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NEEDS AND SOURCES PLANNING IN THE ST. JOHNS RIVER WATER
MANAGEMENT DISTRICT: AGRICULTURAL LAND AND WATER USE
PROJECTIONS FOR 1995 AND 2010

SUPPLEMENT

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Report to the St. Johns River
Water Management District

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PREFACE

This study grew out of discussions between Staff of the St. Johns River Water Management District concerned with the Water Supply Needs and Sources Assessment planning effort and Natural Resource and Environmental Economists within the Food and Resource Economics Department (FRED) at the University of Florida after the initial study was completed (See Lynne and Kiker, 1991). The focus was on improving the original water use estimates by accounting for the impacts of multiple cropping and frost and freeze protection on water use. Also, additional information became available in December, 1991, on citrus and vegetable acreage which was used to provide an improved projection.

The District along with the Institute for Food and Agricultural Sciences (IFAS) funded the effort. This report reflects continuing improvements in both the data bases and the approach to facilitate improved projections in future planning.

ABSTRACT

Agricultural land and water use projections are needed in order to compare water needs (demands) and sources (supplies) in the St. Johns River Water Management District. As in the original report, agricultural irrigated acreage is projected for 1995 and 2010. Water use under 2-in-10 drought and 1-in-7 freeze conditions is then projected for both current and future best management practice irrigation technology. Agricultural water use will be about 247 bgy, or 25 acre-inches per irrigated acre under current technology by the year 2010. Phasing in best management irrigation technology starting in the mid-1990's suggests water use of about 178 bgy, or 19 acre-inches per acre by 2010. As noted in the original study, projections could be improved with better understanding of the social, political and economic (behavioral) factors affecting agricultural water use. Reliable research information about the way water is actually used (i.e., the factors influencing on-farm management and thus how much water is used), and the direction and changes in costs and agricultural technology in Florida is severely limited. The model used in the study to project water use presumes highly favorable (low) input/output price ratios and relies on scanty information about the forces affecting costs and technological change.

Keywords: agricultural water use, water economics, irrigation water use, projected water use, water demand, economic behavior

ACKNOWLEDGEMENTS

Several of the same individuals involved in the earlier study also contributed to this project.

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Word processing and secretarial services are again appreciated, as provided by Sharon Bullivant, and Staff, Melissa Bracewell and Gwen McCann. Gwen reworked all the tables, and did most of the final changes in the text. Janice Baisden produced the multiple copies.

Graduate Assistants providing invaluable support include Frank Casey, Michael Martin, and Cynthia Moore. As earlier, Frank continued to serve in many roles. Special thanks is again due Cynthia who did most of the work and continued to improve on the entire analytical system. As with the original study, the project could not have been completed on time without her ability to keep moving forward.

Professor Allan Smajstrla again was very helpful in answering our questions regarding the AFSIRS model. Professor John Gerber helped improve our understanding of frost and freeze events.

The time and information obtained from county extension personnel throughout the District is appreciated.

The team continues to appreciate the support and encouragement of Department Administration. Lawrence W. Libby, Chair, and John R. Gordon, Associate Chair encouraged us to experiment with a short term contract in a team effort approach.

Other faculty involved directly in the project included Professors William G. Boggess, Clyde Kiker, John E. Reynolds, and Timothy G. Taylor. Considerable discretion was again given the Principal Investigator while still showing a willingness to share in the responsibility for any remaining errors.

Many St. Johns River Water Management District personnel again helped with the project. An abbreviated list includes Larry Lee, Rick Levin, Gloria Roberson, Kim Schildt, Carol Singleton, Vince Singleton, and Patrick van Cleef. We appreciated the guidance and support of Marion Ritter and Andrew Lieuwen as Project Managers for the Agricultural Water Needs and Sources component, and Kristy Lampe, Project Manager for the Water Supply Needs and Sources Assessment planning effort. Barbara Vergara provided important insights on possible future directions, and thus data base needs, for the District.

Thank you.

