

Impacts of Added Fat Distillers Grains vs. EnerGII

Impacts of dietary fat level and saturation when feeding distillers grains to high producing dairy cows.

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Journal of Animal Physiology and Animal Nutrition

<http://onlinelibrary.wiley.com/doi/10.1111/jpn.12219/abstract>

Distillers Grains vs. EnerGII

THE OBJECTIVE

This experiment was conducted to determine whether increasing the net energy (NEL) of a total mixed ration (TMR) with mainly unprotected, unsaturated fat from corn distillers dried grains with solubles (DDGS) vs. rumen inert (RI) fat has similar impacts on animal performance.

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Distillers Grains vs. EnerGII

STUDY DESIGN

- N= 1140 lactating cows
- 3 treatments with 380 early lactation, multiparous cows/treatment
- Incomplete Youden Square Design
 - Four 28-day periods & followed cows through entire lactation
 - Total experiment = 16 weeks
- Dakota Gold was used as the high protein/low fat distillers source.
- Average intake of EnerGII was .8 lb/d (same as average intake of fatty acids from typical distillers treatment).
- Typical distillers = 12% fat; Low fat (high protein) distillers = 5% fat

Distillers Grains vs. EnerGII

THE TREATMENTS

CONTROL

5.8 lb. Low Fat/
High Protein DDG

TYPICAL DDGS

6.6 lb. Typical DDGS
(12% fat)

