STRAWBERRY

Introduction

Florida's strawberry crop currently covers 11,000 acres and brings in $400 million a year. Eighty percent of Florida strawberry acreage in 2012–13 was planted in UF/IFAS strawberry cultivars. Florida is currently the major winter supplier of strawberry fruit to the eastern United States and is the nation's second leading supplier behind California. Florida varieties have also done well internationally and are grown on every continent except Antarctica. In 2011, UF/IFAS strawberry cultivars were grown in 36 countries.

From the Beginning

The UF/IFAS strawberry breeding program began in 1948 under the direction of pathologist Albert Brooks at a Florida Agricultural Experiment Station near Plant City. The first cultivar, 'Florida Ninety', was released in 1952 and became the dominant variety grown in Florida, known for its high yields and moderately high degree of resistance to crown rot. Breeding efforts after the release of 'Florida Ninety' were sporadic until 1968, when Charlie Howard began a systematic process of crossing and selection at the Gulf Coast Research and Education Center that continues to this day. 'Florida Belle' was released in 1975, followed by 'Dover' in 1979. These varieties showed improved resistance to crown rot and provided high yields but suffered from fruit quality problems. 'Sweet Charlie' (USPP8,729), released in 1992, produced higher yields from December through February than any other available variety, and it was the only variety adapted to Central Florida that was resistant to anthracnose fruit rot, a feature that the high-yielding California varieties widely grown in Florida at the time lacked.

The greatest step forward occurred in 2000 with the release of 'Strawberry Festival' (USPP14,739). This variety combined steady yield with broad disease resistance, attractive shape and color, and excellent firmness and shelf life. It quickly rose to dominance, comprising at least 50 percent of Florida acreage by 2005. 'Strawberry Festival' is largely credited with the recent success and expansion of the strawberry industry in Florida.

Today and Tomorrow

UF/IFAS plant breeders have made measurable progress over the years breeding for multiple traits. For strawberry, they typically employ traditional cross-pollination techniques and field selection, using a strategy called recurrent selection, in which new seedlings are rapidly evaluated and the best used as parents for the next generation. Important traits in the breeding program include those valued by growers, marketers, and consumers. Growers are interested in varieties that are resistant to multiple diseases, provide consistent and early yield, and have plants with long stems to make harvesting easy. Marketers and wholesalers want uniformly shaped fruit of sufficient size and attractive color. Consumers also value these traits but especially prize flavor, a trait that is receiving increased attention in the breeding program. The breeding program is also working hard to develop varieties that can be planted earlier and produce more yield in November and December, when market prices are highest. This requires a cultivar with a continuous flowering habit, even when exposed to high temperatures.

Two recent cultivars are significant for their unique combinations of traits. 'Florida Radiance' (USPP20,363), released in 2008, represents a significant advance in breeding because of its combination of excellent early and total yields, superior shape, and consistent fruit size. It rapidly rose to supplant 'Strawberry Festival' as the leading cultivar in Florida by 2012. Known as 'Florida Fortuna' outside of the United States, it has expanded internationally as well and in 2012 comprised approximately 25 percent of the Spanish strawberry industry. The newest cultivar, Winterstar™ 'FL 05-107' (USPP23,042), was released in 2011 and gained immediate grower acceptance. It combines a sweet flavor with the earliness and size of 'Florida Radiance' and the fruit firmness and shipping quality of 'Strawberry Festival'. It is expected to continue to rise in popularity.

Future strawberry breeding efforts will focus on continuing to enhance color, shape, size, yield, and flavor. Quality traits are receiving special attention because they are highly valued by consumers and will lead to increased fruit consumption, which is vital for public health. Breeding efforts toward superior flavor are being aided by research that is uncovering the chemicals that give rise to the perception of flavor. Fruit sugars, acids, and volatile compounds all contribute to taste, and their individual contributions are under study. Because certain soil fumigants are no longer available to the industry, resistance to root and crown diseases is also receiving greater emphasis in the breeding program.

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Strawberry Varieties Released from 2002	
Release Date	**Cultivar**
4/9/02	'Carmine' (USPP18,261)
4/8/05	'DPI Rubygem' (USPP17,464, joint with Queensland DPI)
4/19/05	'Winter Dawn' (USPP21,558)
4/28/08	'Florida Radiance' (Fortuna) (USPP20,363)
4/28/08	'Florida Elyana' (USPP21,317)
4/13/11	Winterstar™ 'FL 05-107' (USPP23,042)

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