

# TEXAS A&M PLANT BREEDING BULLETIN

December 2013

**Our Mission:** Educate and develop Plant Breeders worldwide.

**Our Vision:** Alleviate hunger and poverty through genetic improvement of plants.

## NEW PEACH and NECTARINE CULTIVARS

Dr. David Byrne recently released five improved nectarine cultivars and five peach cultivars for Texas and beyond. These stone fruit releases are the first of Dave's efforts initiated in the late 1990s to develop a greater selection of stone fruits that growers could produce in the medium chill zone of Texas and the southern United States. When he started his work, only a few acid yellow-fleshed peaches and no white-fleshed peaches or nectarines were available to the producers in this zone. These releases represent a major advance in the types of stone fruit available to the growers in these non-traditional, warm winter, low to medium chill region of the southern U.S. and similar regions throughout the world.

His five new peach cultivars ripen consecutively from mid May to late June in the medium chill zone of Texas, providing five continuous weeks of delicious peaches for the Texas fresh fruit market. These new cultivars are designated as Royal Zest One, Royal Zest Two, Royal Zest Three, Royal Zest Four, and Golden Zest. The first four have higher red blush than standard peach cultivars. The Golden Zest is a unique peach for this region as instead of having a high red blush, it has a bright yellow orange color with minimal red over color. In addition, it has a firmer flesh than the traditional peach cultivars available.

The original plants of these new releases that were first identified in 2000 through 2002 were subsequently evaluated in four locations: three medium chill sites (College Station, Fairfield and Terrell, Texas) and one higher chill location (Fowler, California). College Station, TX is located at 30° 37' north latitude and generally accumulates over 550 Chill Units (CU), or accumulated hours of temperature below 45 F; Fairfield, TX is located at 31° 44' north latitude and accumulates above 750 CU each winter; while Terrell, TX is located at 32° 42' north latitude and averages above 750 CU each year. The Fowler, CA test site is farther north, 36° 38' north latitude, and has an average CU accumulation above 800 hours.

**Royal Zest One, Royal Zest Four, and Golden Zest require 600 CU, where as Royal Zest Three requires 550 chilling hours, and Royal Zest Two requires only 500 CU to break dormancy. Royal Zest One and Golden Zest are clingstone and the rest are semi freestones or freestones. All of the new releases have large fruit size and good to excellent flavor when properly managed and thinned. The soluble solids in these cultivars when picked mature are similar to or better than commercial cultivars. The cultivars of the Royal Zest series have an attractive yellow ground color with a red blush over 60 to 95% of the fruit surface, depending on the cultivar and environment, while Golden Zest has non-melting flesh, an attractive golden yellow ground color with 20 to 30% red blush over the fruit surface.**



Royal Zest One (Mid May)



Royal Zest Two (Early June)



Royal Zest Three (Early to Mid June)



Royal Zest Four (Mid to Late June)



Golden Zest (Late June)

**The Royal Zest One, Two, Three, and Four, and Golden Zest peach cultivar budwood can be acquired under a license agreement with the Texas A&M AgriLife Research.**

### **New Nectarine Cultivars Announced**

**Dr. Byrne also developed and released five new nectarine cultivars. These releases consist of two series and represent new stone fruit products for this zone since nectarines generally**

are not grown in the warm winter areas of the U.S. due to the lack of well adapted cultivars. The Smooth Delight series consists of a pair of low chill, early ripening subacid nectarines and the Smooth Texan series consists of three medium chill, successively ripening, yellow-fleshed nectarines.

### **Smooth Texan Nectarine Series**

The Smooth Texas nectarine series is being released by Texas A&M AgriLife Research and the Department of Horticultural Science to provide firm attractive yellow-fleshed, early season nectarines for the medium chill zone. These three early ripening, clingstone, melting flesh nectarines cultivars ripen consecutively from mid May until early to mid June. All have large fruit size for the early season and good to excellent flavor when properly managed and thinned. Smooth Texan One and Smooth Texan Two have flesh with medium to high acid level whereas Smooth Texan Three has subacid flesh. The average soluble solids for Smooth Texan One and Smooth Texan Two also are similar to the common commercial cultivars. Smooth Texan Three generally has better flavor and soluble solids than the common commercial cultivars. All three nectarines have an excellent yellow-orange ground color and an attractive red blush over 70-90% of the fruit skin surface depending on the cultivar and environmental conditions. The nectarines have a similar or better firmness, shape, attractiveness, and quality than the common commercial peach as well as some new medium chill cultivars such as Royal Zest One and Royal Zest Two announced above. These new nectarine cultivars supply high quality, attractive, yellow-fleshed nectarines over three to four weeks from mid May until early to mid June in the medium chill zone of Texas and similar regions.