ENERGII + LOWFAT DDGS

.8 lb. EnerGII
5.8 lb. Low Fat / High
Protein DDG

Distillers Grains vs. EnerGII

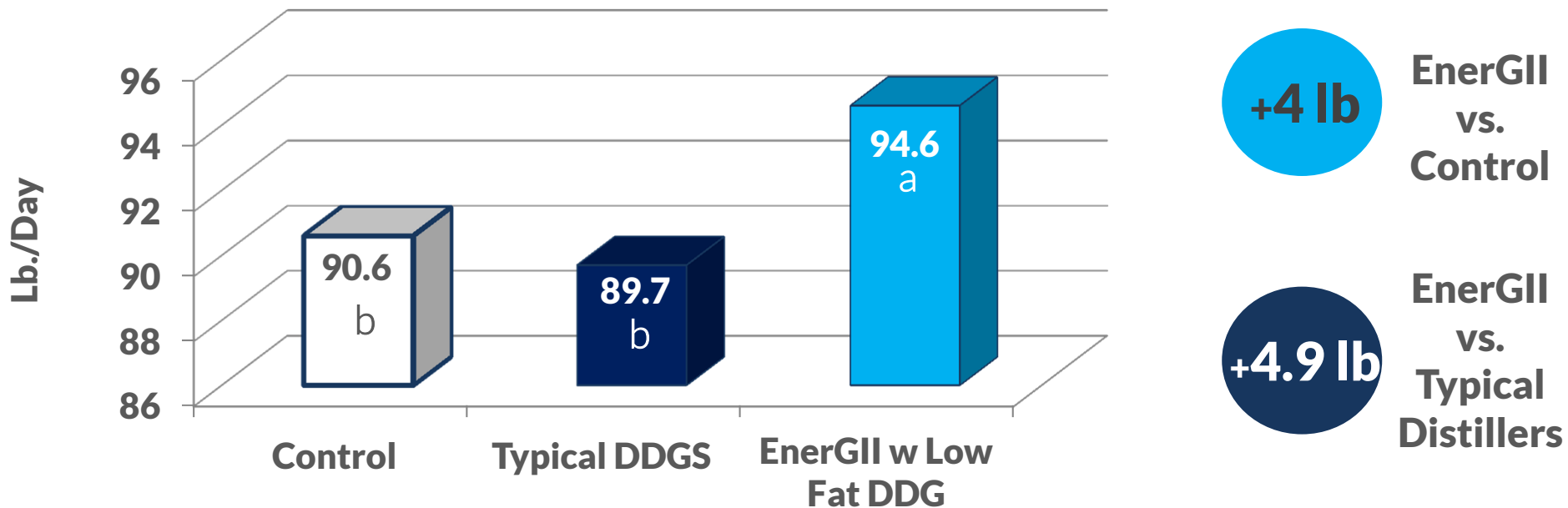
THE RESULTS

- ✓ **Milk Production**
- ✓ **Milk Fat Test**
- ✓ **Fat Corrected Milk**
- ✓ **Dry Matter Intake**
- ✓ **Body Condition Score**
- ✓ **Feed Efficiency**
- ✓ **Fatty Acid Digestibility**
- ✓ **Income Over Feed Cost**

