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Salt, Which Color Is Right?

James D. Keyes
Extension Area Range Beef Cattle Specialist

Yellow, black, red, white, blue, or brown, which color is right? This question comes up every time a rancher buys salt for cattle.

In the first place, why do cattle even need sodium chloride, otherwise known as salt? Early range scientists thought it was more of a craving than something that had to do with bodily functions. This “craving” could be used to obtain improved distribution of cattle and horses on the range (Chapline and Talbot, 1926).

Before the advent of salt pressed into blocks, the only stock salt available was the coarse ground “hay” salt, so called because farmers used it to prevent the spoilage of hay with excessive moisture content (Young and Clements, 2001). Hay salt was placed on the range in wooden boxes or other holding devices.

Pressed 50 pound blocks of salt came into use some time in the early 1920s. One range researcher opposed the use of blocks because of the time required for livestock to satisfy their salt needs by licking the block as opposed to consuming the coarse granular version (Sampson, 1923).Despite the time factor, blocks have become the accepted form of salt delivery.

It is now known that sodium chloride (NaCl), or just plain table salt, does promote water intake, which helps maintain or improve milk production and overall herd health. Later it was discovered that other minerals, that the animals are known to be deficient in, could be added to the salt blocks. By using the blocks, livestock are taking their medicine and not even knowing it.

Several types of blocks are available from which livestock producers can choose. The color of the

Photo 1. Ranchers should always check the label before purchasing salt blocks.

block indicates the combination of minerals it contains. All blocks contain NaCl. Below are the different colors and what they include:

- White contains nothing more than NaCl or table salt.
- Yellow contains sulfur.
- Red contains iron and iodine.
- Blue contains cobalt and iodine.
- Brown contains cobalt, iodine, iron, zinc, copper, molybdenum, and manganese. Some brown blocks may also contain potassium and magnesium.
- Black blocks contain everything found in the brown blocks plus selenium.

So which color is right for a cattle operation in the West? Researchers found in ranges in Arizona and Oregon that calcium concentration appears to be sufficient to meet a cow's requirement throughout the year; however, forage concentration of phosphorus, magnesium, copper, zinc, and selenium is not sufficient to meet the requirements of an average cow during the majority of the year (Ganskopp and Bohnert, 2003; Sprinkle et al., 2000).

By looking at the research, a general rule of thumb could be that cattle grazing western ranges would need to be supplemented with trace minerals.

Cattle producers using western ranges should select the brown trace mineral block for their operations. The yellow sulfur block was developed for southern pastures that had difficulties with insects and ticks. The blue cobalt block was created for the deficiencies found in northwest British Columbia and northern Alberta (Mehren, 2004).

Trace minerals are very important in the adult cow especially prior to calving. Trace mineral deficiencies can result in mastitis, retained placenta, still births, and abortions. The new born calf can be affected with scours and pneumonia.

Trace minerals are necessary to the animal's immune system, and very important to the calf that will eventually suffer the stress of weaning. Information on mineral deficiencies in beef cattle can be found in the USU Extension Fact Sheet AG/Beef/2010-02.

If a producer is concerned that the cow herd has a severe mineral deficiency, it is possible to determine the status of mineral intake. This requires finding out what the mineral concentration is of the forage being consumed, which can be affected by soil characteristics, plant species, and precipitation.

Photo 2. Old time salt box that was used for feeding loose salt on the range.

If the herd is found to be deficient, supplements can be formulated that contain higher mineral concentrations than normal. It is important to have good data before providing higher levels of minerals because toxicities can occur resulting in poor cow performance and even death.

In most areas of the West the brown trace mineral salt blocks will provide adequate mineral intake for cattle grazing rangelands. If a rancher feels there might be a problem, the local university Extension representative can be contacted to begin the process of discovering what type of supplementation might be needed.

Literature Cited

Chapline, W.R., and Talbot, M.W., 1926. The use of salt in range management. *Cir. 379, USDA*, Washington, D.C.

Hall, J.O., and Zobell, D.R., 2010. Common Vitamin and Mineral Deficiencies in Utah. AG/Beef/2010-02. Retrieved from Utah State University Extension publications website: http://extension.usu.edu/htm/publications.

Ganskopp, D., and Bohnert, D., 2003. Mineral dynamics of seven northern Great Basin grasses. *J. Range Manage*. 56: 174-184.

Mehrn, M., 2004. Feed Supplements. *Oregon Feed and Grain Association, Inc.*. August, 2004

Sampson, A.W., 1923. Range and pasture management. *John Wiley and Sons.* New York, NY.

Sprinkle, J.E., Bicknell, E.J., Noon, Reggiardo, C., Perry, D.F., and Frederick, H.M., 2000. Variation of trace minerals in forage by season and species and the effects of mineral supplementation upon beef cattle production. *Proc. West. Sect. Soc. Anim. Sci.* 51:276-280.

Young, J.A., and Clements, C.D., 2001. Range research: The second generation. *J. Range Manage.* 54:115-121.

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