



Toxic Plants for Small Ruminants

Caetano Sales

Forage is the primary source of feed, which provide energy and nutrition for all grazing animals. However, forages have fierce competitors in pastures, such as weeds, who occur naturally in the landscape, whether we want them or not. While not all weedy plants are poisonous, some can pose a threat to livestock.

A defense mechanism that weeds uses to prevent them from being grazed, consist in the production of toxins, whether in the form of an unpleasant smell or bad taste. However, they may still be consumed by animals and may cause toxicity. There are two types of toxicity caused by consumption of weeds, acute and chronic.

Chronic toxicity is the most common, with exposure to weed over time. Even though it will not kill the animal, the symptoms include poor development. Acute toxicity is rare; animals that consume acute toxic weeds as low as one time, may be poisoned and die soon after.

Plant toxicity is more common in the Fall, so it is important to learn, recognize, scout pastures, control weeds, and prevent poisoning.

Most animals understand not to eat weeds, but, in some cases, consumption may occur when the

main source of feed is scarce, young animals are exploring, the feed is bad/spoiled, and in case of animals that keep going after weeds.

Sheep are as sensitive to poisonous weeds as horses. On the other hand, goats are more resistant to poisonous plants, and are commonly known as “weed eaters”. Nevertheless, we still observe losses of goats due to poisoning.

Being able to identify poisoning symptoms can help reduce animal losses. When noticing changes in the animal’s behavior, such as standing away from the herd, an animal that acts disoriented or depressed, refuses to eat, drinks excessive water, and has a shaggy coat, you should be alert and consider toxicity by weeds. If you observe any of these symptoms in your animals, immediately call your local extension agent and your local veterinarian.

Controlling weeds is a constant battle. Maintaining a healthy pasture, using proper fencing to prevent access to wooded or wet areas, good grazing management, and examining hay for toxic weeds are some of the management practices that can prevent animal poisoning.

Some of the common poisonous weeds that affect small ruminants are:

Nightshade (*Solanum americanum*)

Nightshade is a low-growing plant with oblong leaves, oval and narrow, that can be found throughout the pasture in shady and sunny locations.



Flowers are stalked clustered and can have white petals with yellow in the center. The fruit consist of small berries that become purple or black when ripe.

Toxicity is primarily in the unripe berries. However, other parts of the plant, such as the green stem and leaves, carry toxins. When consumed by livestock, symptoms include weakness, dilated pupils, and paralysis. The progression of these symptoms is usually fast.



Figure 1. Nightshade. Photo credit: Nathan S. Boyd, UF/IFAS

Jimsonweed (*Datura stramonium*)

This annual herbaceous weed has large purplish flowers, an unpleasant odor, and spiny pods that contain numerous black seeds. The entire plant is considered toxic. Symptoms include dry mouth, rapid pulse, and respiration, among others.



Figure 2. Jimsonweed
Photo credit: Utah Extension

Black cherry (*Prunus serotina*)



The entire plant is toxic, from new shoots to fruit, but primarily in the leaves, especially in the Fall when leaves become bright red or yellow colored.

Small white flowers are produced in the spring along with fruit that becomes glossy purple and black when ripe. Cyanide is the main toxin.

Black cherry is commonly found along fence lines. Symptoms are convulsions within 15 to 30 minutes and death in an hour.

Figure 3. Black Cherry
Photo credit: Larry Korhnak, UF



Showy crotalaria (*Crotalaria spectabilis*)

Crotalaria is an erect growing annual plant with rounded dark green leaves. It has yellow pea-shaped flowers and smooth green fruit that ripens into a black color. Seeds are black and glossy.

As pods dry, you can typically hear the seeds rattle inside, making crotalaria, also known as rattlebox. Symptoms are depression, bloody feces, drooling, loss of appetite, and diarrhea. The animal typically dies within 2-3 months.



Figure 4. Showy Crotalaria.
Photo credit: Allen Boatman

Coffee senna (*Senna obtusifolia*)



This summer annual plant has erected growth with lanceolate compound leaves and opposite leaflets. Flowers are yellow and clustered. Toxicity is mainly in seeds, especially in the Fall. Symptoms are dark urine, digestive tract irritation, and cardiac muscle irritation.

Figure 5. Coffee senna.

