



Fencing Systems for Pasture Management

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Mississippi has soils and climate that favor growth of a wide range of productive, high-quality forage species (grasses and legumes). An effective rotational grazing system can be an economically feasible approach that provides forage to grazing livestock while reducing feeding costs year-round. Rotational grazing is accomplished by allowing livestock to graze a specific rested area (paddock) for as little 2 hours up to 14 days depending on the forage growth instead of a time schedule. Rotational grazing will allow faster plant regrowth(recovery) and allow plants to thrive in a nutritious vegetative stage. However, to optimize a grazing management system, planning and maintaining a good fencing system is important.

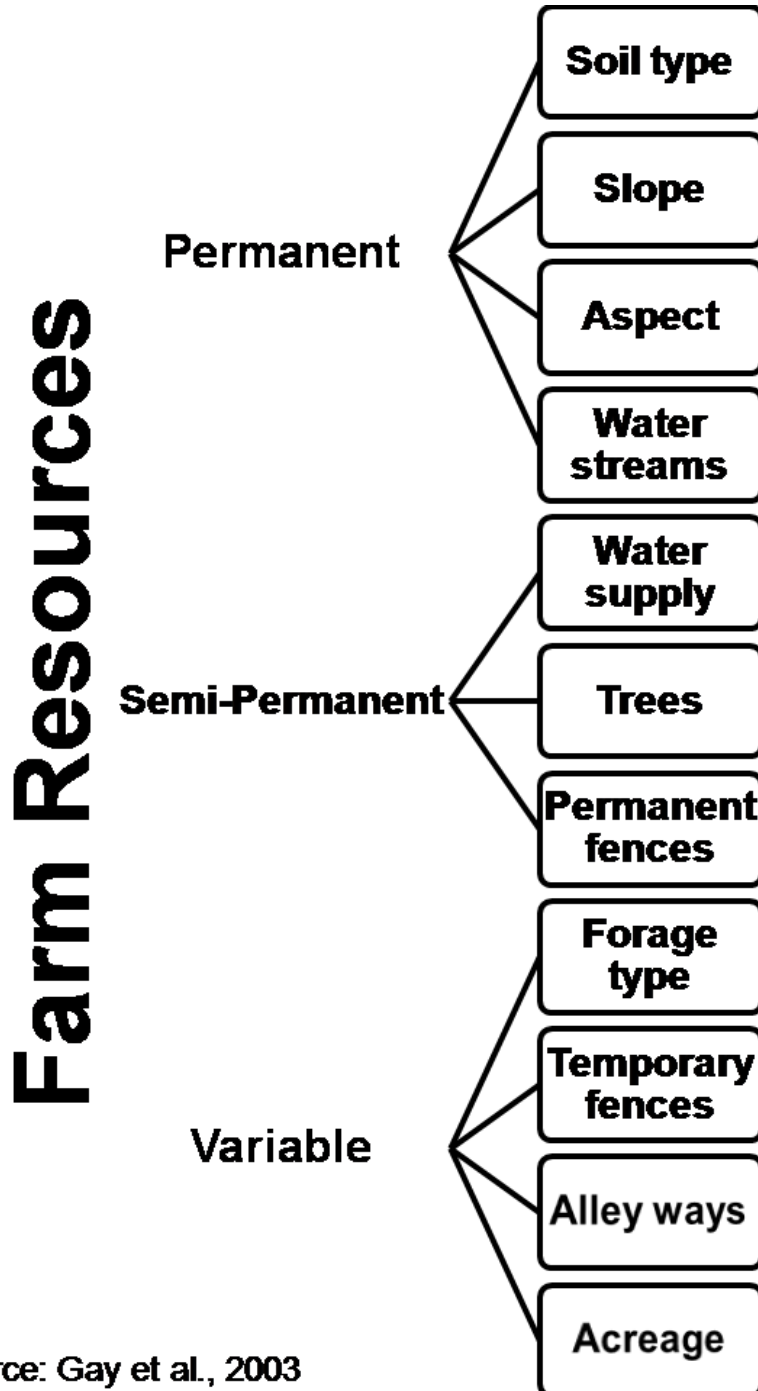
Farm Resources

Before starting the layout of a fencing system, it is important to evaluate the farm resources ([Fig. 1](#)) and their utilization. By evaluating those resources, a producer will be able to develop a layout that will efficiently utilize available forage while providing proper rest periods for plant growth and recovery. Permanent resources (soil type, slope, and aspect) will have a major impact in fencing layout. Pastures should have the same soil type, slope, and aspect to provide uniform forage production and grazing distribution.

Semi-permanent resources can be modified to accommodate the fencing layout. Providing water is another capital requirement for rotational grazing systems and a critical component of the semi-permanent resources. Water consumption can range from 8 to 25 gallons per day depending on the type of livestock and environmental conditions (mainly heat and humidity). During hot weather, water consumption by livestock could increase from 25 to 60% ([Table 1](#)). Water should be available in each paddock and within a walking distance of 300 to 400 feet if possible. If not, a central water source within 900 feet should be incorporated into the fencing system to allow access from all the paddocks. Cattle usually drink 15% more water if the water is in the paddock. A central water source typically has the disadvantage of producing muddy conditions due to livestock congregation. Producers should use pipes and portable containers to create mobile water systems to avoid those situations. Flexibility in water placement within paddocks should be part of any final design to control animal distribution and to avoid



trampling around the water source. It is also recommended to fence off surface water sources such as creeks and ponds to prevent water quality issues.



Source: Gay et al., 2003

Figure 1. Resources to start a good fencing layout plan



