Livestock are Part of the Biodiversity Discussion

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Recently, much has been said of the importance of biodiversity on our grazing lands and crop fields. Biodiversity allows for healthy soils and plants because the cycles that drive a healthy ecosystem, such as the nutrient and energy cycle, do not function properly without a diversity of plants and organisms. Much of the organism diversity we read or hear about today deals with microorganisms that we find in healthy soils or in the wrong proportions in unhealthy soils. Livestock are often overlooked when it comes to the biodiversity discussion, but that doesn’t come as much of a surprise to most. Livestock operations strive to produce as uniform of a product as possible. Many times that is even narrowed to a single breed or type of cow. Some regions across the U.S. are known as “cow country” and other types of livestock are negatively perceived. Some regions are thought of as cow-only areas because it is perceived that other types of livestock cannot be managed successfully in that area for various reasons. However, in other regions, such as central Texas, grazing sheep, goats and cattle on the same acreage is considered a normal practice. Grazing managers in other regions have started to incorporate multispecies grazing in their management plans. Incorporating multispecies grazing into a management plan can help improve the ecological sustainability of grazing lands, aid in managing animal health and help increase economic sustainability.

Diets compared in cattle and goats

Cattle heavily consume grasses with less than half their diet being forbs and woody plants. Goats however eat woody plants for a majority of their diet. Grazing the two together may benefit pasture land.

CONSIDER LIVESTOCK DIETS

The diet of cattle, sheep and goats vary compared to one another, although there can be some overlap. Cattle consume grasses at a rate of about 70 percent of their diet, followed by forbs (broadleaf weeds) at 20 percent and certain woody plants at about 10 percent. Sheep consume grasses at about 60 percent of their diet, forbs at 30 percent and woody plants at about 10 percent as well. Goats consume grasses at about 20 percent of their diet, forbs at 20 percent
and browse on woody plants make up the remaining 60 percent of their diet. When the stocking rate of all three is set to match the carry capacity of a pasture, they can be grazed together or in sequence following one another, depending on the management goal.

**WHY USE MULTISPECIES GRAZING?**

Some grazing managers use multispecies grazing because they feel it is a more efficient way to utilize all of the production on their pastures and keep the densities of different plant types in the proper ratio to match the goals of their operation. This can be especially true when pastures have high densities of brush species that goats will consume along with grasses that cattle prefer over the browse. Managers with these types of pastures feel they can actually increase the stocking rate in the pasture because the goats are more efficiently using the browse than cattle can alone. In fact, operations have been able to graze anywhere from one to 12 goats per cow without reducing the cattle stocking rate in certain situations. This can only be done when the grazing manager has done a proper job of matching the forage demand of the cattle with the available forage and the browse demand of the goats with the available browse.

**GRAZING GOATS WITH CATTLE**

Goats have a reputation of being “pasture wreckers” in many areas. This reputation is not totally unfounded, but it is not the fault of the goat. Goats are very opportunistic grazers and will shift from browsing woody plants to grazing grasses if they need to. Often, grazing managers use goats and cattle together in situations that will not support both without a reduction in cattle numbers. Goats placed on a pasture with a few forbs and very little brush will begin to graze more grass than what is considered normal and start to compete with the cattle. Goats have the ability to graze closer to the ground than cattle because of their mouth and lip structure. The goats grazing grasses closer to the ground combined with the grazing pressure from the cattle results in overgrazing that can be more dramatic and impressionable than overgrazing from cattle alone. Pastures composed of only grasses, such as a bermudagrass field, will probably be best managed with grazing only cattle until weed pressure becomes high enough to use another species as a tool to decrease the weed densities. Also, not all browse species are created equal to goats. It is not uncommon to find a dense stand of mesquite with only Texas wintergrass growing underneath in the Southern Great Plains. Grazing managers have been known to attempt to use goats to suppress the mesquite canopy and allow sunlight into the understory in an effort to encourage warm-season grasses to compete with the wintergrass. Goats will rarely consume the foliage or shoots of mesquite trees. This is not taken into account when developing stocking rates, the pasture will become overgrazed. This is a simple case of trying to use goats as a tool in the wrong situation.

