Dependence on stored feeds during the winter months has been necessary in order to maintain body condition and meet nutrient requirements of cattle herds; unfortunately, cost of stored feeds typically are a major part of the farm budget. We know, all too well, that hay shortages and unstable feed ingredient markets have reduced profit potential in cattle production. This has further placed higher demands on supplies of co-product feeds to cause prices of these alternative feeds to rise and make them less cost effective. There will likely be less reliance on concentrate and co-product feeds as the forage-based livestock industry moves into the future. Hay and ensilage costs also have steadily increased as fuel and equipment costs have escalated.

It is obvious that for a cattle operation to reduce its dependence on stored feeds it must take a whole farm approach to extending the grazing season. Although Kentucky cattle operations will not completely remove their need for stored feeds, a 300-day grazing season is possible if warm- and cool-season grasses and legumes are utilized and grazing systems are implemented that can optimize growth, persistence, and quality of available forages. Ball (2012) concluded that most farms could make improvements in reducing stored feed needs, but this goal can only be accomplished through careful planning, hard work, and monetary investment. General recommendations will be provided for: 1) forage systems that combine cool- and warm season perennial and annual grasses and legumes with potential to extend the seasonal growth distribution of quality, 2) grazing management for improving pasture productivity and increasing pasture carrying capacity, and 3) being a grass farmer to achieve a 300-day grazing season.

**Implementing a Pasture System**

Implementing a forage system will encompass the whole farm in utilizing a combination of cool- and warm-season grasses and legumes across pastures that allows movement of cattle to pastures containing forages with the greatest growth potential. Growth distributions are provided in figure 1 for various forages that are utilized in Kentucky.
Depending on soils and terrain on a given farm, pastures can be planted with different grasses and legumes to provide grazing for a given time during the year. An example of a possible forage system is presented below that utilizes warm and cool-season perennial grasses as the pasture base. Pastures with better quality soils can be planted with either a novel endophyte-infected tall fescue with overseeded clovers or orchardgrass overseeded with clovers and/or drilled with alfalfa. These pastures can provide active growth in the fall and spring. Other pastures can be planted with either bermudagrass or eastern gamagrass to provide grazing during the summer slump in growth of cool-season grasses. These grasses can provide a cutting of moderate quality hay in late May or early June, but fertility and sufficient rainfall (particularly for eastern gamagrass) will be needed to provide sufficient available forage by the time
cattle are moved into these pastures from cool-season perennial grass pastures. Bermudagrass can be drilled with small grains to provide grazing in the late fall, provided they are planted early enough and sufficient fall rainfall), and spring. This could provide quality grazing for adding value to spring weaned calves. Pastures on rocky, shallow hillsides are better off staying in toxic endophyte-infected tall fescue, but growth in the late summer and fall can be stockpiled for providing grazing in the late fall and winter. Corn can also be planted to provide grazing after warm-season perennials have gone dormant and active growth of cool-season perennials has ceased. Small areas/pastures of warm-season annuals can also fit into a forage system to provide creep grazing for suckling calves and/or “insurance grazing” in the event of dry weather patterns.

### Spring and fall grazing:

- Novel endophyte-infected tall fescue & red or white clover
- Orchardgrass & clovers or alfalfa

### Hay crop in late spring and summer grazing:

- Bermudagrass & white clover (interseed in the fall with rye or wheat)
- Eastern gamagrass

### Late fall and early to middle winter grazing:

- Stockpiled toxic endophyte-infected tall fescue
- Corn

Choosing which forage species and cultivars to plant will depend on soil quality and drainage characteristics, weather patterns, and an ability to invest time and money in proper management of a chosen species/cultivar to plant. Extending the grazing season by implementing a forage system will require knowledge of expected growth distributions, forage quality and production potentials, and the necessary grazing managements for the forages that are in the system. These decisions should be made based on careful thought and consultation with extension specialists and agents.
Grazing Management

A concern with moving cattle to different pastures and forages is that cattle have access to smaller areas that may require a reduction in stocking rate. This would certainly be the case if the farm is already overstocked. Stocking rates may need to be adjusted; however, if the goal is to extend the grazing season with higher quality forages then any necessary reductions in stocking rates should be compensated by improvements in animal performance. Furthermore, rotational stocking should be implemented to boost pasture carrying capacity and maintain desirable forage availabilities through the season or period of time cattle are needed to reside in a pasture. A rotational grazing system will be needed for any system to have a chance to work. The rotational grazing can be intensive or be slower, less intensive type of system; however, it is critical that recommendations are followed on length of rest periods and residual forage to provide sufficient regrowth and promote stand persistence. Following best management grazing practices for a given grass or grass-legume mixture will result in stronger root systems that can allow stands to better handle dry weather patterns.

Being a Grass Farmer to Achieve 300 Days of Grazing

Extending the grazing season with a system of forages will intensify the overall management of both the cattle and the pastures. Fertilization and weed control should be done when needed. Therefore, soils should be sampled and tested at least every other year and pasture composition should be monitored and inventoried to determine if weed control measures are needed or if legumes/clovers should be replanted. Cattlemen should be planning ahead in managing and preparing pastures that will be utilized in the next seasons (applying nitrogen to toxic tall fescue at the beginning of stockpiling). A whole farm approach to obtain 300 days of grazing was achieved over a 4-year period by on-farm demonstrations conducted by the Arkansas Cooperative Extension Service (Jennings, 2013). Starting with bermudagrass and toxic tall fescue pastures and implementing research based management practices, the Project reported that income over specified cost/animal unit (1000 lb cow) was 121% greater in year 4 as compared to year 1. Cost burden of stored feeds can be reduced if different forages can be planted across pastures to maximize the availability of green forage across the four seasons. Success of this whole farm management approach will depend on using best practices for managing the grazing and forages.

References
