My Experiences With Summer Lovegrass

Tim Phillips
Associate Professor
Forage Grass Breeding
Department of Plant and Soil Sciences
University of Kentucky

I first heard about teff (*Eragrostis tef*) being used as a hay crop in early 2006 at a meeting near the Shenandoah Valley area of Virginia. The meeting was about orchardgrass production, so I was speaking about new varieties that are available for producers to grow. Several farmers had experienced massive stand losses of their established orchardgrass hay fields, so they had tried this 'new' summer annual grass. Some of the farmers were surprised that I knew about this grass, but I didn't know about its use as a hay or pasture grass. Teff is the Ethiopian name for a grain crop that supplies the majority of the calories for the diet of the people in Ethiopia (and Erytrea). The straw is used as a fodder for animal feed after the seed is threshed, but this would be of lower forage quality than if the grass were harvested in a vegetative stage of growth.

I began looking for information on the crop and its use as a forage grass. It turns out that it isn't really new after all. South African farmers have grown it as a hay crop for over 100 years. Recent interest in the crop in the USA has led to new varieties being released. It has been proposed that we call the forage varieties 'summer lovegrass' or 'annual lovegrass' and reserve the name 'teff' for the grain-type varieties. Another justification is that 'teff' is not in most Americans' vocabulary, so spelling and pronunciation problems become more of an issue. As a species in the *Eragrostis* genus, summer lovegrass is a warm-season species. As such, it is completely frost-sensitive. Most areas in Ethiopia where the species originated are several thousand feet above sea level, in mountainous areas with ample rainfall. So, while the grass is heat and drought tolerant, it performs best with at least 3 inches of rain per month. This summer's heat and drought reduced yields of many crops, so it is not surprising that summer lovegrass also suffered.

In 2006 we conducted several trials using a forage variety of summer lovegrass called 'Dessie' (the name of one of the states in Ethiopia). In a nitrogen rate study, we confirmed that the recommended rate of 60 pounds of nitrogen per acre probably was enough for good yields, but maybe more would give the highest yields. We used 0, 50, 100, 150, and 200 pounds of nitrogen per acre, and saw the best yield at 3.47 tons/A at 100 # N/A, 3.44 at 150, then lodging reduced yields to 3.34 tons/A at the 200 # N/A. At 50 # the yield was only slightly higher than the 0 nitrogen treatment. Reports claim that the crop can provide 2-3 tons of dry matter in about 6 weeks with subsequent yields being similar if sufficient rainfall or irrigation is available, for two-four harvests. More research is needed to determine if supplemental fertilization after each harvest would boost yields. Certainly forage quality would be higher with higher levels of nitrogen

fertilization, and harvests in the vegetative stage rather than in full flower. The varieties 'Tiffany' and Dessie were seeded at Princeton this summer. Two bulk samples were harvested and dried for forage quality analysis. One was at 8 inches of growth, with the second at 32 inches. The table below shows the results of these analyses. The data are somewhat surprisingly high for a warm-season grass, and more work needs to be done to confirm the data, using more varieties, with different planting dates and fertilizer rates.

Parameter	**8 inches**	**32 inches**
ADF	27.29	29.90
NDF	56.27	59.58
Protein	23.3	19.54
DDM	67.64	65.61
RFV	111.83	102.44
TDN	71.94	69.04

The heat and drought of 2007 dramatically limited the productivity of summer lovegrass in Lexington. We seeded several trials using Dessie, Tiffany, and 'Pharoah' varieties. This 'new' crop has a niche role to play in providing another alternative summer annual grass for haying or grazing. Its small seed size can result in planting depth issues, as well as seedbeds problems (firmer is better). I see a role in erosion prevention as it can provide a quick cover to disturbed sites, even if only broadcast on the surface. Expect more choices in varieties as more companies see the merits of summer lovegrass / teff.