

ZT Fababean vs. Field Pea vs. Soybean Meal as Protein Sources for Hogs

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Why Fababeans

- 28 – 32% protein
- low tannin varieties
- earlier maturing
- strong agronomic suitability to moist areas of Alberta
- production experience

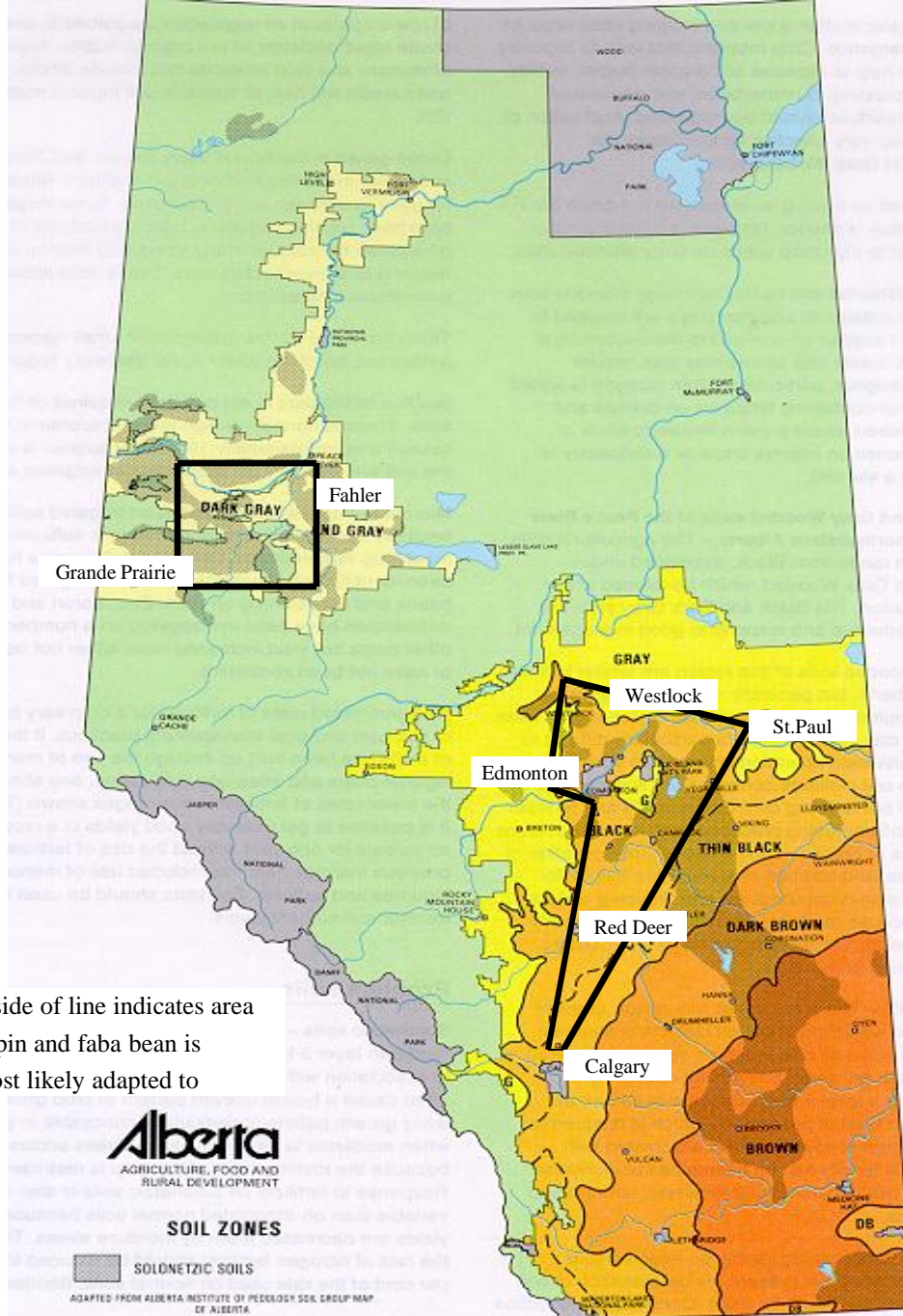


With Tannin and Without

**Tannin
Containing**



Tannin Free



Grande Prairie
DARK GRAY
 Fahler
IND GRAY

Edmonton
 Westlock
 St. Paul
 Red Deer
 Calgary

— Area inside of line indicates area
 lupin and faba bean is
 most likely adapted to

Alberta
 AGRICULTURE, FOOD AND
 RURAL DEVELOPMENT

SOIL ZONES

■ SOLONCHETIC SOILS

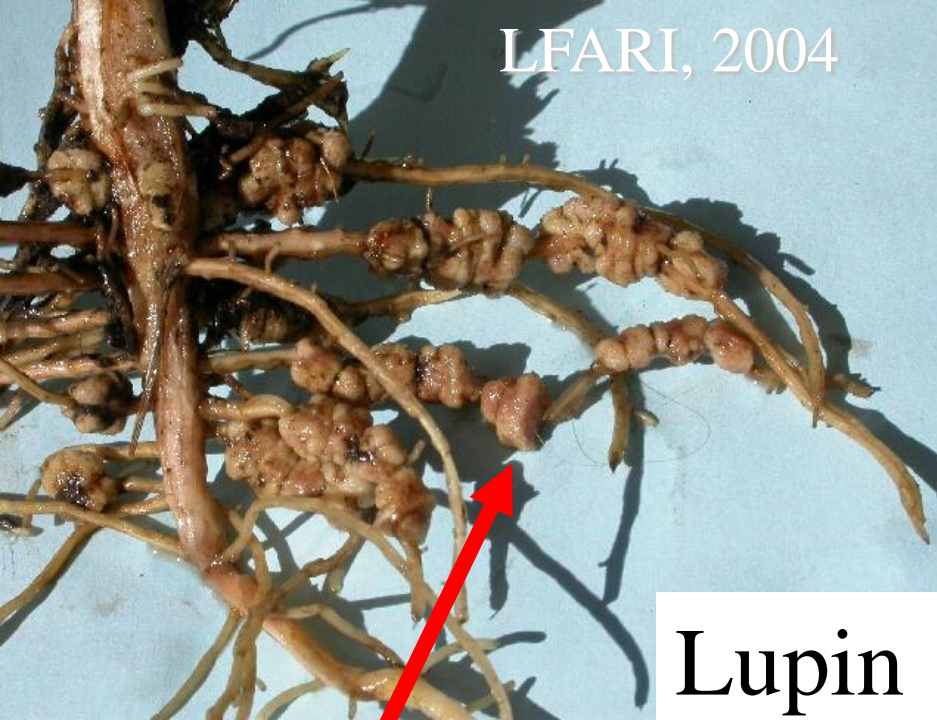
ADAPTED FROM ALBERTA INSTITUTE OF PEDOLOGY SOIL GROUP MAP
 OF ALBERTA

Ben Stroeve's faba bean field near Iron Springs Summer 2004



Rob Dunn, AAFRD, 2004

LFARI, 2004



Lupin

AAFRD, McKenzie 2004



Field pea

Faba bean



LFARI, 2004

Previous Work

- PSCI growout trial (Western Hog Journal Fall 2004, pages 39 – 45):
 - Hogs fed 30% ZT fababeans in substitution for soybean meal.
 - Weight gain was reduced for barrows but not gilts for the grower period.
 - Gilts but not barrows showed reduced carcass lean and index.

Objectives

- Compare the performance of hogs fed Alberta-grown ZT fababean vs. field pea vs. imported soybean meal
- Evaluate effects on performance
- Evaluate effects on pork quality
 - Collect additional carcass data
 - Compare yields by doing primal cutouts
 - Evaluate the effects on pork quality => exports

