Application of Renewable Energy Co-products in Feed: Beef Cattle

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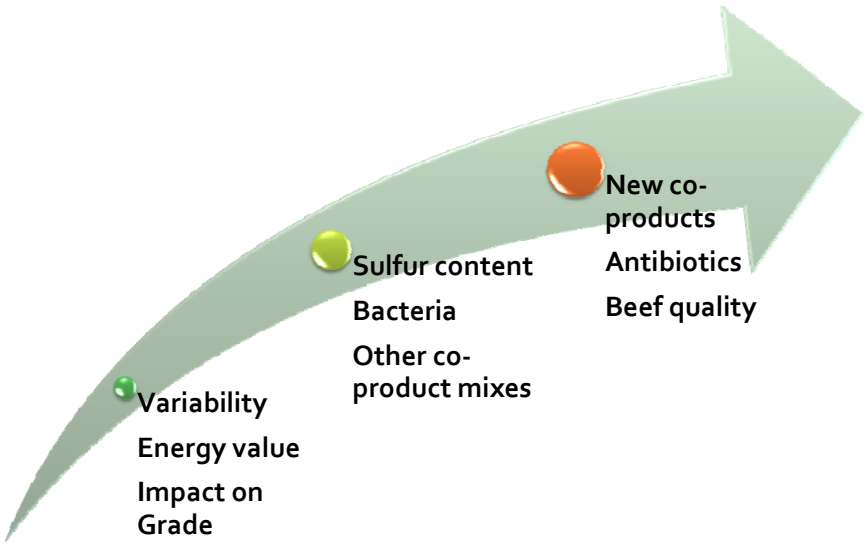
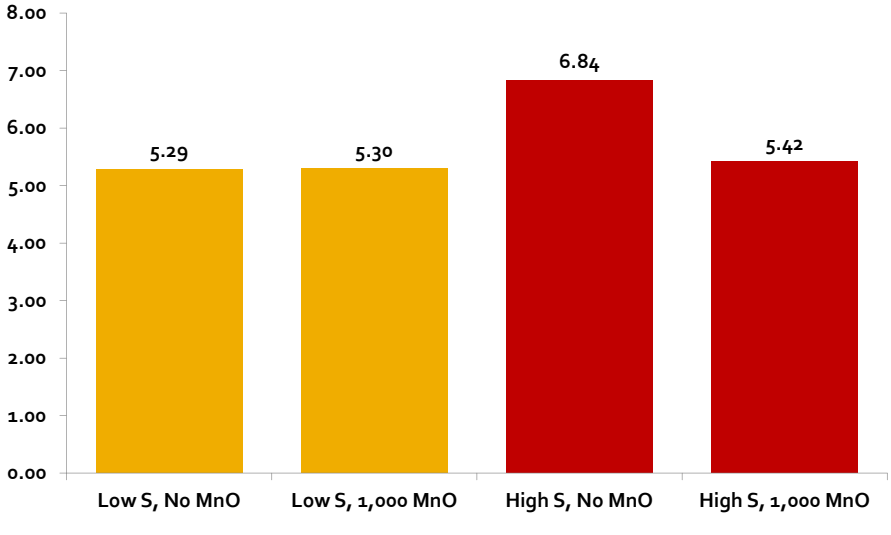
Limitations or Concerns with Distillers Grains in Beef Cattle Applications

