

Ingredient Cost Update

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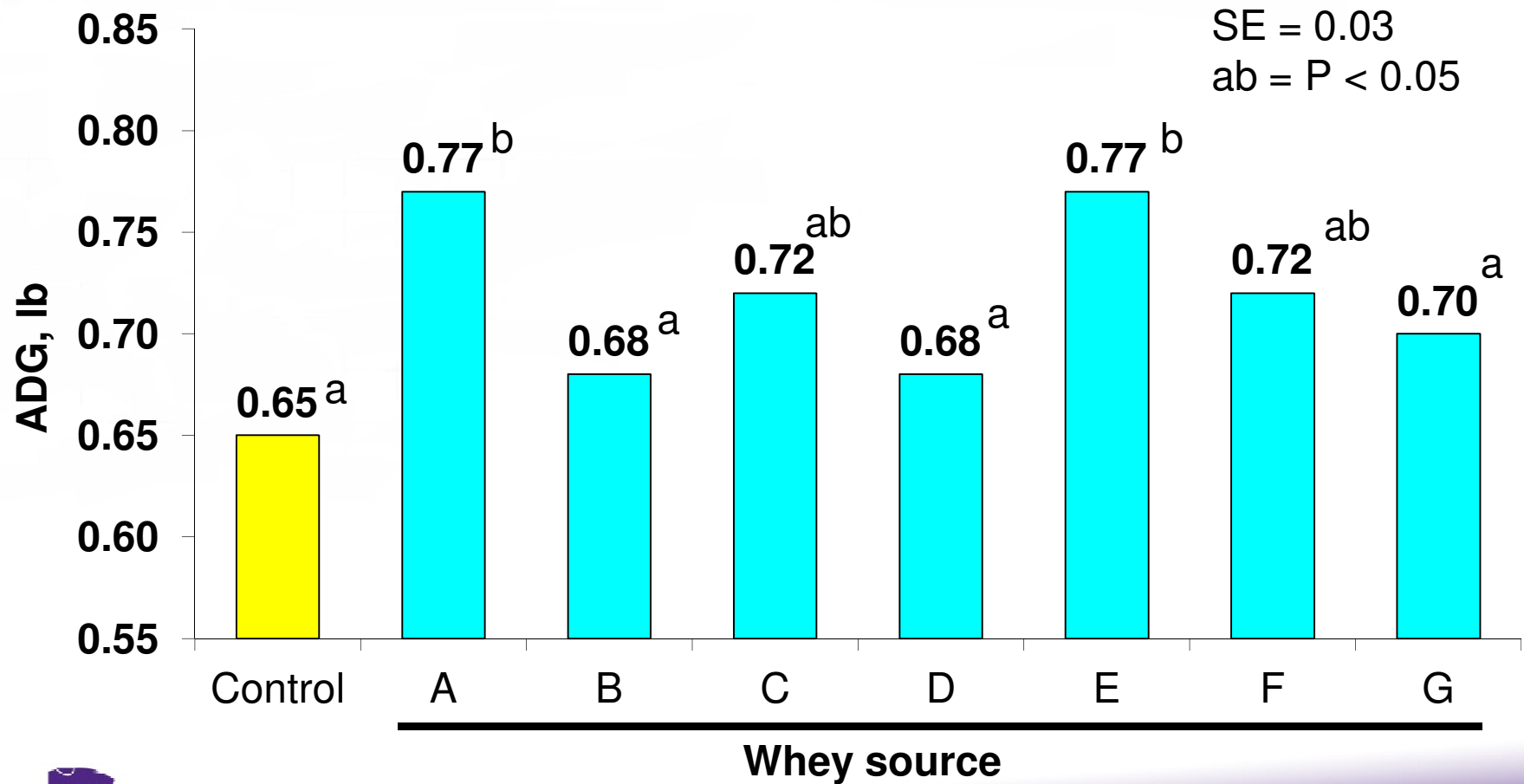
Presentation Outline

