PREVENTING TALL FESCUE STAND LOSSES

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From time to time, we are reminded of the incredible force of nature. Our thoughts and prayers continue to be with our friends in North Georgia as they recover from the devastating effects of the recent storms. Having been with many of those effected just the night before the tornados passed through, I am struck by just how quickly things can change and the fragility of life.

As farmers and members of the agricultural community, we know that weather can change our operation overnight. But, it can also change our operation gradually. In stark contrast to the horrendous and awesome power of a tornado, subtle changes in our weather have occurred that have caused an accelerated rate of stand loss in our tall fescue pastures and hayfields.

Weather-Induced Changes in Tall Fescue Stands

One of the most common discussions after recent Cattlemen's meetings in North Georgia has centered on the observed reduction in tall fescue stands in this region. I frequently ask how much stand loss the producers have observed. The typical response is between 40-60% loss of stand. Though this isn't a scientifically accurate estimate, it is troubling. It is also consistent with what we have observed on UGA Experiment Station facilities in North Georgia. In fact, stands in our tall fescue variety trials went from an average of 86% at the end of 2009 to less than 54% at the end of 2010. This change equates to about 40% less tall fescue across the board.

So what was different about 2010? There are several things that were different, but the most obvious thing was the weather. Starting in April and continuing through much of October, we were an average of 2° F warmer than normal (Figure 1). Of course, it is not unusual for Georgia summers to be hot. But, it is rather unusual for it to be so consistently hot. In addition, the relative humidity during the later summer and early fall months was stiflingly and abnormally high. The combination of high heat and humidity causes plants to respire more than normal, and this reduces the carbohydrate reserves in the plant. This problem is especially acute in cool-season species, like tall fescue, because of the type of photosynthesis (C_3) that they use.

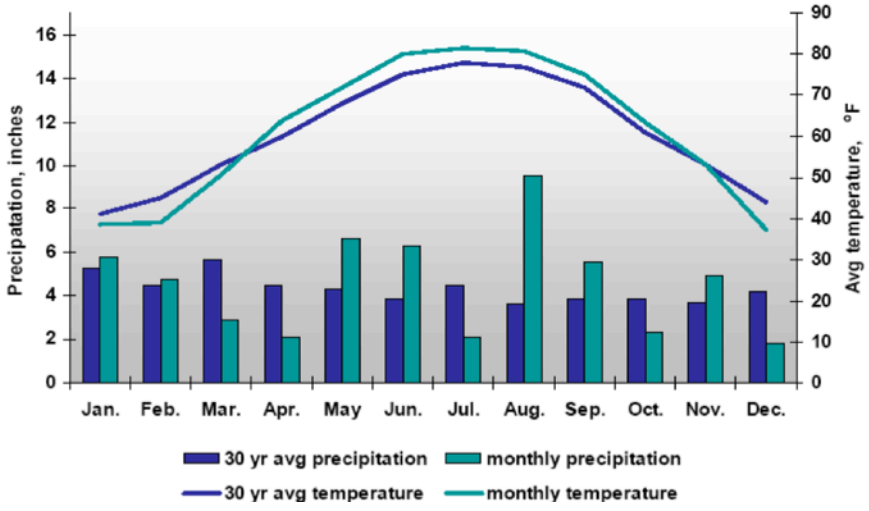

Figure 1. Precipitation and temperature received at the Plant Sciences Farm near Athens, GA during 2010 relative to the 30-year average.

Suffice it to say that this period of prolonged heat and high humidity was especially damaging to tall fescue as it began trying to emerge from the summer dormancy period. As this weather continued through September and mid-October, the tall fescue had used up much of it's carbohydrate reserves and many plants died as a result. It should also be noted that this stress has come on the heels of several successive droughts, which had already weakened many stands.

What Can be Done to Prevent Tall Fescue Stand Loss?