The Drumloche Barn at Irma



Two Growout Rooms

- 52 pens,
-26 per side
- Pens housed 21
gilts or barrows



Crystalsprings™, FeedLogic™



Receiving Area & Scale



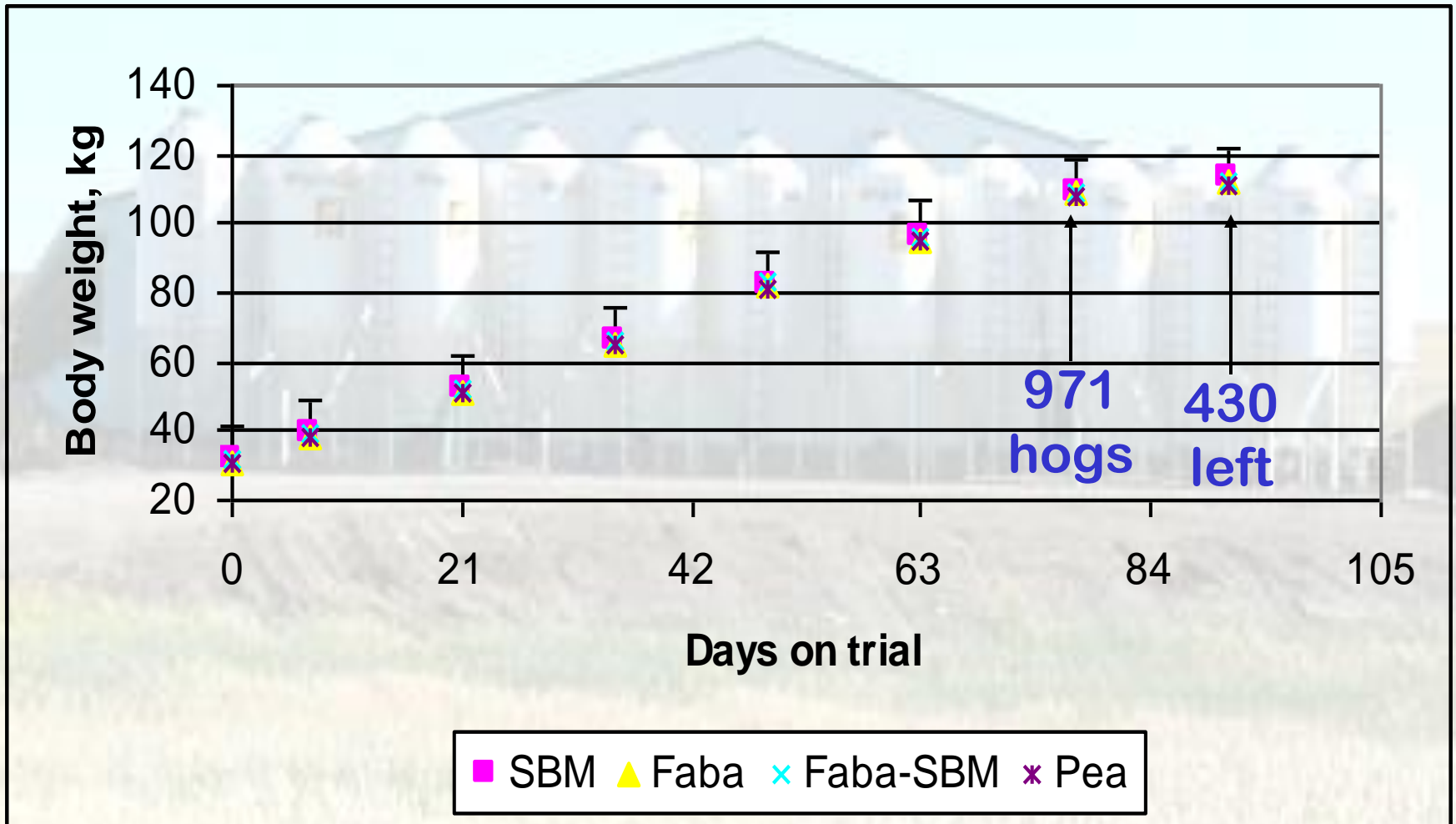
The Growout Trial

- 1008 Fast TM crossbreds averaged 31.4kg
- Pigs were weighed every two weeks
- Recorded pen feed disappearance
- 50 pigs removed to end pens
- 98 hogs went to Sturgeon Valley Pork
 - Half-carcasses went to AAFC -Lacombe
- 860 went for slaughter to Britco, BC

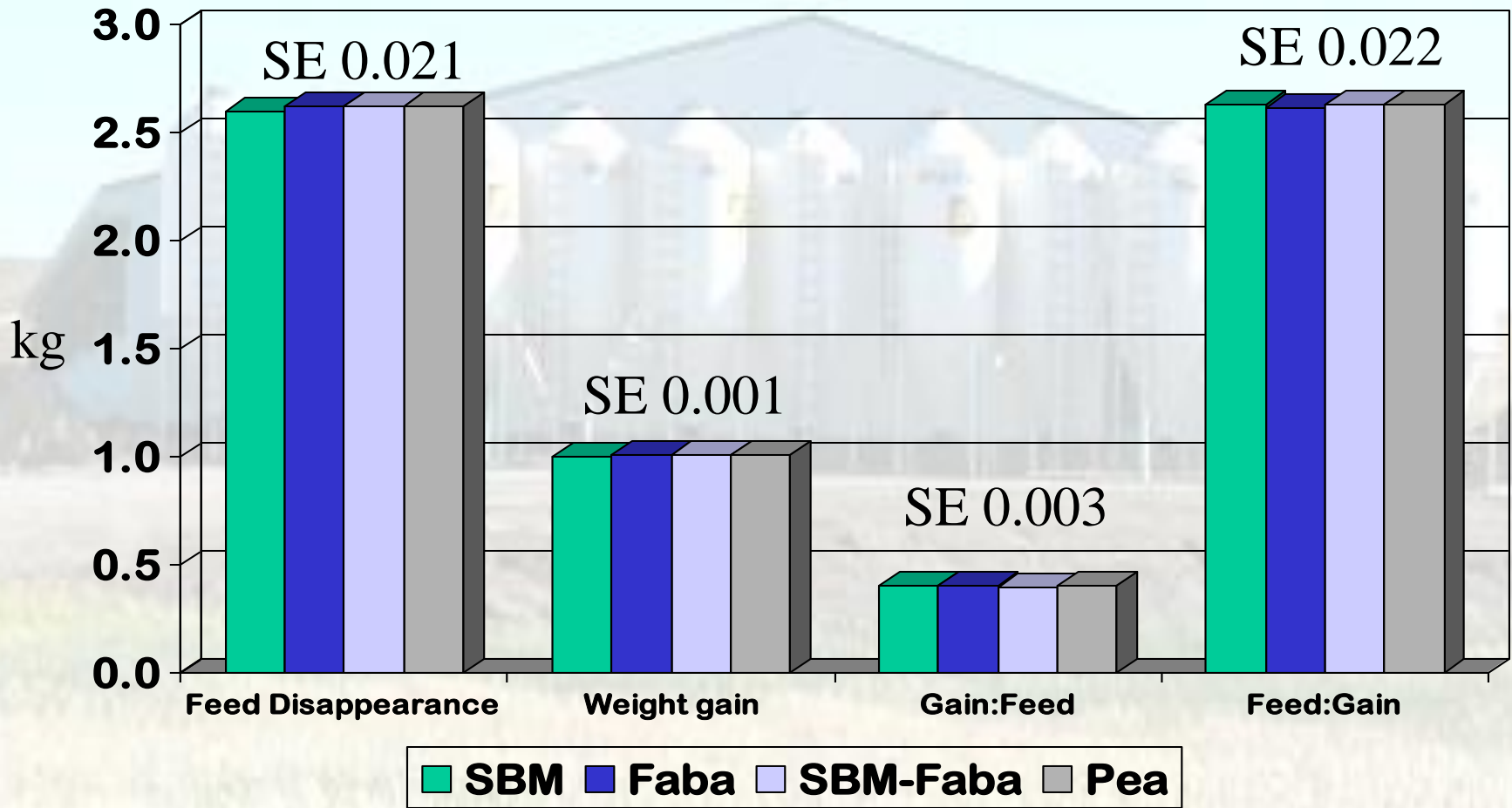
Test Diets

	<u>Grower 1</u>				<u>Grower 2</u>				<u>Grower 3</u>				<u>Finisher</u>			
	<u>SBM</u>	<u>Faba</u>	<u>Faba /Soy</u>	<u>Pea</u>	<u>SBM</u>	<u>Faba</u>	<u>Faba /Soy</u>	<u>Pea</u>	<u>SBM</u>	<u>Faba</u>	<u>Faba /Soy</u>	<u>Pea</u>	<u>SBM</u>	<u>Faba</u>	<u>Faba /Soy</u>	<u>Pea</u>
Wheat	78.5	60.7	69.7	57.1	79.6	62.2	71.0	59.2	83.3	68.7	75.3	65.4	69.3	60.3	64.5	52.1
Barley													18.8	17.6	18.4	23.8
Fababean		33.0	16.5			32.0	16.0			27.4	15.0			19.0	10.0	
Soybean meal	16.6		8.7		15.0		7.4		13.0		5.9		8.9		4.1	
Peas				37.0				35.5				31.0				21.0
Canola meal					1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Tallow	2.21	2.22	2.22	1.83	2.12	2.16	2.14	1.78	0.76	0.78	0.77	0.47				
Limestone	1.33	1.29	1.31	1.29	1.28	1.23	1.26	1.24	1.21	1.18	1.20	1.18	1.20	1.18	1.19	1.17
Salt	0.42	0.44	0.43	0.41	0.42	0.44	0.43	0.41	0.41	0.43	0.42	0.40	0.40	0.41	0.41	0.39
Mono-Cal	0.33	0.48	0.40	0.47	0.13	0.27	0.20	0.26	0.00	0.10	0.04	0.09	0.14	0.22	0.19	0.24
Vit & TM micro	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.07	0.07	0.07	0.07
Amino acids	0.53	0.77	0.64	0.77	0.38	0.56	0.46	0.56	0.23	0.34	0.28	0.34	0.15	0.21	0.18	0.21
NE, Mcal/kg	2.45	2.45	2.45	2.45	2.45	2.45	2.45	2.45	2.4	2.4	2.4	2.4	2.35	2.35	2.35	2.35
TID lys:NE, g/Mcal	4.0	4.0	4.0	4.0	3.6	3.6	3.6	3.6	3.2	3.2	3.2	3.2	2.7	2.7	2.7	2.7
Ca, %	0.7	0.7	0.7	0.7	0.65	0.65	0.65	0.65	0.6	0.6	0.6	0.6	0.55	0.55	0.55	0.55
Av P, %	0.3	0.3	0.3	0.3	0.26	0.26	0.26	0.26	0.24	0.23	0.23	0.23	0.19	0.19	0.19	0.19