- Ingredients
 - Spray Dried Whey (lactose sources)
 - Added liquid fat
 - Bakery by-products
 - DDGS
- Feed processing and feeder type
- Current diet cost examples

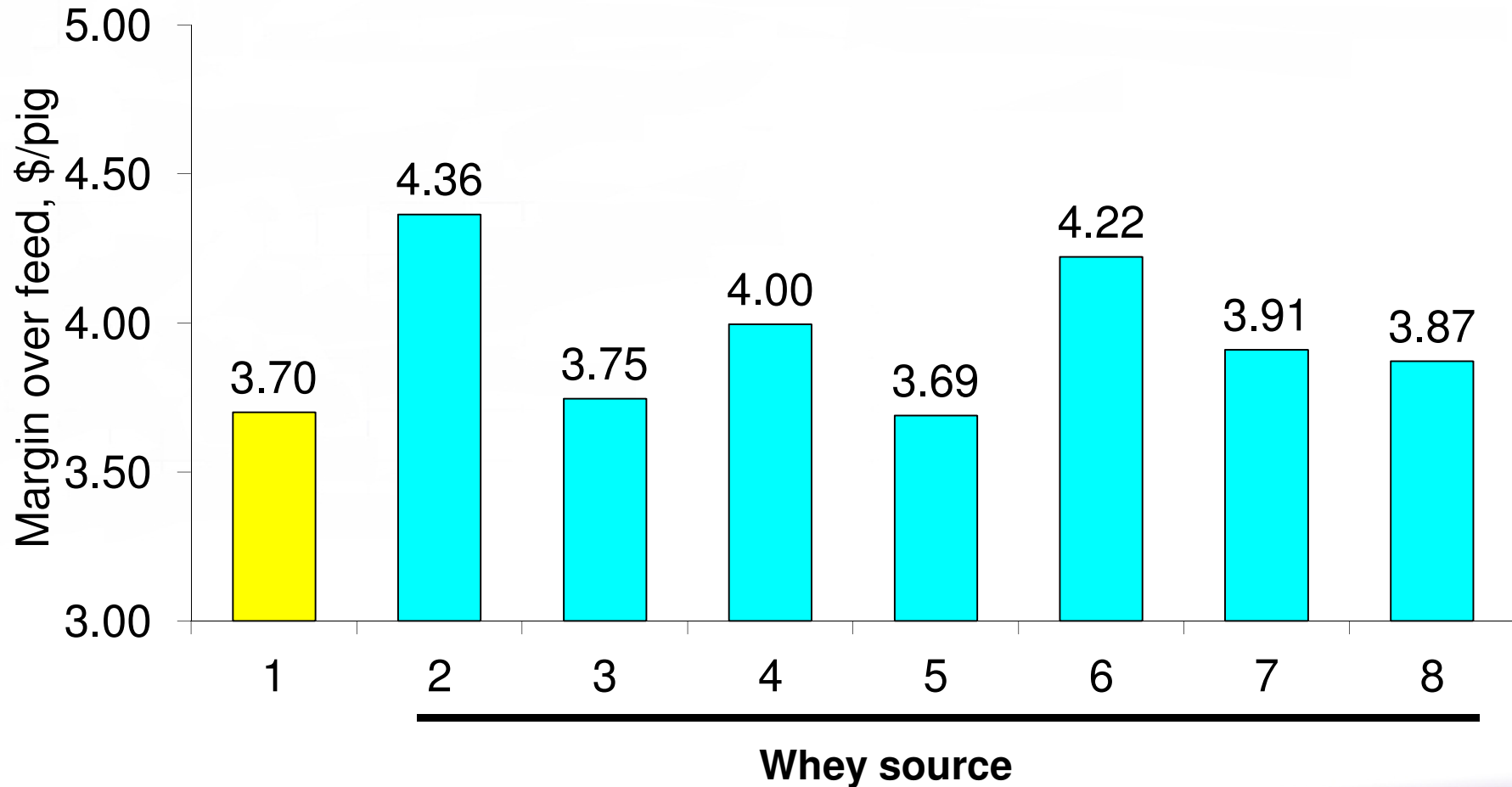
Recent Ingredient Prices

	June 2009	June 2010	June 2011	June 2012
Corn, \$/bu	\$4.00	\$3.20	\$7.25	\$6.00
