBC	C CuSO4	P value
Treatment description	**125 ppm (62.5/62.5)**	**225 pm (162.5/62.5)**	**225 ppm**	
Start WGT(kg)	**6.00**	**6.03**	6.00	
End WGT(kg)	**24.63**	**25.32**	25.16	0.12
ADG total (g/d)	**448a**	**466b**	**465b**	**0.04**
FE total (feed/gain)	**1.37a**	**1.37a**	**1.34b**	**0,01**
Deads/pulls (%)	**5.49a**	**2.75b**	**1.92b**	**0.02**
MOFC ($/pig)		**0.37 $**	**0.67 $**	

Anemic piglets 1 vs 2 doses of injectible iron

Group	1 dose	2 dose
	All	All
Hemoglobin		
# pigs	342	338
Birth weight kg	1,49	1,55
Wean weight kg	6,60	6,73
Hb g/L	**104,1**	**115,2**
% < 90 g/L	**14,0%**	**1,2%**
Hb g/L	80,9	61,8
% 90-110 g/L	53,8%	31,7%
Hb g/L	101,2	104,2
%>110 g/l	**32,2%**	**67,1%**
Hb g/L	118,9	121,4

+ 11.1 g Hg/L at weaning allows for 19 g/d

19 g/d x 150 days on average = **2,85 kg finisher end weight**

Effect 1 dose vs 2 doses of iron end finisher WGT

Group	1 dose (200mg)	2 doses (400mg total)
Birth WGT	1,58	1,67
Wean WGT	7,14	7,24
End WGT	135,8	137,42

→ +1,62KG

***Takeway**: Double dose of iron allows for improved finisher WGT. +2,9$/pig fixed time or 1,25$/pig fixed weight*

Using Enzymes to further reduce substrates

Enzyme	Substrate	Nutritional implications
Phytase	Phytate	Release Phophorus, less mineral chelation
Xylanase	Complex polysaccharides	improves digestibility of starch (energy release)
Protease	Polypetides	Improves protein digestibility, reduce anti-nutritional factors (protein release)

Nursery Enzyme trial

Group	A	B
	no enzyme	Enzyme 1
Start WGT(kg)	6.14	6.12
End WGT (kg)	27.26	27.18
ADG total (g/d)	477	477
FE total (kg/kg)	1.39	1.38
Mortalité %	3.25	1.78
MOFC ($/porcelet)		+0.26 $

***Takeway**: The release estimates used were accurate and allowed for similar performance within treatments, thus a savings of 0,26$/pig*

Salinomycine added end of nursery

	Non-med	Salinomycine	p Value
Phase 3-4 (12-30 kg), ppm	0	25	
entry WGT, kg	6.55	6.55	NS
End WGT, kg	**31.84**	**32.39**	**< 0,05**
ADG Total, g/J	**529**	**540**	**< 0,05**
FE Totale, kg/kg	**1.38**	**1.36**	**< 0,10**
MOFC, $/piglets		+ 0.76 $	

SID Lysine end of nursery

	Lys SID/NE LOW	Lys SID/NE Standard	Lys SID/NE HIGH	p Value
Entry WGT, kg	6.35	6.34	6.35	NS
End WGT, kg	**30.72 b**	**31.34 a**	**31.56 a**	**< 0,01**
ADG weeks 4-7, g/d	**691 b**	**718 a**	**725 b**	**< 0,01**
ADG Total, g/d	**514 b**	**519 ab**	**529 a**	**< 0,01**
FE weeks 4-7, g/J	**1.55 a**	**1.51 b**	**1.48 c**	**< 0,01**
FE Total, kg/kg	**1.43 a**	**1.41 b**	**1.38 c**	**< 0,01**
MOFC Seulement CA**, $/p**	- 0.08 $		+ 0.08 $	
MOFC GMQ C vs B**, $/p**	- 0.29 $		+ 0.77 $	