Photo credit: Missouri Extension

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Footrot Awareness During the Wet Season

Lizzie Whitehead

Do you have any issues with footrot in your flock or herd? Footrot is more prevalent and is highly contagious in wet and moist areas, making it a very common disease in some parts of Florida, due to wet soil conditions. It can be a very costly disease and it can take a lot of effort and labor to control. However, with the proper attentive management, it can be preventable!

Small ruminant footrot is caused by infection from two different types of bacteria: *Dichelobacter nodosus* and *Fusobacterium necrophorum*. Usually, the bacteria enter the hoof and cause infections when there is irritation of the interdigital area. Once the infection is installed, the bacteria produce powerful enzymes that dissolve the hoof and lead to the undermining of the sole.

Symptoms of footrot include lameness, discomfort in the hoof, reddened or inflamed tissue between the toes, or foul smell around hoof area. Another common symptom is when small ruminants

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graze on their knees or they lay down for longer periods of time.

For treatment, it is important to separate the infected animals from the rest of your flock/herd and call your local veterinarian for recommendation on antibiotic treatment. Foot bathing in zinc sulfate or copper sulfate solution is also usually recommended as a treatment option for footrot. Additionally, frequent foot bathing for at least 15 minutes reduces the risk of infection. Zinc sulfate and copper sulfate are drying agents that help dry the tissue in the affected area.

Since the bacteria is commonly found in wet soil conditions, it is highly recommended to provide good drainage for water in pastures and paddocks to exit the area. Good management practices for prevention of footrot include building up an area where your animals may congregate the most near the feed or water troughs, schedule regular hoof trimming for your herd/flock, quarantine all new animals for at least 30 days before introducing them to the herd and buy animals from a reputable breeder. Enforcing strict biosecurity protocol will also help any producer's livestock from acquiring footrot.

For more information:

[www.extension.purdue.edu/
extmedia/As/As-596-footrot.pdf](http://www.extension.purdue.edu/extmedia/As/As-596-footrot.pdf)



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Thinking about Pasture Management for Small Ruminants: Planning

Marcelo Wallau and Emmanuel Duvalsaint

“What pasture is the best for my sheep?”.

This is a frequent question I get at the Meat Sheep Alliance meetings that I have been attending in the past two years. Many producers are interested in raising sheep and doing it more efficiently. And that, invariably, goes through pasture production.

In this series of articles over the next multiple issues of the Small Ruminant Newsletter, I want to explore some important concepts of pasture and grazing management to help farmers build a forage plan for their farms. In this first one, I want to bring a quick and broad perspective on pasture planning, overgrazing, and why we need to think about the diversity of forages for our grazing systems. At the end, you will find some recommendations regarding cool-season forage to be prepared for fall planting. For sheep, as well as for other ruminants, pasture is the most important natural diet and should provide the most nutrients for the flock. Pasture is generally the cheapest source of nutrition for grazing animals, and different forage species will provide different levels of nutrients. Not all nutrient needs, however, will be met by forages, and sometimes we need to supplement to ensure animals are not being limited (we will dive into nutrition on another article).

A most common situation, however, is to find the animals in a “dry lot” rather than “pasture”, with little forage, and relying mostly on supplementation. It is safe to say that overgrazing is the most common issue on pasture management, especially in small areas. Overgrazing happens when there is an imbalance between forage production capacity and demand for forage. In simple words, it is when we have more animals than we can support in our pas-

ture. This leads to pasture degradation, poor animal performance, and the need for supplemental feed. Furthermore, in overgrazed pastures, animals are grazing close to the ground, and close to excrement, leading to gastrointestinal parasites issues. Overgrazing can be seasonal, when overall forage balance is ok, but limited early- or late-season; or generalized, when demand year-round is greater than production capacity. There are ways to go around seasonal overgrazing, with a bit of planning and grazing management, and supplementation. However, there are no management strategies that will overcome overstocking other than increasing forage supply or reducing the number of animals. This leads us to our first important concept of pasture management, which is carrying capacity – how many animals can our pasture support without being degraded. Defining how much forage a pasture can produce is not that easy (here is a guide for that <https://edis.ifas.ufl.edu/publication/AG434>). Although we have some parameters and guidelines, a lot comes through experience and knowing the land’s production capacity. The important thing is to start low and make sure you have more forage than needed.

