

SMALL GRAINS

INTRODUCTION

Florida has dynamic beef, dairy, and equine industries, and an increasing demand for sheep and goat production. But our livestock production is hampered by the lack of nutritious forage from October through March, when subtropical forage species such as bahiagrass and bermudagrass are dormant. Consequently, ruminant livestock traditionally eat feed, hay, or silage during winter months. Small grains can provide an alternative, especially cultivars well-adapted to growing conditions in Central and South Florida where large beef and dairy cattle operations are located.

In recent decades, producers in the southeastern United States have increased the planting of small grains to produce winter forage, and sometimes silage and hay, rather than growing these crops strictly to produce cereal grains. These small grains include oat, wheat, barley, rye, and triticale (a man-made cross between wheat and rye).

FROM THE BEGINNING

The University of Florida has a long history of small grain cultivar development, beginning with the release of several oat cultivars in the early 1940s at the North Florida Research and Education Center in Quincy.

In response to commercial interest, in 1998 the UF/IFAS Small Grains Breeding Program began putting more emphasis on developing cultivars with superior forage characteristics. Since that time, UF/IFAS has released more than a dozen cultivars, some developed as forage crops, others as grain crops and some as both.

Many advances in small grain breeding and genetics have occurred, aiding in the development of more productive, nutritious, pest-resistant, and environmentally stable cultivars. Florida's mild winters create favorable conditions for pest insects and fungal diseases, major factors limiting production of small grains in the state. Therefore, we identify germplasm samples that provide new sources of genetic resistance and use them to develop new cultivars.

TODAY AND TOMORROW

Our recent efforts have involved development of rye, oat, and triticale cultivars.

Cereal rye is often grown in Florida for winter grazing or as a cover crop for erosion control. A number of crosses developed at UF/IFAS show promise for enhancing not only the quantity but also the quality of rye forage in Florida. Inheritance studies have shown that development of dwarf rye cultivars should be possible, and may be useful as a cover crop or as a cereal grain, if bred for desirable traits.

Oat breeding remains a priority for the program, specifically for forage, but also for grain cultivars used for human

consumption. Most of our breeding emphasis has focused on resistance to crown rust and barley yellow dwarf virus, as well as the development of a hull-less trait. Hull-less varieties have potential as a novelty feed or food grain, a wildlife attractant, and a livestock forage.

Triticale has considerable potential as a forage, and is becoming a popular silage crop for dairies. Two varieties released by UF/IFAS in 2003, '342' (US PVP 200600020) and 'Monarch' (US PVP 200500049), have been licensed to Syngenta Inc. and are widely grown in the Southeast for silage, winter grazing, cover-cropping, or as a component in wildlife food plots.

Wheat variety development was once a major component of the UF/IFAS Small Grains Breeding Program. The program has recently hired a new small grains breeder, and we anticipate new grain-type releases, particularly novel wheat varieties developed for milling purposes and for tropical and subtropical environments. We anticipate a strong focus on insect and disease resistance, particularly resistance to Hessian fly, one of the most significant pests of wheat.

With new breeding methods developed through the use of molecular genetics and the availability of novel exotic germplasm, commercial hybridization technology is on the near horizon. Future cultivar development in all small grains used as feed, fuel, and forage will be aimed at improving heat tolerance during seed fill, as well as adaptation to subtropical and tropical environments.



Small Grains Varieties Released from 2002

Release Date	Cultivar
Oat	
4/9/02	'Horizon 474' (US PVP 200400028)
7/1/03	'Horizon 321' (US PVP 200500050)
4/13/06	'Trophy' (US PVP 200700421)
7/23/07	'Horizon 201' (US PVP 200900466)
7/23/07	Plot Spike 'LA99016' (US PVP 200900462)
8/7/07	'Horizon 270' (US PVP 200900002)
8/7/07	'Horizon LA976'
10/5/10	'FL02011'

Wheat	
4/9/02	'AGS 2485' (US PVP 200300005)
7/1/03	'USG3592'
11/30/04	'McIntosh' (US PVP 200500089)

Rye	
7/1/03	'Boss'
7/1/03	'AGS 104' (US PVP 200500048)

Triticale	
7/1/03	'342' (US PVP 200600020)
7/1/03	'Monarch' (US PVP 200500049)

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