Possible ear necrosis reduction in higher protein rations

Sows

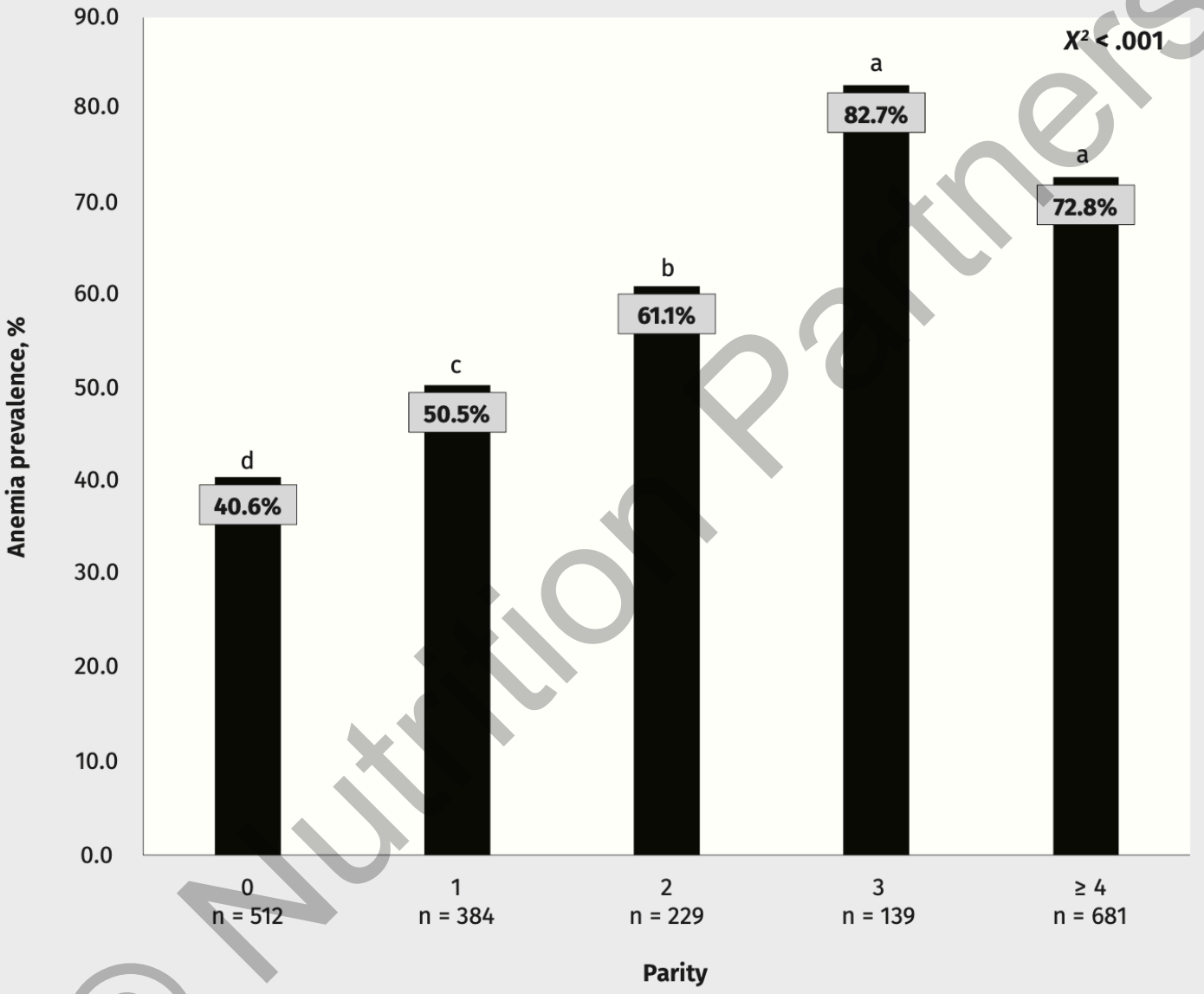
Anemia in sows

- Anemia in late-gestating sows is common
- McClellan et al., 2025

	Non-anemic	Anemic	P value
	Hb >10g/dL	Hb <10g/dL	
Total females, No.	792 (40.7%)	1153 (59.3%)	-
Caliper score, mm	13.1	12.5	< 0.001
Stillborn rate, %	4.2	5.3	0.01
Removal rate, %	3.5	8.4	< 0.001
	**Each 1g/dL increase in Hb = 43% reduction in removal risk (P<0.001)*		

