

RESEARCH SUMMARY

Protein Source Comparison Study

Understanding the impact of milk replacer formulations is key to optimizing calf growth, feed efficiency, and economic returns. Milk proteins like casein and whey are highly digestible and provide an ideal amino acid profile for pre-weaned calves, supporting efficient nutrient absorption and growth. In contrast, wheat protein is less effective due to lower digestibility, and the presence of anti-nutritional factors. However, it is often considered in formulations due to its lower cost.

This trial compared an All Milk Protein milk replacer to one containing 5% hydrolyzed wheat proteins, assessing their effects on weight gain and feed efficiency to determine the impact of partial plant protein inclusion on calf development and performance.

METHODOLOGY

To help farmers make informed decisions about milk replacer formulations, a trial was conducted at the Mapleview Agri Future Performance Research Centre to evaluate the effects of different protein sources on calf health and overall performance. 120 test calves and 120 control calves were monitored in this trial. Calves were assigned to one of two milk replacer formulations and were monitored for 79 days.

Products compared in the study:

All Milk Protein Milk Replacer (25-25-19)

Wheat Protein Milk Replacer (25-21-19)

DAILY MILK REPLACER FEEDING RATE

DAY 0-14
520g-4L

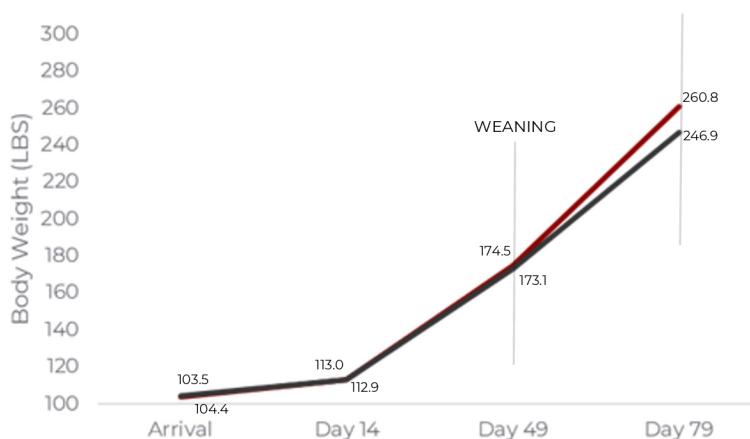
DAY 15-27
650g-5L

DAY 28-41
900g-6L

DAY 42- 49
450g-3L

BODY WEIGHT

— All Milk — Wheat Protein



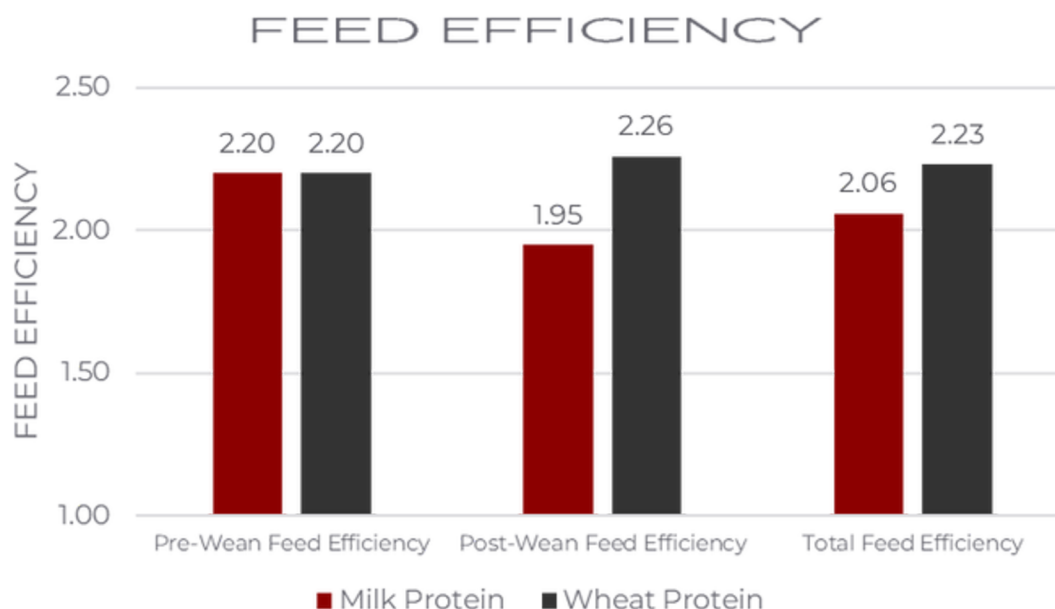
MILK PROTEIN

WHEAT PROTEIN

Arrival Weight Day 0 (lb)	103.5	104.4
Weaning Weight Day 49 (lb)	174.5	173.1
Departure Weight Day 79 (lb)	260.8	246.9
Average Daily Gain (lb)	2.02	1.83

	<u>MILK PROTEIN</u>	<u>WHEAT PROTEIN</u>
Milk Replacer Consumption (kg)	30.18	30.27
Grain Consumption (lbs)	258.40	251.70
Pre-wean Gain (lbs)	89.90	84.70
Post-wean Gain (lbs)	168.40	167.00
Pre-wean Feed Efficiency	2.20	2.20
Post-wean Feed Efficiency	1.95	2.26
Total Feed Efficiency	2.06	2.23

While milk replacer and grain consumption were comparable between the groups, the All Milk Protein-fed calves exhibited higher average daily weight gains, **highlighting its effectiveness in supporting optimal growth and development.**



TRIAL CONCLUSION

When comparing the All Milk Protein milk replacer to the Wheat Protein milk replacer, the calves fed the milk protein formula gained more and had greater feed efficiency than those fed the wheat protein formula. Young calves may have experienced greater digestibility utilizing all milk proteins as their gut may not be developed enough to digest non-milk proteins.

KEY TAKEAWAYS

Weight Gain: Calves fed the All Milk Protein milk replacer achieved 10% more weight gain compared to those fed the Wheat Protein milk replacer, resulting in a 14 lb gain advantage over 79 days.

Average Daily Gain (ADG): The All Milk Protein formula increased ADG by 0.19 lb/day at weaning, supporting faster growth.

Feed Efficiency: Improved feed efficiency was observed with the All Milk Protein milk replacer, requiring less grain per pound of gain after weaning.