Crystal Creek's Beef Mineral Has A New Name: Return On Investment (ROI®)

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Crystal Creek® is launching a new name for our beef mineral, now known as ROI® Beef Mineral. R.O.I. is an acronym commonly used in the investing community that stands for Return on Investment. The definition of return on investment (R.O.I.) is a ratio between net profit and the cost of investment. When looking at an input, like a mineral supplement, a producer should always evaluate the cost of the input against the return it will generate. To justify its use, any input will need to show a positive return; whether the effect is on animal health, net profit, or both. Before understanding the economics of mineral supplementation for beef cows, we must first understand the important roles that minerals play in the body.

Functions Of Minerals In The Body

The modern-day beef cow is an amazing animal. The metabolic demands placed on beef cows to gestate and raise profitable young stock require

Table 1 **MINERAL TABLE**

Mineral	Functions	Deficiency Symptoms and Associated Problems
Calcium (Ca)	Bone and teeth formation, blood clotting, muscle contraction, 12% in whole milk	Rickets, slow growth and poor bone development, easily fractured bones, reduced milk yield
Phosphorus (P)	Bone and teeth formation, involved in energy metabolism, part of DNA and RNA, .09% in milk	Fragile bones, poor growth, low blood phosphorus, depraved appetite, poor reproductive performance
Sodium (Na)	Acid-base balance, muscle contraction, nerve transmission	Craving for salt, reduced appetite, incoordination weakness, shivering
Magnesium (Mg)	Enzyme activator, found in skeletal tissue and bone	Irritability, tetany-increased excitability
Sulfur (S)	Rumen microbial protein synthesis, found in cartilage, tendons, and acids	Slow growth, reduced milk production, reduced feed efficiency
Potassium (K)	Maintenance of electrolyte balance, enzyme activator, muscle/nerve function	Decrease in feed intake, loss of hair glossiness, lower blood potassium
Iodine (I)	Synthesis of thyroxine	Big neck in calves, goitrogenic (enlargement of thyroid gland) substances may cause deficiency
Iron (Fe)	Part of hemoglobin, part of many enzyme systems	Nutritional anemia, pale mucus membrane
Copper (Cu)	Needed for manufacture of hemoglobin, coenzyme	Severe diarrhea, abnormal appetite, poor growth, coarse, bleached hair coat
Cobalt (Co)	Part of vitamin B, needed for growth of rumen microorganisms	Failure of appetite, anemia, decreased milk production, rough hair coat
Manganese (Mn)	Growth, bone formation, enzyme activator	Delayed or decreased signs of estrus, poor conception
Zinc (Zn)	Enzyme activator, wound healing	Decreased weight gains, lowered feed efficiency, skin/wound problems
Selenium (Se)	Functions with certain enzymes, associated with vitamin E, immune system	White muscle disease, retained placenta, lessens subclinical mastitis

Source: https://www.merckmanuals.com/home/disorders-of-nutrition/minerals/overview-of-minerals

sound nutrition. Forages fed and pastures grazed by beef cattle do contain many macro minerals, trace minerals and vitamins; but oftentimes the amount of those ingredients in the forage or pasture do not meet the nutritional requirements necessary for optimum performance. **Table 1** shows macro and trace minerals along with their importance in bodily functions. Without proper supplementation, important bodily functions will be compromised.

Dispelling The Myth That Mineral Is "Too Expensive"

