Quality and success of embryo transfer in dairy cows fed whole flax seed

What is this research about?
This research examines whether donor cows fed flax seed would produce embryos of better quality in comparison to a commercial fat supplement called Megalac. They also examined the importance of the source of fatty acids fed to cows and heifers on success of embryo transfer.

What did the researchers find?
The researchers found that the source of fat fed to donor cows had no effect on the number of embryos per cow. Cows in the flax seed treatment had a lower fertilization rate and higher embryo degeneration. Also, the number of grade 1 to 2 embryos was lower for cows fed flax seed.

What you need to know:
Feeding flax seed to heifers did not improve maintenance of gestation after embryo transfer (in comparison to Megalac). In fact, feeding a rich source of flax seed decreased the quality of embryos from donor cows and did not improve pregnancy rate in recipient heifers. Therefore, feeding flax seed to heifers does not improve reproductive performance.

How can you use this research?
Cattle breeders can use this research to choose feed for their heifers.
Cattle food suppliers can use this research to choose to stock and sell feed that promotes heifer health and reproductive capacities.

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What did the researchers do?

The researchers used donor cows, which have given birth before, and heifers, which are cows that have not yet had their first calf. The cows were randomly assigned to either a whole flax seed (n-3 fatty acids) or Megalac (calcium salts of palm fatty acids) dietary fat supplement.

The donor cows were then injected with an estrogen called Estradiol; superovulated to increase the number of normal fertile eggs; and inseminated with bull semen.

The donor cows’ embryos were then evaluated for fertilization, their quality was graded (1-5, excellent-degenerate), and they were frozen.

Embryos were selected at random and transferred into the heifers so that 1/4th of each fed Megalac received an embryo from a donor cow fed Megalac, 1/4th fed Megalac received an embryo from a cow fed flax seed, 1/4th fed flax seed received an embryo from a cow fed Megalac, and 1/4th fed flax seed received an embryo from a cow fed flax seed.

Statistical analyses were run on the quality of embryos.

Keywords:
Dairy cattle, flax seed, embryo transfer, fatty acid.

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