NewsRoundup

NUTRITION

From calf to calf: Minerals help you get there

By Kristin Thompson and Kathleen Shore

Minerals are an essential part of a nutritionally balanced diet for beef cows. Unfortunately they are also a part of the diet that is overlooked due to the small inclusion rate. Those small inclusions are necessary to keep a cow running efficiently, making her capable of producing healthy, lively calves.

The economics

Minerals, such as calcium, phosphorus, selenium and manganese all play a key role in maintaining herd fertility. When herd reproduction is compromised, the economic losses can be huge. A missed conception causes a loss of 52.5 lbs. per calf for every 21-day heat cycle missed (2.5 lbs. gain/day x 21 days). At a calf selling price of $1.80/lb., that is a loss of $94.50/calf when sold at weaning ($1.80/lb. x 52.5 lbs.). Multiply that by 150 calves and that equals a $14,175 loss. An on-farm mineral program ensures that the cow has everything she needs to stay healthy, digest her nutrition and cycle regularly.

Similarly, if a calf is born in the first

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TABLE 1. MINERALS AND THEIR FUNCTIONS

Macro-minerals	Description	
Calcium	Function · Bone formation and maintenance. · Mobilized in the circulatory system when intakes are adequate.	Deficiency · Poor reproductive performance, reduced milk yield and slow weight gains.
Phosphorus	Function · Formation of bone and a major storage depot of readily available energy.	Deficiency · Reduced animal performance, decreased reproductive performance, low milk production and reduced weight gains.
Magnesium	Function · Enzyme activation and multiple cellular processes.	Deficiency · Grass Tetany — observed in cattle grazing lush forages which are low in Mg. · Anorexia, convulsions, increased blood flow and excessive salivation.
Potassium	Function · Osmotic pressure regulator and essential in normal organ function.	Deficiency · Poor appetite, reduced performance and joint stiffness.
Sulfur	Function · Detoxification agent and an essential component for rumen microbial growth.	Deficiency · Depressed growth, anorexia, emaciation, profuse salivation, and death.
Micro-minerals	**Description**	
Copper	Function · Integrity of the central nervous system and normal red blood cell formation. · Bone structure through collagen and elastin formation.	Deficiency · Anemia, poor performance, heart failure, poor co-ordination, ataxia, and poor hair coat. · Reduced immune response and lameness are often observed in calves.
Zinc	Function · Plays a role in protein and carbohydrate metabolism. · Required for proper immune system function.	Deficiency · Unthriftiness, reduced fertility, excessive salivation, dermatitis, loss of hair and increased susceptibility to infection.
Manganese	Function · Reproductive performance, growth and skeletal development.	Deficiency · Reduced reproductive performance, skeletal malformations, enlarged joints and reduced birth weight of calves.
Selenium	Function · Passes from cow to calf through placenta. Prevention of white muscle disease and weak calves.	Deficiency · Retained placenta, increased disease susceptibility and weak calves.
Iodine	Function · Component of thyroid hormone, which is involved in regulation of energy metabolism.	Deficiency · Classic symptom is an enlarged thyroid gland. · Impaired fertility, retained placenta, weak or stillborn calves and hairlessness in calves.

February 17
Twisted T Gelbvieh/ Thackeray Land & Cattle Bull Sale
Parry, SK

February 24
Foursquare Annual Bull Sale
Olds, AB

March 3
Davidson Gelbvieh & Lonesome Dove Annual Bull Sale
at the Ranch, Ponteix, SK

March 5
Severtson Land & Cattle Bull Sale
at the Ranch, Red Deer County, AB

March 6
Gelbvieh Stock Exchange Bull Sale
Medicine Hat Feeding Company, Medicine Hat, AB

March 9
Gelbvieh Advantage Bull Sale
Innisfail, AB

March 12
Twin Bridge Farms/Twin View Livestock /Keriness Cattle Co Bull Sale
Silver Sage Arena, Brooks, AB

March 14
Fladeland Livestock Bull Sale
Johnstone Auction Mart, Moose Jaw, SK

March 17
Saskatoon Gelbvieh Bull Sale
Saskatoon, SK

March 24
Nelson Gelbvieh Bull Sale
at the Ranch, Glenwood, AB

March 25
Best of the Breeds Bull Sale
Consignor Goodview Gelbvieh, Yorkton, SK

April 4
Milne's Better Beef Bull Sale
Fairview, AB

April 14
Cattle Capital Bull Sale
Consignor Overby Stock Farm, Ste. Rose Auction Market, Ste. Rose Du Lac, MB

