

Salt and Rotational Grazing

Salt can be a management tool to enhance rotational grazing.

by Larry Berger

With rapidly increasing grain prices there is renewed interest in optimizing beef production from grazing systems. Rotational grazing, sometimes referred to as management-intensive grazing (MiG), can increase beef production per acre by 30% compared to traditional grazing methods. The most common form of rotational grazing requires large pastures to be subdivided into smaller paddocks. These paddocks are grazed for two to four days, and then the cattle are rotated to a new paddock. Often, 10 or more paddocks are involved so that grazing occurs at roughly 30-day intervals.

The benefits

Besides the increased beef production per acre, there are several ecological benefits from properly managed rotational grazing systems. First, more-uniform grazing prevents bare spots that often result from localized grazing. When more than adequate forage is available, cattle will often graze some areas very close because the regrowth is more succulent and less fibrous compared to plants that have been allowed to mature because they were not grazed.

In most rotational grazing systems, the cattle will be moved when the forages have been grazed to a height of 2-3 inches (in.). This reduces wind and water erosion by maintaining a uniform forage cover.

With rotational grazing, the feces and urine are more evenly distributed across the paddock, rather than being concentrated in

resting areas as often occurs with traditional grazing methods. This improves nutrient recycling and increases forage production.

Salt and ionophores

Cattle grazing lush forages have an increased appetite for salt.

Grazing cattle will usually consume twice as much salt as those fed high-concentrate diets. Part of the explanation may be that

lush forages are generally high in potassium (K) and low in sodium (Na). The body has to maintain a sodium-potassium balance, which may stimulate

salt intake. Salt is an excellent means of delivering ionophores to grazing cattle.

The ionophore monensin, marketed as Rumensin®, is cleared as a feed additive to increase daily gain of grazing cattle. In the studies reported by Muller (1986), self-feeding a salt-monensin-supplement gave the same improvement in daily gain [0.2 pounds (lb.) per day] as hand-feeding the monensin supplement without salt. These data show that salt, an already proven intake regulator, can be made even better when combined with monensin.

Although less data are available with lasalocid, a Georgia study showed that lasalocid fed in a free-choice salt and mineral mix increased the gains of replacement heifers, cows and calves (Kiser et al, 1986).

Salt feeders as a management tool

Trace mineralized salt-mineral mixtures should be formulated to supplement the

existing forages and to meet the nutrient needs of the cattle. Working with a nutritionist who understands the complexities of the soil-forage-animal complex is the best way to ensure that optimum nutrition is available to the animals.

Because grazing animals have a keen appetite for salt, the salt feeder can be used as a management tool to accomplish several objectives besides meeting the animals' nutritional needs. The Noble Foundation of Ardmore, Okla., has done considerable research in using the salt feeder as a management tool to accomplish more than simply meeting the salt needs of cattle. Over time, they found that for it to be an effective management tool, it must possess four characteristics:

First, it must be user-friendly in that it can be easily constructed and rarely needs repairs. Commercial units are available today if the rancher does not want to build his own.

Secondly, the unit must be transportable. This is essential if the unit is going to be moved every two to four days during the grazing season. Cattle learn to follow the unit to the new paddock.

Thirdly, the unit must be properly sized and positioned according to the number of animals in the herd. The salt-mineral feeder must be durable and easily maintained. The salt feeder should be positioned such that it baits cattle to use the cattle rub portion of the tool. The cattle rub portion of the tool will be effective at controlling external parasites only if the cattle use it regularly (see Fig. 1).

Controlling fly populations can be a major challenge when there are a large number of grazing animals in a relatively small area. Recent research (Cocke et al, 1989; DeRouen et al, 1995 and Foil et al, 1996) reported that weight gains were increased 27 lb. per head for weaned calves and by an average of 17% in yearling grazing cattle when flies were effectively controlled.

The Noble Foundation has found that by combining the salt feeder and cattle rub in the same tool, the cattle rub becomes a much more effective method of controlling flies.

A 1982 study by Roberts and Saluta reported that more than 75% of the time cattle rubs impregnated with the appropriate insecticides were more than 90% effective at controlling the fly population on grazing cattle. The main problem was training the cattle to use the rub often enough to control the flies. This problem appears to be overcome by combining the salt feeder and cattle rub into one tool.

Putting the cattle rub immediately adjacent to the salt feeder seems to be the key that encourages consistent use of the rub.

Feeding & Feedstuffs

Although hard block, pelleted and small, granulated salt-mineral mixes have been used successfully in the feeding tool, the loose mineral appears most desirable for the following reasons:

First, the cattle consume the loose salt-mineral mix, more rapidly giving them time to also use the cattle rub. The large models with a 10-foot (ft.) cattle rub have been used successfully for herds as large as 150 head. If only block salt is provided, the amount of salt feeder space has to be increased to allow adequate consumption. Animals at the bottom of the pecking order may not get access to the salt or cattle rub when the feeder is constantly occupied.