Distillers Grains vs. EnerGII

THE RESULTS: Milk/Cow

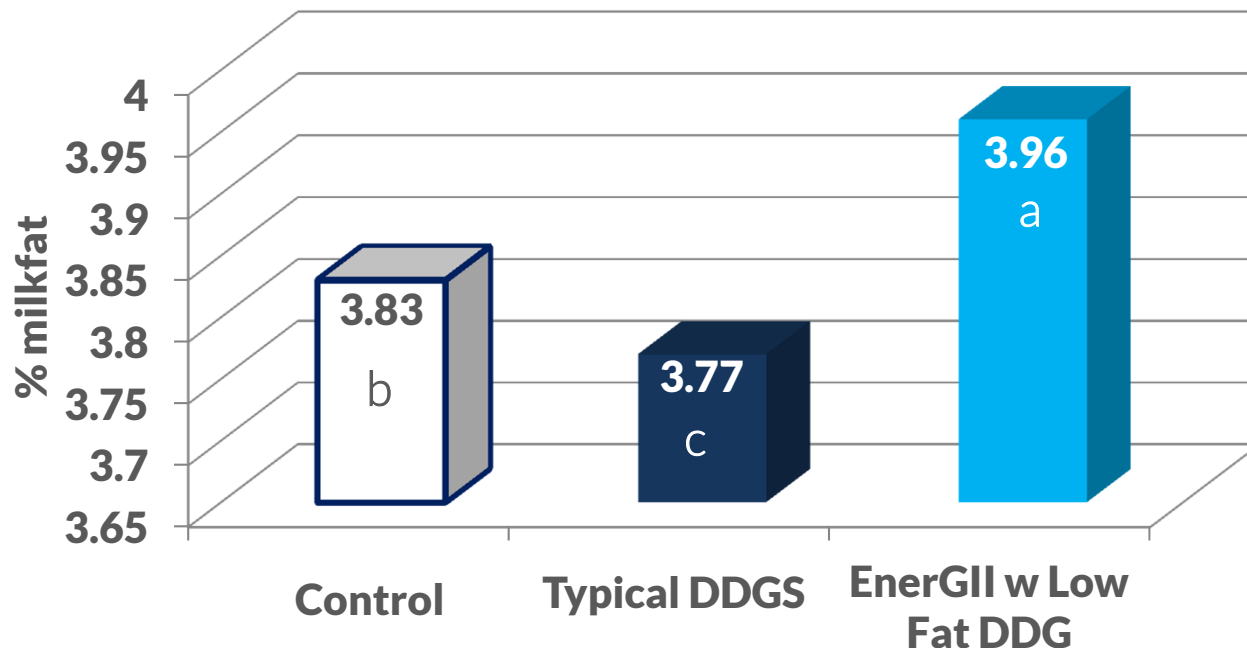
a,b P < .01



Distillers Grains vs. EnerGII

THE RESULTS: Milkfat %

a,b,c P < .01



+0.13%

EnerGII vs. Control

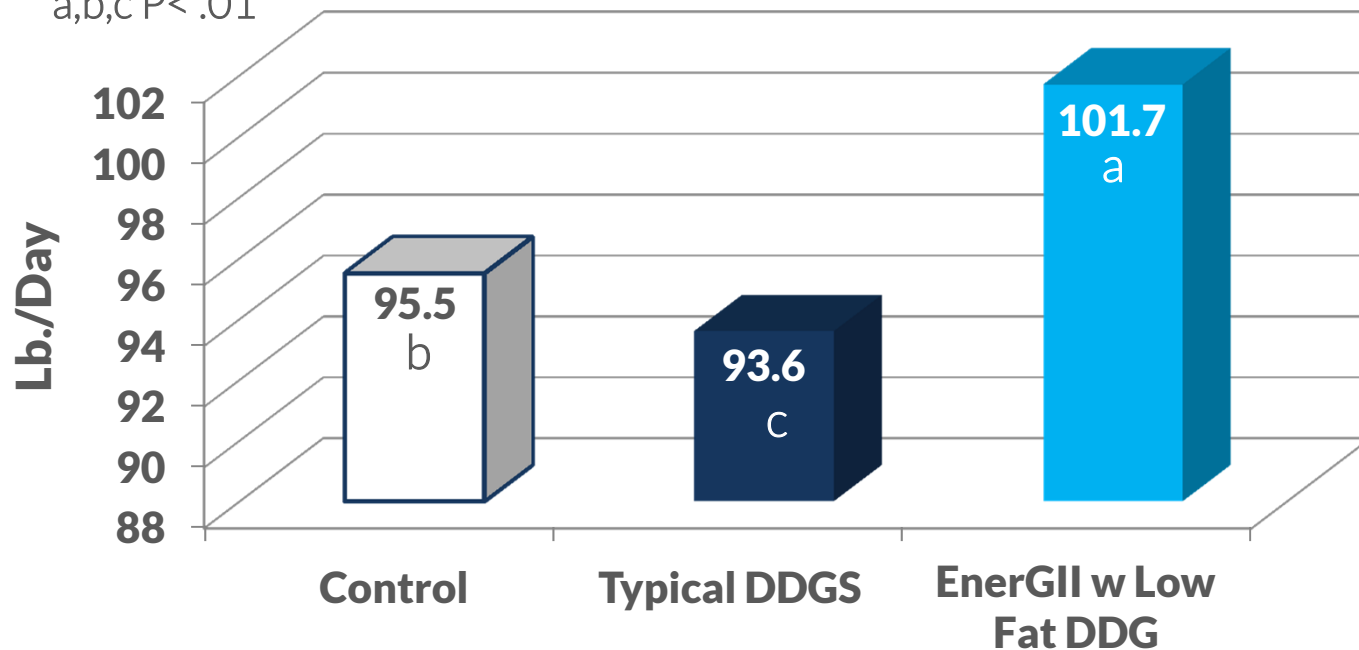
+0.19%

