

Project Information:

Project Title: **Maternal fatty acid supplementation and impacts of offspring**

Recipient Organization Name: Montana State University

Recipient's Project Contact

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Project Report

Annual Report Type: Annual

Reporting Period Start Date: 12/01/2022 End Date: 06/30/2024

Performance Narrative: Majority of the animal work has been completed. The supplementation period to the pregnant ewe, blood sample collections, recording of maternal body weights and body condition scores have been completed. At the time of lambing, we recorded lamb birth weights and placental weights, collected placental cotyledons, colostrum, blood, and rectal samples from all lambs within the first 24 hours after birth. Additionally, weaning weights of lambs and ewe body weights and condition scores have been recorded. We are currently waiting for the ram lambs to reach the first breeding season (anticipating fall 2024) before we collect semen samples from the rams for analysis. Scrotal circumferences of the ram lambs will be collected at 9, 12, 15, and 18 months of age, this collection will begin in mid-December 2023.

Activities Performed:

- Supplementation/feeding of pregnant ewes (completed)
- Ewe body weights, body condition scores, and blood samples collected (completed)
- Lamb birth weights & placental weights recorded, blood, placental cotyledons, colostrum, amniotic fluid, and rectal samples at lambing in April of 2023 (completed)
- All lambs were weaned and weights of both lambs and ewes were recorded, body condition scores were also recorded from the ewes.

Accomplishments

Estimate the Total Percentage (%) of work Completed on the Project..... 80%

#	Accomplishment/Activity	Relevance to Objective
	Supplementation of the ewes has been completed.	Supplementation of the fatty acids to the dams are crucial to the effects observed in the study on the offspring.
	All data collections at the time of lambing (i.e. birth weights, placental weights, cotyledons, blood samples from the lambs, amniotic fluid, colostrum, and rectal swabs have been collected.	These data collections are relative to the objective in depicting the potential transfer of fatty acids from the dam to the fetus during pregnancy.
	Ewe body weight, body condition scores, and blood samples all have been collected and completed.	Body weights, condition scores, and blood samples from the ewes are relative to the objective as these parameters will be used to evaluate if the fatty acid supplementation impacts ewe body weight and condition scores, and the amount of circulating fatty acids in the blood of the dam.

Challenges and Developments

#	Challenge or Development	Corrective Action or Project Change
	Ram lambs are smaller than anticipated and semen collections will not begin this fall.	Ram lambs will be held over until fall of 2024 and then semen samples will be collected for evaluation of semen parameters.
	A change has been made in regard to evaluating the attainment of puberty in the ram lambs.	Instead of evaluating attainment of puberty, we will be evaluating semen parameters prior to the 1 st breeding season that the ram lambs are used.

Outcome and Indicator Results to Date

#	Outcome/Indicator	Quantifiable Results
	We are working on the analysis of the data from Ewes and lambs right now, including lab parameters on the blood.	

Upcoming Activities

#	Activities	Anticipated Completion
4	Scrotal circumference measurements of the ram lambs will be collected at 9, 12, 15, and 18 months of age.	Completed by August of 2024
	Semen collections will begin in the Fall of 2024. These collections will be used to evaluate semen parameters of the viability of the sperm cells.	Anticipated completion by December 2024.