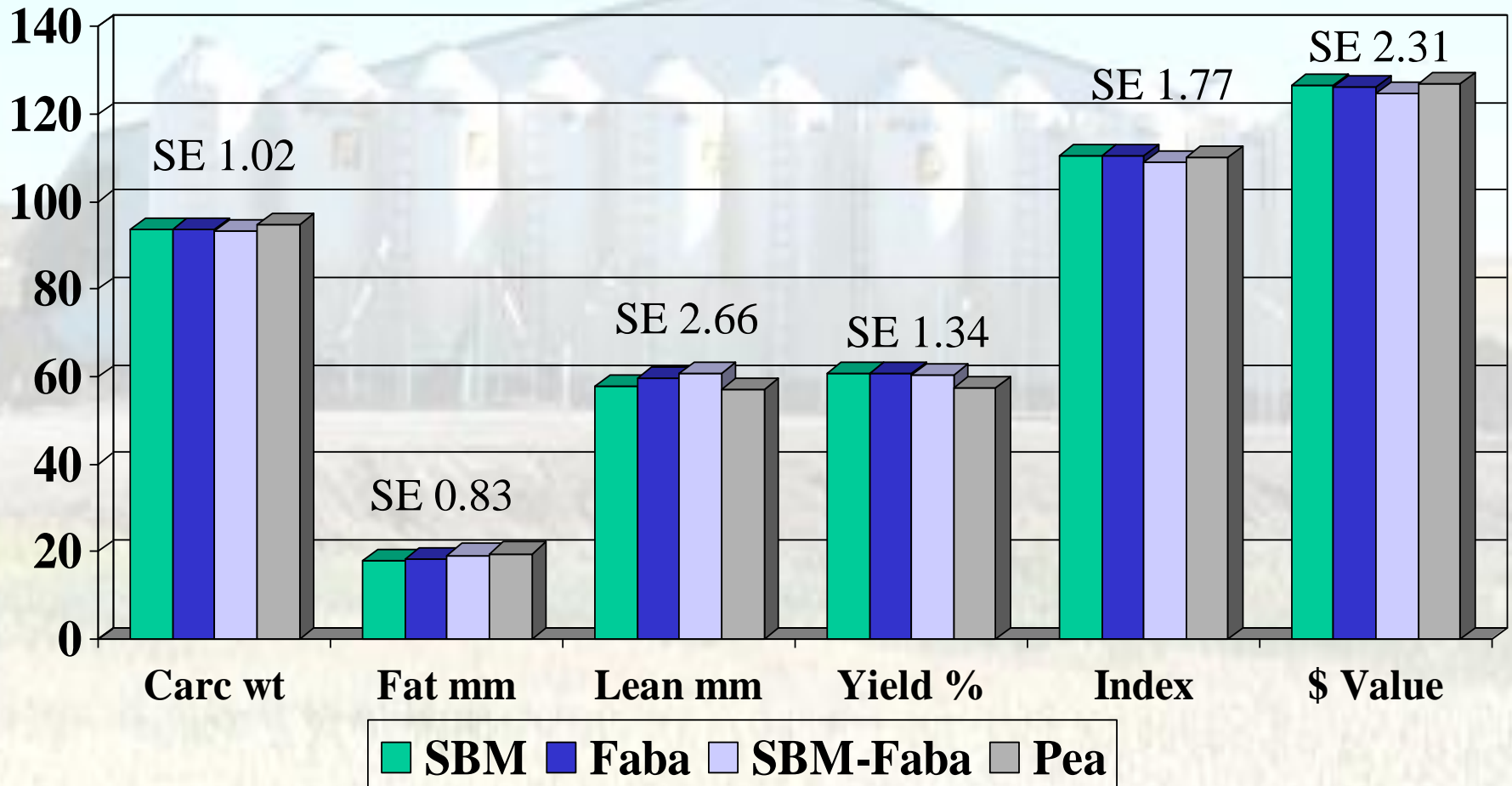
Body Weights



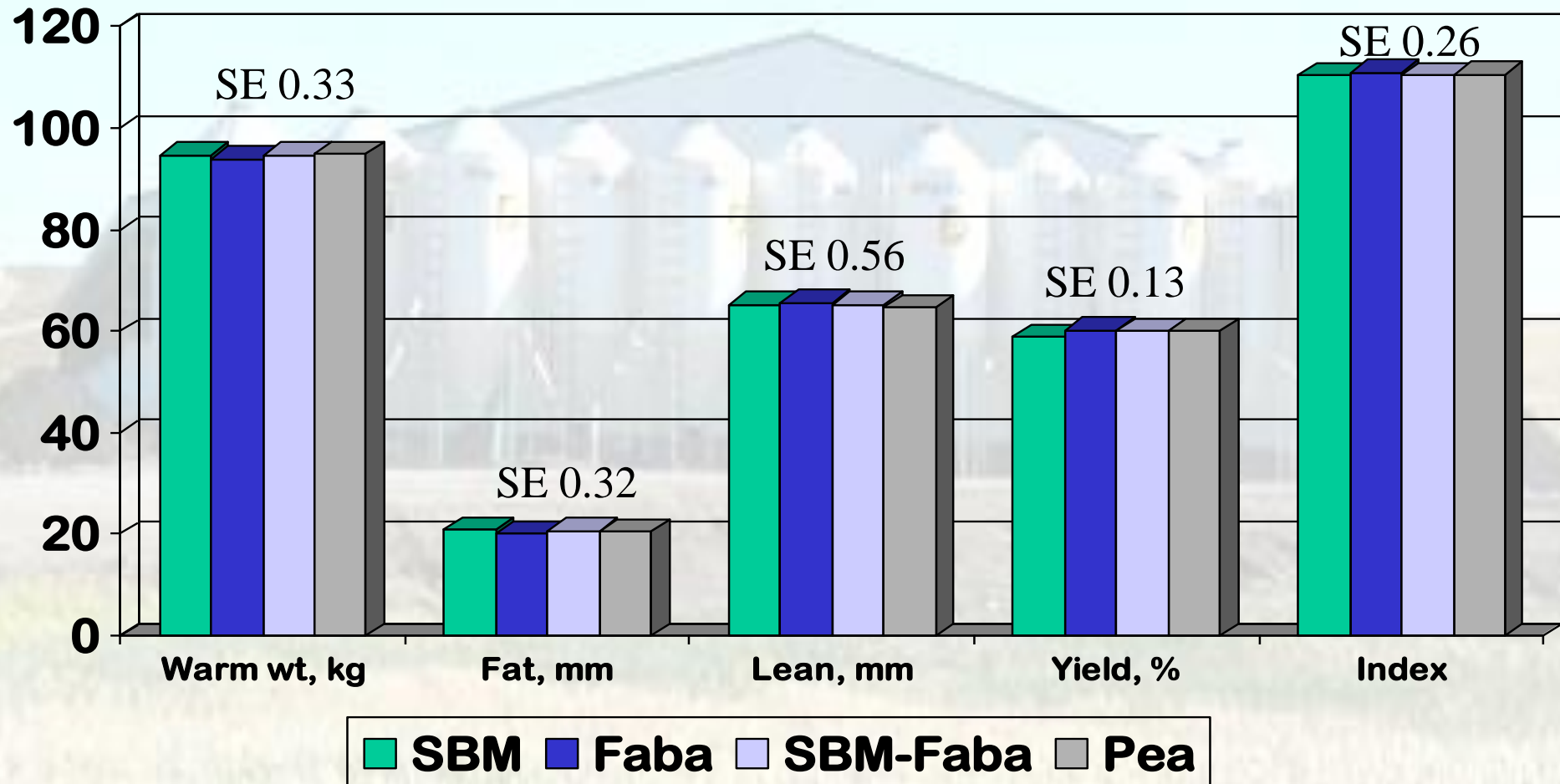
Overall Performance



Carcass – Sturgeon Valley Pork



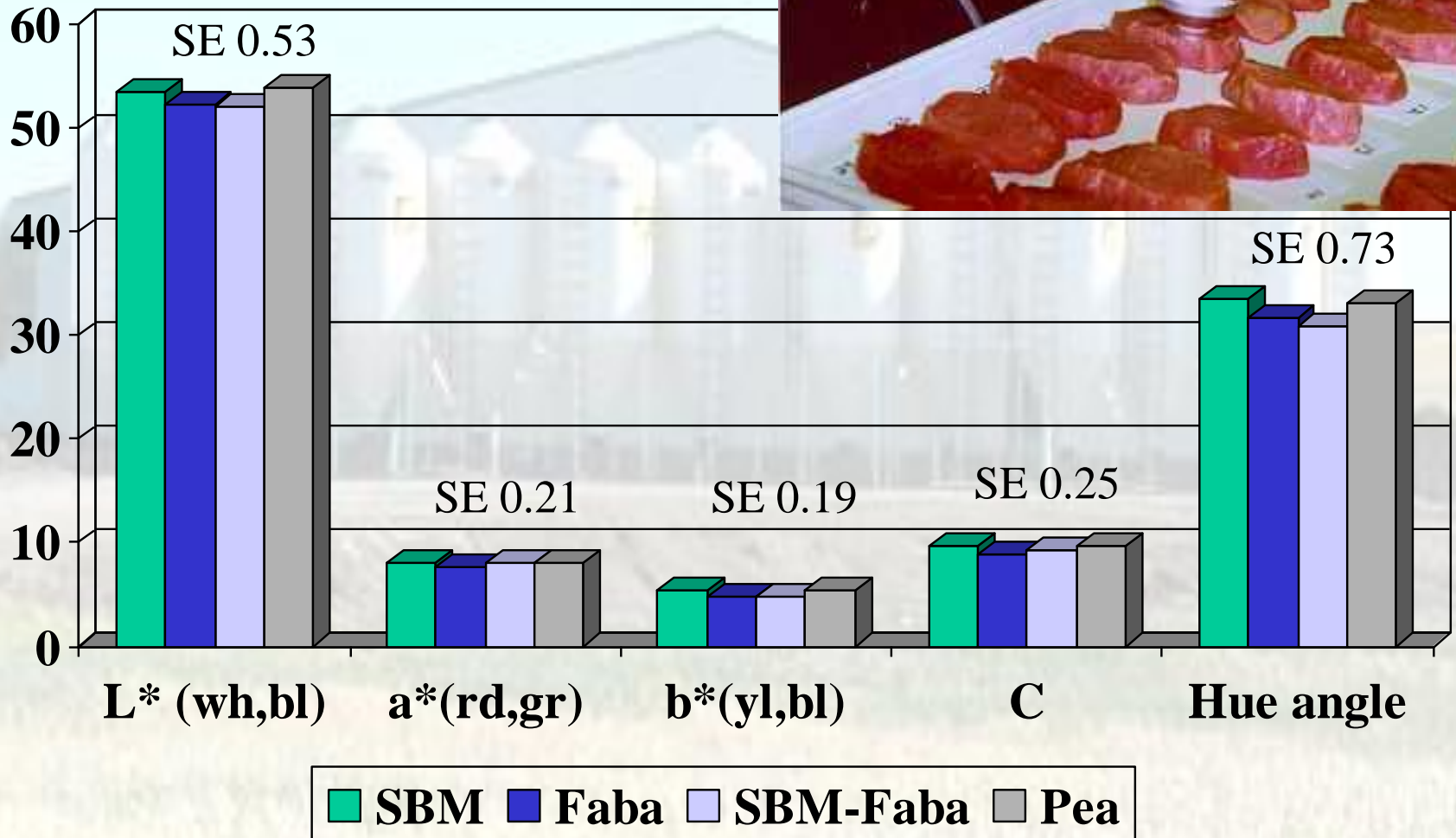
Carcass Characteristics