EnerGII vs. Typical Distillers

Distillers Grains vs. EnerGII

THE RESULTS: 3.5% FCM

a,b,c P < .01



+6.2 lb

EnerGII vs. Control

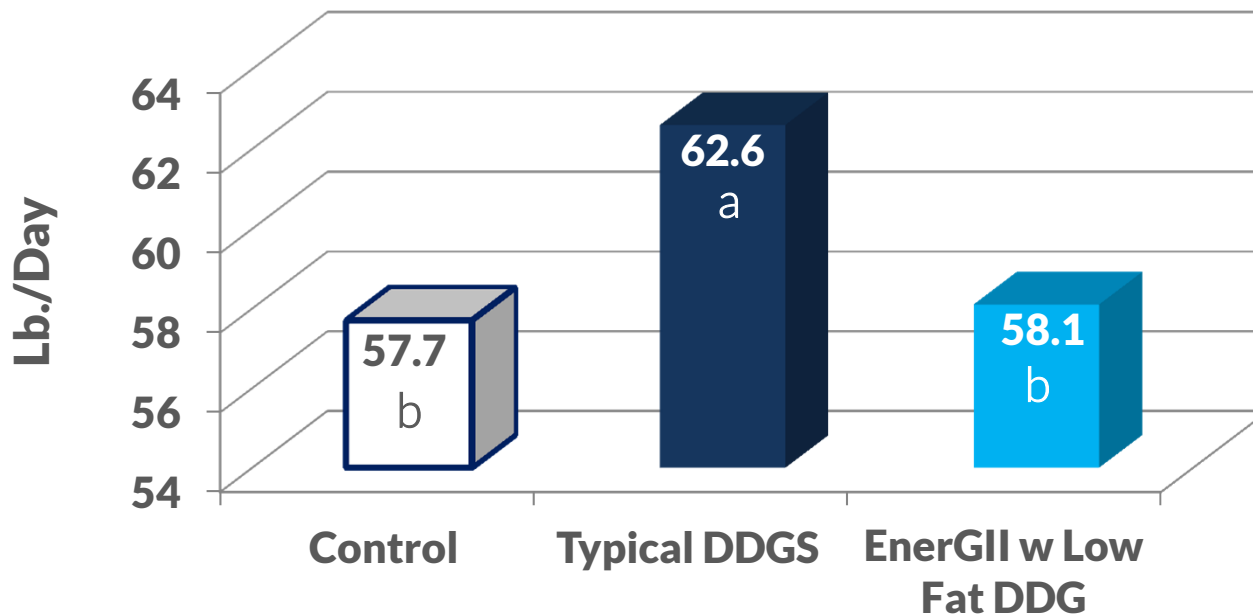
+8.1 lb

EnerGII vs. Typical Distillers

Distillers Grains vs. EnerGII

THE RESULTS: Dry Matter Intake

