

just the flax

FOR THE DAIRY INDUSTRY

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Flaxseed: The Omega 3 Powerhouse!

A growing number of dairies are cashing in on newly discovered benefits of feeding flaxseed. Flaxseed is one of the highest non-fish sources of omega-3 fatty acid and contains about 41% oil and over 20% protein. Dairies which have added this nutrient-dense feed to their rations report improved conception rates and higher milk components.

Consulting dairy nutritionist Steve Woodford has reviewed much of the omega-3 fatty acid research and believes results support his inclusion of flaxseed in many of his clients' dairy rations today. More than 20% of them, many with stubborn rebreeding or milk component problems, feed ground

flaxseed in pre-mixed supplements.

Compared with other omega-3 sources on the market, flaxseed is an unmistakable bargain.

A Great Value

Switching your fat source to flaxseed can slice ration costs. Fat from flaxseed is about half the cost of other fat sources such as Megalac®. Wisconsin consulting nutritionist Steve Woodford, Nutritional Professionals, formulates supplements containing flaxseed to provide about one pound of flaxseed oil per lactating cow daily (about 2.5 lb. of ground flaxseed). "The oil from flaxseed costs about 25 cents per lb. of fat after accounting for a 7.5-cent protein credit – competing well

with fat sources costing 50-cents a pound with no protein credit," says Woodford.

"We know we need the omega-3's to maintain reproduction and milk protein levels – but our previous source is just too expensive," says Kevin Jones, independent nutritionist in the Twin Falls, Idaho, area. He recently switched 50,000 cows in 15 dairies from fish meal to a mineral mix containing flaxseed. "We use enough flaxseed to replace the fat in the fish meal," he says. (Per pound of product, flaxseed has about four times the fat of Sea-Lac®.) Replacing Sea-Lac® with flaxseed, blood meal and synthetic methionine to balance amino acids is saving those dairies about \$250 per ton.

*Ameri
Flax*

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Better Breeding

Intensive herd management brought dramatic improvements in milk yield the past 30 years. But they've been coupled with a steady downward trend in reproduction; most dairy herd managers combat first service conception rates below 50%. With many dairies no longer dependent on grass for forage, the ratio of omega-6 to omega-3 fatty acids in dairy cow diets has increased sharply. Researchers are now discovering that restoring this ratio to a more healthy balance is an important step in improving reproductive performance in dairy herds.

“We’re sold on it. We used to have lots of silent heats when cows were milking heavily. Now they seem to ovulate stronger and settle better,” says Newton, WI, producer Mike Brunmeier.

Flaxseed is one of the highest non-fish sources of omega-3 fatty acid. The high fat content of flaxseed is 73% polyunsaturated, of which 78% belongs to the highly beneficial omega-3 family in the form of alpha-linolenic acid.

Superior Fatty Acid

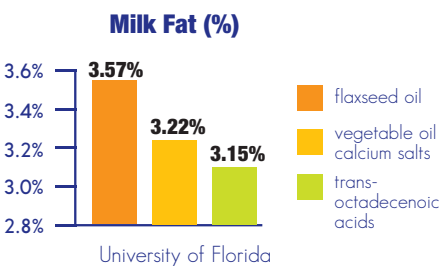
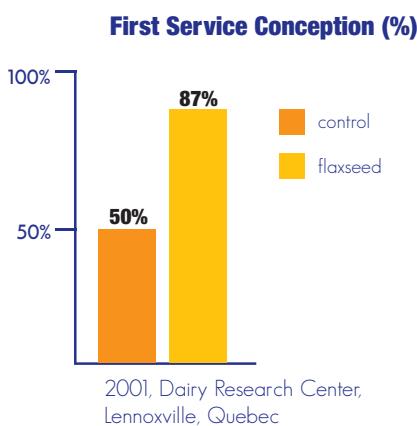
Loaded with beneficial polyunsaturated alpha-linolenic acid, flaxseed has almost three times as much omega-3 fatty acid as it does omega-6. This makes it unique among other oilseeds such as soybeans, corn, sunflowers and cottonseeds, which are dramatically lower in omega-3 and higher in omega-6 fatty acid. Flaxseed is also lower in saturated fatty acids compared with soybeans, cottonseed and corn.

Flaxseed falls between soybeans and sunflowers (oil type) in energy and is similar to canola, cottonseeds and sunflowers in crude protein content. Mineral content resembles that of soybeans, except flaxseed has about twice the magnesium and half the potassium.

Nutrient Content of Flaxseed (DM basis)	
DM (%)	94
TDN (%)	110
NE _m (Mcal/kg)	2.82
NE _g (Mcal/kg)	1.96
CP (%)	22.8*
Lipid (%)	39.1*
ADF (%)	8.0
Ca (%)	0.26
P (%)	0.56
Potassium (%)	0.84
Magnesium (%)	0.43

* Common values listed. Depending on variety, growing environment and analysis method, flaxseed oil can vary from 34% to 42%. Crude protein can range between 18.8% and 24.4%.

Boost Conception Rates with Flaxseed



Flaxseed was first reported to improve reproduction in 2001. Dr. Helene V. Petit, ruminant nutritionist at Canada’s Dairy and Swine Research Center, Lennoxville, Quebec, found flaxseed-fed Holstein cows had first service conception rates of 87% compared with 50% on cows fed calcium salts of palm oil (Megalac®).

