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**CURRENT TOPIC**

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*Benefits of Multispecies Grazing*

Mixed-species grazing has several advantages. Cattle prefer grass over other types of plants, and are less selective when grazing than sheep or goats. Sheep and goats, on the other hand, are much more likely to eat weeds. Sheep prefer forbs (broad-leaved plants) to grass, and goats have a preference for browsing on brush and shrubs, and then broad-leaved weeds. Therefore, grazing cattle, sheep, and goats together on a diverse pasture should result in all types of plants being eaten, thus controlling weeds and brush, while yielding more pounds of gain per acre compared to single-species grazing. (1).

The addition of goats to cattle pastures has been shown to benefit the cattle by reducing browse plants and broad-leaved weeds. This permits more grass growth. Goats will control blackberry brambles, multiflora rose, honeysuckle, and many other troublesome plants (2). It is thought that you can add one goat per cow to a pasture without any reduction in cattle performance, and with time the weedy species will be controlled so that total carrying capacity is improved. This is a cheap way of renovating pastures, and you can sell the extra goats and kids for a profit, as well. The same principle holds for sheep. Although they are less likely to clean up woody plants, sheep are quite effective at controlling other weeds, with proper stocking pressure.

Multispecies grazing may also benefit pastures that are less diverse, by encouraging more even grazing. Cattle will tend to graze taller grasses that sheep may reject. It has been shown that sheep graze near cattle manure deposits, which cattle avoid (3); this too results in more even use of the pasture. Carrying capacity and pasture productivity are improved, and animal gains are also increased (4, 5, 6). Diversification of species results in diversification of income sources (7). Also, some researchers have found that adding cattle to a sheep flock may help reduce predation losses, after a period of bonding (8).



**Cows prefer grass; sheep prefer forbs; goats prefer trees and shrubs. Nevertheless, there is regular crossover among the three types of feeders.**

Illustration by Elayne Sears. Reproduced from *Small-Scale Livestock Farming* by Carol Ekarius, published by Storey Communications. Used with permission.



Another way that multispecies grazing can improve pasture and animal production is through the consumption of poisonous plants by a species that is not harmed by the toxins. For example, leafy spurge and larkspur – serious problems in the western states – are harmful to cattle, but not to sheep. Therefore, using sheep to eliminate those plants will result in more useable and safe pasture for cattle (9). Conversely, some plants are problematic for sheep, but easily tolerated by cattle (10).

**Caution:** Check with a veterinarian or county extension agent about weed identification. The following websites may be helpful for learning about toxic plants:  
<http://cal.nbc.upenn.edu/poison/>  
<http://vet.purdue.edu/depts/addl/toxic/cover1.htm>  
<http://www.library.uiuc.edu/vex/toxic/scilist.htm>  
<http://www.ansci.cornell.edu/plants/plants.html>

Parasites are a major concern with sheep and goats, under any system. Worm eggs are deposited on the pasture in the manure; the eggs hatch and larvae are consumed by grazing animals. If left untreated, concentrations of parasites will increase with time as this cycle is repeated. Higher concentrations of animals on a pasture may tend to magnify the infestation. Parasites are species-specific; that is, cattle parasites affect cattle, and not sheep, while sheep parasites affect sheep but not cattle. The cattle act as “vacuum cleaners”, ingesting the sheep worm larvae, and preventing them from affecting the sheep. This is most helpful when sheep and cattle follow each other in a grazing system. However, goats and sheep do share parasites, and therefore grazing them together does not improve parasite control.

Because parasite eggs are deposited in the manure, and larvae only travel a short distance up grass blades, animals grazing taller forages (well above ground level) will not consume worm eggs or larvae. Therefore, goats that are given ample browse will be much less likely to become infested with parasites. If goats are forced to graze at ground level, however, the goats may acquire a serious parasite load.

### *Potential Problems*

Problems may arise in the practice of mixed-species grazing. One of these is the potential for “bully” animals. In my experience on our own farm, the problem with mixing cattle and sheep was not the cattle being abusive to the sheep, but the ram being aggressive to the cattle! We had a big Charolais cow that the ram disliked so much, we had to feed her separately in the wintertime. The ram would chase the cattle on pasture, and prevent them from coming to the water trough. At lambing time, some cattle may be difficult and bothersome to the sheep, or the shepherd!

Another problem is supplemental feeding, including the feeding of trace minerals. The mineral supplement that is adequate for sheep may not be so for cattle, and a mineral supplement that is best for cattle may be toxic to sheep, as sheep do not tolerate much copper. This difficulty, and the one of aggressive animals, may be overcome by simply rotating the animals. If the sheep are grazed for a few days, then moved to a fresh pasture and the next species put on the first pasture, you may get the benefits to your pasture and avoid these problems.