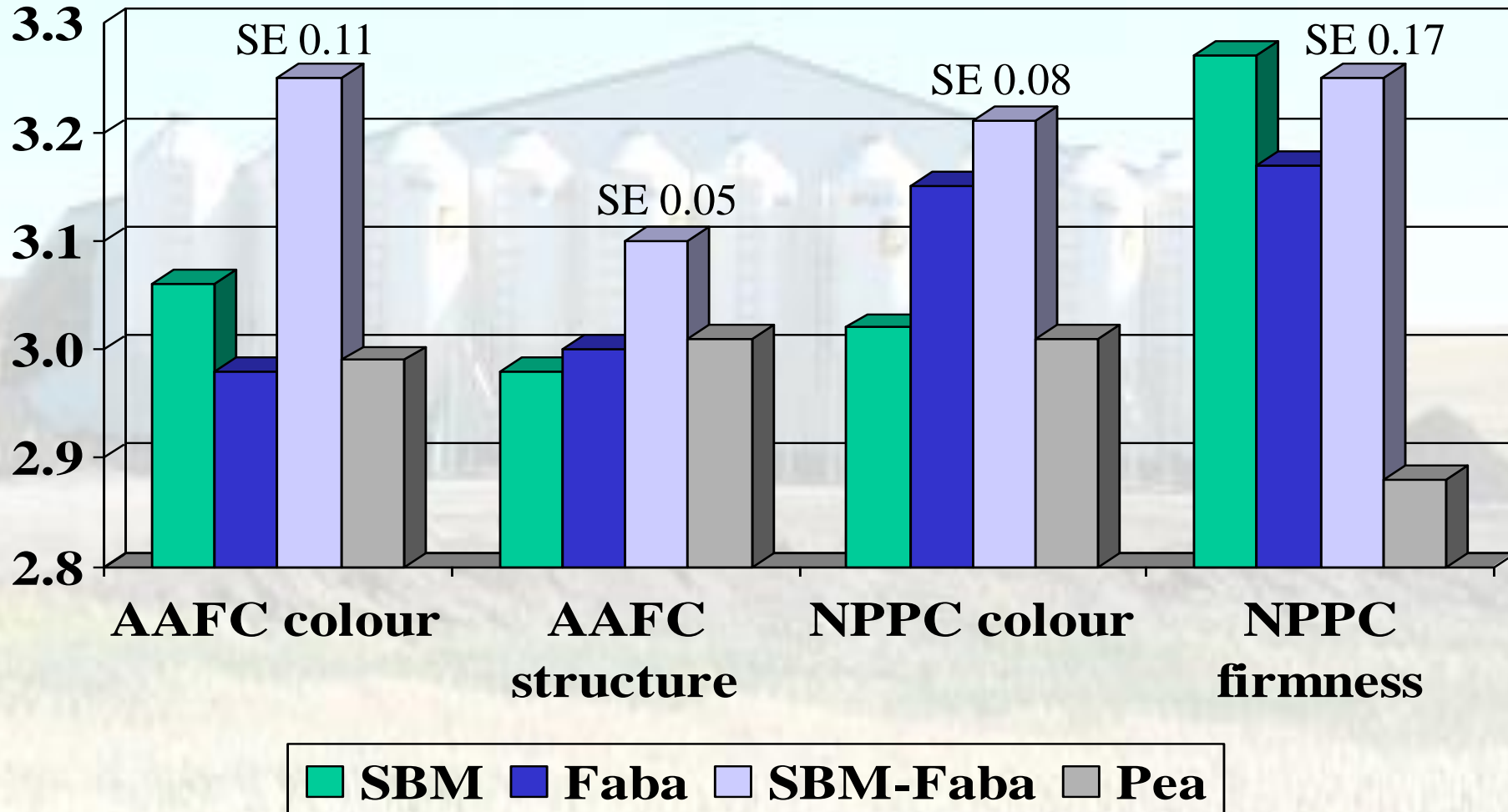
Income Over Feed Cost

	SBM	Faba	SBM- Faba	Pea
Cost per tonne	\$275	\$120		\$115
Feed cost/kg gained	\$0.400	\$0.396	\$0.386	\$0.384
Income/feed cost	\$55.8	\$57.0	\$57.0	\$57.0