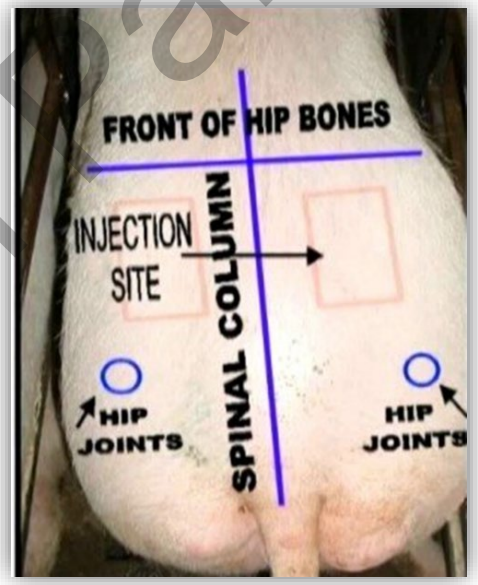
**Measured Hb at 100 days of gestation, removal rate for 70 days following*

Figure 2: Late-gestation sow anemia prevalence (Hemoglobin < 10 g/dL) by parity. Superscripts [a,b,c,d] represent $P < .05$ across parity groups.



Sow injection with Iron

- **Objective:** Determine the effect of Gleptosil treatment to sows pre-farrow on stillborn rate
  - 2 farms included in the study
  - Dose: 2 injections of 8ml in the hip
  - Timing: Approx. 48 hours pre-farrow
  - Measures:
    - TB, LB, stillborn, mummies, BCS
    - Farrowing duration (1 farm)
    - Blood analysis, CBC (26 sows)



Sow injection with Iron

	Treatment	Control	P value
Total females, No.	242	229	-
Avg parity	2.48	2.48	-
Stillborn rate, %	5.2	6.5	< 0.05
0 stillborns, %	55.8	33.4	< 0.05
Farrowing duration, h **Subset of 160 sows*	5.8	9.0	< 0.001

- **Conclusion:** Administration of iron 48 hours prior to farrowing is associated with a reduction in farrowing duration and stillborn piglets.
- **Economics:** Cost of treatment ~$2, potential ROI 5:1

Oxytocin during breeding process

	Control	Oxy	Difference
# sows	3545	3845	
Conception rate %	91.6	92.5	**+0.9 %**
Farrowing rate %	87.5	88.7	**+1.1 %**
Total borns	16.8	16.9	

0.25 ml/dose = 1.6-1.7 ml/sow/year = 0.20 $/sow/year

+ 2.45 % taux conception= 19.60 $/truie/année

Sow pre-farrow top-dress

What is in a prefarrow topdress?

- Energy
- Specific fibers
- Laxatives
- Calcium release strategies for muscle contractions

	Control	Prefarrow TD	DIFFÉRENCE
# sows	1378	1638	
Total born	15.91	15.63	
Stillborns	**1.26**	**0.97**	**-0.29**
stillborns %	7.92	6.22	-1.70 %

0.29 less still-born x 85 % wean probability = 0.25 extra weaned piglets/litter

+0.60 piglets/sow/year

Continue Sow pre-farrow top-dress

Parity	Stills Control	Stills Topdres	%
P1	5.35	4.72	-11.7 %
P2-P3	**6.36**	**4.38**	**-31.1 %**
P4-P5	**8.92**	**6.60**	**-26.0 %**
P6+	11.68	10.74	-8.0 %

Finisher

Enzymes in finisher

- Formulated with the up lift value for NE
  - 50 kcal/kg
- Feed cost saving of 6-9 $/t for 2 % of NE when using the energy uplift value
- 3 trials done
  - 1 in commercial flow
  - 2 in finisher R&D barn
- Hypothesis was that performance would be maintained and feed cost reduced

Enzymes in finisher

#492 Finisher batch in a large commercial flow

- 68 total close-out and over 180 000 pigs total – 2 enzymes evaluated
- No difference in performance – similar FE and ADG

#555 R&D finisher Manitoba

- 16 pens/treatment – 2 enzymes evaluated
- No difference in performance – similar FE and ADG

#AE-4 R&D finisher Quebec

- 25 pens/treatment – 1 enzyme evaluated
- No difference in performance – similar FE and ADG

