



# Reviving Warm-season Perennial Grasses after Drought and Freezing Temperatures

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The drought conditions across Louisiana, Mississippi, and Alabama in 2023 coped with freezing temperatures during January will have apparent stand damage even in well-managed warm-season perennial grasses such as bermudagrass and bahiagrass. The extent and degree of damage will depend on soil type, grazing management practices, and fertility that influence root growth and forage yield.

**Figure 1.** Types of quadrats to determine pasture damage based on pasture composition.



Farms with low pH and potassium levels are more likely to observe a more severe impact during 2025 as well as new stands than those established for many years. It could be expected that pastures with high stocking rates might have greater damage than fields solely dedicated to hay production. Forage species growing in light soil types (coastal plain, sandy, and sandy loam) might exhibit greater damage than heavier soils (clay or clayey loam).

**How to determine the extent of the damage?** – The best way to determine the extent of the damage will be by counting the number of plants per foot square. This could be done using a quadrat with squares equally spaced and count the number of plants (**Figure 1**). If the square has over 70% of the plants, it will be considered slightly damaged and the stand should recover with the implementation of proper fertilization, a weed control program to reduce competition, and limiting grazing pressure. Pastures or hay fields that are between 40 and 70% will be considered as moderate damage and drilling extra seed might help with recovery if the conditions are beneficial for overseeding. Forage stands that are less than 40% will be considered severely damaged and producers might need to consider re-establishing the stand.

**What things need to be considered during post-drought recovery?** – There may be multiple strategies to successfully reduce the stand recovery time. First, producers must take a soil sample to determine acidity and unbalanced soil nutrient levels. If soil pH is low, concentrate on the lime application that could reduce acidity and create an environment for root growth and development that increases nutrient uptake and utilization. Keep in mind that potassium is essential for protecting the plant during stress while phosphorus stimulates root growth. **Table 1** provides some guidelines on possible fertilization practices for bahiagrass and bermudagrass depending on the level of damage to the stand after a drought period. Second, consider an herbicide program that could reduce the opportunistic competition that slows down the recovery process and robs desirable forage species from nutrients, moisture, and sunlight. Scout and develop a weed inventory and identify a broad-spectrum herbicide. Also, make a point to spray earlier in the season where a single application at a lower rate

**Table 1.** Recommended application of phosphorus and potassium for drought-damaged bahiagrass and bermudagrass.

Soil Test Level	Phosphorus (P)			Potassium (K)		
	Severe	Moderate	Slight	Severe	Moderate	Slight
	Units of P per Acre			Units of K per acre		
Very Low	90	80	70	100	80	60
Low	70	60	50	80	60	40
Medium	50	40	30	60	40	20
High	30	20	0	40	20	0
Very High	0	0	0	0	0	0

*Note: It is recommended to get a soil test to determine your nutrient levels and soil acidity.*

**Tabl 2.** Replanting restrictions for a perennial warm-season grass after a herbicide application.

Herbicide	Perennial Warm-season Grass	
	Bahiagrass	Bermudagrass
2,4-D+Dicamba+Metsulfuron	-	4 m
2,4-D+Picloram	3 w	3 w
2,4-D+Triclopyr	3 w	3 w
Cimarron Plus at 0.25 oz/A	-	4 m
Dicamba (per pint applied per acre)	30 d	30 d
Duracor	45 d	45 d
Glyphosate	1 w	1 w
Grazon Next	-	-
Imazapyr	12 m + bioassay	12 m + bioassay
Linage	12 m + bioassay	12 m + bioassay
Mezavue	21 d	21 d
Milestone	-	-
Maverick/Outrider	12 m + bioassay	12 m + bioassay
Overdrive	30 d	30 d
Paraquat	0 d	0 d
Paraquat	-	4 mn
Pasturegard	3 w	3 w
Pursuit	40 m	40 m
Redeem R&P	14 d	14 d
Triclopyr	3 w	w
Surmount	12 m	12 m
Velpar	2 yr	2 yr

**Note:** d, m, w, and y following numbers in this table indicate days, months, weeks, and years, respectively.

**Source:** 2023 Weed Control Guidelines for Mississippi. Publication 1532.

might be more economical than an application at a higher rate later in the season when weeds are taller and more tolerant to the herbicide. Third, some producers might be considering aerating the pastures and hay fields this spring. This could have a detrimental effect on stressed root systems and weaken the stand further causing more harm than benefit. The stand recovery might also depend on the seed bank in the soil, which might be impacted by the application of pre-emerge herbicides. **Table 2** indicates the replanting time for bermudagrass and bahiagrass after the application of selected herbicides. Fourth, resist the urge to graze pasture too early in late spring. Depending on the stand evaluation and stand damage, it might be wise to delay grazing until the grass has reached 12 inches and maintain a stubble height of at least six inches for the first two months after greening up. This will increase plant recovery by maintaining a good leaf area to increase root growth and storage for sugar production. A good leaf area will also protect the soil and help maintain moisture. Fifth, consider splitting a large pasture into smaller areas to reduce animal selectivity by using portable electric fences. In most cases, a single-strand fence might be sufficient.

There is no easy way to determine the recovery of warm-season perennial grasses after severe drought or freezing conditions. The recovery will depend on the condition of

the stand, precipitation, soil nutrient levels, pH, weed pressure, and grazing management (grazing height and stocking rate). There is not a one-size-fits-all approach to recovery and each operation will need to determine their goals before selecting their strategic approach.

**Upcoming Events**

**5th Small Ruminant Conference—February 23-24, 2024 | Starkville, MS | [Registration](#)**

**Producer Advisory Council—February 15, 2024 | Verona, MS | [Registration](#)**

**Producer Advisory Council—February 20, 2024 | Raymond, MS | [Registration](#)**

**Forage and Grazing Management Conference—April 11-12, 2024 | Raymond, MS | [More Information Coming Soon](#)**

**Forage Field Day—April 19, 2024 | USDA Plant Materials Center | Coffeerville, MS | [More Information Coming Soon](#)**

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