PASTURE MANAGEMENT FOR BEEF CATTLE PRODUCTION

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Pasture management for beef cattle production involves a multiple of choices. Management is defined as the act or art of managing. Manage is defined as to alter by manipulation. The question then becomes how do we alter manipulation for beef cattle production?

The first management choice is to use native forages (rangeland) or to use improved pastures. This may or may not be a choice. The existing forage resource on the land may force the use of what is there.

Native forages can provide a wide range of plants for livestock use, however, so require several acres per animal unit. In reality, many rangeland managers do not manage the pastureland, they simply graze the forage until it is gone then feed until more forage grows. Other managers use brush-weed control and grazing management for maximum sustained forage production.

Improved forages are generally managed in monoculture stands. All respond to fertility with increased production that results in less acreage per animal unit. Improved forages for pastures are classed as: (1) warm-seasoned perennial grasses, (2) cool-season perennial grasses, (3) warm-season annual grasses, (4) cool-season annual grasses and, (5) legumes (Table 1). Warm-season perennial grasses include such grasses as bermuda, bahiagrass, kleingrass, Old World bluestems and lovegrasses. These are primarily grown in the Texas Pandhandle. Fescue can be found some river bottomlands and the Gulf Coast. Warm season annual grasses include crabgrass, sudans, sorghums, sorghum-sudan hybrids, and millets. Cool-season annuals include oats, wheat, barley, rye triticle, and ryegrass. Legumes include alfalfa and many clovers that include both warm-season and cool-season varieties.

Fertility is an important aspect of improved pastures. A planned fertility program will allow the pasture to produce as expected and provide an abundant quality forage. The point should also be made that fertility for pasture production and hay production is not the same. In a hay meadow, fertility is applied for maximum production in a short time, they hay is harvested and nutrients in the forage is stored in the hay. There is very limited recycling of nutrients. Fertility in a pasture is expected to maintain production over the growing season and has recycling of nutrients form lost and trampled plant parts and animal excreta. For this reason, pasture fertility is reduced compared to hay production. Interpolation of data from the Angleton Experiment Station, the Overton Research and Extension Center and the Louisiana Brown Loam Experiment Station leads to the conclusion that between 175 and 200 lbs. of nitrogen per cow-calf unit per year is needed. This assumes that phosphorus and potassium are adequate or applied according to soil test (Table 2).

Weed control is an aspect of pasture management that pays big dividends if required. If enough weeds are present to cause a reduction in forage production, most research show that for each pound of weeds controlled, there is a gain of at least 1 pound of grass. Some work shows a return of up to 7 pounds of grass for 1 pound of weed controlled. While cattle will consume most weeds when they are very small, they rarely control weeds by grazing in normal pasture

systems. When heavy weed pressure is evident in a pasture, weed control will pay big dividends in forage production (Table 3).

Grazing management is a factor in pasture forage production that is largely overlooked and controversial. Grazing management is directed at more efficient utilization of a forage resource than providing a rest period for forage recovery. Most research efforts have shown that individual animal performance suffers to some degree in rotational grazing systems but forage production and utilization improves. Many advocates of the rapid rotation grazing point out an increased carrying capacity resulting from their grazing management. Research is documenting such things as increased efficiency of nutrient recycling, decreased weed control needs and increased carrying capacity as a result of rapid rotation grazing. A rule of thumb that applies in grazing management is that the manager will make or break the system (Tables 4 and 5).

Table 2. Average production due to nitrogen fertilization (from research in Texas, Alabama, Georgia, Mississippi, and Louisiana)

TONS OF DRY FORAGE PER ACRE				
Nitrogen/Acre * (Pounds)	**Bahia**	**Common Bermuda**	**Coastal Bermuda**	**Klein 75**
0	1.75	1.00	1.33	1.50
50	1.84	1.20	1.46	2.00
100	2.87	2.20	3.61	--
150	3.33	--	--	3.00
200	3.95	--	4.78	--
300	4.65	--	4.73	3.20
400	--	--	5.80	--
600	--	--	6.50	--

Table 3. Forage Response to weed control and fertilization methods in a dry (1990) and wet (1991) season

Treatment	Yield 1990 (lbs. DM/ac)	Yield 1991 (lbs. DM/ac)
Early herbicide – fertilized	2142	8322
Early herbicide – unfertilized	1330	4988
Late herbicide – fertilized	881	7610
Late herbicide – unfertilized	477	4989
Shredding – fertilized	577	5088
Shredding – unfertilized	341	4787
Fertilizer only, no herbicide	645	2587
Control	377	1385

Table 4. Comparison of continuous and short-duration grazing methods of ryegrass-clover pastures

Item	Continuous	Short-Duration
Initial Steer wt., lb.	455	455
Stocking Rate, hd/acre	1.5	1.9
Pasture Costs/acre, $	92	120
Animal Performance		
Average daily gain, lb	2.37	2.29
Gain/acre lb.	675	828
Final steer wt., lb.	905	890

*Adapted from: G.D. Mooso and D.G. Morrison, Rosepine Research, LA, 1988

Table 5. Comparison of continuous and short-duration grazing methods on bermudagrass pastures

Item	Continuous	Short-Duration
Initial Steer wt., lb.	560	560
Stocking Rate, hd/acre	4.0	4.0
Pasture Costs/acre, $	59	87
Animal Performance		
Average daily gain, lb.	0.73	1.01
Gain/acre lb.	412	558
Final steer wt., lb.	663	702