

# Tomato



*Hybrid tomato breeding*

Fresh market tomato is grown in Florida from October through June. The 50,000 acres under tomato production in Florida generate a farm gate value of over \$500 million per year. The program at FAES has provided improvements that have allowed tomato to be grown successfully in Florida and it has had a significant impact on production worldwide. Tomatoes are a good source of minerals, vitamins C and A, and carotenoids, such as lycopene, that are beneficial as cancer-preventing antioxidants.

Major achievements in the breeding program have been the development of disease-resistant varieties and the improvement of fruit quality. **Manalucie**, developed by breeder J.M. Walter, was a major breeding achievement of the 1950s, due to its multiple disease resistance and improved fruit quality. **Homestead** was widely grown in Florida for much of the 1950s and 1960s. In the 1960s, race 2 of Fusarium wilt

was causing major losses to the Florida tomato industry. The release of **Walter** by J.W. Strobel in 1969 marked the world's first variety with resistance to the Fusarium wilt pathogen. A coop-

erative project between the FAES and the H.J. Heinz Company resulted in the development of tomato varieties with improved fruit firmness that became the primary source of firmness for breeding programs around the world. This project led to **Florida MH-1**, a variety that could be machine harvested because it combined firm fruit, concentrated fruit setting, and jointless pedicels that allowed stemless fruit to be harvested.

**Flora-Dade** proved highly adaptable and was grown commercially throughout the southeastern U.S. and in

many regions around the world, including Africa and Australia.

**Floramerica** was the first hybrid released by FAES and won a bronze medal in the 1974 All America Vegetable trials. It has



*Fresh market tomato*



*Harvesting tomato varieties*

been widely grown in home gardens throughout North America. J.W. Scott, FAES's current tomato breeder, began releasing varieties and lines in 1985. Since then, he has released 18 varieties for the industry. **Solar Set**, produced

throughout the 1990s, exhibits a superior flavor and was the first variety to have heat-tolerant fruit-setting ability, a trait that enabled significant expansion of Florida production. The Fusarium wilt-resistance *I-3* gene was discov-

ered by FAES scientists, and *I-3* is now widely used in tomato-breeding programs around the world. Breeding line **Florida 7547** is used in current hybrid varieties with Fusarium wilt race 3 resistance and it has proven valuable in breeding line development because of its superior horticultural characteristics.

**Neptune** was the first bacterial wilt-tolerant variety released from the University of Florida. **Micro-Tom**, a miniature dwarf variety dubbed "the world's smallest tomato," was released primarily for the nursery industry. There have been six breeding-line releases since 1999, and some will prove useful as parents in future commercial hybrids.

**Florida 7804** is in the new Fusarium crown-rot-resistant hybrid **Sebring** from Syngenta Seeds.

## Tomato Varieties and Breeding Lines Developed by FAES

Variety	Date of Release	Variety	Date of Release
Marglobe*	1925	Florida 556	1972
Glovel*	1935	Flora-Dade	1976
Newell, Cardinal King, Ruby Queen	1940	Floramerica, Florida 1011, Walter PF, Calypso	1977
Manasota, Manahill	1949	Burgis, Hayslip, FL2432, Florida 1A, 1B, 1C, FL Petite, FL Lanai, FL Basket	1981
Manalucie	1953	Horizon, Suncoast	1985
Homestead*	1953	Floragold Basket	1987
Manalee	1954	Micro-Tom, Solar Set	1989
Indian River	1958	Equinox, Florida 7547, 7481, Micro-Gold, Neptune	1994
Manapal	1960	Florida 7771, Florida 7775, 7781, Micro-Tina*, Micro-Gemma*	1999
Floralou	1962	Florida 7946, 7804, 7692B	2002
Floradel	1965		
Immokalee	1966		
Tropi-Red, Tropi-Gro	1967		
Tropic, Walter	1969		
Florida MH-1	1971		

\* In cooperation with the USDA