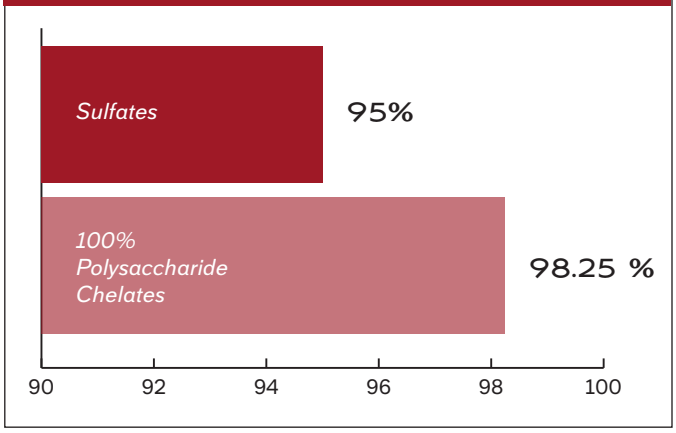
Cheap mineral is simply that…cheap mineral. Any beef operation is a business and as such, needs to show a profit. Sometimes beef producers will make a decision on a feed or mineral supplement based on its price per bag or price per ton. A knowledgeable beef producer takes time to learn about how a mineral is formulated and reads the mineral tag. Minerals with a feed tag that shows a makeup of oxides and sulfates will have the lowest bag price and also prove to be the least available to the animal. A mineral that shows a formulation with oxides and/or sulfates will typically be 10-50% bioavailable to the animal. Minerals that are formulated using polysaccharide chelates will be over 90% available to the animal. Producers need to be asking "If I spend the extra money on a top quality mineral, will I see a return on my investment?" With Crystal Creek® ROI® Beef Mineral, the answer is yes.

When beef cows get a high-quality mineral supplement, like the ROI® Beef Mineral, we know that the animals are getting their true daily requirements. Research has proven that farmers will get an improved return on their investment. A quality trace mineral supplementation can improve the health and performance of the animal. Average daily gain, immune function, feed conversion, conception rate and hoof health are all affected by the quality of the mineral fed. Beef producers should take into consideration how much extra return on investment they can actually have on their farm. Research shows improved health and performance associated with beef operations using the ingredients found in the ROI® Beef Mineral. These improved performance characteristics will positively affect the profitability of beef operations.

The figures presented in this article compare the different trace mineral formulations and their effects on performance. All Crystal Creek® mineral formulations, including the Crystal Creek® ROI® Beef Mineral, use polysaccharide chelated trace minerals; supporting improved pregnancy rates, increased average daily gain and improved feed efficiency over cheaper mineral sources.

The return on investment starts with improved reproduction.

Figure 1 **FINAL PREGNANCY RATE ON A 100 COW HERD**



Source: Manufacturer Research, Fowler, CO

Figure 1 shows the final pregnancy rate of beef animals using a mineral formulated with sulfates vs. the polysaccharide chelates found in ROI® Beef Mineral. Using higher quality mineral sources will increase final pregnancy rates. 3.25 more pregnant cows on a 100 cow beef herd (assuming there is no pregnancy loss) would result in an increased calf value of $2,275.00:

3.25 Calves x $700.00 = $2,275.00
(500 lb. calf at a market price of $1.40 per lb.)

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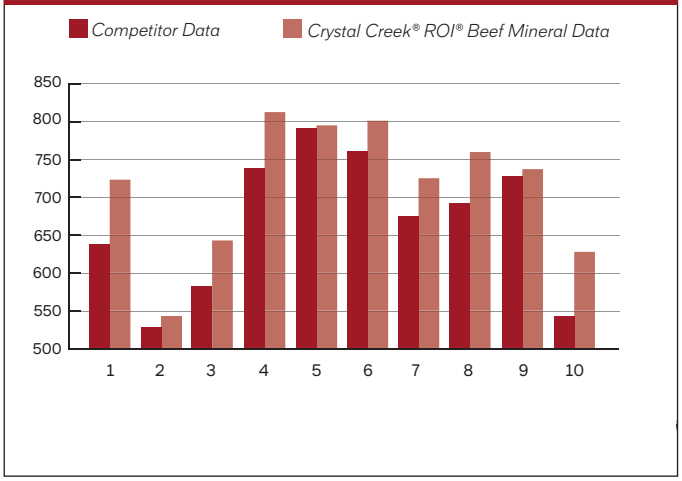
Figure 2 shows that calves/cows on ROI® mineral supplements had an average increase in weaning weight of 48 lb. per calf.

Figure 2 **205 DAY ADJUSTED WEANING WEIGHTS**



Source: Crystal Creek® Client Data

Figure 2 shows data collected from calves that were born from mature cows who had the same sex calf two years in a row. Calves were fed a beef pellet and cows were offered free choice minerals. The weights of the calves on the Crystal Creek® ROI® Beef Mineral program showed significant weight increases at weaning over the competitor's beef pellet and mineral program.

