Forage News

MISSISSIPPI STATE UNIVERSITY EXTENSION
Center for Forage Management and Environmental Stewardship

The Use of Small Grains as Forage Crops

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A range of alternative cool-season annual forage crops can be grown in Mississippi. Small grain cereal grasses such as cereal rye, oats, triticale and wheat can be a valuable forage to complement winter annuals grasses such as annual ryegrass and extend the grazing season. In a pure stand, high seeding rates should be used to increase number of plants and reduce stem size, especially if planning to make a hay harvest since reduced stem size can increase wilting speed and drying time. If small grains are going to be mixed with annual ryegrass or legumes, then their seeding rate should be reduced to 70-80% of the recommended rate. Small grains can also serve as emergency crops under uncertain weather because they have excellent seeding vigor, can be seeded earlier in the fall and provide excellent pasture in the fall and early spring.

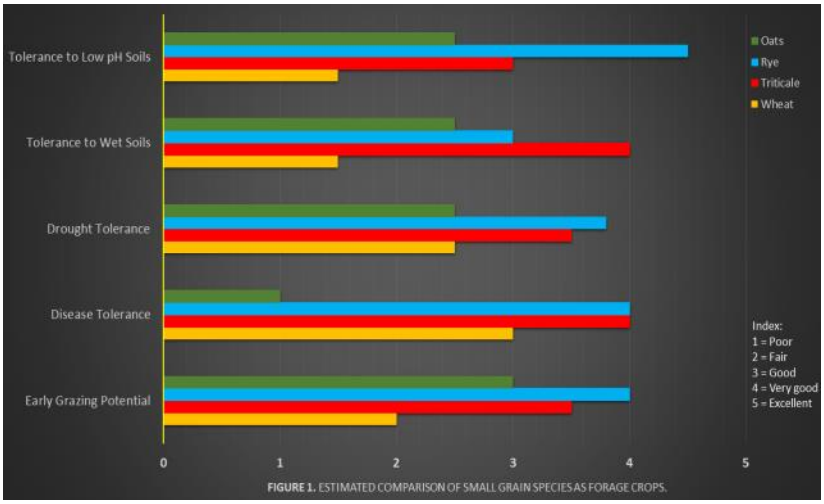

FIGURE 1. ESTIMATED COMPARISON OF SMALL GRAIN SPECIES AS FORAGE CROPS.

Oats – Oats might produce higher yields than wheat and triticale. It is adapted to well-drained clay or sandy loam soils, but can perform in wet conditions. Forage oats varieties tend to be late maturing than those used for grain. In Mississippi forage trials, average oat yields were higher than wheat. Oats can be winter killed in the northern part of the state in some years and can best adapted to the central and southern part of the state. It does not have good grazing tolerance.

Rye – Rye is considered one of the most cold tolerant small grains and can be productive in a wide range of soil types. Rye can be more acid-tolerant than wheat. When planted early, rye can produce quick fall and early spring forage growth. Despite of being an early maturing crop that can become stemmy and unpalatable in mid-spring, rye can produce more consistent forage production than wheat. Rye has a good tillering ability, which helps compensate for wide variations in plant population densities. Due to its early maturity, rye can be overseeded into warm-season perennial grasses (bermudagrass and bahiagrass) without competing and delaying green up in the spring.

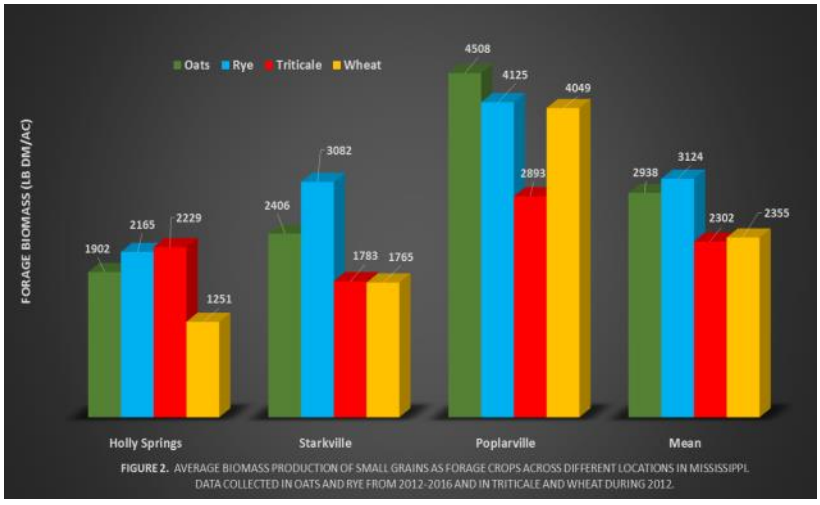

FIGURE 2. AVERAGE BIOMASS PRODUCTION OF SMALL GRAINS AS FORAGE CROPS ACROSS DIFFERENT LOCATIONS IN MISSISSIPPI. DATA COLLECTED IN OATS AND RYE FROM 2012-2016 AND IN TRITICALE AND WHEAT DURING 2012.