Check out the dairy research section on www.ameriflax.com to learn how researchers in both the U.S. and Canada are unlocking the secrets behind flaxseed’s power to boost reproductive performance.



flax flower



ground flaxseed ration

whole flaxseed

Why Flaxseed Enhances Embryo Survival

Studies in the U.S. and Canada are shedding light on the role that omega-3 fatty acids play in dairy cow reproductive efficiency.

Canadian researchers split 138 lactating Holsteins into three groups. They fed one flaxseed (the omega-3 source), another group Megalac®, and a third group micronized soybeans (rich in omega-6 fatty acids) from calving through 50 days of pregnancy.

When they looked at embryo mortality (by subtracting the number of cows pregnant at day 50 from those pregnant at day 30), they found 0% embryo death in the flaxseed-fed group versus 15.4% for Megalac®-fed cows and 8% embryo mortality for cows fed micronized soybeans. A closer look found flaxseed-fed cows had larger follicles compared with those fed Megalac®. Corpus luteum (CL) diameters were significantly greater in cows fed flaxseed versus those fed soy with CL's from Megalac®-fed cows falling in the middle.

Dr. Charlie Staples, at the University of Florida, also found that omega-3 fat sources such as flaxseed produced larger CLs and a larger dominant follicle in lactating dairy cows. Both are potentially positive for reproduction.

After six months on a protein mix containing flaxseed, Greenleaf, WI, producer Jeff Borchardt believes it has impacted his herd's fertility. **“Our heats are stronger now, our conception rates improved – we saw a noticeable improvement in breeding,” he says.**

hot weather help

Hoping to help hold component levels in hot weather, Greenleaf, WI, dairyman Dave Vander Linden started feeding flaxseed in a protein premix almost three years ago. “In the hot summer months, we’d see our fat test drop to 3.4% and protein slip to 2.82%,” he says. “Now we maintain fat at 3.6% to 3.65% and our protein stays between 2.95% and 3.0%.”

University of Florida looked at milk fat component on 22 Holstein heifers and 32 Holstein cows during the summer lactation season. Researchers found milk from cows fed flaxseed oil had greater fat (3.57%) than that from cows fed calcium salts of vegetable oils (3.22%) or trans-octadecenoic acids (3.15%).

“I do believe that flaxseed helps to hold milk components in hot weather,” says consulting nutritionist Woodford.

fast flax facts

- The richest plant source of omega-3 alpha linolenic acid, an essential fatty acid
- Nutrient dense with over 40% fat and 20% protein
- Incomparable value when priced with alternative sources of protein and fat
- Growing supply with U.S. annual production doubling since 2004

Mills Handle Flaxseed with Ease

Feed mills find flaxseed a breeze to handle. Whole flaxseed flows like water. The hard, shiny seed coat protects its superior nutrition, and should be uniformly rolled or ground to unleash its powerful protein and omega-3 fatty acid content.

Larry Dvorachek, CP Feeds, Valders, WI, says flaxseed is a dream to work with, even with its high oil content. “We only store it in a ground form for a week or two. Regular steel storage keeps it cool enough – rancidity or bridging has never been an issue,” he notes. CP Feeds receives rail cars of whole flaxseed. “We either grind it to use in custom-formulated dairy premixes or wholesale it to other mills in the region, says Dvorachek, who uses about 500 tons of flaxseed per month.

Flaxseed handling research at North Dakota State University found no difference in animal performance between rolled or ground flaxseed. In most situations, a quarter-inch hammermill screen is sufficient when grinding. When rolling, use a two-stage rollermill to minimize unprocessed seeds.



More Dairies Make the Switch

More than 50,000 dairy cows in the Twin Falls, Idaho, area are now getting their omega-3's from flaxseed instead of fish meal. In the past six months, independent nutritionist Kevin Jones, Ghost Hollow Consulting, Filer, ID, has switched 15 dairies to a mineral mix containing ground flaxseed.

Jones says it's still too early to report results. “We're just starting to pregnancy-check the first cows on flaxseed now – but we've seen no negatives so far.”

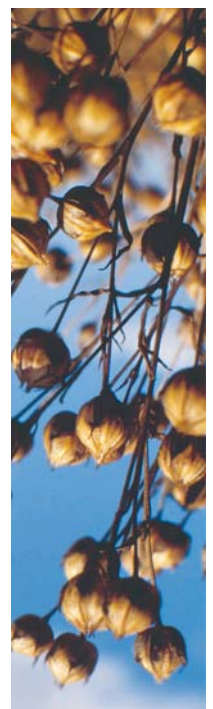
The 580 cows in Lloyd Holterman's free stall barn are new to flaxseed in their rations as well. The Watertown, WI, dairy producer feeds it in a protein pre-mix and is hoping to improve reproduction. “It's hard to tell this early, but we are seeing less absorbed pregnancies,” he says.

Push Milk Protein

In a Canadian study involving 40 Holstein cows over a 10-week period, milk protein averaged 3.38% for those fed flaxseed compared with 3.21% for those fed sunflower seed. In another study involving 35 Holstein cows between weeks 9 and 19 of lactation, milk protein averaged 3.09% for cows fed flaxseed compared with 2.95% for cows fed Megalac®.

A third trial, involving 90 Holstein cows from calving through 16 weeks of lactation, found milk protein averaged 2.98% for cows on flaxseed, versus 2.87% for those on micronized soybeans, and 2.86% for those on Megalac®.

“We used to be in the 2.9% range; now we hold protein at 3.1% to 3.2%,” says Jeff Borchardt, Greenleaf, WI.



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