

FLORIDA CITRUS PRODUCTION RESEARCH ADVISORY COUNCIL

Administered by the Florida Department of
Agriculture and Consumer Services
Bob Crawford, Commissioner

EIGHTH ANNUAL REPORT

July 1999 - June 2000

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Management/Physiology

Continuing Projects

- 951-23M - Tree Pruning Studies to Improve the Production and Harvesting of Florida Oranges
- 961-33M - Effects of Foliar and Broadcast P and K on Size and Quality of Grapefruit
- 981-10M - Phosphorus/Potassium Soil Test Calibration and Effects on Fresh Citrus Fruit Quality
- 991-08M - Expansion of the Decision Information Systems for Florida Citrus
- 991-16M - Management of Crop Load on Alternate Bearing and Low Bearing Cultivars of Citrus
- 991-40M - Detecting and Managing Water Stress in Flatwoods Citrus

Completed Projects

- 981-03M - Maximum Safe Uptake of Urea N into Citrus Leaves
- 981-12M - Effects of Gibberellic Acid Application Timing on Juice Quality, Fruit Drop and Flowering of Processing Oranges

Pathology

Continuing Projects

- 928-74P - Development of Methods to Manage Citrus Tristeza Virus
- 961-17P - Studies to Determine the Cause and Develop Strategies to Control Citrus Blight
- 971-43P - Development of Detection Methods for Citrus Psorosis Virus and Use of the Virus as a Vector to Express Foreign Genes in Citrus
- 981-29P - Research in Support of Eradication and Control of Citrus Canker
- 991-36P - Improving Performance of Fungicides for Control of Postbloom Fruit Drop, Greasy Spot and Alternaria Brown Spot
- 991-37P - Reducing Postbloom Fruit Drop Through Use of Plant Growth Regulators to Concentrate Bloom
- 991-50P - Optimization of PCR Viroid Detection in Budwood Source Trees

Completed Projects

- 961-28P - Development of a Rapid Method to Determine the Decline Inducing Potential of CTV and Other Virus-like Problems
- 991-33P - Culture of Citrus Greening Bacterium

Entomology

Continuing Projects

- 971-14E - Mortality and Suppression of Egg Laying of *Diaprepes abbreviatus*
- 971-21E - Classical Biological Control of Citrus Psylla and Pink Mealybug
- 971-27E - Management of *Diaprepes abbreviatus* Using Entomopathogenic Nematodes (*Steinernema riobravis*) and (*Heterorhabditis indicus*)
- 981-42E - Classical Biological Control of *Diaprepes abbreviatus*
- 981-50E - Classical Biological Control of the Brown Citrus Aphid
- 991-01E - Development of an Integrated Management Strategy for the Brown Citrus Aphid in Florida Citrus
- 991-02E - Field Evaluation of Indigenous and Introduced Biological Control Agents of Citrus Psyllid, *Diaphorini citri* Kuwayama
- 991-46E - Genetic Markers in Support of Exclusion and Eradication Efforts for Florida Medflies
- 991-52E - Field Tests of Alternative Candidates for Malathion and Efficacy Test for Diazinon in Mediterranean Fruit Fly Eradication and Caribbean Fruit Fly Protocol Programs

Completed Projects

- 942-18E - Biological and Chemical Controls for *Diaprepes abbreviatus* Larvae and Adults
- 971-12E - Mortality and Suppression of Egg Laying of Caribbean Fruit Fly
- 971-45E - Diaprepes Damage and Interactions with Phytophthora

Plant Improvement/Other

Continuing Projects

- 928-27I - Development and Evaluation of Improved Citrus Rootstocks
- 942-27I - Utilization of Gene-Mapping and Marker-Assisted Selection for Citrus Variety Improvement
- 981-30I - Field Evaluation of Promising USDA Rootstock Selections

991-28I - Improved Genetic Transformation for Citrus
 991-98I - New Scion Variety Development for Florida Citrus Growers
 991-99I - Partnership in IFAS Plant Genetic Improvement Research Enhancement
 999-21O - Development of a Central Internet Resource for Citrus Information Worldwide

Completed Projects

991-22I - Commercial-scale Evaluation of Advanced Valencia Selections
 991-51O - Pathogen Collection Greenhouse

FCPRAC Projects Approved for FY 2000-2001

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INTRODUCTION

Presented in this Eighth Annual Report is information about research conducted during Fiscal Year 1999-2000 supported by the Florida Citrus Production Research Advisory Council operating under the Florida Citrus Production Research Funding Order. This research support program was established under the Florida Marketing Act which enables Florida citrus growers to tax themselves for the purpose of providing funding to support needed research. Growers approved this marketing order by referendum in 1991 and the Council began its work in 1992.

FINANCIAL SUMMARY FISCAL YEAR 1999-2000

Balance Forward 7-1-99	\$1,326,460.95
Collections 7-1-99 thru 6-30-00	1,170,493.32
Refunds	6,460.63
Total Cash	\$2,503,414.90
Disbursements	
Research Projects	\$1,033,235.00
Administrative Cost*	43,348.00
Total Disbursements	\$1,076,583.00
Available for 2000-2001	\$1,426,831.90

*Administrative costs include Scientific Coordinator salary, Project Peer Review Team expenses, travel, postage and supplies. (3.7% of funds expended).