The first step in pasture management is actually prior to getting to the field. It involves defining objectives and needs and evaluating pasture options and management techniques. This is called *strategic planning*. On the strategic planning, we need to define what production and marketing strategy to follow, management intensity, objectives, etc. At this point, we identify the carrying capacity of our pastures (all pastures) to define our stocking rate (the second important concept of grazing management). Jumping a few steps and thinking directly about the pasture component, I like to visualize the farm as a mosaic of multiple areas with different forages and uses (Figure 1). What I mean is to have multiple paddocks with different forages species that can grow at different times of the year, with a goal of having good forage year-round (Table 1).



Second, I like to plan my herd management and pasture management to ensure having the greatest quality of forage when there is the greatest demand for nutrients, such as lambing and weaning. I have recently written an article exploring those concepts and diving deeper into grazing management. It is available in the following link (a recorded video presentation in Spanish is also available): <https://nwdistrict.ifas.ufl.edu/phag/2021/07/02/talking-about-grazing-management-charla-manejo-de-pasturas/>

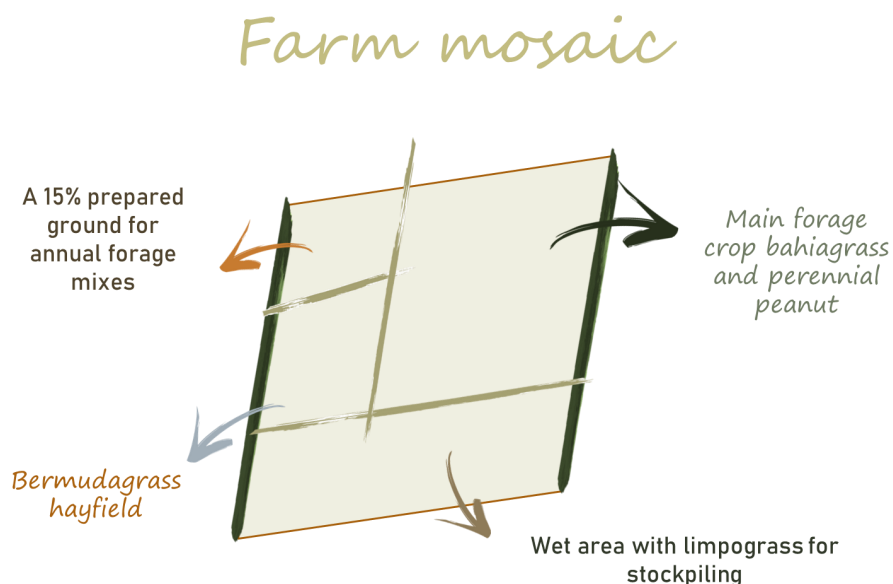


Figure 1: A simple schematics of a farm mosaic of different fields organized by soil type, use capacity, and forage

Forage species	J	F	M	A	M	J	J	A	S	O	N	D	Productivity* (lb DM/acre)
Limpograss													9000-12000
Pensacola Bahiagrass													3000-10000
Argentine Bahiagrass													5000-14000
Hybrid Bermudagrass													7000-14000
Pearl Millet													5000-12000
Rye													3000-7000
Oat													3000-7000
Annual Ryegrass													2000-10000
Arrowleaf clover													2000-4000
Crimson Clover													2000-4000
White clover													2000-4000

*estimate range or total productivity, in lb of Dry Matter/acre; actual values depend on cultivar, environment and management; consider using 50% of total productivity for perennials and 60% for annuals to respect plant maintenance needs.

Table 1: Estimated production capacity and seasonality of multiple forage options in Florida. species.



In Florida, the most common forage option is bahiagrass. It is a low maintenance, grazing tolerant summer forage that is the base for most of the beef cattle and equine industry in the state. However, the nutritional value of bahiagrass is below what we would need for sheep production, which leads to high supplementation needs. Moreover, bahiagrass is a summer perennial forage, which means the growing season is limited to around May until October, and the growth rate is greater mid-summer than early or late season. Strategically adding other forages in the system can improve total biomass production and increase nutritive value to help achieve production goals and reduce supplementation. Winter annuals are frequently used as options for either overseeding some of the bahiagrass or in prepared ground, to graze from

around January to April, for example. A section of land with warm-season annual mixes can provide higher nutritive value during the summer. The idea here is to add diversity to the system, so there is always something growing, almost year-round.