Enzymes in finisher

- Overall, the use of NSP enzyme using a 50 kcal/kg NE uplift value has shown very similar performance as the control group
- Feed cost saving between 6 to 9 $/t
- Enzyme cost between 1.20 to 1.50 $/t
- Net saving in feed cost 4.50 to 7.80 $/t equivalent to **1.25$ to 2.20 $/pig**

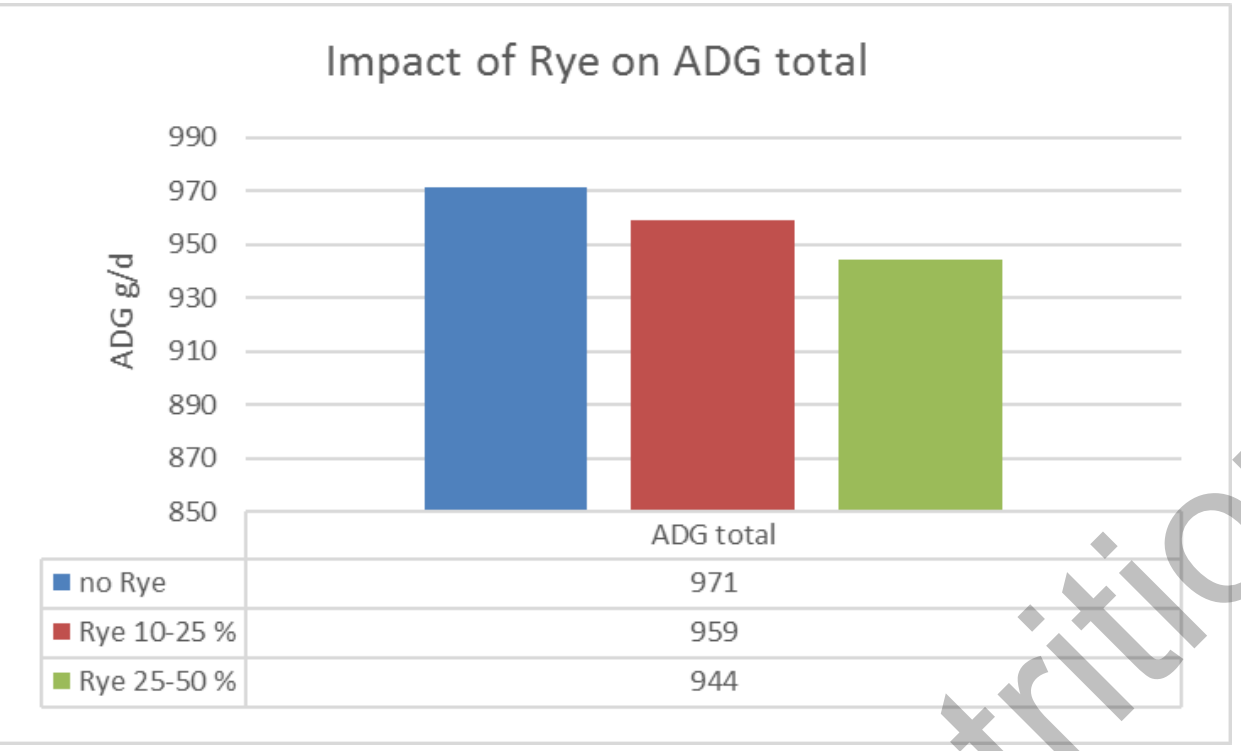
How much rye can be used in Finisher feed?