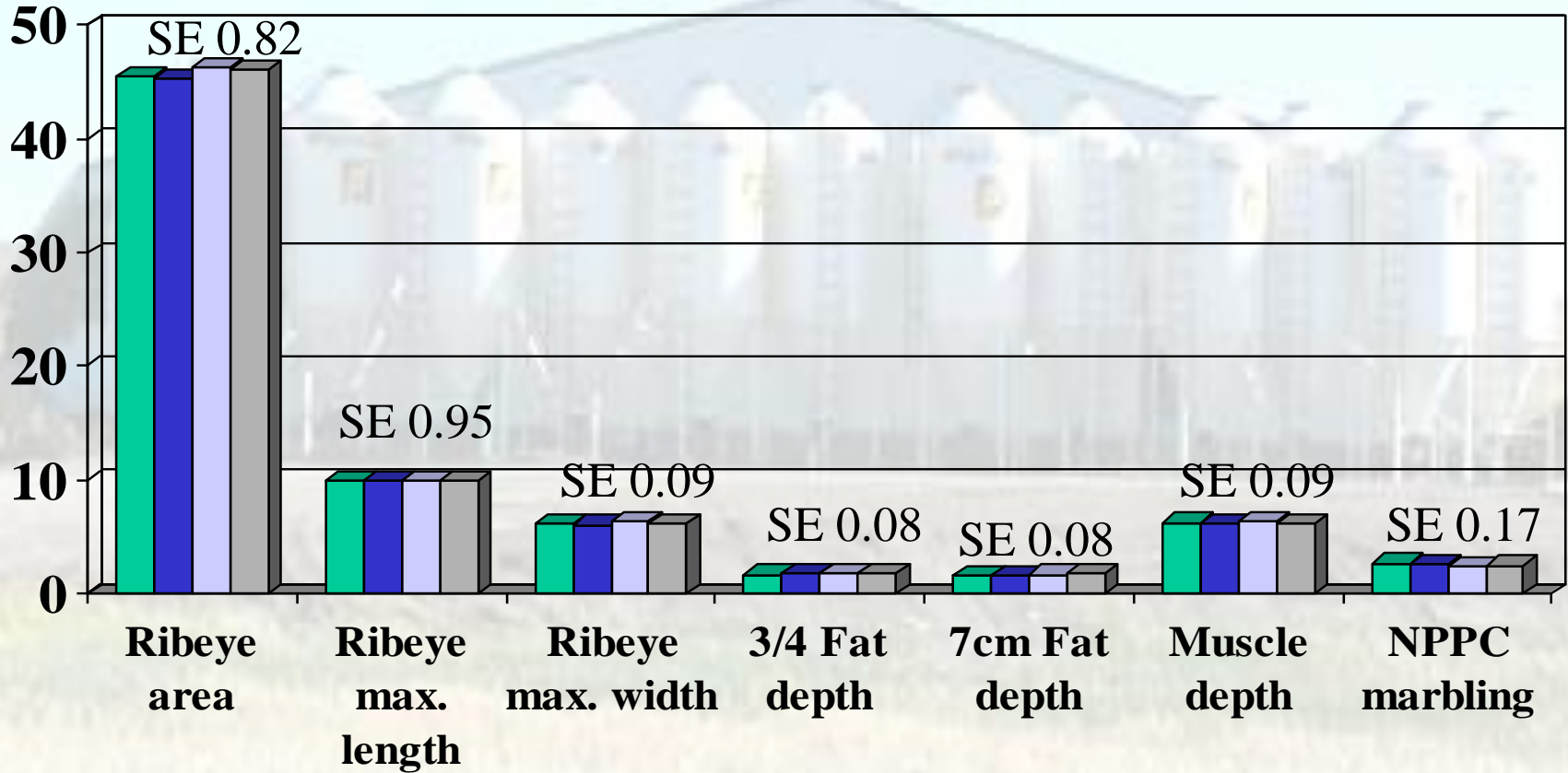
L. thoracis Reflectance



L. thoracis – subjective colour, structure, firmness

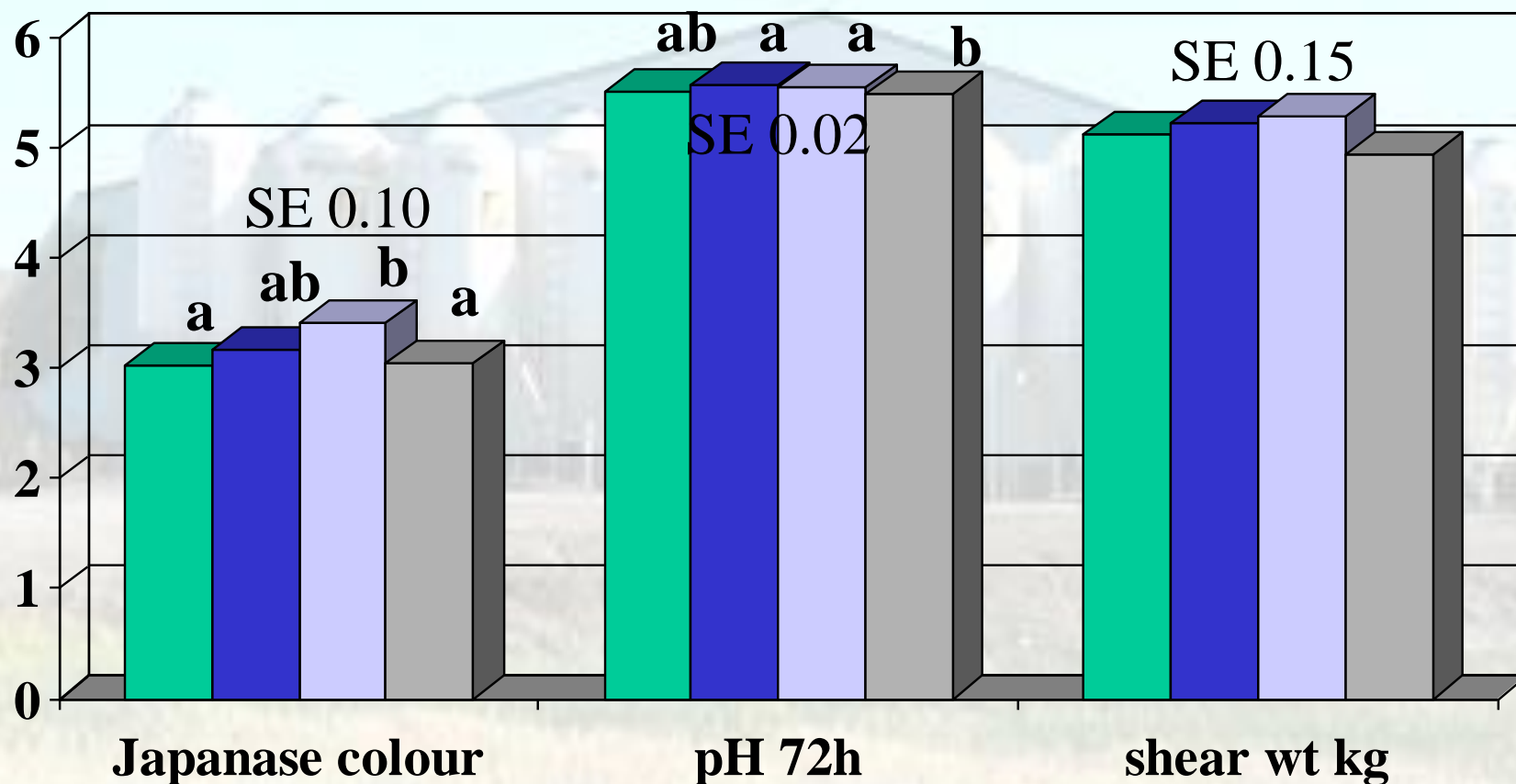


L. thoracis – Last 3rd / 4th Rib Image Analyses



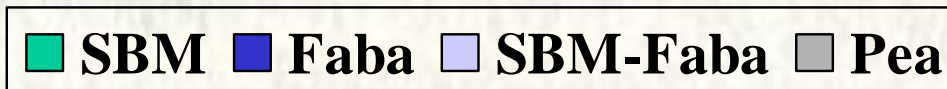
