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Yield and Quality of Small Grains as Influenced by Harvest Stage

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The small grains, rye, wheat, oat and triticale (wheat and rye cross), are cool season annuals. In south central Florida these grasses may be seeded after a vegetable crop or used in a pasture renovation program, thus extending forage production through the cool season. With proper management small grains can provide high quality forage and substantial dry matter (DM) yield. Best DM yields are obtained when small grains are seeded into a completely tilled soil. Sod-seeding small grains in central Florida has not produced good DM yields.

Continuous seeding of small grains on the same land area over several years could result in disease problems from pythium, therefore proper cultivars need to be selected. Small grains are quick to establish and respond well to nitrogen fertilization. However, their management differs from that of ryegrass. When seeded in a prepared seedbed, initial small grain growth should be grazed about 45-50 days after seeding or when plants are 12 inches tall. Deferring the first grazing much later than 50 days may result in poor regrowth. Rotational grazing of regrowth is recommended when plants attain 12 inches and new developing tillers are 1 to 6 inches tall. Many producers indicate animal performance is better from small grains than ryegrass, possibly because the DM content of early season ryegrass is about 9-10% compared with all small grains which average 15%, or 16 to 17% for oats.

Stage of cutting is also important for yield and quality of small grains harvested for haylage. Chapman and Harrison oats, Florida 401 rye, Morey wheat and Sunland triticale were seeded at 100 lb/A and fertilized with 100-50-100 lb/A N-P₂O₅-K₂O. The nitrogen was split with 50 lb/A applied at seedling emergence and 50 lb/A when plants were 10 inches tall. Each small grain cultivar was harvested at 4 stages: vegetative (12 inch height), boot (head starting to emerge), anthesis (flower stage) and dough (grain in dough stage). Highest DM yields were obtained when Chapman (5.5 T/A) and Harrison (4.3

T/A) oats and Morey wheat (4.8 T/A) were cut at the dough stage and Florida 401 rye (2.9 T/A) and Sunland triticale (3.9 T/A) were harvested at the anthesis stage. Crude protein and digestibility was highest for all small grains when harvested at the vegetative stage averaging 29% and 86%, respectively. Harvesting Florida 401 rye and Sunland triticale at the boot stage averaged 14% crude protein whereas, the oats and wheat averaged 10 to 11% crude protein at the same stage. Digestibility was also excellent for all small grains when harvested at the boot stage averaging 78% for triticale, 72% for rye and wheat and 67% for oats. Crude protein and digestibility was the lowest for all small grains when harvested at the dough stage averaging, 6.8% and 54%, respectively.

In conclusion, crude protein yields/acre were generally highest when all small grains were harvested between the boot and anthesis stage. Yields of digestible forage were highest when oats and wheat were harvested at the dough stage, rye at the boot or anthesis stage and triticale at the anthesis stage. Delaying harvest of small grains from vegetative to dough stage increased dry matter yield by 433%. Crude protein concentration and digestible forage were generally highest at vegetative and lowest at dough stage. For more detailed information call 941-735-1314.