CHAIRMAN'S MESSAGE

December 31, 2000

Dear Florida Citrus Grower:

The Florida Citrus Production Research Advisory Council (FCPRAC) has completed its eighth year under the grower-approved Florida Citrus Production Research Funding Order. The assessment to raise funds for citrus production research has been increased to $\frac{3}{4}$ of a cent per box for FY 2000/01. The Council feels that a more concerted effort needs to be made on long term production problems, while maintaining research on short-term matters. This grower-supported research can produce many future dividends while stimulating interest in more outside funding. Administrative costs were 3.7% this year, due to the support of the Florida Department of Agriculture and Consumer Services. Further savings are provided by the University of Florida - IFAS and USDA - ARS because they have waived normal overhead costs on all our projects.

Collections for FY 1999/00 totaled \$1,170,493.

Funding for research projects was \$1,026,235.

Funding was provided for 37 projects selected from 44 proposals.

This includes: 12 Entomology

9 Plant pathology

6 Management/Physiology

10 Plant improvement/Other

Over the past eight years, FCPRAC has directed \$9,002,864 in funding on 305 new and continued Florida citrus production research projects. These funds enhanced the citrus research effort, much of which would have been left undone without this program.

A thank you goes to your Council members (listed on previous page) for their many volunteer hours to make this program a success.

For the future, we continue to strive to coordinate the production of world-class citrus research for Florida. This coordination is vital as budget dollars are stretched and funding sources become increasingly limited. Thank you for your support and please make your research needs known to the Council so we can better serve the Florida citrus industry.

Andrew B. Pike

FCPRAC Chairman

A Message from the FCPRAC Scientific Coordinator

December 31, 2000

Florida citrus growers have now invested nine million dollars over the eight-year life of the Florida Citrus Production Research Marketing Order. While this is a lot of money, the amount collected pales when compared to the myriad other taxes collected from growers for other purposes. The money collected each year and provided to researchers is but a fraction of the money required to run research programs. The balance is made up by the institutions receiving the grant since they are paying the investigators' salaries and providing the infrastructure for them to work in. Each dollar provided through this marketing order is leveraged substantially - often at a ratio as high as 10:1. This represents an excellent good return on investment for the Florida citrus grower.

Because of the marketing order and the tax collected through it, research is now emerging more rapidly and scientists are working on problems of the highest priority for Florida's citrus growers. The 14-member Council assures that your tax dollars are spent wisely. As always, the Council and I welcome suggestions for improvement and ideas on how to make our efforts more productive.

This annual report lists last years's efforts for researchers funded with your box tax dollars through the end of June, 2000. A table which shows the history of FCPRAC research funding from the inception of the program follows this page. We hope you will find time to study the report and find the information to be of value.

Larry K. Jackson

Scientific Coordinator

FCPRAC Funding by Years for Each Category^z

Grant Category	FY 93-94	FY 94-95	FY 95-96	FY 96-97	FY 97-98	FY 98-99	FY 99-00	FY 00-01
Entomology	(4) 118,036	(15) 452,344	(11) 342,714	(12) 313,953	(13) 258,814	(16) 340,208	(13) 250,035	(10) 2
Plant Pathology	(13) 322,015	(13) 293,443	(11) 266,011	(10) 337,804	(10) 363,354	(14) 453,379	(9) 300,513	(10) 3
Management/Physiology	(5) 183,627	(10) 280,262	(11) 379,888	(13) 415,392	(14) 372,064	(17) 462,291	(7) 163,965	(10) 2
Plant Improvement/Other	(3) 132,893	(3) 139,700	(2) 123,000	(2) 114,000	(3) 135,000	(4) 177,000	(9) 338,722	(8) 3
Totals	(25) 756,571	(41) 1,165,749	(35) 1,111,613	(37) 1,181,149	(40) 1,129,232	(51) 1,432,878	(38) 1,053,235	(38) 1,1

^zSmaller numbers in parentheses are numbers of projects (new and continued), larger numbers in funding in dollars.

FLORIDA CITRUS PRODUCTION OVERVIEW

The Council views the monies invested through this program to be contributed by growers to enhance the existing research effort. In order to assure growers that their tax monies are in fact enhancing programs, the Council monitors overall citrus production research expenditures in relation to our funding. This section provides a summary of information received from IFAS and USDA-ARS regarding their research expenditures. The Council has not verified this information, and because we have not established firm definitions of each aspect of the research, we may see some adjustments in the future. Most of this information has not been presented in this form before. The Council can only provide this information because of the candid disclosures of the research institutions. We appreciate their openness and cooperation.

1. Council monies shown reflect actual expenditures by the institutions and do not reflect balance of grants held in reserve.

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2. In FY 200 budget, \$650,750. of the USDA money is allocated to the University of Florida through cooperative agreements.