SBM, \$/ton	\$395	\$285	\$350	\$400
DDGS, \$/ton	\$150	\$120	\$200	\$240
CWG, \$/cwt	\$27	\$33	\$50	\$46
Dical, \$/cwt	\$23	\$26	\$28	\$33
Dried whey, \$/cwt	\$24	\$48	\$60	\$75
L-lysine HCl, \$/cwt	\$70	\$110	\$120	\$113

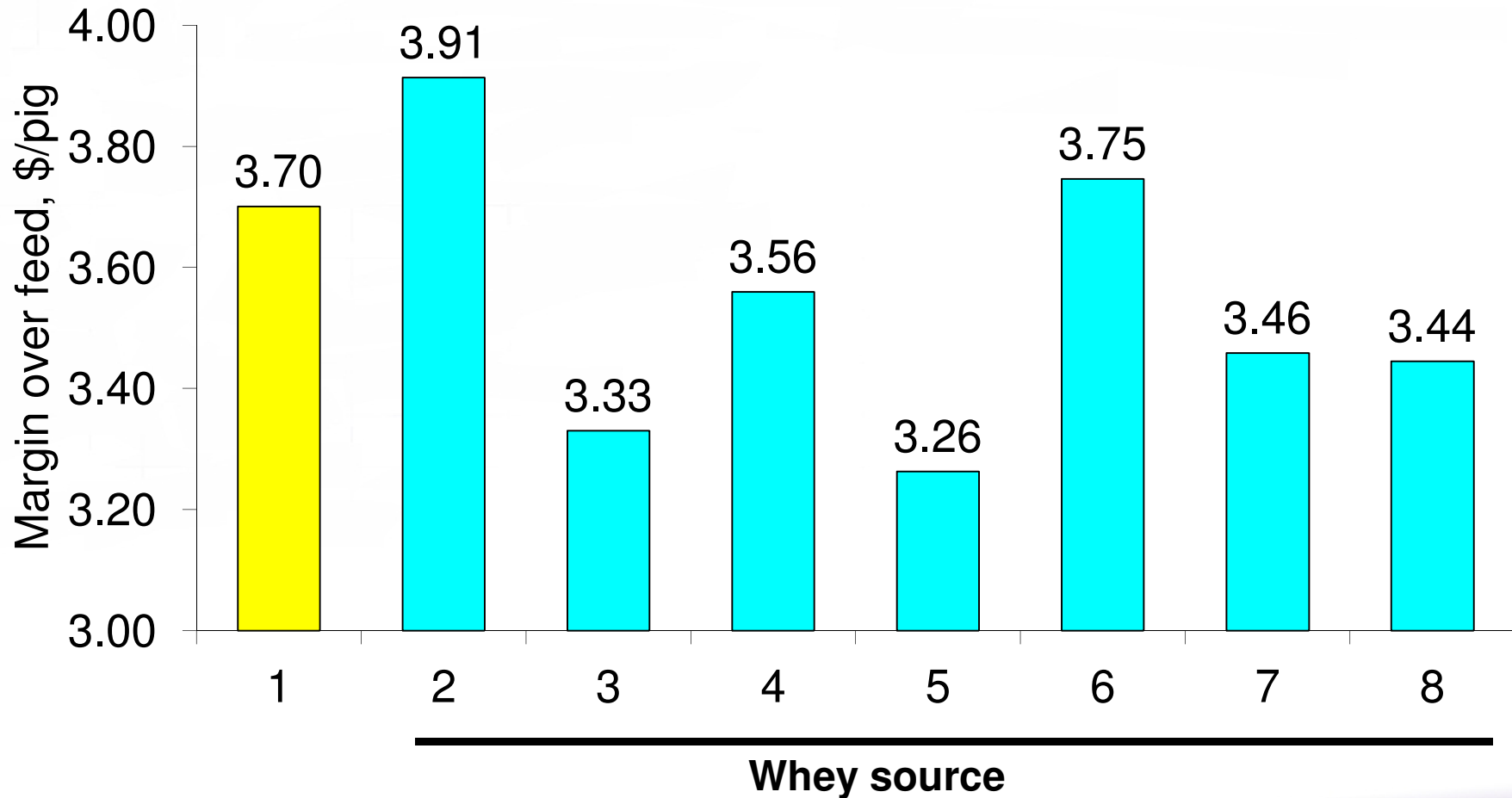
Sprayed-dry whey source on nursery performance (Day 5 to 19 after weaning)