Principal Investigator
Gary D. Lynne

TABLE OF CONTENTS

	<u>Page</u>
PREFACE	ii
ABSTRACT	iii
ACKNOWLEDGEMENTS	iv
TABLE OF CONTENTS	v
LIST OF TABLES	viii
LIST OF APPENDIX TABLES	ix
LIST OF FIGURES	x
EXECUTIVE SUMMARY	xi
1. INTRODUCTION	1
Gary D. Lynne and Clyde F. Kiker	
2. AGRICULTURAL WATER USE FROM FOUR INCH WELLS	1
William G. Boggess	
3. CONSIDERATIONS IN ESTIMATING ACREAGE AND WATER USE UNDER MULTIPLE CROPPING SYSTEMS	2
Cynthia Moore, Michael Martin and Gary D. Lynne	
3.1 Proportionate Acreage, Cropping Sequences, Planting Dates and Representative Water Use Periods	3
3.2 Accessing the Data Base for the Multiple Crop Investigation	4
4. CONSIDERATIONS IN ESTIMATING ACREAGE AND WATER USE FOR FROST AND FREEZE PROTECTION	5
Frank Casey, Cynthia Moore and Gary D. Lynne	
4.1 Information Available for Estimating Frost and Freeze Water Use	5
4.1.1 Frost and Freeze Water Use Estimates from the Benchmark Farm Survey Data	5
4.1.2 Frost and Freeze Water Use Estimates from the CUP Data	6
4.2 Base Estimate of Water Use for Frost and Freeze Protection	9

4.3	Incorporating Frost and Freeze Allocations into the Data Bases	9
5.	REVISED ESTIMATES OF AGRICULTURAL WATER USE IN 1990, 1995, AND 2010	12
	Gary D. Lynne and Cynthia Moore	
5.1	Changes in Citrus Acreage Projections Due to Border County Breakdowns and Revised 1990 Acreage Estimates . .	12
5.2	Changes in the CUP Acreages and Water Use Coefficients. .	13
	5.2.1 Changes in Orange County Vegetable Acreage from New Information	13
	5.2.2 Changes Due to Considering Multiple Cropping and Freeze Protection.	13
5.3	Base and Adjusted Base Projections	14
5.4	Revised Annual Water Use Estimates Under Current and Best Management Practice Irrigation Technology	14
5.5	Distribution of Water Use Within a Year	15
5.6	Distribution of Water Use Across the District	19
5.7	Comparing Projected Water Use With Permitted Water Use .	19
5.8	Other Agricultural Water Use in 1990, 1995, and 2010 . .	19
5.9	Summary and Limitations of the Water Use Projection Approach	19
6.	DISCUSSION AND RECOMMENDATIONS	24
	Gary D. Lynne and Clyde Kiker (with contributions from William G. Boggess, Frank Casey, Cynthia Moore, Michael Martin, Timothy Taylor, and John Reynolds)	
6.1	Overview: Areas for Joint Effort Between the District and FRED During 1991-1992	24
	6.1.1 Improving Land and Water Use Data and Projection Methods	24
	6.1.2 Developing Management Plans in Water Problem Areas	25
	6.1.3 Improving Understanding of Agricultural Water Management, Irrigation Costs and Technology Changes	26
	6.1.4 Continue Discussions About Alternative Water Management Institutions	26
6.2	Considerations in Collecting Projection Data and Developing Projection Methods	27
	6.2.1 Acreage Data and Projections	27
	6.2.2 Change Frost and Freeze Water Use Calculation. . .	28
	6.2.3 Adequacy of the Modified Blaney-Criddle and AFSIRS Models	29
	6.2.4 Collecting Land and Water Use Data: Postcards. . .	29
	6.2.5 Collecting Water Use Data: Metering	29
	6.2.6 Collecting Water Use Data: Benchmark Farm Survey .	30
	6.2.7 Improving the Structure of Current Data Bases. . .	31

6.3	Conduct In-depth Water Use Studies in Areas With Inadequate Water to Meet the 2010 Demands	32
6.4	Knowledge of Grower Water Management Strategies, Irrigation Costs, and Agricultural Technology: Implications for Implementing the Reasonable Beneficial Use Standard	32
6.5	Institutional Setting and Water Management Visions Influence Both the Data Base Needs and the Related Analytical Systems	33
6.6	A Final Point.	34
7.	APPENDICES	36
7.1	Data and Background Information Tables for the Current Report	37
7.2	Water Use Projection Tables for Replacement in the Original Report	49
7.3	Conceptual and Theoretical Considerations in Projecting Agricultural Water Use	101
	Gary D. Lynne	
8.	REFERENCES	106

