MIN-AD Outperforms Competitor Product: Case Study

Claims that all calcium magnesium carbonates (CMC) are "the same as MIN-AD®" are conclusively demonstrated to be untrue in a recent multi-site case study. Though they may contain similar concentrations of calcium and magnesium, factors such as particle size, crystal habit, trace impurities, surface disorder and chemical zonation can strongly influence how CMCs react in the cow. Additionally, many are produced as byproducts of other industries, whereas MIN-AD is mined solely for use in cattle feed. When comparing CMCs, the only way to truly characterize their performance is to evaluate them in cows.

Over the spring and summer of 2025, three dairies were switched from MIN-AD to a competitor CMC. The competing CMC had minimal in-cow data to support its effectiveness. Data was analyzed for the period when MIN-AD was fed and compared to the period when the competitor product was fed. All three dairies, fed by the same nutritionist, observed similar reductions in production and health when fed the competing product.

MIN-AD SUPPORTS MILK AND COMPONENTS

All three dairies observed reduced milk components during the time the competitor product was fed (Table 1). For Dairy 1 and Dairy 3, this was consistent over the course of the time compared. For Dairy 2 it was more transient, lasting approximately 2 months before it returned to baseline (5.09 vs. 5.18% milk fat). Research trials have consistently demonstrated a 0.1 to 0.2 percentage point increase in milk fat when MIN-AD is fed – agreeing very well with this real-world data.

Table 1. Milk composition with MIN-AD or a competing product, adjusted to account for seasonality.

	Milk fat, %		Milk protein, %	
	MIN-AD	**Competitor**	**MIN-AD**	**Competitor**
Dairy 1	4.11	4.05	3.23	3.19
Dairy 2	5.18	5.15	3.70	3.73
Dairy 3	4.22	3.91	3.25	3.03

MIN-AD SUPPORTS RUMEN AND OVERALL HEALTH

In each of the three herds, somatic cell count was as much as 60 units higher when cows were fed the competitor product (Table 2), suggesting MIN-AD not only impacts milk production, but also cow health.

A recent MIN-AD study at the University of Saskatchewan demonstrated MIN-AD's health benefits, decreasing hind gut permeability (leaky gut) by 27%. Leaky gut is one of many stressors that can lead to systemic inflammation and immune system activation. Cows may be able to handle one such stressor, but with each added stressor, they are more susceptible to disease, poor production and death.

The increase in SCC on these dairies fed a competitor product can likely be attributed to increased leaky gut, leading to systemic inflammation and secondary disease like mastitis.

Papillon Feed Efficiently

Visit Papillon-ag.com or call (800) 888-5688 to learn more about what MIN-AD can do for your operation.

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Rumen health was also negatively impacted by the competitor product as demonstrated by *de novo* fatty acid levels. In the two dairies monitoring milk fatty acid profiles, *de novo* fatty acid percentages declined when cows were fed the competitor product (Table 2). *De novo* fat synthesis is highly sensitive to rumen pH; a lower pH can both reduce the supply of fatty acid precursors and increase the formation of milk fat–depressing compounds in the rumen.

Table 2. Somatic cell count and *de novo* fatty acid concentrations with MIN-AD or a competing product.

	Somatic cell count, x10^3 cells/mL		*De novo* fatty acids, %	
	MIN-AD	**Competitor**	**MIN-AD**	**Competitor**
Dairy 1	112	178	1.02	0.94
Dairy 2	181	211	1.34	1.27
Dairy 3	174	188	-	-

This impact on health was also evident in culling and death losses across the three dairies. Compared to when MIN-AD was fed, culling rates were 5 to 10 percentage units higher when the competing product was fed (Table 3). This includes increases in death loss across all three dairies; more than doubling on one of them.

Table 3. Culling and death loss with MIN-AD or a competing product.

	Death loss, %		Total culls, %	
	MIN-AD	**Competitor**	**MIN-AD**	**Competitor**
Dairy 1	6.3	10.0	30.0	35.8
Dairy 2	2.6	6.1	21.3	31.4
Dairy 3	6.7	8.3	30.2	37.6

SUMMARY

MIN-AD has a proven record of optimizing milk component production and cow health with a multitude of in-cow trials and ongoing research to validate efficacy. Competitor CMCs may claim to be “the same as MIN-AD” based on their calcium and magnesium profiles but lack the data to back these claims. This case study clearly demonstrates MIN-AD has unique characteristics that outperform competitor products in the marketplace.

To learn more about how MIN-AD can support cow health in your region, contact your local Papillon representative at Papillon-ag.com.

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