

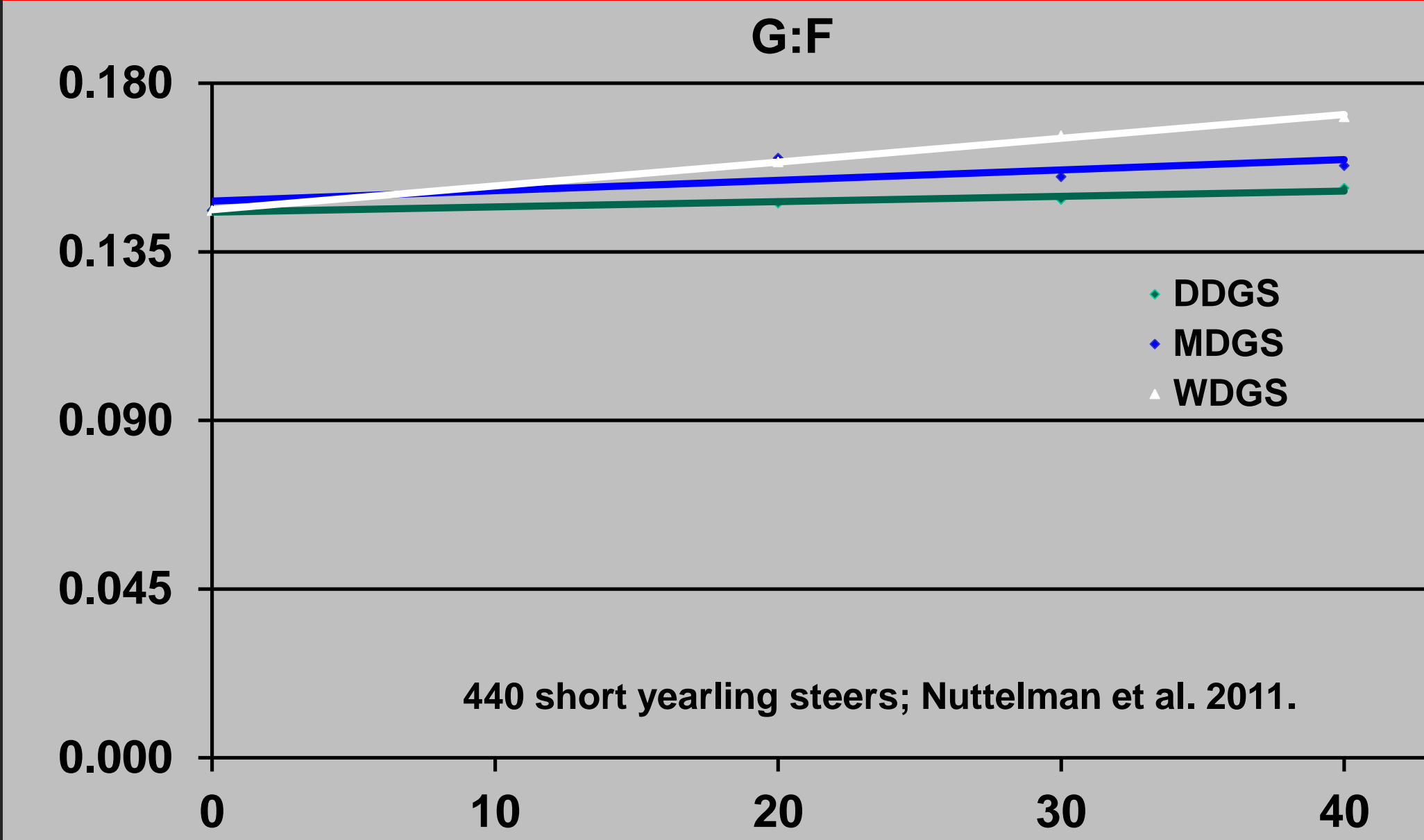
Comparing Wet and Dry Distillers Grains Plus Solubles in Finishing Cattle Diets



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Introduction



- Finishing diets containing WDGS, MDGS, and DDGS have been reported to contain 145, 126, and 109% greater energy than corn control
- Improvement in Gain efficiency was greatest for WDGS, intermediate for MDGS and the least for DDGS
- DM digestibility was not different between type of DG
- NDF digestibility was numerically reduced for DDGS compared to WDGS

