

Citrus Clonal Protection Program (CCPP)

Project Leader:

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The California Citrus Clonal Protection Program (CCPP) is a part of the University of California, Riverside, Department of Plant Pathology. The CCPP is a cooperative program with the California Department of Food and Agriculture (CDFA), the United States Department of Agriculture Animal and Plant Health Inspection Service (USDA-APHIS) and the citrus growers of the state of California represented by the Citrus Research Board.

The CCPP is responsible for the introduction, disease diagnosis, pathogen elimination, maintenance and distribution of true to type primary citrus propagative material of all the important fruit and rootstock varieties for the needs of the California citrus industry and citrus researchers.

2004-2005 Summary

During 2005, 26 citrus varieties (20 public domain [Table 1] and 6 proprietary) completed therapy (shoot tip grafting and/or thermotherapy) and were released from state and federal quarantine after completing the VI Index. The VI Index is the most comprehensive index that a variety undergoes during quarantine in CCPP. The VI Index includes bud inoculation into a host range of 60 citrus seedling and propagation plants that are kept at very specific environmental conditions, which will accentuate symptom expression if a pathogen is present. Additional laboratory tests, sPAGE, Hybridization, and RT-PCR (Citrus Viroids), ELISA (Tristeza) and culture for *S. citri* (Stubborn Disease) are also a part of the VI Index.

Table 1. Varieties Released to Public Domain, 2005

VI	Name	Origin
697	Microcitrus Australasica	Variety Collection – UCR
699	SRA 513 Bahianinha navel	INRA – Corsica
700	Banhianinha Araras navel	INRA – Corsica
701	Verna lemon	IVIA – Spain
702	Fino lemon	IVIA – Spain
703	Fino Largo Lemon	IVIA – Spain
704	Clementard	IVIA – Spain
708	Persian lime	USDA, Florida
709	Hansen mandarin	Australia
713	Navelencia	Variety Collection – UCR
714	China S-5 satsuma	PR China
715	China S-12 satsuma	PR China
716	China S-18 satsuma	PR China
717	Ugli Tangor	Variety Collection – UCR
719	SRA 569 Boukhobza orange	INRA – Corsica
720	SRA 122 Bounquetier de Nice sour orange	INRA – Corsica
721	Jamaican Ugli Tangor	Jamaica
722	China S-1 satsuma	PR China
724	New Zealand Lemonade	Altadena, California
727	Poncirus trifoliata #22	Australia

Clean and healthy trees of these varieties have been propagated under quarantine at Riverside and will be planted at the Lindcove Foundation-Evaluation Block and/or moved into the Protected Foundation Block in the spring of 2006. These trees will be carefully evaluated several times per year by CCPP for trueness-to-type, fruit quality and overall health and growth characteristics. All trees will be annually retested for tristeza for the life of the tree by CCPP.

The CCPP Lindcove Foundation-Evaluation Block of field planted trees numbers 1,143 trees, including Foundation Stock, field evaluation trials, and backup trees which are planted on roughly 20 acres. There are 333 individual varieties now in the collection with more being added each year. Of this total of 1,143 trees, there are 283 trees that are maintained by CCPP as CDFA Registered budwood source trees. To maintain registration, these 283 trees must undergo an annual index into West Indian Lime (Tristeza, Vein Enation), index into citron every third year, the citron is used to produce tissue for sPAGE, Hybridization and/or RT-PCR (Citrus Viroids), and index to sweet orange every fifth year looking for the presence of Psorosis and related diseases. This reindexing is all done at the CCPP Rubidoux Greenhouse at Riverside.

The 2005 annual index in West Indian Lime unfortunately confirmed the fear that the Lindcove Foundation-Evaluation Blocks, the main source of the distributed budwood, would be affected by the withdrawal of the Tulare Pest Control District from the tristeza suppression program. Two tristeza-positive trees were identified in the Foundation blocks. The CCPP will focus in the immediate testing of all the trees in the Foundation-Evaluation Block so an assessment of the tristeza status in the block can be developed. In addition, the registration process for the trees of the Protected Foundation Block will be accelerated so CCPP will be prepared for a possible transition of budwood distribution from the greenhouse foundation block.

The CCPP has continued to add new and repropagate old varieties in the greenhouse protected foundation collection at Lindcove. The protected greenhouse contains 450 propagations including 66 in-ground trees. Most varieties are housed as pairs so while the old original pot-bound trees are replaced with a new propagation, a mature tree for each variety will be always available.

The CCPP has continued to collect fruit evaluation data from field propagations during 2-3 week intervals just prior to and during fruit maturity. This updated evaluation information is presented at the web page http://www.ccpp.ucr.edu/tests/LREC_37-2005-2006.html. The CCPP also continues adding pictures and fruit data to the website at www.ccpp.ucr.edu.

The CCPP again hosted a Foundation Block Field Day in 2004-2005. Fruit from CCPP trees was also made available for the annual Lindcove fruit display for growers, the World Ag Expo, and other events of this type.

The continued availability of disease-tested propagation material from the CCPP is essential for the continued protection of California's citrus industry. The CCPP is dedicated to helping maintain California in the forefront of high quality fruit production. We at the CCPP wish to thank the Citrus Research Board for its support.

Editor's note: Georgios Vidalakis assumed the CCQC Program Director position at the end of the 2004-2005 season, in October 2005.

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