

Rebuilding Forage Following a Drought

Sarah Kenyon, MU Extension Agronomy Specialist, Alton, MO
417-778-7490 KenyonS@missouri.edu

The summer of 2012 was exceptional in Missouri. Records show that the May-July period ranked the 3rd warmest on record and the hottest since 1936. The period also ranked the 3rd driest on record and the driest since 1936 also. These conditions have resulted in short forage inventories, weakened stands, thin pastures, and concern for weed encroachment in these thin stands next year.

The severity of the drought damage is a function of the intensity and duration of the drought as well as the health and vigor of the stand prior to the drought. Plants with a healthy root system and good carbohydrate reserve will fare the best. This can be traced to soil type, fertility levels, and the intensity of grazing or haying pressure. Short-term and long-term management options following the drought are outlined below.

Short-Term Solutions – Options for emergency forages in the late summer/early fall include turnips, cereal rye, oats, triticale, wheat, and annual ryegrass. On good fescue stands, applying nitrogen in August and stockpiling the grass is the most affordable option. Be aware that interseeding forages into stands with low fertility can be disastrous. Low fertility could be the reason fescue stands failed in the first place.

- **Oats** – Quickest out of the ground. Fall growth only, then will die out in winter. Usually good tonnage produced. Poor tolerance to overgrazing, and slower regrowth than other cereals.
- **Cereal Rye** – Excellent fall tonnage and quality, but it heads out early in the spring and then quality is compromised. Usually quick to establish. Good regrowth potential after grazing.
- **Triticale** – Genetic cross between cereal rye and wheat. A good compromise between rye and wheat regarding tonnage and quality. Does not regrow after a grazing as well as rye.
- **Wheat** – Little fall growth, but higher quality forage compared to rye and triticale. Good option for early spring hay or haylage, but has slow regrowth.
- **Turnips** – Grazing can begin in 60-70 days after planting. Will die out as the winter sets in. Excellent forage quality, but they cannot be used as the only feed supply. They should be fed as a supplemental feed only. They work well mixed with other winter annual crops, or in a pure stand strip grazing is recommended to ration the forage.
- **Stockpiled Fescue** – Apply nitrogen in August and stay off the pasture until November or December. This does not produce short-term forage as well but is the most cost-effective practice for winter feeding. Strip grazing will best ration the forage.
- **Stockpiled Warm-Season Forage** – Bermudagrass, Caucasian bluestem, and native warm-season grasses can be stockpiled similar to tall fescue. These grasses should be allowed to accumulate in the fall and grazing can begin after the first killing frost. Forage quality will decline rapidly; therefore, the stand must be grazed before Christmas.

Long-Term Solutions

Some longer-term solutions to stand loss and how to prevent the problem include:

- **Overseeding Legumes** - Adding clover or lespedeza into pastures is one of the simplest approaches to thickening up a stand. A 25-30% legume component would be the goal for most producers. Clover requires a higher degree of fertility to maintain it than lespedeza. Lespedeza tolerates a low pH and drought better and provides most of its growth after late June. It doesn't fix as much nitrogen as clover. Adding clover offsets the need for nitrogen topdressing.
- **Cool Season Grass Establishment** - Fall is the best time to establish fescue, orchardgrass, and perennial ryegrass. Fall is the true beginning of the growing season for cool-season grasses and allows roots to become well established before the dry summer arrives. Plant from late August to mid September, in typical years, this year planting may be extended to late September, weather pending.

Cool-season grasses can also be planted in the spring. However, the plants will be 5-6 months behind fall seeding, the dry season is ahead, and weed competition is greater. Spring planting should be done between February and early March.
- **Convert to a Warm Season grass** – To avoid forage shortage during the summer months, 10-30% of the total grazing acres should be planted in a warm-season forage. Planting dates for most warm-season crops occur from March to May.
- **Make sure fertility is adequate** – Each crop has a specific range of fertility to maintain production. Fertility levels should be confirmed with a soil report; soil reports are good for 3 to 4 years.
- **Spring oats** – Oats can be planted in the spring from February to early March. They will typically mature 10 days to 2 weeks later than winter wheat, and quality is similar to that of wheat.
- **Annual Ryegrass** – Thin fescue stands can be interseeded with annual ryegrass to thicken the stand. However, annual ryegrass is very invasive. **Do not use near fields intended for wheat for grain, fescue seed production or commercial hay where ryegrass is not desired.** Do not use in fields containing bermudagrass or intended for crabgrass stands. It is easy to establish and provides rapid fall growth. It remains vegetative later than the cereals. Tends to reseed and come back next year; removing livestock in mid-May will allow seed production to occur. Grazing can often begin 60 days after planting