LIST OF TABLES

<u>Table</u>	<u>Title</u>	<u>Page</u>
4.1	Freeze Days for NOAA Stations at the 1-in-7 Freeze Probability Levels, St. Johns River Water Management District	8
4.2	Break Down of Frost and Freeze Allocations in Consumptive Use Permits by Crop, St. Johns River Water Management District, 1990	10
5.1	Irrigation Water Use With Current Technology Assuming 2-in-10 Drought and 1-in-7 Freeze Conditions, Under Varying Assumptions About Pasture Irrigation, 1990 Projected Acreage, St. Johns River Water Management District	15

LIST OF APPENDIX TABLES

<u>Table</u>	<u>Title</u>	<u>Page</u>
7.1.1	Cropping Sequences Common to the St. Johns River Water Management District	38
7.1.2	Proportion of Acreage in Each Crop, St. Johns River Water Management District, 1988	39
7.1.3	Classification of Counties by Zone, St. Johns River Water Management District	42
7.1.4	Water Use for Frost and Freeze Protection for CUP Acreage, 1990, St. Johns River Water Management District (in Millions of Gallons per Year, mgy)	43
7.1.5	Freeze Days and Associated NOAA Station for Counties, St. Johns River Water Management District	44
7.1.6	Projected Annual Water Use for CUP Acreage After Incorporating Multiple Crop, Frost, and Freeze Water Use, St. Johns River Water Management District, 1990	45
7.4.1	Projected Agricultural Water Use for 1990 CUP Acreage Under Current Irrigation Technology, Assuming 2-in-10 Drought and 1-in-7 Freeze Conditions, St. Johns River Water Management District (in Millions of Gallons)	50
7.4.2	Projected Agricultural Water Use for 1990 CUP Acreage Under Best Management Practices, Assuming 2-in-10 Drought and 1-in-7 Freeze Conditions, St. Johns River Water Management District (in Millions of Gallons)	54
7.4.3	Projected Agricultural Water Use for Annual Water Use Survey Acreage Under Current Irrigation Technology, Assuming 2-in-10 Drought and 1-in-7 Freeze Conditions, Unadjusted Base, St. Johns River Water Management District, 1990, 1995, 2010 (in Millions of Gallons)	58
7.4.4	Projected Agricultural Water Use for Annual Water Use Survey Acreage Under Best Management Conditions, Assuming 2-in-10 Drought and 1-in-7 Freeze Conditions, Unadjusted Base, St. Johns River Water Management District, 1990, 1995, 2010 (in Millions of Gallons)	76
7.4.5	Adjusted Base Agricultural Water Use Projections for Annual Water Use Survey Acreage, Assuming 2-in-10 Drought Conditions, St. Johns River Water Management District, 1990, 1995, 2010 (in Millions of Gallons)	94
7.4.6	Projected and Permitted Water Use Comparison, 1990 Acreage, St. Johns River Water Management District (in Millions of Gallons)	95
7.6.1	Irrigated Acreage Comparison, Land Use Projection with CUP Data, St. Johns River Water Management District, 1990	96
7.6.2	Irrigated Acreage Comparison, Land Use Projection with CUP Data, St. Johns River Water Management District, 1990	98

LIST OF FIGURES

<u>Figure</u>	<u>Title</u>	<u>Page</u>
4.1	Water use for citrus from Benchmark Farm data, St. Johns River Water Management District, 1982-1989 (in gallons per acre)	7
4.2	Water use for cut foliage from Benchmark Farm data, St. Johns River Water Management District, 1982-1990 (in gallons per acre)	7
5.3	Projected water use under current and best management practice (BMP) irrigation technology, assuming 2-in-10 drought and 1-in-7 freeze conditions, St. Johns River Water Management District, 1990, 1995 and 2010	16
5.4	Projected water use under current and best management practice (BMP) irrigation technology, assuming 2-in-10 drought and 1-in-7 freeze conditions, St. Johns River Water Management District, 1990 and 1995	17
5.5	Projected water use under current and best management practice (BMP) irrigation technology, assuming 2-in-10 drought conditions and 1-in-7 freeze conditions, St. Johns River Water Management District, 1990 and 2010	17
5.6	Projected savings in water use under best management practice (BMP) irrigation technology, assuming 2-in-10 drought and 1-in-7 freeze conditions, St. Johns River Water Management District	18
5.7	Projected water use under current technology, 2010	20
5.8	Projected water use under BMP technology, 2010	21