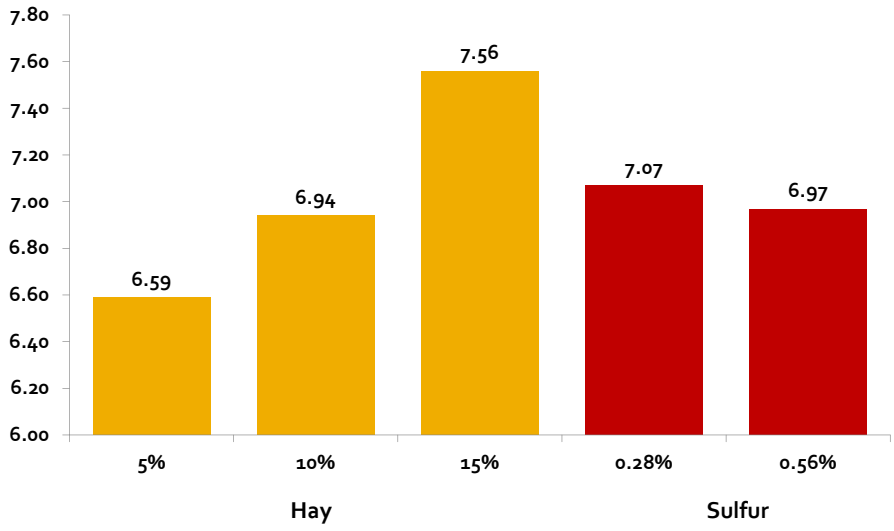


Efforts to Ameloriate Effects of S

Manganese Oxide in Receiving Period

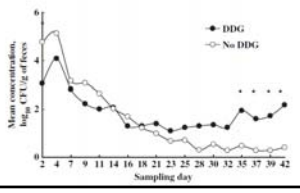


Greater Roughage Diets



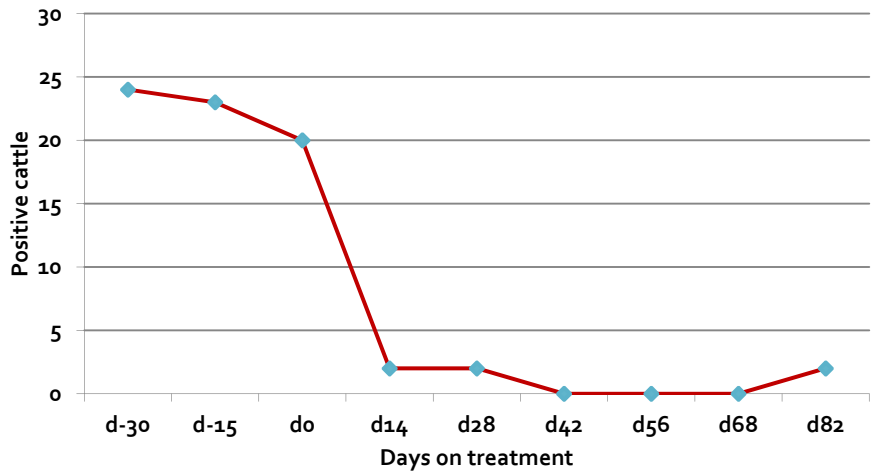
Previous Data

- Jacob et al., 2009—numerically greater *E. coli* O157:H7 shedding (floor samples) for DDGS (5.7% and 5.0% vs 2.7% and 4.0%)
- Jacob et al., 2008a—statistically greater *E. coli* O157:H7 shedding (floor samples) for DDGS (9.0% and 7.3% vs 3.6%)
- Jacob et al., 2010—statistically greater *E. coli* O157:H7 shedding (floor samples) for 40% inclusion of DGS (15.5%, 19.2% and 18.6% vs 25.6% and 24.7%)