	CON	WDGS	MDGS	DDGS	P-Value
DM Digestibility, %	78.6	76.6	74.6	73.4	0.39
OM Digestibility, %	80.2	78.8	76.5	74.9	0.35
NDF Digestibility, %	51.8	64.8	57.4	54.7	0.17
Fat Digestibility, %	87.2	88.2	89.7	86.0	0.53

Nutrient Metabolism Comparison with 6 ruminally cannulated steers. Nuttelman et al., 2011.

Objective

Evaluate the effect s of drying on the energy value and nutrient metabolism of distillers grains (DG) in cattle finishing diets

Feedlot Experiment 1

Measure the response difference between DDGS and WDGS in long yearlings

- 171 yearling steers (800 ± 66 lb)
- 3 TRT, 7 reps/TRT
 - 21 pens (8 or 9 strs/pen)
 - 148 DOF

Diets:

- Corn based control (CON)
- WDGS at 35% (DM; WDGS)
- DDGS at 35% (DM; DDGS)

- WDGS and DDGS:
 - replaced 1:1 DRC:HMC blend
 - Purchased from same plant prior to trial initiation

5% Supp and 7.5% Grass hay

Feedlot Experiment 2

Hypothesis: Drying solubles onto DG reduces feeding value in feedlot diets

6 types of feed (one plant)

- WDGS (34.5% DM)
- DDGS (89.4% DM)
- DDG (90.1% DM)
- Wet Solubles (33.4% DM)
- MDGS
 - Solubles added post dryer (42.1% DM)
 - Solubles added prior dryer (53.3% DM)

420 steer calves (627 ± 46 lb)

- 42 pens (10 steers/pen)
- 7 Treatements, 6 reps
- 187 DOF

DG replaced corn (35%)

Solubles mixed with DDG at feeding time



Digestion Experiment

Increase number of observations to measure digestion characteristics between WDGS and DDGS

3 Period Crossover Design

- 12 steers (1156 ± 75 lb)
- 3 diets (21 d periods)
 - 16 d adaptation / 5 d collection

Measurements:

- Total fecal collection
- Feces collected from rubber mats
- Weighed and subsampled daily

Treatments:

- DRC based control (CON)
- WDGS (40%DM inclusion)
- DDGS (40% DM inclusion)