a,b P < .01



+0.4 lb

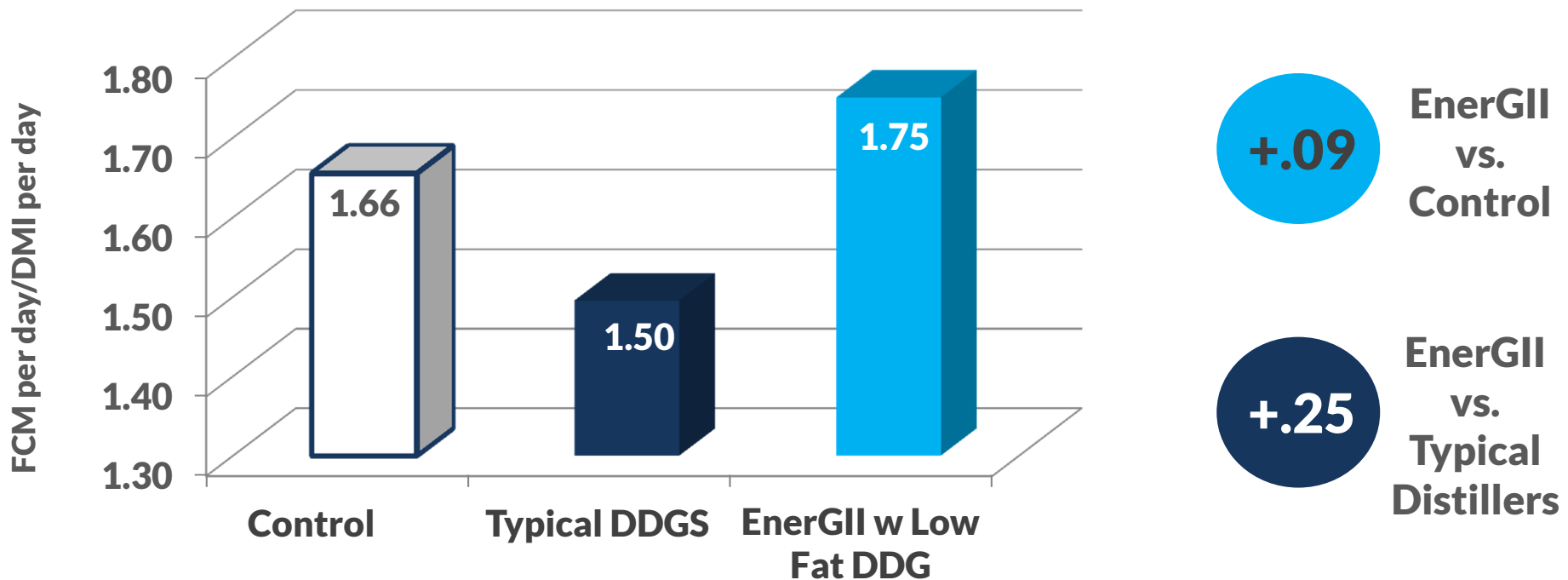
EnerGII
vs.
Control

-4.5 lb

EnerGII
vs.
Typical
Distillers

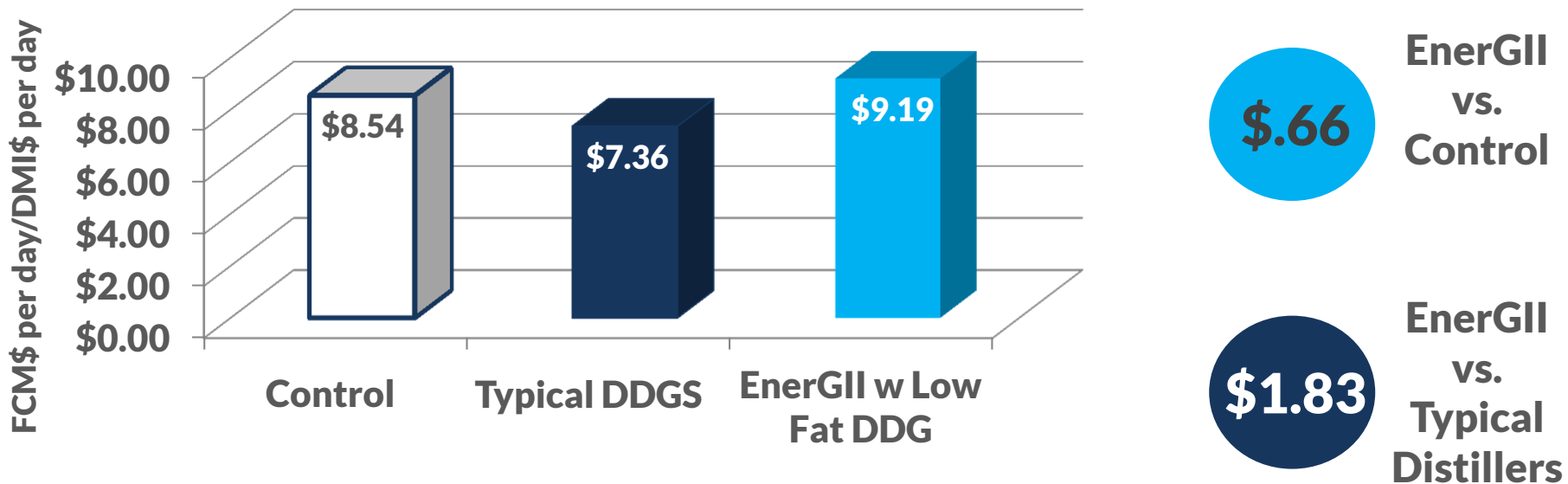
Distillers Grains vs. EnerGII

THE RESULTS: Feed Efficiency



Distillers Grains vs. EnerGII