Variable resources also play a major role in the fencing process. A combination of cool and warm season grasses along with compatible legumes can provide a good forage supply throughout the grazing season. Temporary fences can be utilized to subdivide a pasture being used for hay, or other grazing systems such as creeping. Temporary fences can be more economical when small areas are needed to maintain daily livestock needs.

Table 1. Water consumption for different livestock.

Livestock	Water Consumption	
	Average	Hot Weather
	----- gal/day-----	
Cattle		
Beef	8 – 12	20 – 25
Calves	4 – 5	9 – 10
Dry cow	10 – 15	20 – 25
Milking Cow	20 – 25	25 – 40
Horse	8 – 12	20 – 25
Sheep	2 – 3	3 – 4

Source: Marsh, 2001. Virginia Coop. Ext. Serv. Pub. 442-755.

Fence Layout

One of the initial management considerations in designing grazing systems is selection and installation of the proper fencing system. A good fencing layout for rotational grazing should include a combination of permanent and temporary fences (**Fig. 2**). This will provide flexibility when adjusting paddock size, depending on the amount of livestock present and their daily nutritional needs.

The optimum number of fenced paddocks may vary with both forage species and type of livestock, depending on utilization and performance goals, grazing pressure, plant recovery, and economic capability. Paddocks should be sized to provide consistent days of grazing. Paddocks should be designed on square shapes with little soil variation and following landscape changes. Square paddocks usually require a minimum amount of fencing and reduce distance to water sources. Rectangular paddocks should not be more than 4 times as long as they are wide. If paddocks are designed with temporary fences, subdividing with temporary fences could be used to change grazing periods and to adjust for changes seasonal changes in forage availability. Information on determining the number of paddocks and temporary fences needed can be found in [MSU Cares Publication P-2459](#).



To develop proper paddock layout and to estimate the required amount of fence needed, several resources could be used such as aerial photos available through the National Resource Conservation Service (NRCS) or Farm Service Agency (FSA). A soil survey will also aid in dividing the paddocks with similar production capability. Producers should plan for straight fences—they are more economical and easier to delineate. Locating gates and passageways for livestock and equipment in the corner of each field closest to the central water source and buildings is also essential. When designing a fence layout, also take into consideration any possible laws related to legal rights and responsibilities to avoid potential disputes with adjacent land owners. Remember that "good fences make good neighbors."

