Grain

Triticale breeding

Grain crops are widely grown in the Southeast for forage production, grain, and cover crops. They provide green livestock forage during the late fall, winter and early spring months when permanent pastures are generally dormant and nonproductive. Many successful varieties of grain have been released by the FAES Grain Breeding Team, currently led by Ron Barnett at the North Florida Research and Education Center in Quincy, Florida.

Oat

Oat is well suited to a number of uses, and it is used for winter grazing, hay production, and feed grain production. At present, none of the oat varieties grown in the Southeast are used for milling for human food. The FAES has had a very productive oat breeding program. One of the most notable varieties is **Florida 50**, which was released in 1968. This variety has been very popular with growers and has been widely grown throughout the South for 30 years. It is early maturing, has good disease resistance and is a vigorous forage producer.

Other successful oat releases were **Horizon 314** (1999) and **Horizon 474** (2002), jointly released with the University of Georgia. Horizon 314 has done very well in yield trials and is the most popular winter oat in the southern U.S. A limited breeding program on hull-less oat, which has some potential as a specialty feed grain, is underway. Preliminary feeding trials have indicated that it has excellent nutritional qualities.

Wheat

Soft red winter is the only class of wheat grown in the southeastern U.S. It is a cash grain crop, with most production going to local flour mills or for export. Wheat is used also as a feed grain, particularly during times of low prices or poor grain quality.

The FAES grain breeding program has had its greatest impact with new varieties of soft red winter wheat. Prior to 1970, the program had concentrated on oat breeding, but in 1970 the emphasis was shifted to wheat because of its growing importance and the need for new varieties. The first variety released was **Florida 301** in 1980, and it proved to be a breakthrough variety. It was noted for its high yields, early maturity, and disease resistance. With Florida 301, growers could plant late and into acid soils and still get good yields. By 1984, Florida 301 was grown on more than 1 million acres, making it one of the South's most popular wheat varieties. In Florida alone, the release of Florida 301 led to a large increase in wheat acreage – from 17,000 acres in 1978 to a high of 155,000 acres in 1985.

Florida 302, which was released in 1984, was even more successful. It proved to be broadly adapted and was very popular with growers all over the country, from East Texas to southeastern Pennsylvania. By 1989, Florida 302 was being grown on 3 million acres. It produced very high yields, and it was an excellent milling wheat. Florida 302 also was widely used as a parent by wheat breeders all over the eastern half of the United States. By the 1990s, many new varieties listed Florida 302 in their pedigree. The most notable progeny of Florida 302 is **AGS 2000**, which is currently the first choice of farmers over a broad area of the South.

Triticale

Triticale is a new small grain that has potential in the Southeast. It is a cool-season, annual small-grain crop that was developed by crossing rye with wheat in an attempt to combine the high grain yield and quality of wheat with the hardiness and high lysine content of rye. It is an excellent feed grain, and it has been used by livestock producers as an energy source in cattle rations. It has a better amino acid

Wheat breeding

profile than corn, wheat, sorghum, and other energy sources, so it can replace some of the protein supplement required in animal feed.

A triticale breeding program has been conducted at the University of Florida since the early 1970s. Most of the breeding work has concentrated on spring grain types. Three spring type varieties have been released: **Beagle 82** (1982), **Florida 201** (1986), and Sunland (1989). A number of feeding trials with both swine and poultry have shown that triticale can replace corn in diets with no loss of animal performance.

Rye

Rye is used primarily as a forage crop, and is noted for its ability to grow on light, sandy, less fertile soils, sustain less insect and disease damage, and survive at lower temperatures than the other small grains.

Three rye forage varieties have been released recently by the FAES small-grain breeding program: **Florida 401** (1985), **Florida 402** (1988) and **Wrens 96** (1996). Florida 401 produces considerably more forage early in the winter grazing season than other varieties. In combination with clovers, and other later-maturing winter cereals, it can provide long-season grazing. It is better adapted than other available varieties to minimum-tillage, multiple-cropping systems because of its earlier maturity. Wrens 96 is a high-yielding, early-maturing variety for both forage and grain yield. Wrens 96 possesses excellent resistance to the current races of leaf rust.

Soybean

FAES has supported a soybean breeding program in cooperation with the USDA-ARS. Kuell Hinson originally began the program in 1954. Many FAES-released soybean cultivars have been widely grown in the Coastal Plain region of the U.S., as well as Asia, Central and South America. By the 1970s, **Bragg** soybean was grown on 50 percent of the southern U.S. acreage and 10 percent of the total U.S. acreage. The release of **Jupiter** soybean launched soybean production in many tropical regions, including Mexico and South America. Hinson's program of soybean improvement focused on developing southern-adapted, high-yielding genotypes with pest resistance to many nematodes, bacterial and fungal diseases. His major effort toward the end of his career was the incorporation of the long-juvenile trait, a gene that would widen the window of planting opportunity for southern soybean producers. A new forage soybean, released by the FAES in 2001, used the long-juvenile trait and was named in honor of Dr. Hinson.

Grain Varieties Released by FAES

Grain	Variety	Date of Release
Wheat	Florida 301	1980
	Florida 302	1984
Oat	Horizon 314	1999
	Horizon 474	2002
Triticale	Beagle	1982
	Florida 201	1986
	Sunland	1989
Rye	Florida 401	1985
	Florida 402	1988
	Wrens 96	1996
Soybean	Hardee	1962
	Bragg	1963
Soybean (cont.)	Jupiter	1971
	Hutton	1972
	Cobb	1973
	Alamo	1978
	Braxton	1979
	Foster	1981
	Jupiter-R	1982
	Kirby	1983
	Padre	1988
	Howard	1990
	Hinson Long Juvenile	2001