THE RESULTS: Income Over Feed Cost

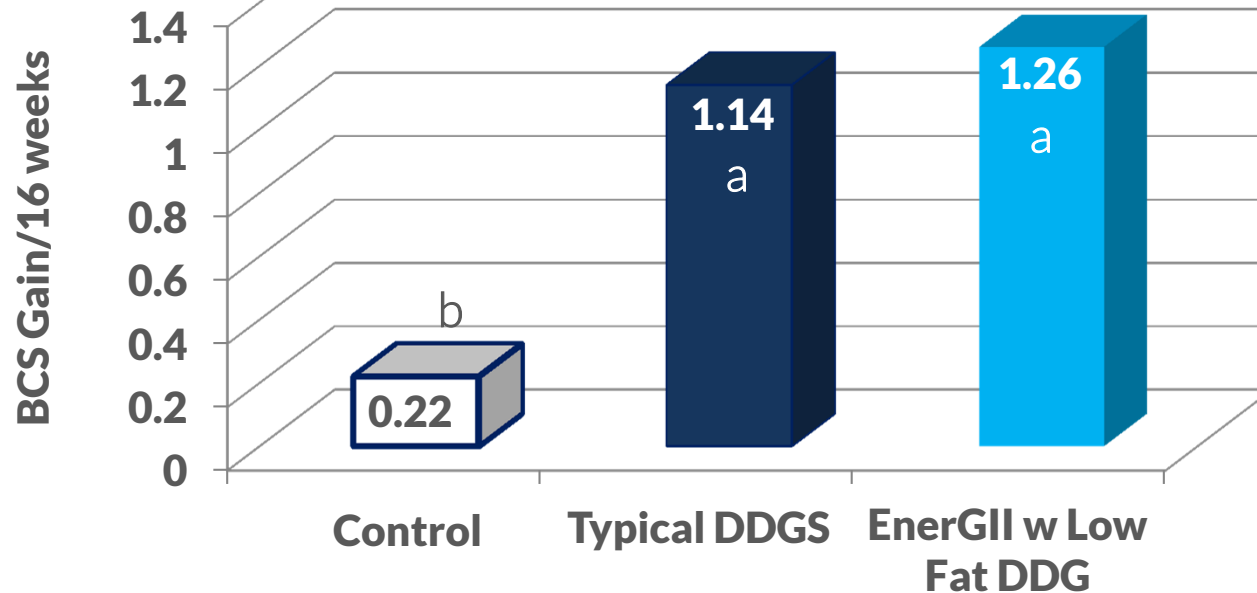


*Assumptions: \$18.00/cwt milk price and \$0.15 per lb. feed cost across treatments, plus +\$.10 additional cost/cow for typical distillers vs. control and +\$.40/cow for EnerGII treatment vs. control.