Fencing

Proper fencing is usually a major investment in the farm enterprise; therefore, the fencing layout should be carefully planned to save time and money. One of the goals of developing a good fencing system is to improve grazing efficiency. In a poorly managed system like continuous grazing, livestock usually tend to graze the most palatable plants first, neglecting mature plants. Forage selectivity by livestock usually leads to having a poor manure distribution in the pasture. There are two types of fencing systems, fixed or portable (flexible) and both have advantages and disadvantages (**Table 2**). Both types of fencing systems always have a permanent boundary fence consisting of woven or barbed wire, or electrified, high tensile smooth wire to ensure that livestock are restrained on the farm and excluded from any cropland.

Table 2. Comparison of fencing systems.

Fencing Systems	Advantages	Disadvantages
Fixed	<ul style="list-style-type: none"> • Minimum daily labor • Low maintenance • Low cost per acre on large installations. 	<ul style="list-style-type: none"> • High cost per acre on small installations • Limited management flexibility
Flexible	<ul style="list-style-type: none"> • High management flexibility • Low cost per acre on small installations 	<ul style="list-style-type: none"> • More labor • High maintenance.

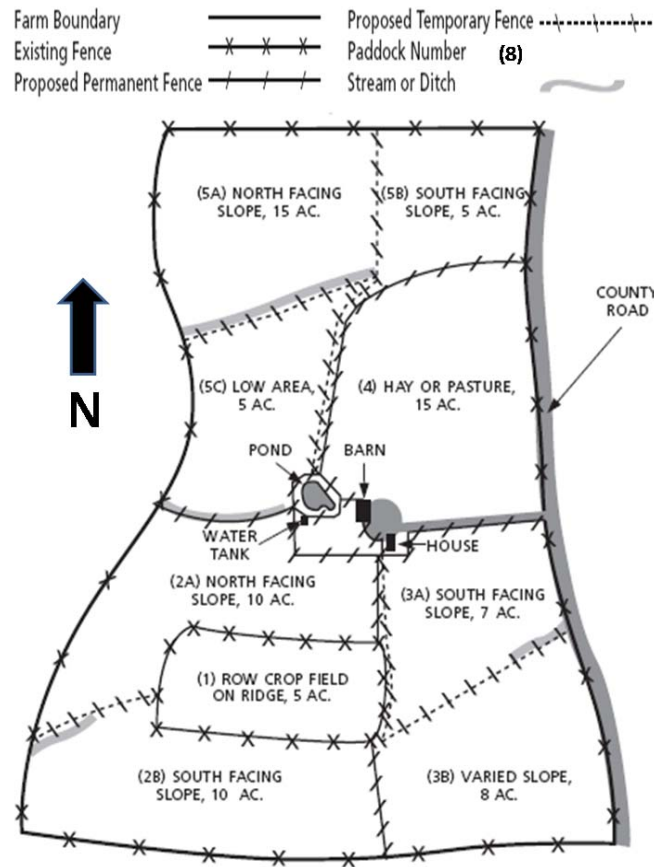


Figure 2. Subdivision of 80 acres pasture into eight paddock using permanent and temporary fences.
Source: Marsh, 2001. Virginia Coop. Ext. Serv. P442-755.

Fencing Cost

Proper fencing layout could be a powerful management tool in designing grazing systems. Fences are an essential part of developing a good pasture management program and to increase livestock grazing efficiency. The first consideration in deciding the best fence is the purpose for which it will be used. Livestock protection and confinement are the main reasons for considering fencing, but the fencing needs varies depending on the type of livestock, age, and breed, and type of grazing management system. The use of portable electric fences should be carefully thought through and justified since they can be expensive. Determine the size of your operation, number of animals, available forage, and paddock number before investing in fencing materials and supplies. Many innovations have occurred in the fencing industry in recent years, giving producers an array of options. Whether used as



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permanent or temporary confinements, fences need careful planning and construction for efficient use, long life, and low maintenance.

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