



Virginia Cattle Industry Board Update

In 2021, John Benner, Animal Science Extension Agent, Augusta County, Virginia Cooperative Extension, was awarded a grant for conducting a research project to determine the impact of implanting nursing calves on cow and calf performance. He received a subsequent grant in 2022 to continue this research and the results below were provided by Mr. Benner.

Though an expansive library of literature documents the benefit of implanting nursing calves on the average daily gain of the calf, there is limited data on the potential impacts on the dam of the implanted calf. To answer this question a three-year study is being conducted at the Shenandoah Valley Agricultural Research and Extension Center/McCormick Farm. This summary showcased data from two years of the study.

Hypotheses: There are three hypotheses being tested for the study:

1. Implanted Calves will grow faster, grow bigger and will therefore graze more, nurse less allowing their dams at pregnancy check to have a greater body weight, greater body condition score (BCS) and be bred longer.
2. Implanted calves will grow faster, grow bigger, but will nurse more due to their bigger size, with their dams having a lower body condition score, lower body weight, and will not be bred as long compared to control calf dams at pregnancy check.
3. There will not be a significant difference between implanted calf dams and control calf dams in terms of body weight, body condition score (BCS), or days bred (pregnancy status).

Study Design:

- Herd used for the study is approximately half the SVAREC/McCormick Farm First Calf heifer herd and Spare Cow Herd. Year 1 of the study used 32 cow calf pairs, while year 2 used 34 cow calf pairs.
- Herd is a fall calving herd with calving occurring between mid Sept. and early November, breeding season beginning late November and ending in February, with pregnancy checks in March and weaning in April, at approximately 188 days of age for the calf.
- Implants were administered to calves at CIDR pull for AI breeding of the herd (100 days from pregnancy check and 126 days from weaning)
- First calf heifers and cows were stratified by age and cow weight and body condition score (BCS) and randomly assigned to the control (no-implant) or treatment (implant-Synovex C, Zoetis, Parsippany-Troy Hills, NJ)
- In year 1, steer and heifer calves were used in the study due to greater number of heifers in the calf crop, in year 2, only steers were used.

- Stockpiled Forage yield and quality samples were obtained along with hay analysis for the over winter-feeding period to describe the diet for the cows

Two Year Results

- There are no statistically significant differences results between first calf heifer dams or “Spare” mature dams of control calves and implanted calves for variables of body weight at pregnancy check, BCS at pregnancy check or days bred/pregnancy Nancy status at pregnancy check. However, it does appear that first calf heifer dams of implanted calves tend to lose more body weight than control first calf heifer dams. Despite this, there were no differences between implant first calf heifer dams or control first calf heifer dams in BCS or days bred. (Table 1)

Table 1 – Cow Body Weight, Body Condition Score, Days Pregnancy at March Pregnancy Check

	Control	Synovex C	p Value
1st Calf Heifers WT, lb.	1130	1090	0.82
Spare Cow Weight, lb.	1298	1277	0.64
1st Calf Heifers BCS	3.85	4.21	0.31
Spares Cow Weight, BCS	4.50	4.42	0.83
1st Calf Heifers ADG, lb.	-0.64	-0.94	0.14
Spares ADG, lb.	-1.14	-0.93	0.33
All Cows ADG, lb.	-0.94	-0.93	0.99
First Calf Heifers Days Bred at Pregnancy Check	81	84	0.82
Spares Days Bred at Pregnancy Check	80	89	0.21

- As expected, implanted calf weaning weights were greater than control calf weaning weights.
 - Implanted Calves averaged 46 lbs. greater than Control Calves at Weaning*
- Implanted calf Average Daily Gains from Implant to Weaning were 0.26 lb./day greater than control calves (Table 2)

Table 4 – Average Calf Weaning Weight, Weight per Day of Age (WDA) and Average Daily Gain (ADG)

	Control	Synovex C	p Value
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Calf WT, lb.	351	397	0.01
WDA, lb.	1.89	2.10	0.02
ADG, lb.	1.55	1.29	0.00004

- Using Virginia Weekly Cattle Auction Summary prices in April 2022 and April 2023 (USDA-AMS/VDACS Market News Service 2187) return on investment for implanting calves at Cow breeding, approx. 126-130 days before weaning results in an estimated premium of +16.56/head (steer calves, 2022) to \$237.33/head (steer calves, 2023) for steer calves and \$63.23 (heifers, 2022) to \$99.80/head (heifers, 2023) for heifer calves.
- These return on investment seem to come without a cost to Cow and Heifer Rebreeding for the next calf crop.

We intend to repeat data collection efforts for this study in 2023-2024 and have a final update for the project in 2024.

*Implanted Calves did nominally start heavier than control calves due to efforts to stratify Cow body weight and BCS scores for the experimental design.