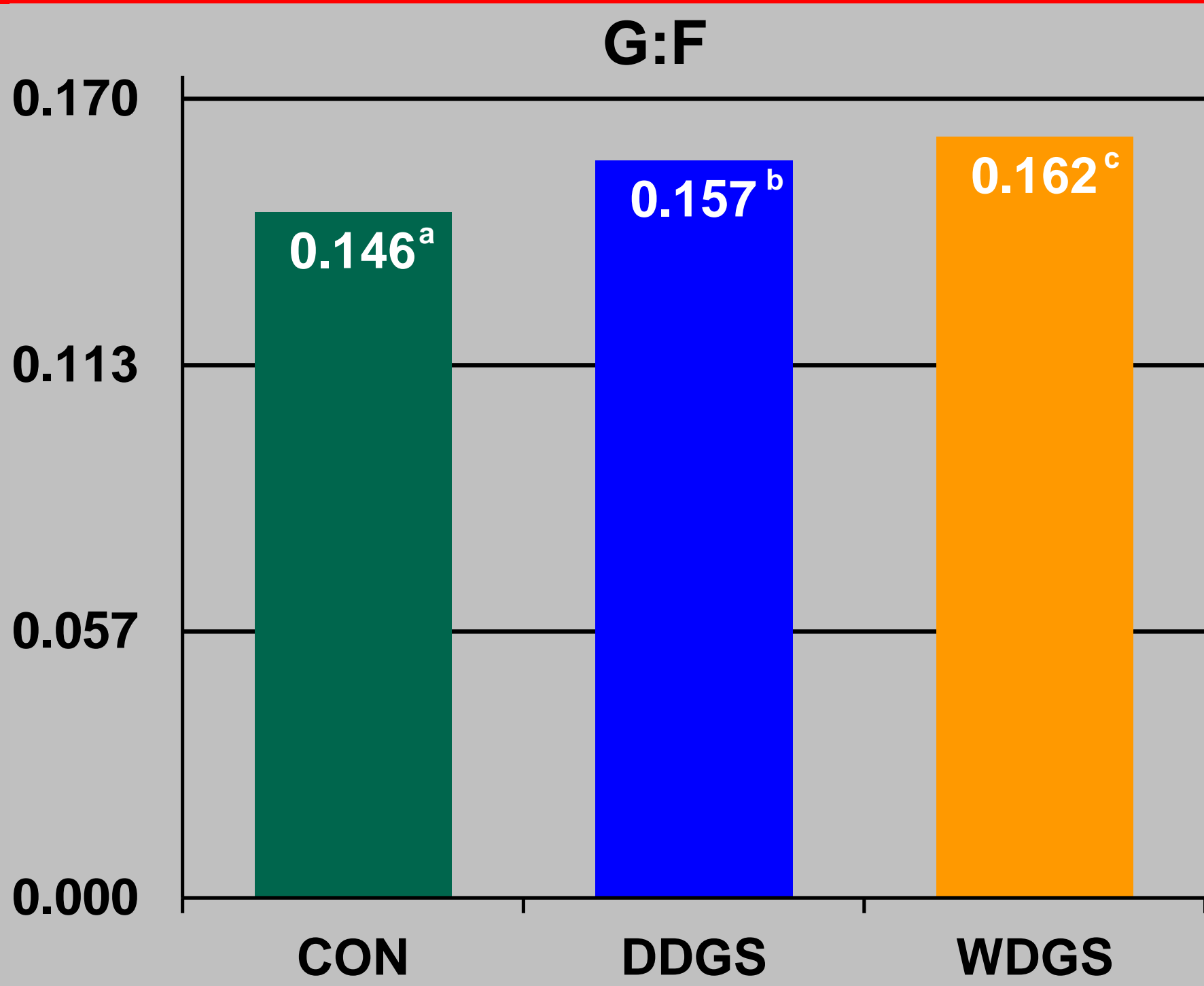
Feedlot Experiment 1 Results

Item	CON	DDGS	WDGS	SEM
<i>Performance</i>				
Final BW, lb ¹	1424 ^a	1488 ^b	1497 ^b	10.0
ADG, lb	4.15 ^a	4.58 ^b	4.65 ^b	0.07
DMI, lb/d	28.5	29.2	28.8	0.4
F:G	6.85 ^a	6.37 ^b	6.17 ^c	0.002
<i>Carcass Characteristics</i>				
HCW, lb	897 ^a	943 ^b	937 ^b	6.0
Marbling Score ²	608	611	618	12.0
12 th rib fat, in	0.55	0.58	0.60	0.02
LM area, in ²	13.0	13.1	13.2	0.4

^{a,b,c} Means with different superscripts differ $P < 0.05$

¹ Calculated from HCW, adjusted to a common dressing percent of 63.0%

² Marbling score: 400 = Slight[®]; 450 = Slight[®]; 500 = Small[®]; etc.



Digestion Experiment Results

	CON	DDGS	WDGS	SEM
DM				
Intake, lb/d	25.1	26.4	24.9	1.0
Digestibility, %	76.8	68.4	72.1	1.7
OM				
Intake, lb/d	22.1	22.7	22.8	0.8
Digestibility, %	76.2	67.3	73.0	1.7
NDF				
Intake, lb/d	3.8	6.2	6.0	0.2
Digestibility, %	64.3	58.4	62.0	2.6



Summary and Conclusions

- Diets containing WDGS or DDGS contained 27 and 17% more energy than CON, respectively in Exp 1
- Drying WDGS reduced the feeding value of DDGS 9.0% in Exp 1
- Diets containing DG had greater ADG and DMI than CON in Exp 2
- Drying solubles onto the distillers grains did not cause the reduced feeding value of DDGS or MDGS in Exp 2
- NDF digestibility was numerically reduced (17.6%) for DDGS in the Digestion Experiment.

