

# Canola beats soybean as protein source for dairy cattle

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ARS scientists fed dairy cattle diets supplemented with canola meal and other protein to study its effects on milk production. Credit: Glen Broderick

Agricultural Research Service dairy scientists in Wisconsin are helping

dairy farmers weigh the merits of a relatively new option for feeding their cattle: Using canola meal as a protein supplement.

Protein supplements are costly, and [dairy producers](#) must decide which [protein](#) source to use—soybean meal or canola meal—and how much of it. Dairy producers want to use as little as possible; increasing the amount can increase milk production, but the benefit is usually negligible. Using more [protein supplements](#) than necessary also increases urinary nitrogen, often leading to additional nitrogen runoff that pollutes waterways, says Glen Broderick, a former ARS [dairy](#) scientist with the U.S. Dairy Forage Research Center in Madison, Wisconsin.

Canola production increased rapidly in the 1990s as a cold-tolerant crop and was initially raised for its seed oil. Canola meal is a relatively new protein source for dairy cattle, Broderick says. "Canola meal didn't begin to catch on as a protein source for cattle until years after the crop was first introduced, when extensive breeding led to improved varieties."

Broderick (now retired) and his colleagues divided 50 lactating dairy cows into 5 groups and varied their diets (high and low amounts of soybean meal, high and low amounts of canola meal, and a mix of low canola and low soybean meal). Each group received a different diet every 3 weeks, and researchers measured the amount of milk, milk proteins, and urine nitrogen produced by the cows while on each diet. The diets were balanced to provide adequate levels of protein and included standard corn and alfalfa silages; corn grain; and the usual supplementary vitamins, minerals, and neutral detergent fiber. The study was partially funded by the Canola Council of Canada.

After 15 weeks, researchers found that the canola meal supplement resulted in more milk and more milk protein per day than soybean meal. The effects were about the same in both the high- and low-protein diets. Specifically, cows fed canola meal produced an average 88.8 pounds of

milk per day, compared with 86.6 pounds produced by cows on soybean meal, a 2.5 percent difference per cow. Cows on canola meal also showed a similar increase in production of [milk](#) proteins. Most dairy producers have hundreds of cows, so every additional pound increase in yield per cow translates into a more financially viable dairy operation. Using canola meal also had an environmental benefit—the canola meal diets produced less urine nitrogen, which could lead to less nitrogen runoff.

Canola meal now costs about the same as soybean meal per unit of protein, but the findings could save costs in the long run by giving dairy producers another option in the face of ever-changing prices, Broderick says.

Provided by Agricultural Research Service

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