EFFECT OF STEAM-FLAKED OR STEAM-ROLLED CORN, WITH OR WITHOUT AMAFERM® IN THE DIET, ON THE PERFORMANCE OF DAIRY COWS FED DURING HOT WEATHER

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AMAFERM increased milk solids-not-fat percentage and tended to increase milk protein percentage on cows fed a high concentrate diet.

SUMMARY

DOSE OF AMAFERM USED
3g per head, per day

Feeding 40% steam-flaked corn to dairy cattle improved milk production and milk component yields, compared with feeding steam-rolled corn. The supplementation of 3 g/h/d AMAFERM on a high-concentrate diet increased milk solids-not-fat percentage, and tended to increase milk protein percentage, but did not affect milk production or the tolerance of cows to heat stress.

VALUE

For dairy cattle fed a high-concentrate diet, AMAFERM can increase milk SNF percentage, and possibly milk protein, while keeping total milk production the same.

PROTOCOL

Type of Animals/Experimental Units

- Holstein dairy cows, averaging 92 (±60) DIM

Number of Animals/Experimental Units

- 32

PROTOCOL (CONTINUED)

Trial Design

- Randomized complete block design, 2X2 factorial arrangement

Treatments

- Steam-flaked corn (SFC) with or without 3 g/h/d AMAFERM
- Steam-rolled corn (SRC) with or without 3 g/h/d AMAFERM

Diet Information (General)

- 40% corn grain, 35% alfalfa hay, 10% whole cottonseed, 5% cottonseed hulls, 7% soybean meal, 1% molasses, 0.3% MgO, 0.7% NaHCO3, 1% minerals and vitamins

Data Collection

- Dry matter intake, milk yield, milk components, SCC, body weight, body condition score, rectal temperature, respiration rate

DISCUSSION OF RESULTS

- DMI was not affected by corn processing or AMAFERM feeding, however cows fed SRC consumed about 5% more DMI than cows fed SFC
- Covariate-adjusted milk production was higher for cows fed SFC than for cows fed SRC ($P < 0.02$), resulting in a tendency of higher feed efficiency (FCM/DMI, $P < 0.06$) for SFC fed cows (Table 1)
- Milk production, FCM, and feed efficiency were not changed by the addition of AMAFERM (Table 1).
- Feeding SFC resulted in lower milk fat percentage, but higher milk protein and SNF percentages as well as higher yields of milk protein, lactose and SNF compared with feeding SRC (Table 1)
- Feeding AMAFERM had no effect on milk fat percentage and yield; protein yield; lactose percentage and yield; SNF yield; or SCC or milk, but increased SNF percentage ($P < 0.04$) and tended to increase protein percentage ($P < 0.12$, Table 1)
- No significant differences on BW or BCS were detected among treatments. Cows fed SRC tended to gain less BW and have more negative changes in BCS than cows fed SFC (Table 1)
- No treatment effects were found on rectal temperatures and respiration rates (data not shown)

Table 1
Effect of corn processing and addition of AMAFERM on lactation performance.

	Diet[1]				P <[2]	
Item	**SFA**	**SFN**	**SRA**	**SRN**	**P**	**A**
DMI,[3] kg/d	26.3	27.7	28.3	28.3	0.18	0.43
Milk,[3] kg/d	39.7	40.7	37.6	38.7	0.02	0.22
3.5% FCM, kg/d	34.7	36.6	34.4	34.9	0.31	0.23
FCM/DMI	1.34	1.34	1.22	1.27	0.06	0.68
Milk Fat						
%	2.73	2.86	2.91	2.98	0.08	0.25
kg/d	1.08	1.17	1.11	1.13	0.98	0.20
Milk Protein						
%	3.21	3.18	3.14	3.07	0.01	0.12
kg/d	1.28	1.29	1.18	1.19	0.001	0.72
Milk Lactose						
%	4.86	4.86	4.89	4.80	0.65	0.20
g/d	1.93	1.97	1.82	1.86	0.04	0.52
Milk SNF						
%	8.49	8.44	8.43	8.30	0.03	0.04
g/d	3.38	3.42	3.17	3.20	0.01	0.63
SCC	145	91	280	182	0.14	0.26
Change in BW, g/d	25.4	42.2	-17.8	21.4	0.08	0.12
BCSC[4]	0.00	0.00	-0.16	-0.06	0.13	0.51

[1] SFA: steam-flaked corn with AMAFERM; SFN: steam-flaked corn w/o AMAFERM; SRA: steam-rolled corn with AMAFERM; SRN: steam-rolled corn w/o AMAFERM
[2] P: processing effect; A: AMAFERM effect
[3] Covariate-adjusted mean
[4] Body condition score change

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