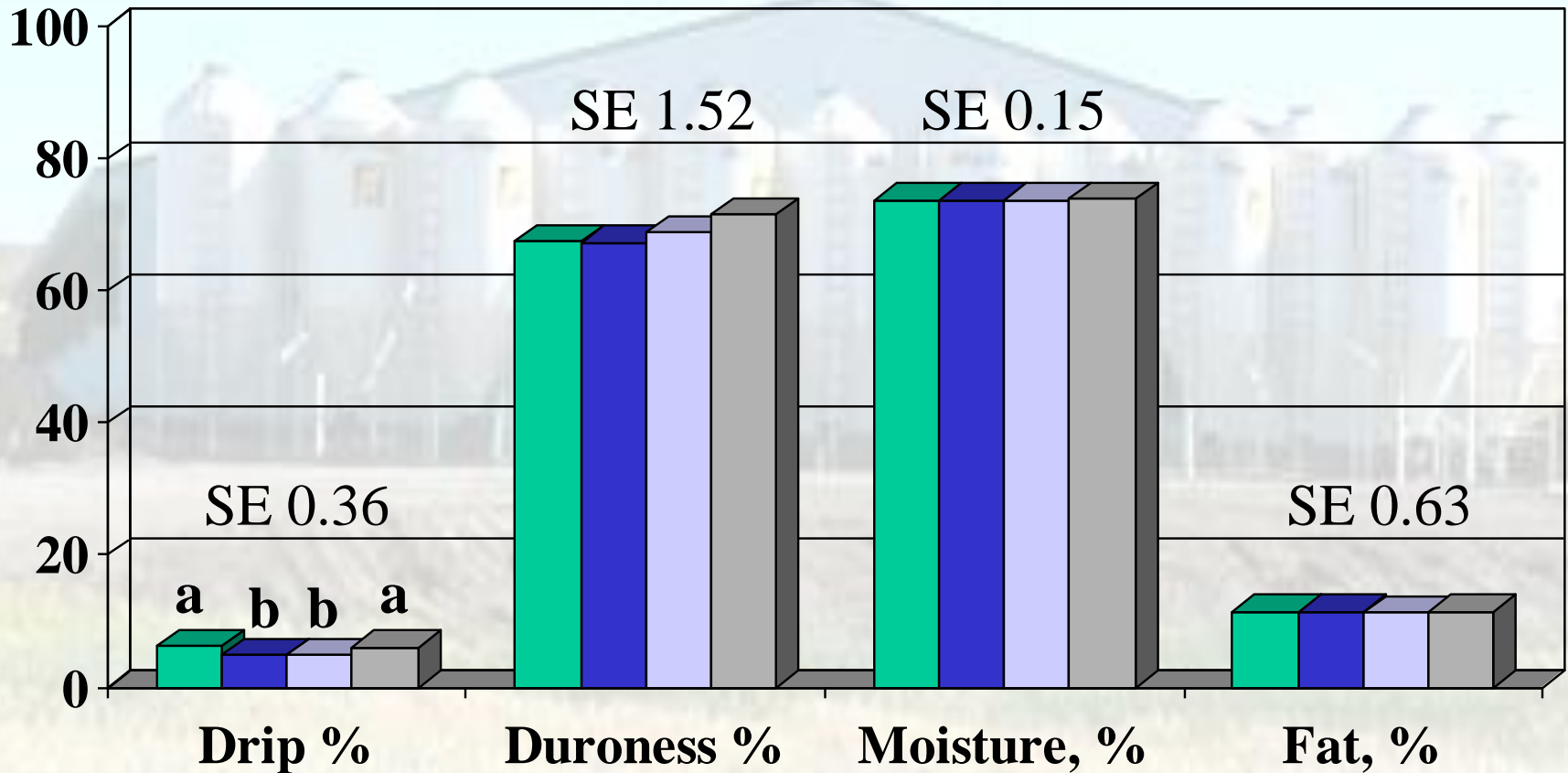
■ SBM
 ■ Faba
 ■ SBM-Faba
 ■ Pea

L. thoracis –Japanese colour, pH, shear force

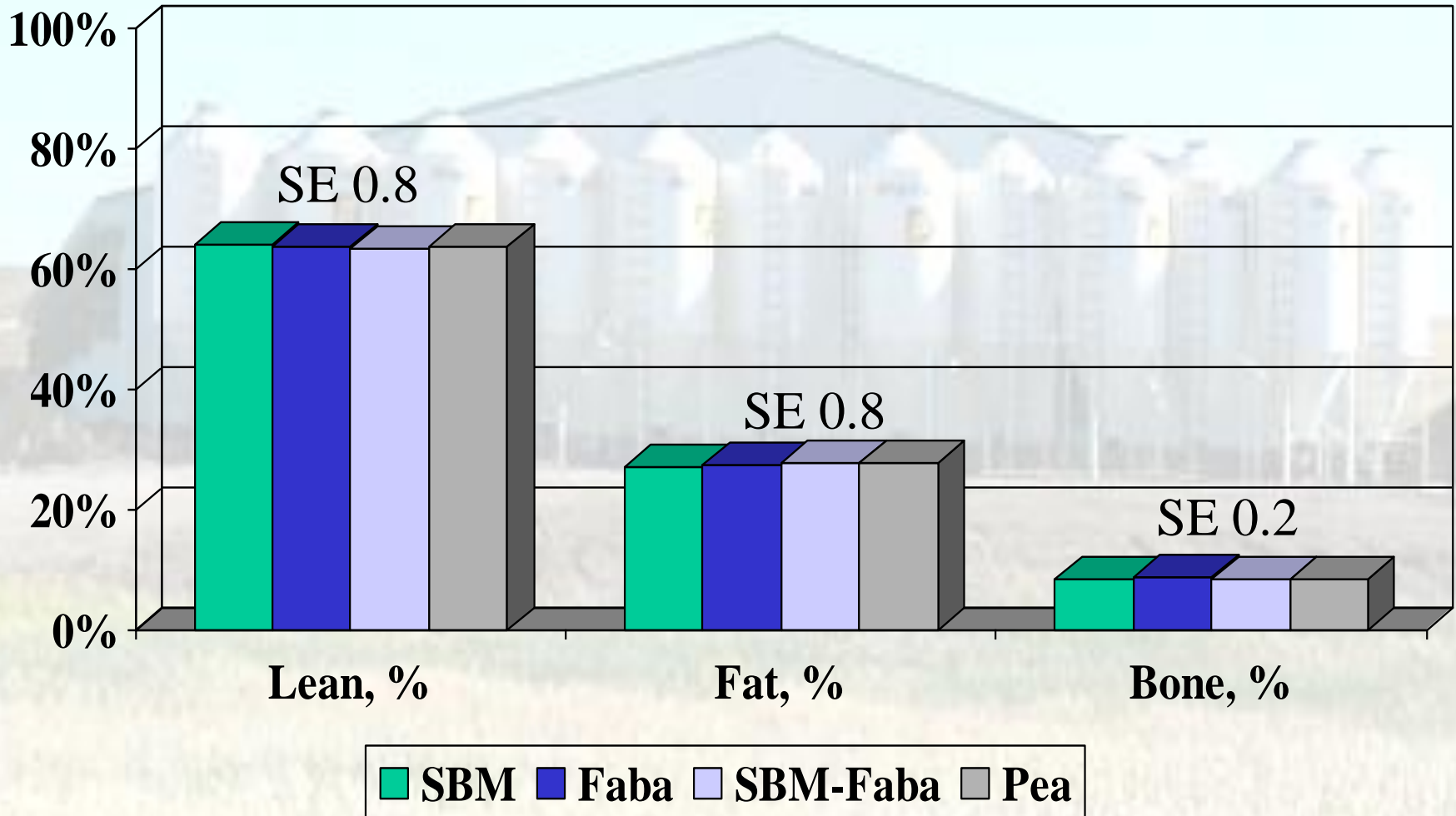


■ SBM ■ Faba ■ SBM-Faba ■ Pea

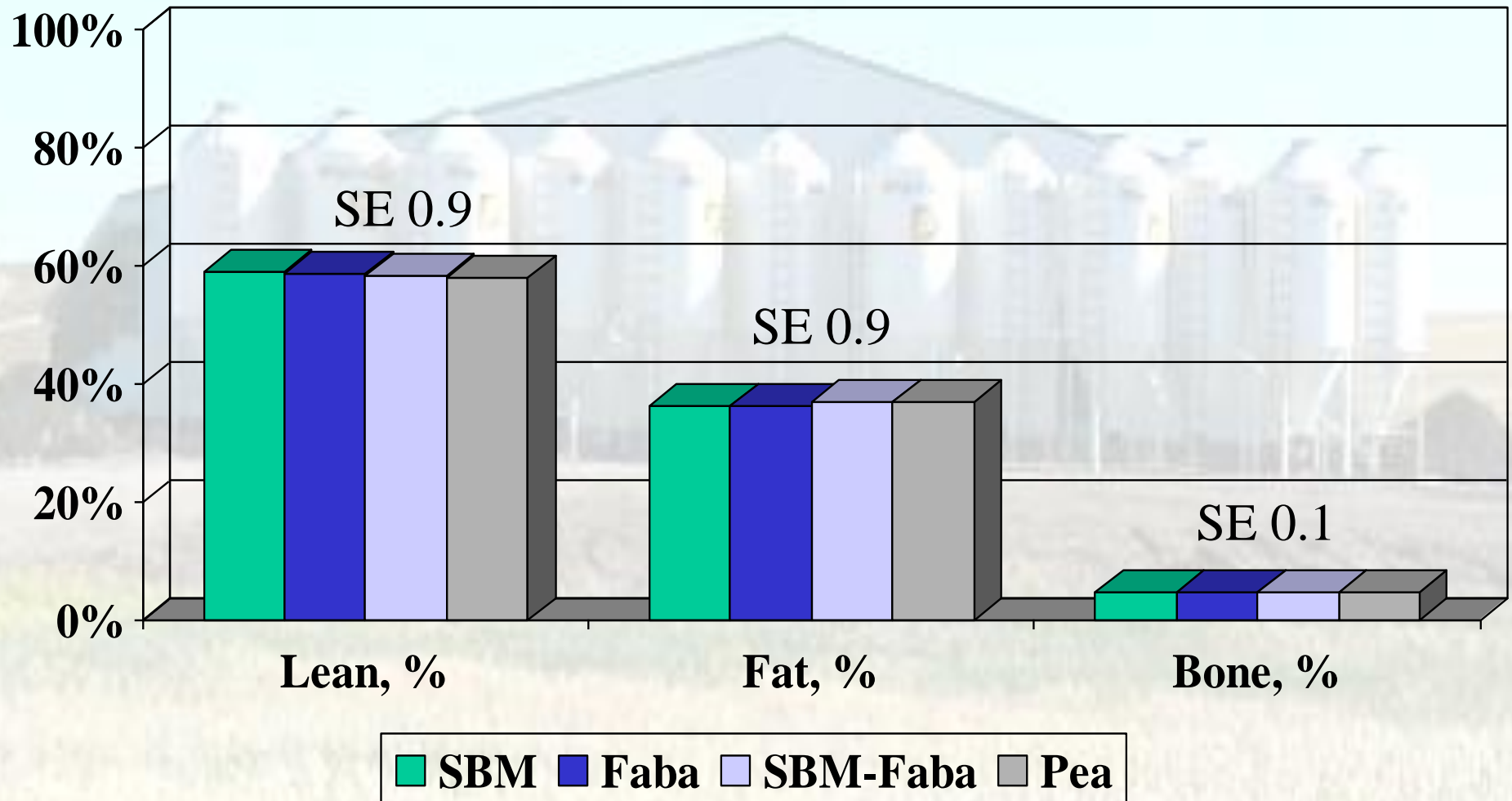
L. thoracis –drip loss, fat, duironess, moisture