Smooth Texan One nectarine (left), Two (center) and Three (right). These three medium chill early ripening nectarines ripen consecutively from mid-May to mid-June in the medium chill zone of Texas.

Smooth Texan series nectarines budwood can be acquired under a license agreement with the Texas A&M AgriLife Research.

### **Smooth Delight Nectarine series**

The release of Smooth Delight One and Smooth Delight Two subacid nectarines developed by Dr. Byrne also was announced by Texas A&M AgriLife Research and the Department of Horticultural Sciences to provide firm attractive subacid nectarines for the medium chill zone. These complementary nectarines are both subacid and ripen in mid May through early June depending on the location. Smooth Delight One has white flesh and Smooth Delight Two has yellow flesh. These are the first subacid nectarines released for use in the medium chill zone of Texas and other similar chill zones.

Smooth Delight One and Smooth Delight Two bear crops of subacid, clingstone, melting flesh nectarines that are firm, attractive, and large for the season. Both have fruit that is round to slightly ovate. Smooth Delight One has a creamy white flesh and ground color whereas Smooth Delight Two has yellow flesh and ground color. Both have a 70 to 90% light red to a dark red over color with many degrees of shading and blending occurring between these colorations. The fruit flesh does not brown readily when exposed to air nor has it shown a tendency to develop split or shattered pits during the final stage of fruit swelling. The quality of these two cultivars is equal to or better than that of the other major cultivars in terms of flesh firmness, percent red blush, shape, ground color, appearance, flavor and soluble solids. In the lowest chill site, both ripen in early to mid May, while in the higher chill site, they ripen in early June.

Requests for budwood should be directed to The Texas A&M University System's Office of Technology Commercialization. These cultivars are the subject of plant patent applications.

### **Continuing Education in Plant Breeding at Texas A&M University**

Continuing education course modules in plant breeding and genetics, and related disciplines are available from Texas A&M University to clientele interested in gaining new information in plant breeding or simply seeking refresher courses. This program is

designed for individuals employed in private industry, CGIAR centers, government agencies, non-government organizations, and other agriculture professionals who need and desire additional knowledge and training in plant breeding but who are not interested in an additional academic degree. A professional certificate can be a part of this program. No campus visit is required. Course modules currently open for enrollment are (<https://scsdistance.tamu.edu/purchase/>):

**Basic Plant Breeding: W. Smith**

**Unit 1: Introduction to Plant Breeding (13 January)**

**Unit 2: Self Pollinated Crops (24 February)**

**Unit 3: Cross Pollinated Crops (28 March)**

**Quantitative Genetics and Plant Breeding: S. Murray**

**Unit 1: (13 January)**

**Unit 2: (24 February)**

**Unit 3: (28 March)**

**Analysis of Complex Genomes: H. Zhang**

**Unit 1: DNA Marker Technology and Mapping (13 January)**

**Unit 2: Recombinant DNA and Cloning (24 February)**

**Unit 3: Sequencing Genomes and other Genomic Tools (28 March)**

**Host Plant Resistance: W. Smith**

**Unit 1: Introduction to HPR (13 January)**

**Unit 2: HPR to Diseases (24 February)**

**Intellectual Property and Plant Breeding: R. Jessup**

**Unit 1: Intro to IP, International Treaties & Patents (13 January)**

**Unit 2: IP Documentation (24 February)**

**Unit 3: IP Transfer and Enforcement (28 March)**

**Other Continuing Education courses in plant breeding and related disciplines that will be available include Host Plant Resistance; Selection Theory; Marker Assisted Selection; Genomic Analysis; Field Crop Diseases; Field Insects; Essential Nutrients in Crop Growth; and others. For more information visit <https://scsdistance.tamu.edu/> or contact LeAnn**

Hague, Distance Education Coordinator in Soil and Crop Sciences at  
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Distance Plant Breeding MS and PhD degree programs at Texas A&M. Visit  
<https://scsdistance.tamu.edu/plant-breeding-distance-education/> for details.

#### Other Plant Breeding News

NCSU Plant Breeding Club 2<sup>nd</sup> Biennial Symposium: 6 February 2014; visit  
<http://www.plantbreedingcenter.ncsu.edu/symposium/index.html> for program details.  
Registration free.

National Association of Plant Breeders 2014 Annual Meeting in Minneapolis MN on  
August 5 – 8. Visit [www.plantbreeding.org](http://www.plantbreeding.org) for details.

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