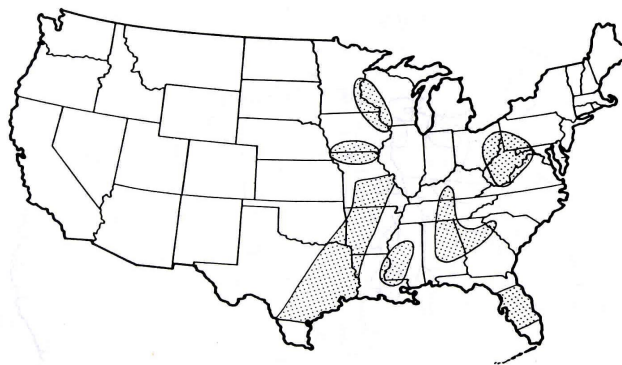
Fencing is another issue to consider. Electric fencing is generally considered to be the most economical and convenient. Opinions vary as to number of strands needed: on our farm, we use 5 strands for the perimeter, and 2 or 3 strands for the division fences. We also have a powerful charger; but if sheep get in the habit of going through the fence, it's very hard to cure them. Goats are notoriously hard to contain in an area. The article, "How to Hotwire a Goat" gives one example of a fence that may control goats (11).

Another idea, if cattle fence is already in place, is to string off-set wires inside the fence. This should be set in about 8", and be 12-14" above ground, and must be maintained at 4,500 volts or better to be effective (12). Also, it is a good idea to train sheep or goats to electric fence. This is done by confining them in a small area with a very powerful fence, and encouraging the animals to "test" the fence by attaching shiny objects to the fence, or by placing feed on the other side of the fence, just out of reach. For best results, the training area should be surrounded by secure fencing, such as panels or woven wire or a board fence. This practice will discourage those individuals inclined to lunge forward or run through the fence after being shocked. Please refer to the ATTRA publication, *Introduction to Fencing and Paddock Design*, for more information regarding fencing.

Predators are a major problem for sheep and goats. Electric fencing helps to discourage predators, but it may also be necessary to employ a guardian animal. Some producers prefer livestock guardian dogs, such as the Great Pyrenees or the Anatolian dogs, while others are strong proponents of llamas or donkeys. Each has its advantages and disadvantages. More information on predator control is available from ATTRA.

### *Obstacles to Adoption*

A review of the literature on multispecies grazing included the proceedings from the Multispecies Grazing Conference, held at Winrock International in 1985 (22). Dr. Evert K. Byington submitted an article (13) which explored the question of what areas of the eastern United States could most benefit from the practice of multispecies grazing. Criteria included the number of cattle, types of pastures, availability of farmer-owned forested land for grazing, and other factors (see map). Certainly, multispecies grazing seems to be an excellent practice, with potential to improve pastures and land, and increase profits. So why is it still not a common practice, even 16 years after the conference?



**Locations in the eastern U.S. where multispecies grazing management should be given priority as an alternative to existing forage/livestock systems (13).**

Knowledge may be the main factor. The decline in sheep production means that many farmers have no experience with sheep, and so may not be confident of their ability to manage that species. Learning to raise a new species takes time and energy, and inevitably involves “trial and error,” which can be terribly discouraging to a beginner. Prejudice against sheep and goats may prevent a cattleman from diversifying. Time and energy are factors, as well, since sheep and goats may increase the labor demand. Practical concerns such as those already listed – predators, parasites, supplemental feeding, fences, and facilities – may inhibit farmers. Some producers may decide that they’d prefer using a bulldozer or Roundup™ to control their weedy and brushy pastures rather than “mess with sheep or goats”. Lack of markets, or lack of knowledge of markets, may be an issue in some areas, as well.

On our small farm, we kept sheep and cattle together for a while. We eventually sold the cattle, for several reasons. First of all, we found it inconvenient to hire a trucker whenever we needed to sell a calf or take an animal to the veterinarian. We could not justify installing handling facilities for the small number of cows we needed to work, so anytime they needed to be vaccinated or dehorned, we had to arrange for hauling to the veterinarian. With no facilities, A.I. would be rather difficult, but keeping a bull for three cows was impractical. We could have chosen to buy calves rather than keep breeding stock, and that would simplify the management of the cattle since we would not have to worry about arranging for breeding, and would only need to hire hauling when we were ready to sell the calves. Our experience illustrates some potential difficulties for small producers.

### *Outlook*

What results can be expected from multispecies grazing? Research techniques vary, and differences in initial pasture composition, climate, experimental procedure, and particularly stocking rate, influence results. These and other variables may account for the varying and contradictory results reported in the literature. For example, lamb gains are improved under multispecies grazing systems, while calf gains are not affected (5) or are reduced (14) or are improved (4). A producer must be observant, and manage the pastures and animals well to maximize production and prevent damage through overgrazing. Also, it is important to think “long-term” – and give pastures time to improve and enhance animal performance. When adding a new animal species to your operation, start with small numbers and build slowly after gaining experience and adapting species to one another. This will greatly reduce risk during the learning process.

In conclusion, while multispecies grazing requires more thought and management, and more investment in facilities, it can have big payoffs for your pasture and your wallet. If you do decide to add one or more species to your operation, be sure to investigate your market options and your fencing options, and then start slowly. Select healthy stock, and be observant. Please contact ATTRA if you need more specific information.

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## Resources:

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