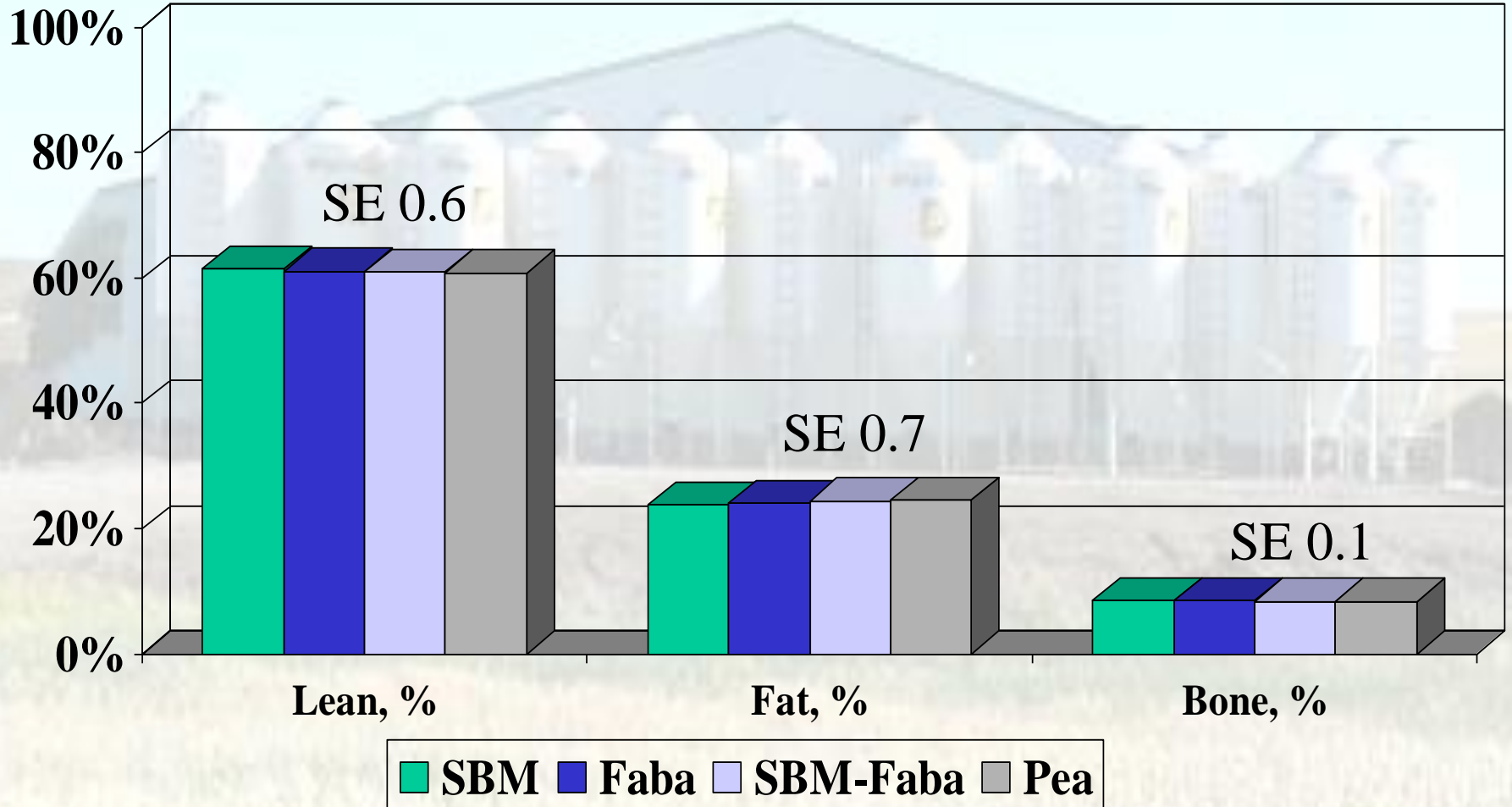
The Picnic



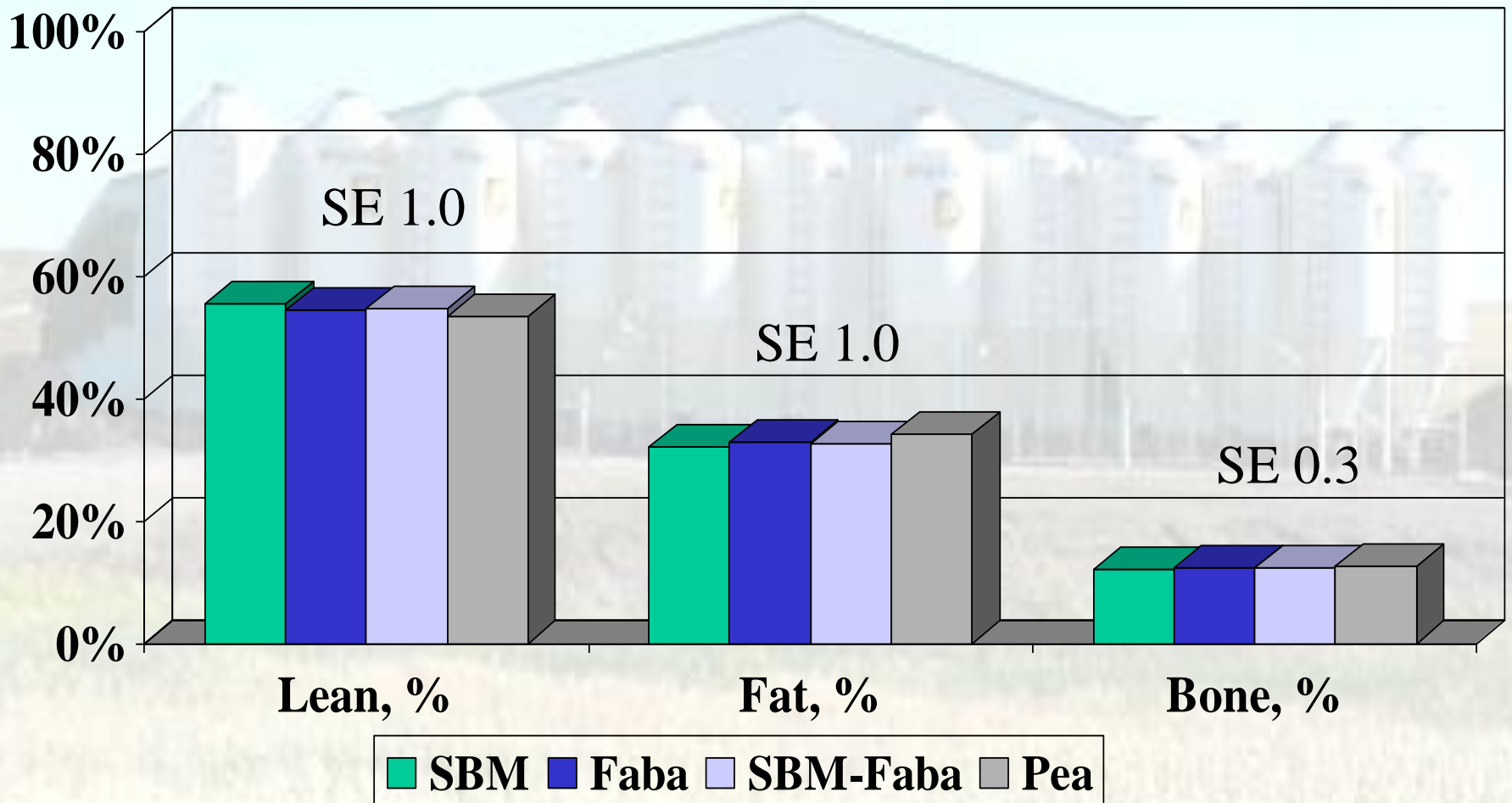
The Butt



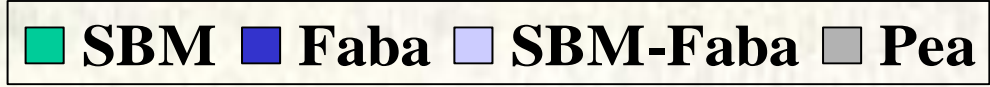
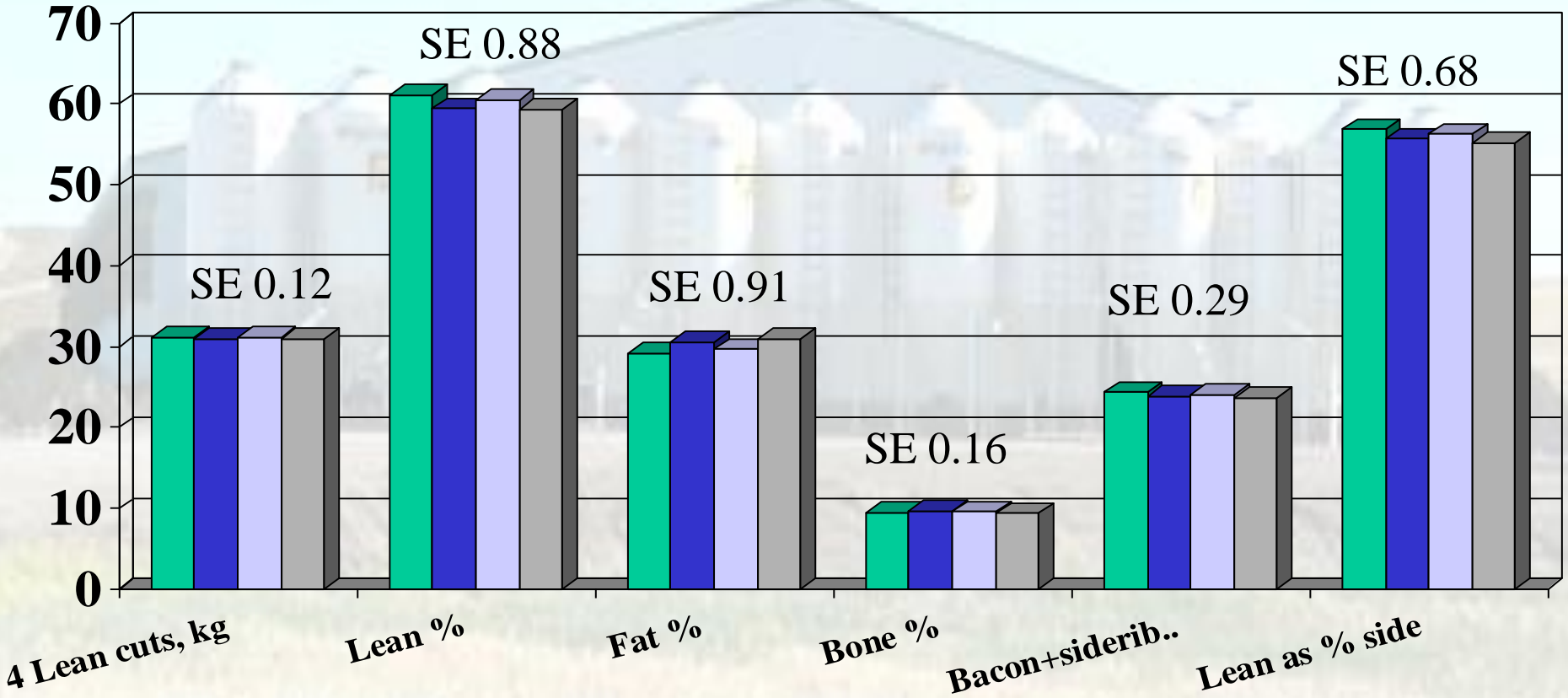
The Ham



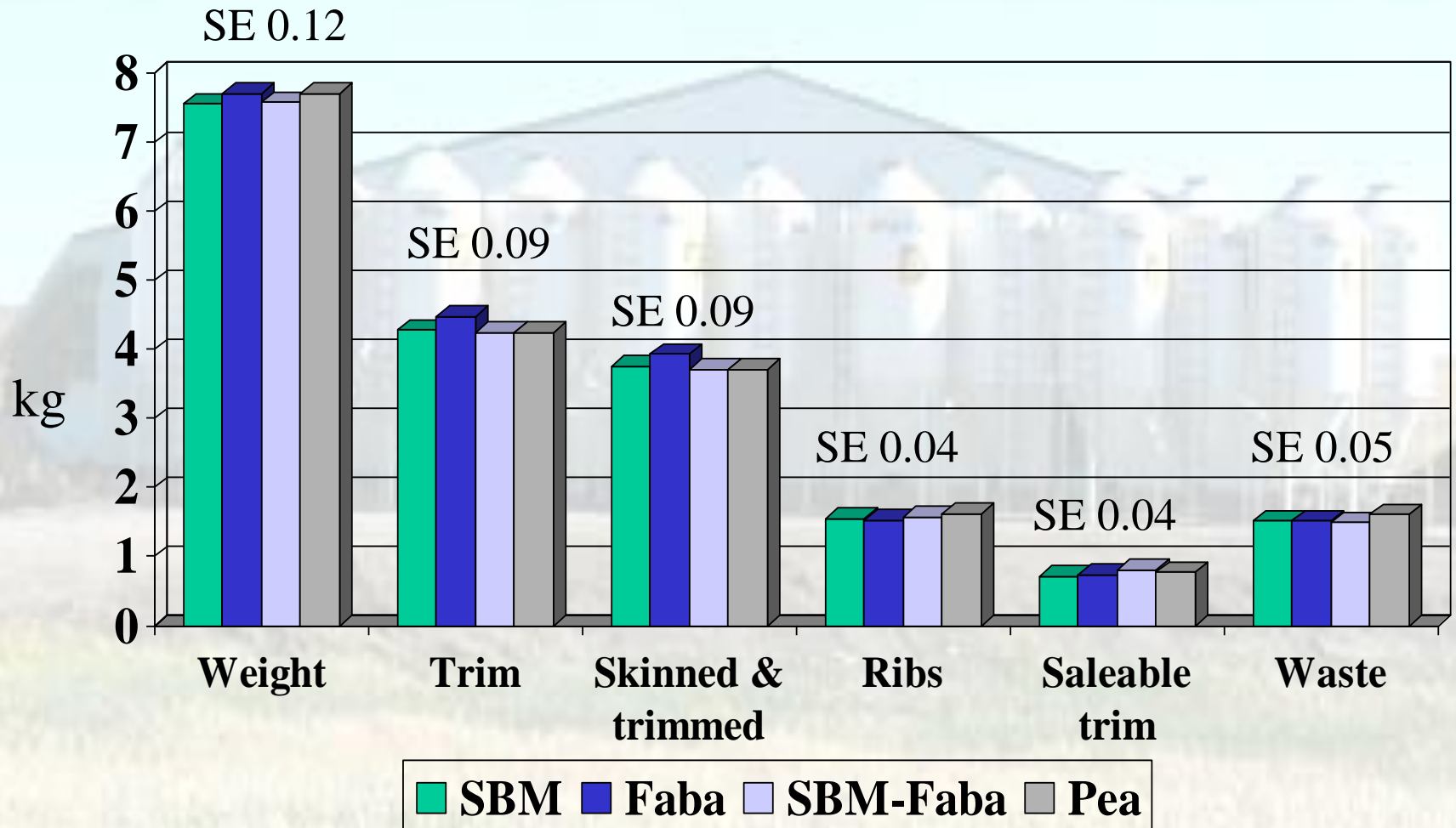
The Loin



Four Leanest Cuts



The Belly



Conclusions

- ✓ Locally grown ZT fababean can fully or partially replace PEA or imported SBM as dietary supplemental protein source for hogs
- ✓ No negative effects on pig performance
- ✓ No negative effects on carcass traits
- ✓ A few benefits on pork quality

Acknowledgements

- Agriculture Canada –Lacombe
- Alberta Pulse Growers
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