Triticale – This annual cool-season grass is a cross between rye and wheat and can be adapted from clay to sandy soils. Triticale is considered a minor forage crop and it is common used in the southern part of the state, although yields are usually lower than the other small grains. It usually has better tolerance to low soil pH, but at the same time lower forage quality than wheat. It is not recommended for hay production due to the large stems that makes drying more difficult, especially early spring.

Wheat – When using wheat for grazing, select a variety with rapid emergence, good tillering and upright growth. One of the disadvantages of wheat is the poor forage production in the fall, but it can be higher forage quality than oats, rye and triticale. Wheat is less tolerant to poor drained soils than rye or triticale. When using wheat as a forage, it should be planted earlier and at higher seeding rate. However, planting too early in the fall, can make wheat susceptible to mosaic, barley yellow dwarf and Hessian fly. On the other hand, since wheat has excellent winter hardiness, it can plant later in the fall that some of the other small grains.

Table 1. Recommended planting dates and seeding rates for small grains in Mississippi for forage production.

Regional Planting Date for Mississippi					
Small Grain	North	Central	South	Seeding Rate (lb/ac)	Seeding Depth (inches)
Oats	Sep. 1 – Sep. 30	Sep. 1 – Oct. 15	Sep. 15 – Oct. 30	90 – 120	1 – 2
Rye	Sep. 1 – Oct. 15	Sep. 1 – Oct. 15	Sep. 1 – Oct. 30		
Triticale	--	--	Sep. 15 – Oct. 30		
Wheat	Sep. 15 – Oct. 30	Sep. 15 – Oct. 30	Sep. 20 – Nov. 15		

Grazing Practices – The selection and management of cool-season annual forage crops require special considerations, and most require additional management. Small grains can provide a good source of high quality forage to livestock from fall to early spring if weather permits. To avoid plant damage from severe defoliations, grazing should be delayed until strong secondary root system is well established and plants are 6 to 8 inches tall. Short succulent plants can be damaged by low temperatures and using controlled grazing to leave residual biomass might reduce freezing damage. Late grazing of small grains can reduce plants stand due to reduced number of tillers and increased damage from livestock trampling.

During early spring, small grains tend to be lower in mineral content due to faster growth. The lack of magnesium can lead to grass tetany. It recommended to provide a mineral mix containing magnesium to cows that recently calved or are on the onset of calving to minimize the occurrence of grass tetany. If small grains were fertilized closed to grazing, there is a risk for nitrate poisoning. It is recommended to apply nitrogen after plant emergence when plants have reached three inches and in the middle of the season with at least 3-4 weeks before the intended grazing period. Although bloat is very rare with small grains, there is a risk when animals are turned into lush pastures with high moisture content in the spring. Bloat can be prevented by limiting grazing and feeding dry hay before turning the livestock onto the pasture or by providing a bloat blocker such as poloxalene.

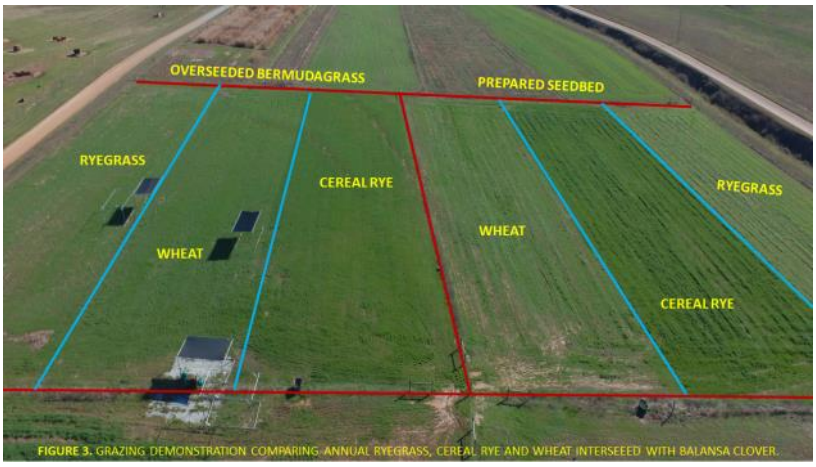

FIGURE 3. GRAZING DEMONSTRATION COMPARING ANNUAL RYEGRASS, CEREAL RYE AND WHEAT INTERSEEED WITH BALANSA CLOVER.

Many livestock producers tend to see small grains as a supplemental emergency forage crop. It is important to note that these cool-season annual forage crops can have a crucial niche in a year-round forage system. They help with forage production when cool weather impair perennial warm-season forage production or when drought decreases biomass production, they can help to decrease production cost instead of supplementing hay or commodity feeds. When selecting small grain varieties for your area is always important to look at average yield performance from several years from the variety performance evaluation trials conducted in your state or adjacent states. Contact your County Extension Office for information related to recommended varieties in your area and planting schedule. Small Grains Variety Testing data for forage production is available online at http://mafes.msstate.edu/variety-trials/forage.asp

For upcoming forage related events visit:
http://forages.pss.msstate.edu/events.html

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