



Level of canola source fat in pregnant beef cow diets – effects on cow and calf performance

INVESTIGATING EPIGENETIC EFFECTS OF CANOLA FAT SUPPLEMENTATION

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LEAD RESEARCHER: Bart Lardner (University of Saskatchewan)

COLLABORATORS: Greg Penner, Kathy Larson (University of Saskatchewan); Carolyn Fitzsimmons (Agriculture and Agri-Food Canada)

Background: In a previous study, researchers at the University of Saskatchewan discovered that supplementing cows with pellets made partially from canola fat in the second and third trimester of gestation resulted in calves that had a 60 lb increase in carcass weight compared to calves from cows that were not supplemented. They also found that the diet fed to the gestating cows affected the expression of a gene that controls muscle growth and development, suggesting that supplementation during pregnancy may alter the way that genes that control calf growth are expressed.

Objectives: The objectives of this study are to:

1. Identify the optimal amount of fat from canola seed supplementation in the diet that will lead to improved performance in dam and progeny.
2. Discover if different due to gestational fat supplementation affects adipose tissue fatty acid composition, milk yield, milk composition, and the fatty acid profile in milk.
3. Determine if calves from cows fed different levels of canola fat supplementation have enhanced passive immune transfer.
4. Determine if differences due to gestational fat supplementation exist in the epigenetic profiles of DNA in calf tissues and blood, and whether they are associated with gene expression and differences in calf performance.

5. Obtain a deeper understand of the biological processes that may contribute to improved performance.
6. Quantify the economic impact of including fat from canola seed supplementation in the diet of gestating beef cows.

Implications of the Research: This project builds on and further examines the previous research in this area of supplementation with fat from canola seed. It is important to ensure that the previous results are repeatable, and if so, to determine the underlying mechanism(s) for the significantly improved growth associated with supplementing gestating beef cows with fat derived from canola seed.

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