

Calibrin[®]-Z Enterosorbent Enhances Dairy Productivity

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Introduction

A recent study of two dairy farms in Mexico showed that cows fed Calibrin-Z increased milk yield, decreased somatic cell counts and exhibited overall health improvements.

Farm Management and Practices

Two dairy farms located in Torreon, State of Coahuila Mexico were used in the study. Each farm had approximately 1,175 lactating cows. They shared silage from the same silo and were fed the same formulation with identical ingredients and raw materials. The cow's age, lactation period, and health conditions were evenly distributed across the two farms. Each farm was managed independently of the other.

One farm was randomly chosen as the control and the other received a recommended Calibrin-Z supplementation daily for a total of 18 weeks. During this period, milk production, compositions, and total somatic cell counts were collected daily and results were reported weekly. The number of abortions and death loss, general health, and body scores were also recorded. Recommended Calibrin-Z dosages in the trial were:

- *D-1 to D-30 (first month):*
40 g of Calibrin-Z per cow per day
- *D-31 to D-60 (second month):*
30 g of Calibrin-Z per cow per day
- *D-61 to D-126 (third and fourth month):*
20 g of Calibrin-Z per cow per day

Feed samples were tested, for proximal analysis and mycotoxin content, by NUTEK laboratory (Puebla, Mexico). Monthly mycotoxin concentrations in feed are summarized in the Table 1.

TABLE 1

Mycotoxin Levels in Feed

MONTH	MARCH		APRIL		MAY		JUNE	
Farm	A	B	A	B	A	B	A	B
Treatment	Calibrin-Z	Control	Calibrin-Z	Control	Calibrin-Z	Control	Calibrin-Z	Control
Mycotoxins, ppb								
Aflatoxin B ₁	3	5	-	-	-	-	-	-
Aflatoxin B ₂	-	-	-	-	-	-	-	-
Aflatoxin G ₁	-	-	-	-	-	-	-	-
Aflatoxin G ₂	-	-	13	13	-	10	7	-
Ochratoxin A	-	-	-	-	-	-	-	-
Zearalenone	-	-	-	-	-	-	-	-
Fumonisin B ₁	150	-	-	-	-	-	105	-
DON	-	-	-	-	-	-	-	-

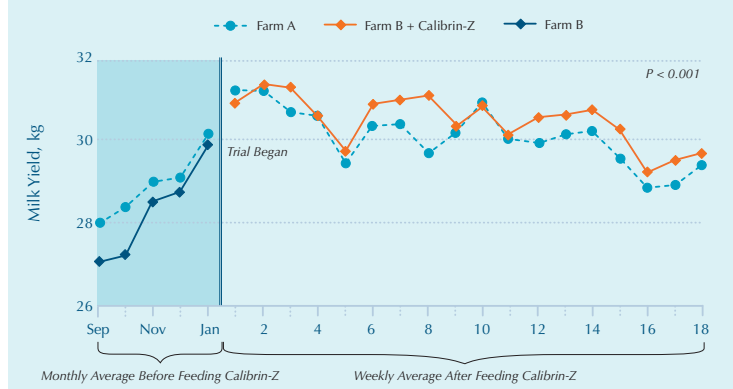
A - Farm A, B - Farm B

Results

Milk production before and after introducing Calibrin-Z enterosorbent into the feed is illustrated in Figure 1. A monthly average was used prior to feeding Calibrin-Z and a weekly average used after feeding began. Average milk production rose due

FIGURE 1

Milk Production Before and After Feeding Calibrin-Z



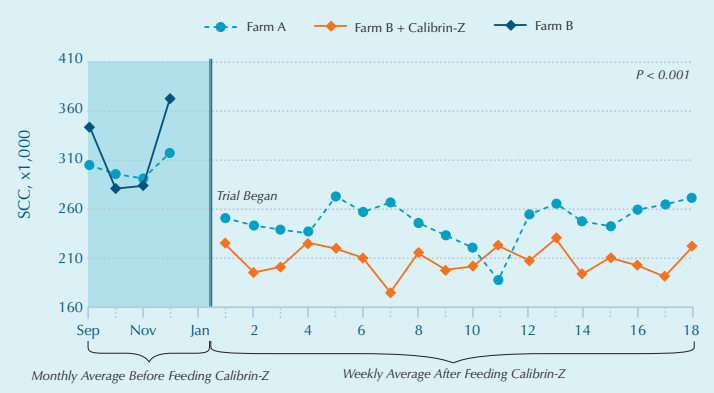
to the introduction of Calibrin-Z into the feed by nearly 1 kg per cow per day. Cows fed Calibrin-Z showed a higher milk production ($P < 0.1$) than cows not fed Calibrin-Z on weekly average basis.

Milk fat, protein, and lactose compositions were not different between Farm A and Farm B (Table 2). However, total somatic cell counts (SCC) were different between the two farms ($P < 0.001$) where cows fed Calibrin-Z had less SCC than cows fed the control diet. The weekly change of SCC over the 18 weeks is shown in the Figure 2.

TABLE 2
Average Milk Compositions and Cow Body Condition Over 18 weeks feeding

	Control	Calibrin-Z
Milk Fat, %	3.33	3.23
Milk Protein, %	2.34	2.33
Milk Lactose, %	3.55	3.53
Body Condition Score	2.49	2.51

FIGURE 2 Somatic Cells Count Before and After Feeding Calibrin-Z



The Calibrin-Z daily supplement not only increased milk production and decreased somatic cell counts, it also improved feed conversion (Figure 3) and reduced abortions and deaths (Table 3) compared to the farm not fed Calibrin-Z.

FIGURE 3 Calibrin-Z Improves Feed Conversion Over Time

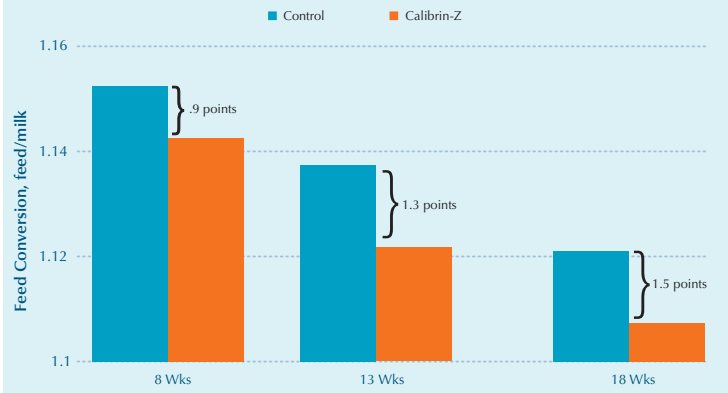


TABLE 3
Calibrin-Z Reduced Numbers of Abortions and Deaths

	8 weeks	13 weeks	18 weeks
Abortions, numbers			
Control	46	76	109
Calibrin-Z	40	67	95
Difference	6	9	14
Deaths, numbers			
Control	14	16	24
Calibrin-Z	9	10	15
Difference	5	6	9

The improved feed conversion from feeding Calibrin-Z was enhanced over time, where .9, 1.3, and 1.5 point improvements were obtained for 8, 13, and 18 weeks feeding, respectively. The reduced deaths and abortions observed when Calibrin-Z was fed showed a similar pattern as feed conversion.

Conclusions

Under a very low mycotoxin challenge, feeding Calibrin-Z:

- Increased milk production
- Decreased somatic cell counts
- Enhanced feed conversion for milk production
- Improved general health: reduced abortions and death loss



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