Distillers Grains vs. EnerGII

THE RESULTS: Body Condition Score Gain over 16 Weeks

a,b P < .01



+1.04

EnerGII
vs.
Control

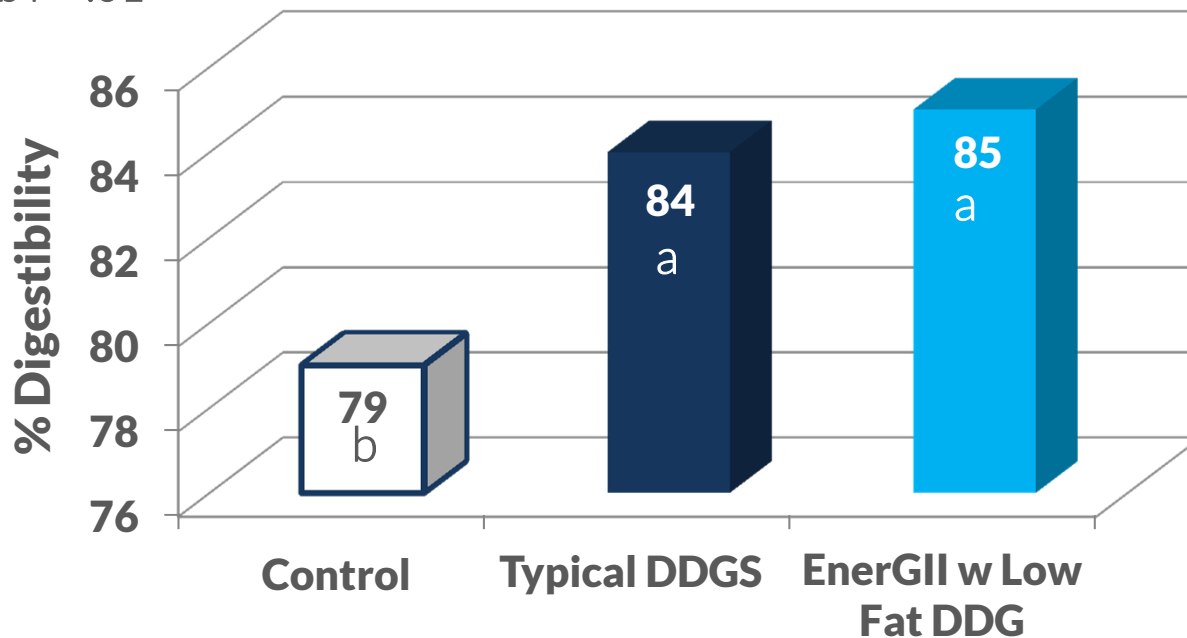
+1.12

EnerGII
vs.
Typical
Distillers

Distillers Grains vs. EnerGII

THE RESULTS: Fatty Acid Digestion

a,b P < .01



+6%

**EnerGII
vs.
Control**

+1%

**EnerGII
vs.
Typical
Distillers**

EnerGII vs. Low Fat Control

BENEFITS SUMMARY

+0.13 % Fat



vs. Control

+6% Fatty Acid Digestibility

+4 lb Milk

+0.4 lb DMI

+6.2 lb FCM

\$.66

+0.09 Feed Efficiency

Income Over Feed Cost

EnerGII vs. High Fat Distillers

BENEFITS SUMMARY

+.19 % Fat

+4.9 lb Milk

+8.1 lb FCM

 **EnerGII**[®]
CALCIUM SALTS OF FATTY ACIDS
vs. Typical DDGS

\$1.83

Income Over Feed Cost

+1% Fatty Acid Digestibility

-4.5 lb DMI

+.25 Feed Efficiency

Distillers Grains vs. EnerGII

THE RESULTS: Partial Budget Analysis

	EnerGII vs. Control	EnerGII vs. Typical DDGS
REVENUE		
Fat Corrected Milk (lbs.)	6.2	8.1
Milk Price	\$18.00	\$18.00
Milk Revenue	\$1.12	1.46
COST		
Incremental Ration Cost	\$0.40	\$0.30
Change in DMI (lb.)	0.4	-4.5
Ration Cost/lb. DM	\$0.15	\$0.15
Incremental DMI Cost	\$0.06	\$(0.68)
Total Cost:	\$0.46	\$(0.38)
PROFIT		
Total Profit/cow/day:	\$0.66	\$1.83

Assumptions: Typical DDGS @ \$250/ton; Low Fat DDGS @ \$250/ton, EnerGII @\$1000/ton, Ration Cost: \$0.15/lb., Milk Price: \$18/cwt.

Distillers Grains vs. EnerGII

POINTS TO REMEMBER

- The diet with **EnerGII & Low Fat Distillers** saw the **greatest milk production, milk fat %, and fat corrected milk**, all on similar intakes relative to the control with just low fat distillers.
- These gains in production efficiency were due primarily to the **greater fatty acid digestibility in the EnerGII diet**.
- While the typical DDGS vs. EnerGII + Low Fat DDG treatments were equal in total fatty acids, the **EnerGII diet yielded 8.1 pounds more fat corrected milk and \$1.83 cents greater income over feed cost**.
- While typical DDGS may seem like an 'inexpensive' ingredient at times, there are **tremendous costs to production efficiency vs. EnerGII**.