Sprayed-dry whey source on nursery performance (\$0.40/lb whey)



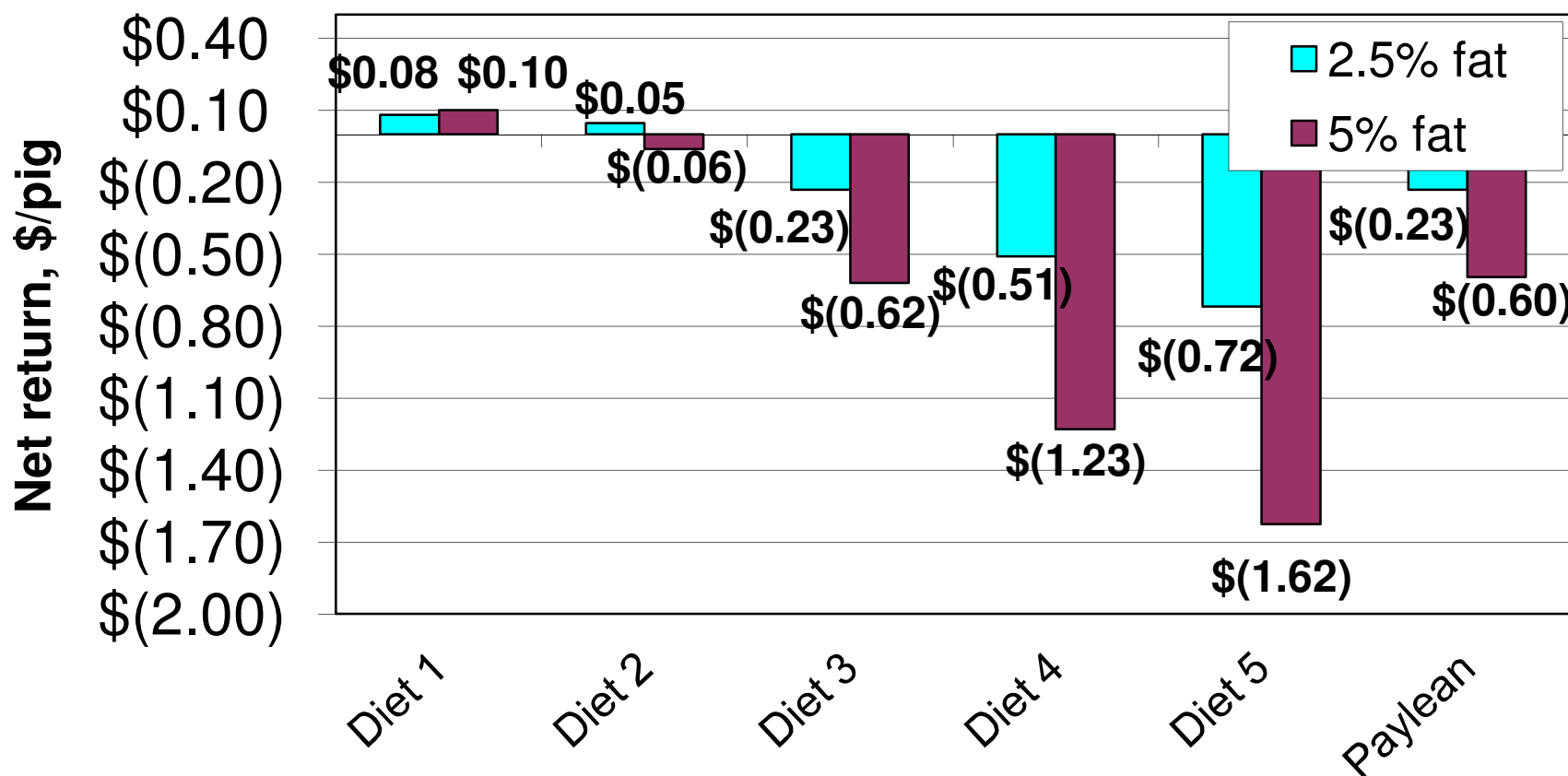
Sprayed-dry whey source on nursery performance (\$0.75/lb whey)



