

Impact of metabolic status and stage of lactation on oocyte and embryo quality in dairy cows

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Employing Forage Legumes to Improve the Sustainability of Ruminant Production



This project is designed to investigate the root cause of sub-fertility in high producing dairy cows. Many theories exist about why first-service conception rates are so low in lactating dairy cows in the US. We propose that even systemic/metabolic deficiencies (altered nutrient partitioning, or accelerated hormone metabolism, e.g.) will ultimately result in defective performance of the oocyte, the preimplantation-stage embryo, and/or the uterine endometrium. We propose to evaluate molecular markers of the function of these cell types in high producing dairy cows at different stages of their lactation cycles. Specifically, the animals currently being requested will be used as a source of follicular fluid (collected from preovulatory follicles) for metabolomic analysis. These experiments will help create a link between whole animal physiological and production data and molecular (gene expression) data collected from oocytes at similar timepoints in previous aspects of this project.