Mineral nutrition for beef cattle – Extension Program

Objective

Provide educational resources and support to producers to assist them in improving their cattle mineral program and subsequent cattle health and nutrition.

Description

Participants in the South Dakota Grazing School shared a desire for more training and education related to cattle mineral nutrition. In 2017, this program was developed to assist producers in understanding mineral composition of their forages, water and other feedstuffs and how to develop a mineral program that would improve cattle health and performance. The first class was held in 2017 at the SDSU Cottonwood Field Station. In 2018, the program expanded to include North Dakota with classes held in Dickinson, ND and Selby, SD. In 2019, locations included Mandan, ND and Hot Springs, SD. To date, at total of 48 beef cattle operations and 27 Extension and Industry professionals have participated in the program.

Each year, the program begins in May with a 1 day face-to-face workshop focusing on general mineral nutrition, animal grazing behavior, sample collection, and goal setting. Throughout the summer, individual ranch visits are conducted in order to get insight into current management of the mineral program and address specific challenges/questions participants may have. All participants are encouraged to submit samples of standing forage, additional feedstuffs or supplements, and water for laboratory analysis. A second workshop is held in the fall to discuss the applied components of how to interpret results from their analyses, how to read mineral tags, and determining the best mineral supplement for their operations.

Highlights or Impacts

A database of samples is being developed as results of laboratory analyses are received to increase understanding of forage and water mineral composition in the Dakotas. As the program continues to grow, so will this database. Some general observations to date include widespread copper deficiencies, excess molybdenum, highly variable sulfur content, and high iron content. Copper deficiencies are further compounded by the presence of molybdenum and sulfur, which can combine to reduce copper absorption and availability to the animal. There are also several situations where selenium is in excess, which can result in toxicity issues for cattle, sheep, and horses.

- As a result of participating in the mineral program participant's knowledge increased an average of 3.98 in 5 topic areas on a scale of 1-5, with 1 being no increase and 5 being a great increase.
- Changes that participants made as a result of the program:

        - "Added another mineral feeder to get below 40 head per feeder. Changed to a high copper mineral with basic copper chloride."
        - "Better monitoring and better understanding of the tag."
        - "Eliminated unnecessary minerals from mix."
    - Effect of the changes on the cattle health and performance.
        - "We have made progress with conception rates but plan to further progress with our mineral program."
        - "Still monitoring, but chelated mineral program from fetal stage saw increase in herd health."
        - "Less foot rot, no pinkeye"
        - "Improved cattle health overall."
    - Future participant mineral goals as a result of participating in the mineral program:
        - "To get our mineral program to fit our feed quality which will help improve her health, conception rates"
        - "Determining a suitable mineral program by time of year rather than one type all year to best fit our cattle's health and reproduction."
        - "Learn more, sample more, feed more efficiently."
        - "To much better utilize our programs and programs available to have an efficient and profitable outfit"
        - "Would like to have specific mineral programs for specific pastures and grazing techniques according to forage and water samples."
        - "Based on samples get ranch specific formulas."
        - "Find more efficient mineral for the time of year/type of season/condition of forages."

A future goal for this program is to be able to characterize mineral content of forages based on soil types and environmental conditions.

Contact

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