

Roasted Beans

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The Following information was obtained from the U.S. Dairy Forage Research Institute in Madison, WI

Milk Production Benefits of Roasted Soybeans

Taken from

EVALUATING THE QUALITY OF ROASTED SOYBEANS

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"Large increases in milk production are possible when early lactation cows are fed properly heated soybeans. We conducted a large scale lactation study to measure milk production when soybeans were heated to 295° F and steeped for 30 min (Faldet et al., 1991). Forty-six multiparous Holstein cows were fed one of three total mixed diets from 15 to 119 days with alfalfa silage as the only forage. Each diet contained 50% forage and 50% concentrate on a DM basis. Diets were formulated to be isonitrogenous by replacing corn and solvent soybean meal with raw soybeans or heat-treated soybeans. The proportion of protein supplement in the diet on a DM basis for the three groups was 10% soybean meal, 13% raw soybeans, or 13% heat treated soybeans. The soybean meal diet was fed to all cows during week 1 and 2 postpartum for covariate adjustment of dry matter intake and milk production. Intake of DM was similar across treatments. **Feeding heat-treated soybeans supported more milk (9.9 lbs/day), 3.5% FCM (8.8 lbs/day), and milk protein (.2 lbs/day) than soybean meal or raw soybeans.** Milk fat percentage was not altered by treatments. However, milk protein percentage was depressed in cows fed heat treated soybeans compared with soybean meal (2.85 vs.2.99%, respectively)."

"Figure 1 contains a plot of the unadjusted mean daily milk production for cows in this experiment cows fed the heat processed soybeans achieved a higher peak milk production and reached the peak 2-4 weeks later than the soybean meal group or the unheated soybean group."

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Wet Chemistry Analysis and By-Pass Protein Testing Performed By:

Rock River Laboratory
 N8741 River Road
 Watertown, Wisconsin 53094

F E E D A N A L Y S I S R E P O R T

ROASTED SOYBEANS 4-15 TO 4-30
 Sample # 1 Date 5/1/99

Analysis Results

Moisture = 4.00%	Dry Matter = 96.00%	

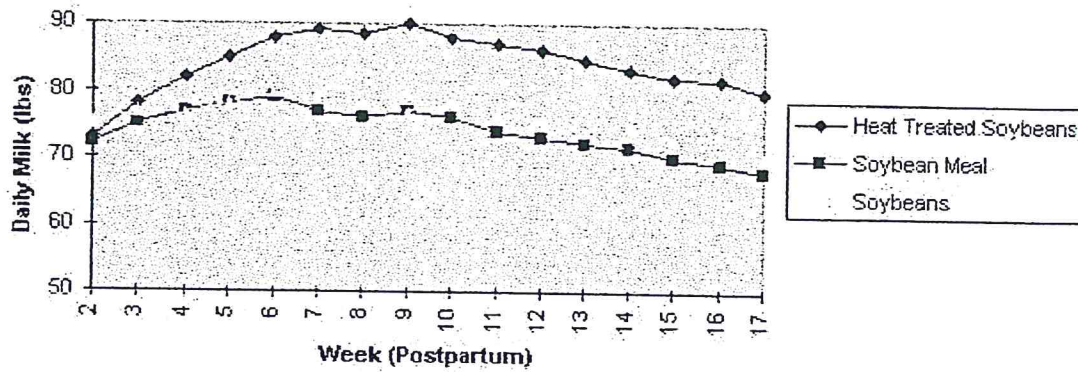
	Dry Matter Basis	As Is
Crude Protein	40.24%	38.63%
Avail. Crude Protein	40.01%	38.41%
ADF Bound Protein	0.23%	0.22%
Acid Det. Fiber	7.56%	7.26%
Neutral Det. Fiber	13.63%	13.08%
TDN (est)	77.78%	74.67%
Net energy lactation	0.989 Mgcals/lb	0.949 Mgcals/lb
Net energy of gain	0.56 Mgcals/lb	0.54 Mgcals/lb
Net energy maintenance	0.85 Mgcals/lb	0.82 Mgcals/lb
N.F.C.	23.42%	22.48%
Calcium	0.24% 1.09 g/lb	0.23% 1.05 g/lb
Phosphorus	0.55% 2.49 g/lb	0.53% 2.39 g/lb
Magnesium	0.25% 1.13 g/lb	0.24% 1.09 g/lb
Potassium	1.75% 7.94 g/lb	1.68% 7.62 g/lb
Sulfur	0.33%	0.32%
Fat	17.80%	17.09%
Ash	5.14%	4.93%

Other: BY-PASS PROTEIN IS 60.84% OF CRUDE PROTEIN
 INTERPRETATIVE RANGES:

<50%	UNDER ROASTED
51% - 55%	SLIGHTLY UNDER ROASTED
56% - 65%	OPTIMAL
66% - 70%	SLIGHTLY OVER ROASTED
>71%	OVER ROASTED

CRUDE FIBER 4.53% ON DRY MATTER BASIS

Figure 1



"A large number of lactation studies have been conducted with heat processed soybeans and there is little doubt that well roasted soybeans can be a very effective supplement for lactating cows, particularly when alfalfa silage or hay are the principal forage."

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