Secondly, feeding a mineral mix and/or ionophores requires that the loose salt be mixed with the other ingredients to get the desired intake. The ratio of the salt to other ingredients may change with season of the year, pasture composition, and changing cattle requirements.

Finally, most grazing cattle will consume 2-4 ounces (oz.) of salt per day. This gives a starting point to estimate the ionophore concentration needed to get the desired intake. Practical experience has shown that 20%-30% salt is the minimum concentration needed to encourage regular salt consumption and use of the cattle rub.

Feeding a loose salt-mineral mix requires a roof over the salt feeder in most climates. In low rainfall areas, a roof may not be necessary. However, if a mixture of salt and ionophore is fed, a roof is recommended to prevent rain damage and reduce wind losses.

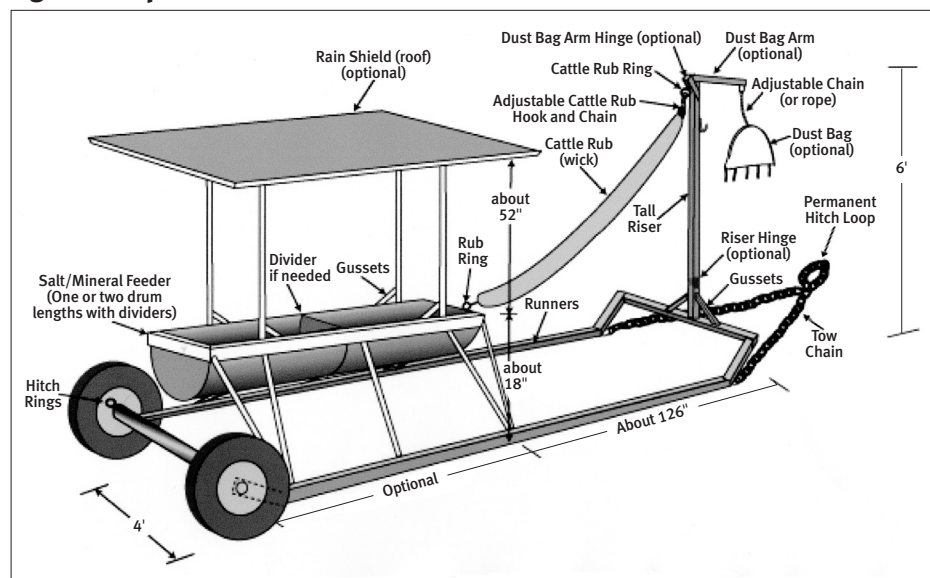
The salt feeder should be located away from the watering source and trees. These normally tend to attract cattle and often result in heavy grazing pressure around them.

Positioning the salt feeder in a low-traffic area will encourage more-uniform grazing and manure and urine distribution.

In summary, grazing cattle have a keen appetite for salt, which makes it an excellent management tool. Salt can be used to regulate the intake of minerals and ionophores without the labor of daily feeding. The salt feeder described above acts as an attractant to help animals learn to use the cattle rub. The salt-feeder cattle rub tool is an effective means of controlling flies and other external parasites.

Moving the salt feeder to low-traffic areas improves grazing distribution. The salt-feeder cattle rub tool is a user-friendly, low-cost device that can increase beef production in a rotational grazing system.

Fig. 1: Example salt-mineral feeder



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Editor's Note: This article was written by Larry Berger, University of Illinois professor of animal sciences, for the "Salt and Trace Minerals Newsletter," provided by the Salt Institute. For further animal nutrition information, visit www.saltinstitute.org.

Questions and answers

Q: Are there trace minerals I need to monitor to reduce the risk of developmental orthopedic disease in my young horses?

A: Recent research suggests that copper (Cu) and zinc (Zn) play key roles in preventing developmental orthopedic disease. Some experts are recommending a 4-to-1 zinc-to-copper ratio with at least 100 parts per million (ppm) of zinc in the diet.

Q: I raise organic beef and want to fortify my diets with trace minerals to minimize the risk of disease. Is there any risk of increasing the trace mineral concentrations in the beef?

A: No. A recent Irish study showed that the supplementation of iodine, copper and selenium (Se) to cattle did not pose any risk to significantly increasing these elements in the human food chain.

Q: I recently had a lamb born with white muscle disease without having a problem for years. Should I change my trace mineral program?

A: Make sure your trace mineral product contains selenium. White muscle disease is commonly associated with low-selenium diets.