



“Does providing additional protein in late gestation reduce protein catabolism and improve cow and calf performance?”

## DOES PROTEIN SUPPLEMENTATION FOR PREGNANT COWS IMPROVE PRODUCTION?

**PROJECT NO.:** ANH.11.14

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**Background:** As a calf grows, the nutrient requirements of the cow increase substantially. In cases where energy demand exceeds the nutrients available, skeletal muscle may be used as a source of energy.

Previous research showed an increased level of protein turnover markers in nutrient restricted cattle during mid to late gestation. Although not measured, this could have had negative impact on the reproductive performance of the cow during lactation and rebreeding, when a significant amount of energy would be required to rebuild any muscle tissue broken down in late gestation.

Generally, energy supplementation has been most often used to offset any nutrient balance deficiencies in late gestation. Very little research exists as to the effects of protein supplementation, which would provide amino acids as a source of energy for the cow and fetus, and would not lower rumen pH to the same degree as grain supplementation. In addition, we know that the maternal diet can have long lasting impacts on calf development, even after birth, and an increased protein

supply may benefit the calf’s future growth and performance.

**Objectives:** The objectives of this study are to:

1. Investigate the effect of protein supplementation during late gestation on pre- and post partum cow performance, protein metabolism, and nitrogen balance.
2. Evaluate the impact of late gestation maternal protein supplementation on passive immune transfer and growth performance of the calf.

**Implications of the Research:** This project will help determine whether protein supplementation affects the amount of body protein that may be broken down to support fetal growth and lactation, and how that may affect cow reproduction. If protein supplementation affects colostrum yield or quality, this also has the potential to impact calf health and growth rate.

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