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MARCH 11 Steppler Farms Charolais Bull Sale, Steppler Sale Barn, Miami, MB

MARCH 12 Palmer Charolais and Nielson Land & Cattle Angus Bull Sale, at the farm, Bladworth, SK

MARCH 13 McTavish Farms and Guest Charolais & Angus Bull Sale, at the farm, Moosomin, SK

MARCH 15 Creek's Edge Land & Cattle Co. Charolais Bull Sale, at the farm, Yellow Creek, SK

MARCH 17 Pleasant Dawn Charolais Bull Sale, Heartland Livestock, Virden, MB

MARCH 20 Diamond W Charolais, Red & Black Angus Bull Sale, Minitonas, MB

MARCH 21 HTA Charolais & Guest Bull Sale, Beautiful Plains Ag, Neepawa, MB

MARCH 22 Elder Charolais Bull Sale, at the farm, Coronach, SK

MARCH 27 Prairie Distinction Charolais Bull Sale, Beautiful Plains Ag, Neepawa, MB

MARCH 31 TRI-N Charolais & Guests Bull Sale, Heartland Livestock, Virden, MB

APRIL 2 North of the 49th Bull Sale, at Wilgenbusch Charolais, Halbrite, SK

APRIL 3 Cedarlea Farms Charolais at Git 'R Done Bull Sale, Hodgeville, SK

APRIL 5 Hunter Charolais Bull Sale, at the farm, Roblin, MB

APRIL 21 Cornerstone Charolais & Red Angus Bull Sale, Whitewood (SK) Auction Mart

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21-day cycle, but with low vitality due to inadequate supply of minerals to the dam, that calf will struggle to grow, develop and finish. Extra medication and poor rates of gain means more feed goes into the calf for the same gain as a healthy calf.

Mineral considerations

When it comes to choosing the "right" mineral for your herd there is no one-size-fits-all supplementation program. Macro-minerals are required in large amounts by the animal and have various functions within the body (see Table 1). Micro-minerals or trace minerals, although essential, are required in smaller portions. Every mineral has a role in making an animal more productive, healthier and ultimately more profitable. Minerals work together to create nutritional balance so over or underfeeding one mineral may cause an imbalance in another. If calcium is overfed (limestone) it can actually bind other minerals and make them unavailable — more is not always better. Calcium is also linked to phosphorus so that ratio is very important. The optimal ratio is 1:1 to 4:1. Commercial mineral products are often named according to that ratio (eg. a 2:1 is two parts calciums for every one part phosphorus). Another example is when copper or selenium are overfed — zinc can become deficient. As you can see in Table 1 (page 56) zinc is involved in metabolism, making sure that feed is digested and used by the animal. It also helps support the immune system. A deficiency can lead to having to feed more to the cow to get the same performance and if deficiency is prolonged will just tire her out and make her more likely to fall ill.

Testing your feed

Knowledge of mineral function as well as availability within on-farm feedstuffs, including pasture, is important when choosing a commercial mineral. Forages are often a good source of calcium for beef

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cattle. In cereal grains, phosphorus levels are higher. Consult your nutritionist for proper stored forage and grain sampling techniques and recommended analysis.

The grazing season means cattle have the opportunity to consume large quantities of lush pasture, which can be low in magnesium (remember grass tetany). Copper availability tends to be low in Saskatchewan pastures and is hugely impacted by water quality, particularly iron and/or sulphate levels. Forage type will also have an impact on mineral levels depending on whether it is tame versus native pasture that is being grazed. Despite forage type, mineral concentrations decline from spring to fall (Saskatchewan Forage Council, 2014). Therefore, forage testing conducted in the spring will not be representative for the year. Forage testing should be done several times during the grazing season as well as through the winter on stored forages. When sampling pasture grasses, ensure you cut the grass stem off at grazing height. It is also important to avoid collecting samples of plants that cattle are not likely to be consuming. The idea is to collect a representative sample of the standing forages that the cattle are grazing.

Points to remember

- A mineral supplementation program is an essential part of beef cattle production!
- A year-round mineral supplementation program is essential for optimal herd health.
- Test your on-farm feed.
- Select a mineral that complements what is already on the farm.

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FORAGE

Grass guys developing a forage carbon offset protocol

By Duncan Morrison

Cedric MacLeod considers carbon sequestration through forages and grasslands and the

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