Tips for planning winter pastures

It's mid-summer right now, but we need to start planning winter pastures. All our winter forage options are going to be annuals. Cool-season annuals tend to perform best in North Florida and Panhandle, although they can be grown in central and even south Florida, considering that the season will be shorter. Here are a few tips for planning your winter pasture.

- First, consider what can be grown in your area.

- Second, what type of equipment is available, and what type of planting can be done? Broadcasting over sod will only work when planting ryegrass and some of the clovers; for the small grains (oat, rye, triticale), we need good seed to soil contact. For those, we need either to disk, broadcast, and roll or use a grain drill or no-till drill.
- Once you know what species to use, choose cultivars and secure seeds. Our UF IFAS Forage Team puts together recommendations for winter forages based on performance in our trials (<https://edis.ifas.ufl.edu/publication/AA266>).).



Figure 2.

Lambs grazing on mixed pasture (pearl millet, sunn hemp and cow peas) at the Beef Research Unit of the University of Florida



- Consider using mixes – mixing a small grain with ryegrass, for example, will increase length of the growing season, while adding a few legumes such as vetch, crimson clover, and winter peas can add nitrogen to the system via biological nitrogen fixation (which will not replace all nitrogen needs but will reduce the cost of production).

- Plan ahead, prepare the land early, and be ready for planting when weather conditions are favorable.

I encourage you to consult your local extension agent (<https://directory.ifas.ufl.edu/>) and ask for assistance on planning winter pastures, if you have not done so before. Feel free to reach us at forages@ifas.ufl.edu for more information.

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Contact them by email at: forages@ifas.ufl.edu

Recipe Corner

Goat Milk Ricotta Cheese

1 Gallon Goat Milk (not ultra-pasteurized)

1 teaspoon Citric Acid dissolved in 1/4 cup cool water

1 teaspoon Salt



Directions

1. In a large pot, combine the milk, citric acid solution, salt and mix thoroughly.
2. Heat the milk to between 185 and 195°F. Stir often to prevent scorching.
3. Remove from heat when the curds and whey separate and allow the mixture to sit for 10 minutes, undisturbed.
4. Pour the mixture into a colander lined with butter muslin. Once all the whey is poured through, carefully tie up the corners of the butter muslin. Hang the bag above a bowl and allow to drain for about 30 minutes or until the desired consistency is reached.
5. Remove from the muslin and store in a container in the refrigerator. It is ready to eat immediately, if desired.

***Ricotta will stay fresh for 2 weeks in the fridge.**

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Upcoming Events

1st Annual Small Ruminant Short Course

The 1st annual Small Ruminant Short Course will be held September 16-17, 2022. Producers, extension agents and specialists, researchers, students, and allied industry members are welcome to attend this in-person, educational event.

The program will include lectures and demonstrations on parasite control, herd health, marketing, management, and more. Susan Schoenian, Sheep & Goat Specialist at University of Maryland, will be bringing industry expertise as the featured speaker. Research updates will be provided by UF/IFAS Small Ruminant Faculty and Staff. The event will be held in conjunction with the 2022 University of Florida Ram Test and Sale and the 2022 NFLAG Small Ruminant Workshop. The sale will be conducted at 1:00 pm, immediately following Saturday's program. UF/IFAS Small Ruminant Extension is looking forward to seeing you in September!

Locations:

Friday September 16th, 2022: Straughn Professional Development Center

2142 Shealy Dr., Gainesville, FL 32611

Saturday September 17th, 2022: University of Florida Beef Teaching Unit South

3721 SW 23rd Street, Gainesville, FL 32608

Registration: [Small Ruminant Short Course & Ram Test Sale Tickets, Fri, Sep 16, 2022 at 8:30 AM | Eventbrite](#)

Visit the University of Florida's Small Ruminant Extension website for more information about this event at <https://animal.ifas.ufl.edu/smallruminant/small-ruminant-short-course/>

September 16th-17th, 2022
Straughn Professional Development Center
Gainesville, Florida

**SMALL RUMINANT
SHORT COURSE**
Ram Test Sale will begin on September 17th

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The UF Small Ruminant Update Newsletter is published quarterly by the IFAS/ UF Extension, as an educational and informational service. Please address any questions to Izabella Toledo, the Dairy Regional Specialized Agent of the Northeast District and Editor of the Small Ruminant Update Newsletter. E-mail: izatol@ufl.edu