

Introduction

“No regulation, land use plan, import duty, tariff, purchase of development right, or other governmental policy will be able to sustain agriculture if it is not profitable for individual operators –and their suppliers- to remain in business.”

*Craig Evans
President, Florida Stewardship Foundation*

It is the intention of the Florida Department of Agriculture and Consumer Services (FDACS) and the University of Florida in the performance of this study to retain agriculture and rural land in Miami-Dade County through the enhancement of the economic viability of commercial agriculture. The main purpose of this study is the analysis of data concerning the long-term economic outlook of the agricultural industry and the development of recommendations to enhance the industry’s economic well-being. It is also the intention of FDACS, the Miami-Dade County Commission and the University of Florida that this study and any potential resulting ordinances shall not have an adverse effect on the value or use of property in the study area. The purpose of this study is to provide information and recommendations to FDACS, Miami-Dade County government, and the citizens of Florida, particularly the citizens of Miami-Dade County to improve current and future planning (Adapted from the official Scope of Services).

OBJECTIVES

The objectives of this study were developed by members of the Miami-Dade County Agricultural Practices Study Advisory Board over a period of several years. In September of 1999, the Board and other representatives of the agricultural community participated in a workshop conducted by Mr. John Folks of FDACS to develop a final set of objectives for the study. The objectives as specified by attendees of the workshop were varied and detailed. However, the objectives can be organized into six major categories. These categories are:

1. To provide an overview of the natural and developed environment of the study area (the South Dade Agricultural Area) and describe the agricultural practices associated with each major crop or commodity group.
2. Document the economic importance of agriculture to Miami-Dade County.
3. Determine economic trends associated with major agricultural crops grown in Miami-Dade County. Trends in acreage, revenues, and profitability were to be examined whenever possible.
4. Identify major factors affecting the profitability and sustainability of Miami-Dade County agriculture.

**SUMMARY AND
RECOMMENDATIONS**

5. Identify and evaluate emerging technological changes that could help or harm Miami-Dade County’s competitive situation.
6. Offer recommendations to improve the economic sustainability of agriculture in Miami-Dade County.

Research Approach

A task force of UF/IFAS scientists and extension agents with specialized knowledge of Miami-Dade County agriculture was assembled and several organizational meetings held in order to determine specific responsibilities of faculty and staff in meeting the study’s objectives. Task force members and their respective locations and affiliations are found in Table 1.

Table 1. The University of Florida Research Task Force, Miami-Dade County Agricultural Land Retention Study.

Faculty/Staff	Area of Expertise
<i>Gainesville Campus</i>	
Dr. Robert L. Degner	Marketing
Dr. Dean G. Fairchild	Communications
Dr. Alan W. Hodges	Business analysis, ornamental horticulture
Mr. William A. Messina	International trade
Ms. Kimberly L. Morgan	Marketing
Dr. W. David Mulkey	Regional economics
Dr. John Reynolds	Land economics
Mr. Scott Smith	Production economics
Dr. Thomas J. Stevens, III	Production economics
Dr. Timothy G. Taylor	International trade
<i>TREC Homestead</i>	
Dr. Herb Bryan	Vegetables
Dr. Jonathan Crane	Tropical fruits
Ms. Karen Eskelin	Agricultural programs
Dr. Waldemar Klassen	Insect pest management
Dr. Yuncong Li	Plant nutrition
Dr. Robert T. McMillan	Subtropical fruits & vegetables
Ms. Karen Minkowski	Geographic Information Systems (GIS)
Dr. Stephen K. O’Hair	Tropical vegetables/tubers
Dr. Bruce Schaffer	Plant physiology
Dr. Min Zhang	Plant nutrition

Continued

Table 1 Continued.

<i>Ft. Lauderdale REC</i>	
Ms. Theodora Frohne	Ornamental horticulture
Dr. Eva Worden	Landscape horticulture
<i>Miami-Dade Extension</i>	
Dr. Carlos Balerdi	Tropical fruits
Mr. Chris Brooks	Aquaculture
Dr. Joseph Garofalo	Ornamental horticulture
Dr. Mary Lamberts	Vegetables
Ms. Teresa Olczyk	Commercial ag./vegetables
Mr. Donald Pybas	County Extension Director
Dr. Charles Yurgalevitch	Urban commercial horticulture

In order to provide an overview of the natural and developed environment of the study area and to describe the agricultural practices associated with each major crop or commodity group (Objective 1.), University of Florida (UF/IFAS) faculty and staff developed a Geographic Information System (GIS) specifically for Miami-Dade County agriculture. Members of the task force also provided detailed descriptions of a diverse array of traditional and tropical vegetables, tropical fruits, and nursery crops. They also provided details on cultural requirements for each of the crops.

The documentation of the economic importance of agriculture to Miami-Dade County (Objective 2) was achieved by obtaining published data from the Agricultural Census, the Florida Agricultural Statistics Service (FASS), and various publications authored by UF/IFAS researchers and extension agents. In every case, the most recent published estimates were used for economic analyses. Unfortunately, the Agricultural Census is conducted only once every five years, and the most recently published was the 1997 census. The Agricultural Census is the most comprehensive official agricultural database, and data from the Census were used to estimate overall economic impacts using IMPLAN, an input-output analytical technique.