Added Fat Calculator available at www.KSUswine.org

Corn, \$/bu	\$ 6.00
SBM, \$/ton	\$ 400.00
Fat, \$/cwt	\$ 46.00
Grind/mix/delivery, \$/ton	\$ 15.00

Carcass price	\$ 90.00
Est. live price	68.91



Added Fat Recommendations

- Should I have fat in my diets currently?
 - Long on space = No
 - Gain improvements not required while increasing feed cost
 - Short on space = Yes/No/Maybe
 - Evaluate net return and determine optimum level by dietary phase.
 - Strategy should be different as economics change
- Which season are pigs to be marketed?
 - Pigs placed in midsummer/fall/early winter months can/should forgo added fat due to growth rate improvements to come with cooler weather.
 - Summer marketed pigs should have begun to receive added fat in March to capture growth rate.

Using added fat for dust control

- A common request is to reduce dust by using 1% added fat (currently \$0.46/lb)
 - F/G could improve by 0.04 from higher energy
 - ADG very minor to have measurable effect
- Current feed cost increase (F/G improvement accounted for) for dust control in finishing is \$1.23 / pig from 50 to 250 lbs!
- Can not afford dust control in finishing diets

Bakery By-Products

- Bakery byproducts are derived from the baking and cereal industries.
- Dried bakery byproducts are composed of a variety of commodities, such as hard and soft wheat products, pasta, potato chip waste, cakes, crackers, breakfast cereals, and other food products.
- Bakery byproduct varies in nutrient profile depending on its source products and is used primarily as an energy source to replace corn in the diet.
- Also, because most bakery products contain high amounts of sugar, it is usually highly palatable.

Bakery By-Products

- **Things to recognize:**
- Bakery products can vary in fat content which directly affects the assigned energy value.
 - NRC, 1998
 - Bakery = 11.3% fat, 1,678 kcal/lb ME (+8% ME vs. corn)
 - Corn = 3.9% fat, 1,551 kcal/lb ME
- However, many bakery products contain lower levels of fat than past book values (7-10% is typical). Recent analysis from a Midwest commercial mill using bakery:
 - Bakery = 6.4% Fat, Calculated ME value was 92% of corn

June 2012 DDGS Value Calculator with no performance change

Corn, \$/bu	\$ 6.00
SBM, \$/ton	\$ 400.00
Monocal, \$/ton	\$ 660.00
Limestone, \$/ton	\$ 47.00
Lysine HCl, \$/lb	\$ 1.12
DDGS, \$/ton	\$ 240.00