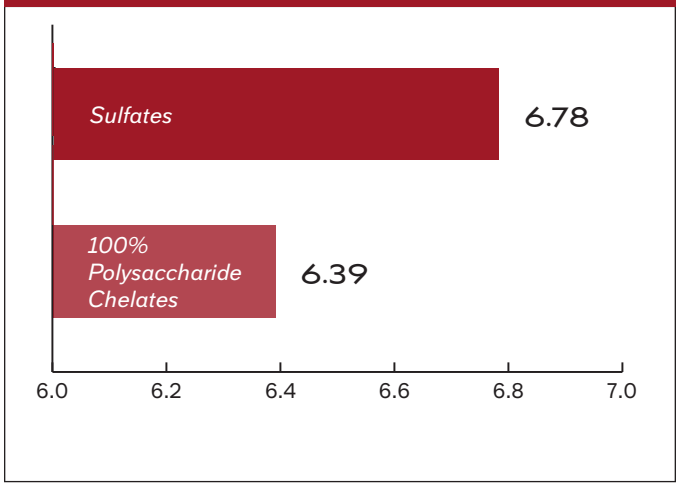
48lb. per calf x $1.40/lb. market price = $67.20 per calf

$67.20 per calf x 98 calves = $6,585.60

Figure 3 explains the return on investment with an increased feed to gain conversion.

Figure 3 **FEED:GAIN RATION**

lbs. Feed: 1 lb. Gain



Source: Manufacturer Research Texas Tech. University, 2000.

Figure 3 represents the results of feed conversion in animals using a 100% polysaccharide trace mineral. The numbers show these animals will have a better feed: gain conversion. Using a higher quality mineral source will reduce the feed needed per lb. of gain during the finishing period. If 200 lb. of dry matter feed is saved over the finishing period, it results in a savings of $10.00 per calf. Crystal Creek® customers have seen an even better feed efficiency using the complete creep feed program formulated by our staff of nutritionists.

Dry Matter Value = $0.05/lb. x 200 lb. = $10.00 per calf

$10.00/calf x 98 calves = $980.00 Savings

Mineral Investment

Investment for Cows	Cost/50 lb. bag	Feeding rate/ hd/day	Cost/ hd/day	Cost/hd/year	Cost/100 hd/ year
Crystal Creek® ROI®	$42.95	4 oz.	$0.22	$80.30	$8,030
Brand X	$22.00	4 oz.	$0.11	$40.15	$4,015
Investment for Calves	**Cost/50 lb. bag**	**Feeding rate/ hd/day**	**Cost/ hd/day**	**Cost/hd/ 150 days**	**Cost/98 hd/ 150 days**
Crystal Creek® ROI®	$42.95	2 oz.	$0.11	$16.50	$1,617
Brand X	$22.00	2 oz.	$0.06	$9.00	$882

Return On Investment

Enhanced Performance	Brand X Sulfates/Oxides	Crystal Creek® ROI® Polysaccharide
Value of improved pregnancy rate	0	$2,275.00
Value of increased weaning weights	0	$6,585.60
Value of improved feed to gain ratio	0	$980.00
Total Value	0	$9,840.60

Final Calculations	Brand X Sulfates/Oxides	Crystal Creek® ROI® Polysaccharide
Improvements in performance using ROI®	0	$9,840.60
Additional cost of ROI® mineral (Cows and Calves)	0	$4,750.00
Earned profit on herd	0	$5,090.60

The above chart numbers showing return on investment are only taking three factors of feeding Crystal Creek® ROI® Beef Mineral into consideration: pregnancy rate, improved weaning weights and feed to gain ratio. Other benefits could include: less days open, earlier sexual maturity, improved bull fertility, better utilization of feedstuffs and less treated animals. There is no doubt that healthy animals that are fed a high quality mineral will provide a better return on investment.

If you have any questions or would like to discuss how Crystal Creek® may be of service to your beef operation, please call and speak with one of our experienced nutritionists. Crystal Creek® livestock minerals are among the finest in the industry and give you the best value for your dollar. It's time to stop looking at the price per bag and start looking at total return on investment. It's time for Crystal Creek® ROI® Beef Mineral.