



National Clonal Germplasm Repository for Citrus & Dates

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Robert Krueger, Curator



Our future is bright!



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Program Status: Holdings - Overall

		ACCESSIONS	INVENTORY
Total		1881	6533
	<i>Citrus</i> & related taxa	1617	5582
	<i>Phoenix</i> spp	147	802
	Citrus pathogens	115	149
	Date Palm Phytoplasma Nucleic Acid Extracts	2	NA



Distributions in 2018

- Budwood: 5,350
- Seeds: 1,956
- Pollen: 205 grams



Collections



- Field collection: shared with the University
- Greenhouses:
 - Quarantined accessions (awaiting therapy and testing)
 - Field back up
- Screenhouse: sanitized, tested, protected
- Cryopreserved: National Laboratory for Genetic Resource Preservation in Fort Collins, CO
- Date Palm Field Collection: Thermal, CA



Program Status: Citrus



- Currently there are 570 sanitized and pathogen-tested citrus accessions at the National Clonal Germplasm Repository in Riverside, CA
- 406 have been successfully cryopreserved at the National Laboratory for Genetic Resources Preservation in Fort Collins, CO
- 97 are pending viability assessment
- 17 accessions released from quarantine status in 2018 (expect less this year due to government shutdown – biological index was delayed)



Program Status: Date Palm

- Tissue cultures have been sent to the NLGRP to begin developing cryopreservation protocols
- Gayle Volk visited – Feb. 2019, collected date palm pollen for cryopreservation
- Obtained positive controls to start pathogen testing of new accessions (acquired in tissue culture) received under PCIP
- Optimizing testing protocols for NCGRCD conditions
- Initiated collaborations & submitted research proposals

ACCOMPLISHMENTS 2018



- Successfully completed the requirement for two tests for Citrus greening pathogens in the protected screenhouse, 6 months apart and by external party
- Hold Order lifted
- Executed new Compliance Agreement in 2018



Research Activities: Sanitize Citrus Relatives



- Of Repository's 1617 accessions of Citrus and related taxa, 71 are citrus relatives
 - Includes CVC and quarantine accessions
- Many are not compatible to graft inoculate for standard biological indexing methods
- Evaluating current assays
- Investigating alternative methods



Research Activities: Polek

Ensuring Security and Integrity of Valuable Breeding, Research, and Germplasm Collections'. [Mauk, Gottwald, Vidalakis, Kahn, Roose, Hartung, Ma, Rivera](#)



- CRB-funded project FY 2018-2019
- Use HLB-sniffing canines to “survey” individual trees on Ag Ops and field perimeters at UC LREC
- Follow up with EDT’s and qPCR assays on dog-alerted trees (72 in 2017; 288 in 2019)
- Cage selected trees and continually test using qPCR
- All qPCR assays have been negative
- No canine alerts at LREC (Central Valley)



Research Activities - Krueger

- Develop pathogen testing protocols
 - Crop germplasm grant
 - Incorporate new testing technologies/protocols
 - Obtain additional positive controls
- Develop molecular markers to trace important cultivars
- Nutritional & horticultural studies





Our future is bright!

Future Plans

- Expansion of the screenhouse housing the protected citrus collection
- Addition of a modular office structure



Visited by Peter Bretting, May 9-10, 2019