112% = DDGS:Corn price ratio

Diet cost change, \$/ton	F1	F2	F3	F4	F5	F6
10% DDGS	-\$6.24	-\$5.66	-\$5.12	-\$5.00	-\$4.23	-\$5.64
20% DDGS	-\$8.02	-\$7.41	-\$6.51	-\$6.34	-\$5.57	-\$6.42
30% DDGS	-\$9.18	-\$7.99	-\$7.03	-\$6.85	-\$6.08	-\$7.31
40% DDGS	-\$9.56	-\$8.43	-\$7.46	-\$7.28	-\$6.51	-\$7.75

Feed cost savings / pig	F1	F2	F3	F4	F5	F6	Total
10% DDGS	\$0.18	\$0.39	\$0.37	\$0.36	\$0.18	\$0.24	\$1.71
20% DDGS	\$0.23	\$0.51	\$0.47	\$0.45	\$0.24	\$0.27	\$2.16
30% DDGS	\$0.26	\$0.55	\$0.50	\$0.49	\$0.26	\$0.31	\$2.37
40% DDGS	\$0.27	\$0.58	\$0.54	\$0.52	\$0.28	\$0.33	\$2.51

June 2011 DDGS Value Calculator with no performance change

Corn, \$/bu	\$ 7.25
SBM, \$/ton	\$ 350.00
Monocal, \$/ton	\$ 600.00
Limestone, \$/ton	\$ 45.00
Lysine HCl, \$/lb	\$ 1.20
DDGS, \$/ton	\$ 200.00

77% = DDGS: Corn price ratio

Diet cost change, \$/ton	F1	F2	F3	F4	F5	F6
10% DDGS	-\$9.82	-\$9.70	-\$9.52	-\$9.59	-\$9.29	-\$9.91
20% DDGS	-\$18.02	-\$17.91	-\$17.46	-\$17.45	-\$17.17	-\$17.19
30% DDGS	-\$25.65	-\$25.11	-\$24.64	-\$24.62	-\$24.34	-\$24.75
40% DDGS	-\$32.66	-\$32.18	-\$31.71	-\$31.69	-\$31.41	-\$31.81

Feed cost savings / pig	F1	F2	F3	F4	F5	F6	Total
10% DDGS	\$0.28	\$0.66	\$0.68	\$0.68	\$0.39	\$0.42	\$3.12
20% DDGS	\$0.51	\$1.23	\$1.25	\$1.24	\$0.73	\$0.73	\$5.69
30% DDGS	\$0.73	\$1.72	\$1.77	\$1.75	\$1.03	\$1.06	\$8.05
40% DDGS	\$0.92	\$2.20	\$2.27	\$2.26	\$1.33	\$1.36	\$10.34

State of Oil Extraction

- Approximately 50% of ethanol plants are extracting oil currently, expected to grow to 80% by year end (2012).
 - Traditional DDGS = 10-11% fat
 - Oil Extracted DDGS = 5-9% fat; majority will be 7-9%
- Oil extraction is being installed on the “back end” of a plant (the thin stillage component) via a centrifuge system.
- Offers plants a 3-4 month payback on a \$3mm investment.

Impact on DDGS Value for Swine

- Research presented by Shurson and Kerr –
 - Each 1% reduction in oil results in a decrease of 30-50 kcal/kg ME; however this measurement may understate
 - There are other significant variables (e.g., each 25 point reduction in particle size results in an increase of 13.5 kcal/kg ME (particle size not impacted by oil extraction)).
 - The impact since oil content is not significant in the ME measurement equation (but fiber is).

Impact on DDGS Value for Swine

- From 2002 to present, variation of components has increased (particularly energy levels – metabolizable energy (ME) and digestible energy (DE)).
- Ethanol plants do not always communicate to all customers when processes change (e.g. oil extraction) which creates a significant problem for producers.
- As ethanol plants increasingly need to gain efficiencies to be profitable (with the blender's credit having expired and the blend wall reached), it is likely that there will be further technologies implemented to improve earnings

Feed Processing and Management



Every 100 microns =

1. F/G improves by 1.2%
2. 7 lbs less feed/finishing pig
3. Current \$0.98/pig savings in feed cost

Grain Particle Size

- F/G decreases or increases with particle size change
- Lack of research in high co-product diets
 - Less corn in rations – true response less known in high co-product diets that contain less corn
 - DDGS grinding – data is mixed, more data is needed
 - Whole diet grinding – currently being evaluated
 - Grind it fine then pellet for flow ability
- Takes more time/energy to grind finer, however, less total tonnage is manufactured by the mill.