**USING GOATS TO MANAGE BRUSH**

Grazing or browsing each species can be used as a tool to manage an ecological concern if it is implemented in the correct situation. Goats can be used successfully to suppress the densities of several brush species including cedar. This process is not as immediate as using herbicides or mechanical treatments, so do not expect to meet your goal in one season of using goats to target brush. This management tool, like most others, is not a one-time application. Once brush suppression has been achieved, continued pressure is needed to keep the plants in check. Keep in mind that a lighter stocking rate of goats will need to be used to avoid competition with cattle. While mesquite is not readily consumed by goats, they can help slow its invasion. Mesquite pods are eaten by most classes of wildlife and livestock. In fact, many animals act as vectors for the spread of mesquite seeds across the landscape. Goats can be used as predators of mesquite seeds. Studies have shown that goats will eat more seeds than other livestock species, and substantially fewer of the seeds will survive digestion. Of the seeds that do survive digestion, even fewer will germinate compared to seeds passed through other livestock species. This allows a producer to concentrate goats in areas during the time of mesquite pod availability to eventually reduce mesquite seedling recruitment in those areas. Sheep and goats have been successfully used as a tool to suppress weed growth in pastures. Land managers will concentrate sheep and/or goats in areas with high densities of weeds as a management practice for weed control.

Remember that when using grazing or browsing animals as a tool to manage specific plants or grazing multiple species of livestock together to improve the harvest efficiency of the plants within pastures, it becomes even more important to match the forage/browse demand that each animal will have with the production in the pasture. Monitoring the use of grasses, forbs and woodies is vital to ensure there will be no more competition between livestock species than planned.

**REDUCE PARASITE PROBLEMS**

Multispecies grazing can also aid in animal health management. Parasites are a problem that grazing managers battle in most livestock across the nation. Most parasites are species-specific. When a cow ingests a parasite that is specific to goats, the parasite will not be able to complete its life cycle. This results in a decrease in parasite loads in pastures grazed by multiple livestock species. Proper rotations and forage utilization will also help reduce parasite problems. Reduced problems will lead to fewer treatments. Not only will livestock be potentially healthier from a reduced parasite load, but fewer treatments will reduce the chances of developing treatment-resistant parasites.

Multispecies grazing can allow a flock of sheep and/or goats to bond with a cattle herd. This bond will help keep goats inside the pasture intended for them to browse, although it will not completely do away with the need to upgrade fences for goat management. Keeping the goats and sheep with cattle is thought to help reduce predation problems. When the animals act as one large herd or flock, the smaller animals get some level of protection from the larger ones, such as mature cows.

**CONSIDER THE ECONOMICS**

For a management decision to be successful, it must at least maintain the economic sustainability of the operation. Multispecies grazing has the potential to increase the sustainability of many operations in certain situations. Producing different types of products can aid in risk management because diversification will keep you from having all your eggs in one basket. In some cases, grazing managers can increase the amount of meat produced and sold from each acre by more effectively utilizing the different types of plants in their pastures. This could lead to a revenue increase. Expenses could be reduced by using multispecies grazing to replace or augment traditional practices for brush and weed management that often carry a lofty price tag. A reduction in parasite treatments could also lead to a decrease in expenses. Using goats as a brush or weed management tool might not justify having a breeding operation. Buying young animals, using them as a tool, then selling them after they have reached a certain weight could be the best option financially. This approach would also allow flexibility to ensure a grazing management plan can be properly implemented in less-than-ideal conditions. Any wildlife goals would need to be heavily considered when selecting species to use and setting stocking rates. An analysis of each enterprise, in addition to a whole operation analysis, would need to be done to make sure that it is implemented in the correct way and to ensure it would at least maintain the economic sustainability of the operation.

Multispecies grazing is not a new idea. In fact, it was once more popular than it is now. Farmsteads relying on a combination of cattle, sheep, goats, poultry and swine to meet the needs of their family and land. Today, the practice of grazing multiple livestock species is becoming popular in some circles. While cattle, sheep and goats grazing on the same property is not an uncommon sight in many areas, more recently managers have begun to incorporate poultry into their management in what appears to be higher numbers. Many people across the nation have realized the benefits of biodiversity in their plants and soils. Biodiversity in grazing animals can be just as vital.