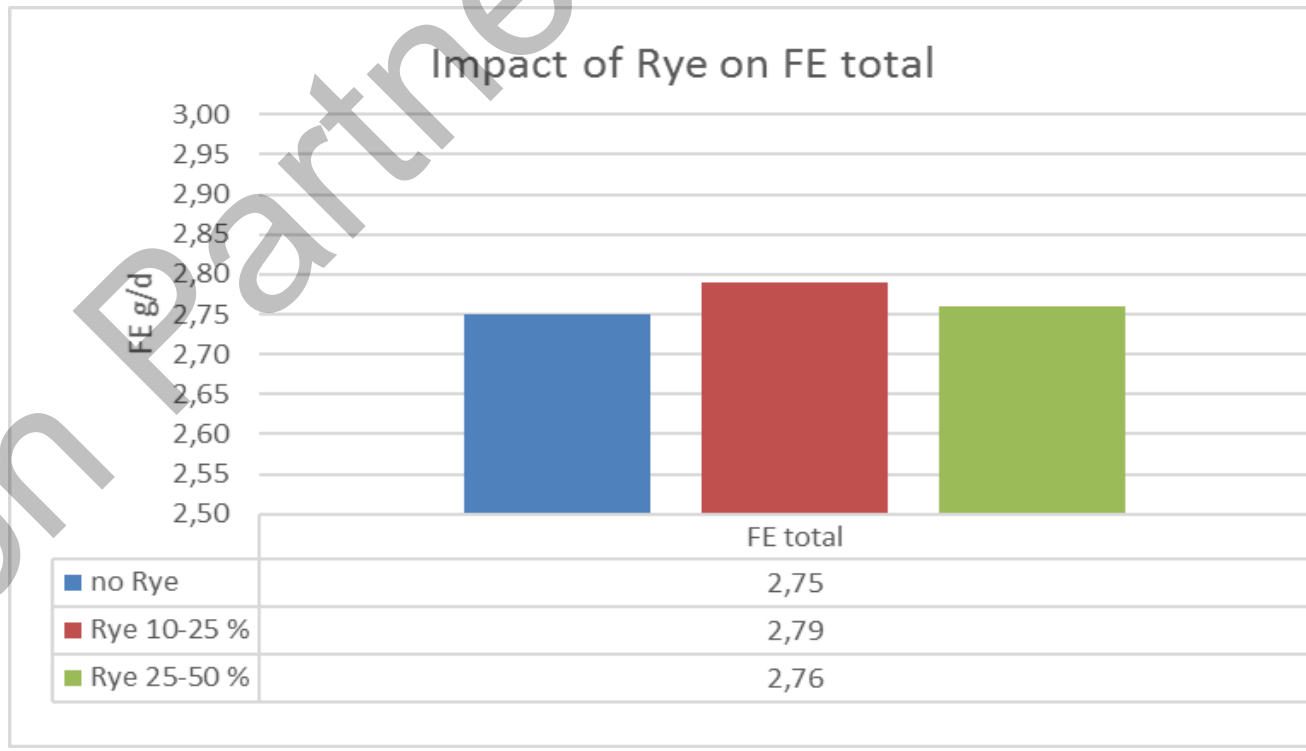
Nutriments	Rye Hybrid Est	Rye Hybrid WEST	Hard Wheat	Soft Wheat	Barley	Corn
Protein %	9,6	10,6	14,0	10,6	11,2	7,5
Lysine SID %	0,25	0,28	0,32	0,25	0,32	0,18
Fat %	1,90	2,00	2,00	1,60	2,20	3,20
Crude fiber %	2,50	3,10	2,80	2,20	5,10	2,50
Phos total %	0,32	0,27	0,37	0,33	0,34	0,25
NE kcal/kg	2455	2455	2500	2510	2290	2615

Rye Finisher trial

	kg/porc	Control	Moderate Rye	High Rye
Phase 1	36	0,0 %	10,0 %	20,0 %
Phase 2	36	0,0 %	15,0 %	30,0 %
Phase 3	48	0,0 %	20,0 %	40,0 %
Phase 4	72	0,0 %	25,0 %	50,0 %
Phase 5	+/- 90	0,0 %	25,0 %	50,0 %

Rye Finisher trial





IVP in swine nutrition and impact on belly hardness

Ingredient	IV	FAT %	IVP
Soybean meal	135.77	2,21	**29,3**
Barley	125,79	2,39	**30,1**
Wheat	129,99	1,63	**20,8**
Corn	125,22	2,36	**30,7**
Canola Meal	106,12	4,47	**47,4**
Corn DDGS	121,85	8,58	**104,6**
Canola Meal High Oil	108,18	11,94	**129,2**
Flax	192,19	40,57	**779,7**
Beef tallow	40,25	99,00	**398,5**
AV Fat	66,33	98,00	**650,0**
Soy oil	134,80	98.00	**1321,0**

High unsaturated fats = soft fat

Thanks ! Questions?

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