At the risk of starting off this discussion on a pessimistic note, we should recognize that there will always be some amount of stand loss associated with tall fescue in Georgia. Even the most favorable environments in the North Georgia mountains will see some stand loss from year to year. For those in the Piedmont region, the rate of loss is typically higher because that region is on the edge of the adaptability zone of tall fescue. But, there are steps that can be taken that will minimize the stand loss.

One of the most important preventative measures is the use of varieties of tall fescue that can withstand these stresses. Table 1 demonstrates that several of the newer varieties produce high yields and maintain strong stands. In fact, the original (Jesup MaxQ) and the latest (Texoma MaxQ II) novel-endophyte varieties are among the best at maintaining stands. One can see that KY-31, the oldest and most common tall fescue variety, provides strong stands, too (mostly because of the toxin-producing endophyte that it has in it). But, the major negative effects that endophyte-infected tall fescue has on animal production make this variety one to avoid.

Table 1. Average yield and percent basal cover of tall fescue varieties near Athens, GA.[†]

Variety	Average Yield (2008-10)	Stand Assessment 12-14-2009	Stand Assessment 1-21-2011
	dry lbs/acre	% Basal cover within row	
Kentucky 31 E+	7610	82.5	**95.0**
Texoma MaxQ II	**8206**	**95.6**	**91.3**
Jesup MaxQ	7775	**88.1**	**90.0**
Cowgirl	7109	**88.1**	57.5
BarOptima	6589	79.4	1.9
Jesup EF	7338	**89.4**	0.6
Bronson	7297	**86.3**	0.0
Drover	7784	78.8	0.0
UGA Exp. 7[§]	**8095**	**88.1**	**88.1**
UGA Exp. 156[§]	**8570**	**90.6**	**85.0**
UGA Exp. 100[§]	**8123**	**92.5**	81.9
UGA Exp. 186[§]	**8032**	**91.9**	75.6
$LSD_{\alpha=0.05}$	782	13.0	11.5

[†] Planted October 10, 2007. LSD = the smallest difference in response that would be considered significant. Within a column, values that are bolded indicate that they were not significantly lower than the best entry.

[§] Experimental variety (not available).

Arguably, the most important step to avoid tall fescue stand loss is proper timing of N fertilization. Most folks put on a large amount of N on tall fescue pastures and hayfields in mid-April. This is commonly applied as poultry litter. Though poultry litter is an excellent resource and one that can fit with tall fescue production systems, it has to be porperly timed. A time of year that is crucial for fertilizing tall fescue is in mid- to late-October. This is especially true for users of poultry litter.

There are several reasons for this, but suffice it to say that tall fescue tillers (spreads out) in response to fall N applications. This will enable the stand to thicken and give it a healthier stand in the spring. Further, when N is applied to the stand in mid-April, it causes the tall fescue plants to grow longer into the summer dormancy period than it would otherwise do. This results in a weaker stand of tall fescue and one that is more susceptible to the heat, humidity, and high respiration rate discussed previously. This is especially common in poultry litter-fertilized pastures and is exaccerbated by the fact that much of the N from poultry litter only becomes available in time for tall fescue's warm season rivals (e.g., common bermudagrass, crabgrass, dallisgrass, broadleaf weeds, etc.).

There are many other steps that can be taken to prevent tall fescue stand loss. These include: 1) avoid overgrazing (i.e., grazing tall fescue shorter than 2-3 inches), 2) avoid cutting the plants shorter

than 3 inches when mowing or cutting for hay, 3) prevent winter annual weeds, 4) avoid sod-seeding winter annuals into tall fescue stands, and 5) minimize grazing and foot traffic during summer dormancy and winter months.

More Information

Additional information about recommended practices for tall fescue management can be found by visiting our website at www.georgiaforages.com. If you have additional forage management questions, contact your local University of Georgia Cooperative Extension office by dialing 1-800-ASK-UGA1.

got questions?

Have a question or topic that you want Dr. Hancock to address? Email him at: questions@georgiaforages.com.