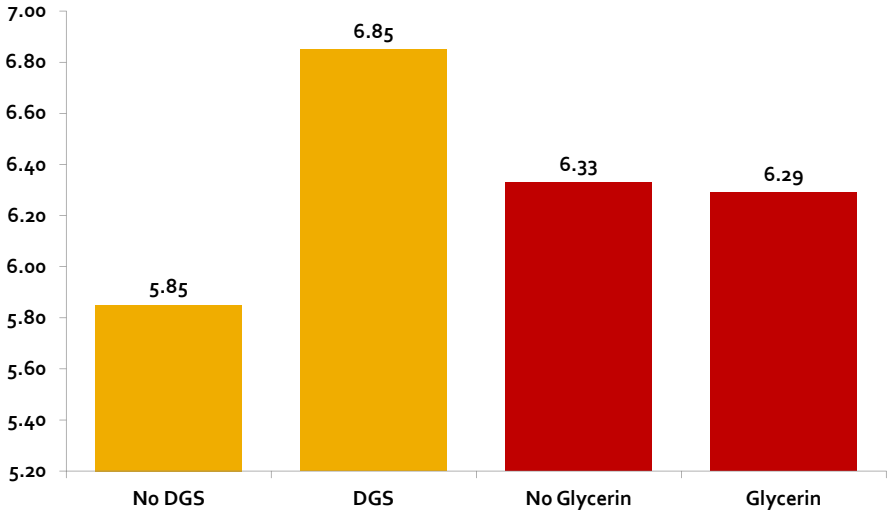
Jacob et al., 2008b

E. coli O157:H7 – Effect of DGS and Glycerin (naturally infected)

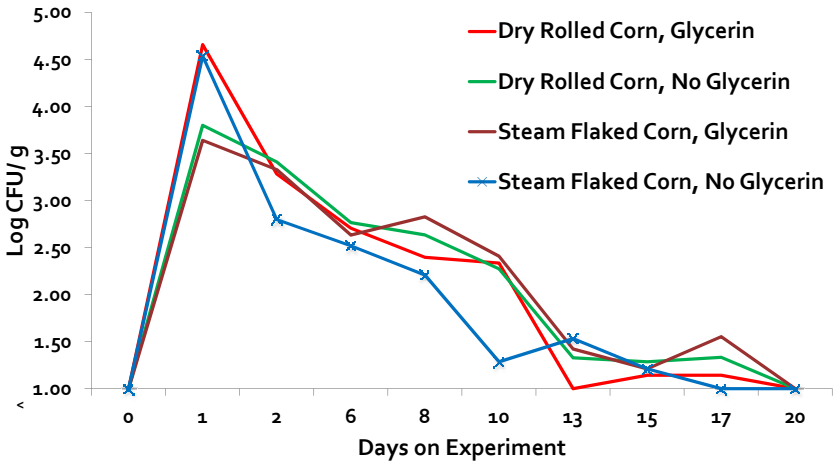


7

Distillers and Glycerin in Steam-Flaked Corn Diets



E. coli O157:H7 – Effect of Corn Processing and Glycerin (inoculated)



9

Applications Frontiers:

- New co-products
  - High-protein DG
  - Low-fat DG
  - Corn bran
    - Energy value
    - Combinations with conventional grains and other co-products
- Implications of antibiotic utilization in ethanol production
  - Animal effects
  - Contribution to resistance
- Beef quality
  - Saturated/unsaturated fatty acids
    - Impact on ground beef products

	Treatment[1]			
	CON	DDGS	HPDG	SEM
Feedlot Performance				
Initial BW, lb	704	700	692	18
Final Live BW[2], lb	1219	1217	1190	20
DMI, lb/d	22.7^{x}	22.4^{xy}	21.5^{y}	0.4
ADG, lb	4.37	4.38	4.22	0.11
Feed:Gain	5.27	5.13	5.11	0.119
Carcass Characteristics				
HCW, lb	743	741	725	12
12th Rib Fat, in.	0.563	0.619	0.650	0.033
LM Area, in. sq.	12.2	12.2	11.9	0.2
KPH, %	2.4	2.7	2.6	0.2
Yield Grade	2.56	2.75	2.69	0.12
Marbling Score[3]	561	594	609	22

11

Residues Found and Reference Values (progress report)

Antibiotic	Minimum, ppm	Maximum, ppm	Mean, ppm	Sp Approval*
Penicillin G	0.003	0.186	0.031	2.8
Erythromycin	0.000	1.046	0.050	3.7
Tylosin	0.000	0.020	0.002	4.4
Tetracycline	0.000	0.007	0.001	7.5
Virginiamycin	0.000	0.338	0.021	5.5

*Lowest concentration permitted

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