Pelleting for Commercial Finishing Pigs

- Feeding a pelleted diet improved ADG:
 - Exp. 1 = 7.0%
 - Exp. 2 = 4.5%
- Feeding a pelleted diet improved G:F:
 - Exp. 1 = 5.4%
 - Exp. 2 = 2.1
- Diet formulation did affect pellet quality, which may explain differences between the experiments (Exp. 2 higher co-product)

Wet Dry Feeder Meta Analysis

Items	Dry	Wet-dry	SEM	P - value
Initial wt, kg	33.7	33.7	2.68	0.27
Final wt, kg	103.7	107.0	6.27	<0.01
ADG, kg/d	0.87	0.91	0.021	<0.01
ADFI, kg/d	2.31	2.43	0.101	<0.01
G:F	0.386	0.386	0.0150	0.93
Yield, %	75.8	75.6	0.26	0.57
HCW, kg	91.5	94.4	0.93	<0.01
BF, mm	16.7	18.1	0.23	<0.01
Loin, mm	62.2	61.6	0.68	0.14
Lean, %	51.4	50.8	0.85	<0.01
Water disappearance, L/pig/d	6.4	5.0	0.34	0.02

Example Diets with Alternatives

- Phase = 125 – 170 lb of body weight
- Corn = \$6.00/bu
- SBM, 46.5% = \$400/ton
- DDGS = \$240/ton
- Wheat midds = \$200/ton
- Meat and Bone = \$567/ton
- Moncal P, 21% = \$660/ton
- L-Lysine = \$1.12/lb

