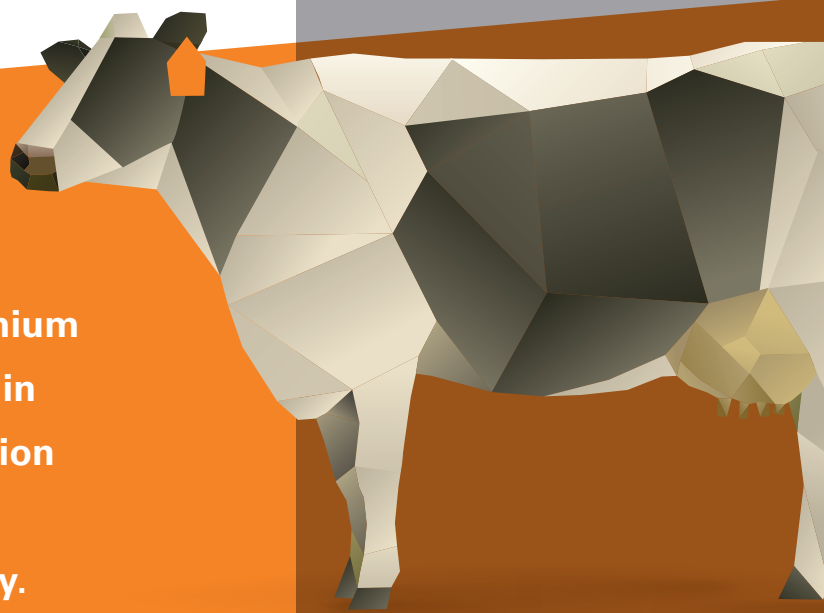




IMMUNITY

KemTRACE[®]
CHROMIUM

KemTRACE[®] Chromium is a highly bioavailable, organic source of chromium that helps stabilize insulin receptors in cattle. This improves glucose utilization for increased energy and proper cell function, resulting in better immunity.



ANIMALS EXPERIENCING FREQUENT IMMUNE CHALLENGES MAY HAVE:

- Decreased growth
- Poor reproduction
- Inefficient feed utilization
- Increased health costs



4 LBS. OF SUGAR

OVER A 24-HOUR PERIOD ARE NEEDED TO TREAT AN IMMUNE CHALLENGE.¹

In order to combat an immune challenge, an active immune system requires 4 lbs. of sugar over a 24-hour period. The sugar meant for milk production will instead be used to support this immune function, reducing total milk production and profitability.

WHAT IS 1 KG OF GLUCOSE WORTH IN TERMS OF MILK YIELD PERFORMANCE?

1,000 G Glucose
72 G Glucose/KG of Milk

= 13.9 KG OF POTENTIAL MILK LOSS



HOW OFTEN DOES AN IMMUNE CHALLENGE OCCUR?

Dairy cows are constantly at risk of being challenged by *Escherichia coli* mastitis, *Salmonella* infections, mycotoxin insults and more. The impact of even a minor immune challenge could be significant. In fact, 1/10 of the lipopolysaccharide (LPS) could result in 2.78 kg of milk loss per day.¹ At \$15 per hundredweight (cwt), that's 92 cents lost per cow per day.

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IMPACT OF CHROMIUM ON IMMUNITY

Research studies have reported improved immune function of activated leukocytes when animals were supplemented with chromium.^{2,3,4}

A RECENT STUDY CONDUCTED WITH LACTATING HOLSTEIN COWS OBSERVED THE FOLLOWING:

INCREASED CIRCULATING NEUTROPHIL COUNTS IN LIPOPOLYSACCHARIDE (LPS) - ADMINISTERED COWS SUPPLEMENTED WITH CHROMIUM (FIGURE 1).⁵

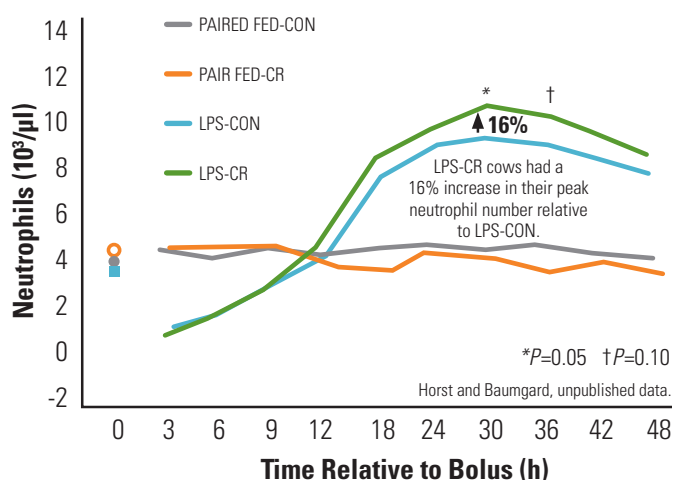


Figure 1. Effect of chromium supplementation on circulating neutrophils following a LPS challenge or pair-feeding in lactating dairy cows.⁵

FENDING OFF INFECTION

RESEARCH AT CORNELL UNIVERSITY SUGGESTS THAT:

SUPPLEMENTAL CHROMIUM ENHANCED IMMUNE RESPONSES IN EARLY LACTATION TO BACTERIAL CHALLENGES IN THE UTERUS BY INCREASING NEUTROPHIL PROLIFERATION (Table 1).⁶

Increased neutrophil proliferation more effectively cleared infections, which resulted in fewer cows with subclinical endometritis — a leading cause of reduced first service insemination conception rates. Ultimately, improving overall herd reproductive health should contribute to lower veterinary/medical costs, lower improved conception rates, and more optimal milk production.

Table 1. Effect of chromium supplementation on endometrial cytology.⁶

Item	TREATMENT			
	Control	Cr-Pro	SEM	P-Value
	--- Mean ---			
7 d Postpartum				
% of Neutrophils	32.8	41.1	4.1	0.15
40 to 60 d Postpartum				
Subclinical Endometritis¹ (# Head)	16	8	--	0.02
Head (# Head)	11	20		

¹Neutrophil > 10%

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