*See MU Guide G4652 “Seeding Rates, Dates, and Depths for Common Missouri Forages” for detailed information about seeding:

<http://extension.missouri.edu/explorepdf/agguides/crops/g04652.pdf>

Weed Control for Next Summer – Thin, open forage stands will be susceptible to weed encroachment. Plan now to spray weeds next year. Weed control strategies will depend on the specific weed being targeted. Here are just a few examples:

- 2,4-D - *Ragweed, Thistles, Plaintain, Croton, Perilla Mint, Spiny Pigweed*
- Grazon P+D/Hired Hand/Gunslinger - *Ragweed, Thistles, Horsenettle, Knapweed, Poison Hemlock, Perilla Mint, Spiny Pigweed*
- Remedy Ultra/Relegate/Clear Pasture - *Serecia Lespedeza, Ironweed, Blackberries*
- GrazonNext HL - *Ragweed, Thistles, Horsenettle, Mullein, Dock, Chickory, Nightshade, Locust, Croton, Knapweed, Wild Carrot, Plaintain*

Be Cautions of Herbicide Use Before and After Spray Treatment

- Before Establishment – Beware of pasture herbicide residual
 - Burndown herbicide options – Glyphosate or Gramoxone
 - **Residual of Grazon, GrazonNext HL, 2,4-D can kill new stands of grass and legumes**
- After Establishment – Grasses should be well tillered and established before using common pasture herbicides.

Table 1. Cost estimates of forage and hay for fall feeding of cattle based on August, 2012 prices.

Feed Source	Cost Per lb. D.M. \$	Cost Per lb. TDN \$	Cost Per Cow Per Day ¹ \$	Assumptions ²
Fescue Hay	0.075	0.160	2.24	48% TDN 15% feeding loss
Stockpiled Fescue	0.027	0.042	0.70	65% TDN 3000 lb D.M./Ac produced 60% utilization
Cereal Rye	0.040	0.062	1.04	65% TDN 3000 lb D.M./Ac produced 60% utilization 75 lbs of seed @ \$0.32/lb.
Turnips	0.019	0.027	0.49	70% TDN 6000 lb D.M./Ac produced 50% utilization 3 lbs of seed @ \$3/lb.

1. Based on cost per pound of dry matter
 2. General Assumptions: 26 lbs D.M. needed per cow per day; Nitrogen fertilizer at \$0.80 per lb.; 60 lbs nitrogen applied on each forage option. Does not factor in land costs

Table 2. Recommended seeding rates and estimated costs of establishment based on August, 2012 prices.

Forage	Solid Stand Rates No-till Drilled Lbs/Acre (PLS)	Typical Cost / Acre for Interseeding \$	Lbs Per Bushel
Fescue / Orchardgrass	15	14.40	-
Annual Ryegrass	25-30	16.25-19.50	24
Cereal Rye	75-120	24.00-38.40	56
Triticale	75-120	27.00-43.20	-
Oats	60-100	20.40-34.00	32
Wheat	75-120	20.25-32.40	60
Turnips	2-4	5.90-11.80	-

- Cereal crops can be sowed ½-1 inch depths.
- Fescue and annual ryegrass can be mixed in weak stands of fescue to both enhance the fescue stand and introduce ryegrass.
- If mixing ryegrass with cereal crops, cut the ryegrass rate to 15-20 lbs and the cereal crop to 60 lbs. If oats are used, drop the rate to 50 lbs.
- Use the high end of the rates if drilling into a stand with no competition (clean tilled, killed sod or a dormant warm-season grass stand). Use the low end of the rates if there is still some competition (cool season grasses) but the stand is weak.