In order to determine economic trends for the major crops grown in Miami-Dade County (Objective 3), annual time series data were obtained from the FASS. These data were more current than the Agricultural Census, but FASS only collects annual data for a limited number of traditional vegetables and a few of the major tropical fruits. These data typically include acreage, prices, and average yields, allowing average revenues to be calculated. Trend analyses on acreage and revenues were performed, giving an indication of the overall economic health of these enterprises. Data on costs of production and marketing (vegetable and fruit “budgets”) were obtained from commercial growers and shippers.

Major factors affecting the profitability and sustainability of Miami-Dade County agriculture (Objective 4) were identified by soliciting input from the entire agricultural community via mail surveys. The surveys were publicized through two news releases sent to newspapers serving the South Dade area, and three waves of questionnaires were sent to all known individuals and businesses identified as having a stake in Miami-Dade agriculture.

**SUMMARY AND
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Additional insights were provided by industry experts that participated in the Future Technology workshop discussed below, and from discussions with local producers, shippers, community leaders, and members of the UF/IFAS research task force.

Emerging technological developments (Objective 5) with the potential to affect Miami-Dade County agriculture were explored during a two-day Future Technology workshop organized by Dr. Stephen O’Hair and held at the Tropical Research and Education Center (TREC) in Homestead in October, 2000. Over 20 participants from private industry, trade associations, USDA-ARS and universities discussed technological developments in plant breeding, genetic engineering, soils fertility, irrigation, pesticide availability and application, robotics and post-harvest handling. Participants and their respective affiliations are listed in Table 2.

Table 2. Future Technology Workshop Participants.

Aref Abdul Baki	USDA-ARS, Beltsville, MD
Dan Botts	Florida Fruit and Vegetable Association, Orlando, FL
C. F. Brodel	USDA/APHIS/PPQ Plant Inspection Station, Miami, FL
Bill Bussey	Novartis (Rogers Seeds Co., Syngenta Seeds)
David Clark	University of Florida, Gainesville
Jonathan Crane	University of Florida, TREC Homestead
Robert L. Degner	University of Florida
Stephen DiAntonio	Carnegie Mellon University, National Robotics Engineering Consortium
Claire Erickson	Monsanto
D. A. Fieselmann	USDA/Aphis/PPQ Center for Plant Health Science, Raleigh, NC
Dave Goff	Seminis Seed Company (Asgrow)
Ernest J. Hewitt, III.	Everglades REC, University of Florida
Waldemar Klassen	University of Florida, TREC Homestead
Yuncong Li	University of Florida, TREC Homestead
Robert T. McMillan, Jr.	University of Florida, TREC Homestead
O. Norman Nesheim	University of Florida, Gainesville
Jack Norton	Technology Center of New Jersey, North Brunswick, NJ
Stephen K. O’Hair	University of Florida, TREC Homestead
Steve Sargent	University of Florida, Gainesville
Jay Scott	University of Florida, Gulf Coast REC Bradenton
D. R. Seal	University of Florida, TREC Homestead
Bruce Schaffer	University of Florida, TREC Homestead
Wm. M. Stall	University of Florida, Gainesville
Thomas J. Stevens, III	University of Florida, Gainesville
Min Zhang	University of Florida, TREC Homestead

Recommendations to improve the economic sustainability of agriculture (Objective 6) were synthesized from the findings associated with Objectives 4 and 5. Suggestions were obtained via mail surveys, personal discussions with agricultural and business leaders, findings of research conducted specifically for this study, and professional opinions voiced

by participants of the future technology workshop and other members of the UF/IFAS task force.

Organization of the Findings

The Findings section is a condensed overview of information pertinent to the overall objectives. More detailed information and supporting data are found in a series of five Appendices. There are some redundancies in the Findings section and the Appendices, but this has been done because it is anticipated that this overview may be distributed independently of the voluminous appendices. The discussions found in the Findings section below generally follow the order of the specific objectives discussed above.

The first major subsection provides a brief overview of the County's population, the natural resources and climate and general descriptions of the various kinds of farming enterprises that constitute the agricultural sector. Additional details are included in supporting documents found in Appendices A and B-1. These appendices contains papers on the Geographic Information System developed by faculty and staff at TREC located in Homestead. They also contain information about natural resources and the environment, and detailed cultural requirements and practices associated with the major agricultural crops grown in the South Dade agricultural area.

The second major subsection under Findings describes the economic impact of agriculture on Miami-Dade County. The economic contributions of the major agricultural subsectors, i.e., fruit crops, traditional vegetables, tropical vegetables and herbs, nursery crops, and aquaculture are discussed. A detailed supporting document which includes statistics on the interactions of agriculture with other sectors of the economy is included in Appendix B-1.

The third major subsection examines long-term trends for most of the agricultural crops. Acreage, prices, and revenues are examined on a crop-by-crop basis where adequate time series data are available. Detailed supporting documentation on trends is found in Appendix B-2.

The fourth and last major subsection represents a synthesis of the findings from Objectives 4 and 5. Factors that are currently affecting the economic viability of Miami-Dade agriculture or may be likely to impact it in the future are identified, their current status and potential effects discussed, and courses of action recommended.