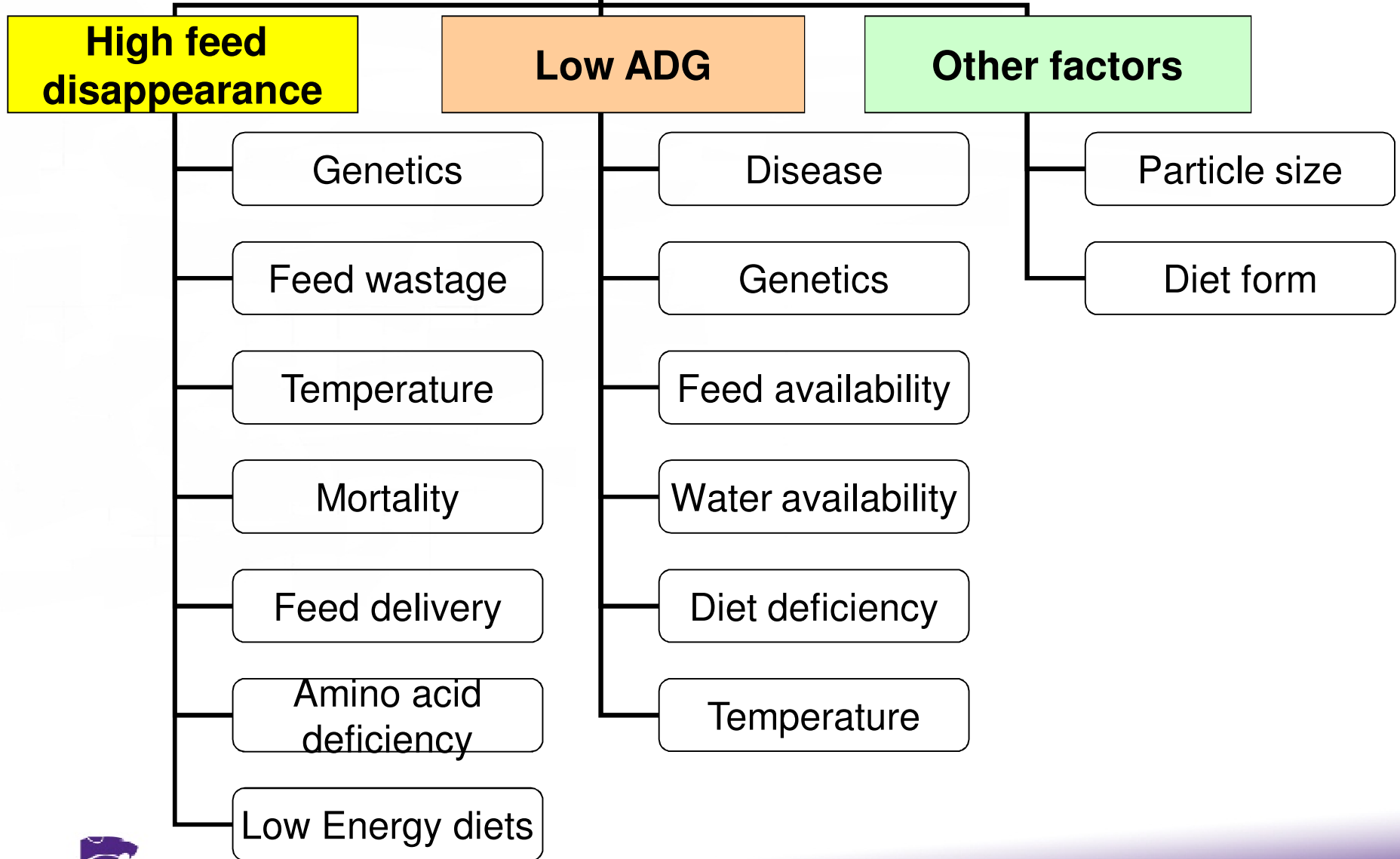
Ingredient	Normal	Higher AA	Meat & bone	DDGS	Wheat midds	DDGS & midds
Corn	1529	1607	1576	1120	1318	828
SBM, 46.5%	425	342	307	236	231	126
Meat & bone meal			100			
DDGS				600		600
Wheat middlings					400	400
Lysine HCl	3	5.7	4.4	7	7.2	8.5
DL-Methionine		0.25			0.3	
L-Threonine		1.2	0.6		1.7	
Monocal P, 21% P	16	16		2	10	
Limestone	15	16		23.5	20	26
VTM & Salt	12	12	12	12	12	12

SID Lys:ME, g/Mcal	2.55	2.55	2.55	2.55	2.55	2.55
SID Lys	0.85	0.85	0.85	0.86	0.83	0.84
SID Met & cys:lys	60	56	57	70	57	71
SID Thr:lys	62	62	62	64	62	62
SID Trp:lys	19.1	16.5	16.5	16.5	16.5	16.5
ME, kcal/lb	1,515	1,515	1,513	1,522	1,483	1,487
CP, %	16.5	15.1	16.6	18.7	14.6	18.2
Available P, %	0.23	0.23	0.28	0.23	0.23	0.27

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Limestone	15	16		23.5	20	26
VTM & Salt	12	12	12	12	12	12

Diet w/ processing	\$273.47	\$270.20	\$280.09	\$263.85	\$257.47	\$251.61
Budget, lb/pig	120.0	120.0	120.2	119.5	122.7	122.3
Feed cost, \$/pig	\$16.41	\$16.21	\$16.83	\$15.77	\$15.79	\$15.39
F/G	2.67	2.67	2.67	2.66	2.73	2.72

Feed Efficiency



K-State Web Resources

www.ksuswine.org

- DDGS Calculator
- Synthetic Amino Acid Calculator
- Fat Analysis Calculator
- Feed Budget Calculator
- Feeder Adjustment Cards
- Particle Size Information
- Marketing Calculators
- Gestation Feeding Tools

Thank you!



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and
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