Appendix Figures

7.3.1	Demand (D_{wat}), grower supply costs (S_{wat}), and social supply costs (S'_{wat}) for effective water in agricultural irrigation	103
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EXECUTIVE SUMMARY

This Supplement presents improved projections of agricultural water use using the same general procedure developed in the original report by Lynne and Kiker (1991). The Supplement addresses the impact of multiple cropping, frost protection, and freeze protection on projected agricultural water use in the St. Johns River Water Management District. It also incorporates changes in border counties with other water districts, updates in the District consumptive use permit data base, and latest acreage estimates. The District is continually improving estimates of agricultural water use for the Water Supply Needs and Sources Assessment as a part of the District Water Management Plan as established in State water policy (Chapter 17-40, Florida Administrative Code).

Multiple cropping systems include the simple cases where more than one crop is grown on the farm at the same time, called a simultaneous system. More complex simultaneous systems involve staggered planting, where the same type of crop may be planted at several times during a growing period. At any time, several tracts on the same farm are planted, all with different harvest dates. Sequential cropping systems add some additional complexity. In such systems, the same tract of land will be first used for one type of crop, and then planted to another crop, and possibly even a third type of crop all in a sequence. Sequential planting has the impact of doubling or even tripling the irrigated acreage during a year. That is, irrigated acreage can be 2-3 times the physically available acreage on the farm.

The frost and freeze protection water use projection depends upon the probability of an event of a certain duration. The approach herein follows methods used by the District. An event is defined by temperature dropping to at least 32° at anytime during a day with a probability of 1-in-7. As expected, the Benchmark Farm Survey data suggests the bulk of the frost and freeze water use is in December, January, and February: projections are made for these three months. With the 1-in-7 definition, there are 18 events during this period at Deland, Florida, for example. Water use is calculated assuming 8-hours of pumping per day for each of the events. Typical pumping capacities are included in the projections.

As in Lynne and Kiker (1991), water use is first estimated for each crop, irrigation system, soil type, and climate zone combination based on the acreage reported for each type of crop in each county in the Consumptive Use Permit (CUP) data base. The AFSIRS model is used to estimate per acre water use under a 2-in-10 drought event. A per acre water use coefficient is then calculated for each crop in each county. The coefficient is multiplied times the projected acreage, which in most counties, is based on the District's Annual Water Use Survey reports.

Accounting for multiple crops and improvements in the CUP data base increased the irrigated acreage in the CUP data base from 275,884 to 322,258 acres. The CUP data base still suggests less acreage than the estimated 1990 base acreage of 358,935 acres which was developed using the

Annual Water Use Survey reports. The CUP data base also suggests about 12 percent less water permitted than estimated in 1990. The differences could not be reconciled, suggesting areas for further study.

The revised water use estimate for 1990 is 231 billion gallons per year (bg) or 25 acre inches on average over all irrigated agricultural acres. By 2010, agricultural irrigation water use increases to 247 bg (25 acre inches on average) under current technology or decreases to 178 bg (19 acre inches) under best management technology. Both 2010 projections are lower than originally estimated.

The rate of increase over the 1990 base, however, is greater in the revised estimates. Originally, it was projected that agricultural use would increase less than 1-percent from 1990 to 2010 under current technology. The revised projections suggest a 7-percent increase under current technology by 2010. Also, the revised estimates suggest a 23 percent drop from the 1990 base with a shift to best management practices, as compared to a 28 percent drop in the original report.

The distribution of the water use throughout the year changed. The revisions suggest relatively more water use in the fall and winter months with less in the spring and summer. The greatest use based on 1990 acreage still occurs in May at 36 billion gallons (bg). August is now the projected lowest use month in 1990 at 11 bg as compared to December in the original report. Distribution across counties did not change significantly, although Okeechobee and Flagler Counties did drop to a lower classification, and Indian River remained in a higher classification.

The problems encountered in revising the projections point even more strongly to the need to gain more understanding of on-farm water management, irrigation costs, and factors affecting irrigation technology changes. The economic and other motivating forces at work in influencing grower actions and behavior, and thus, technology adoption and irrigation water use, have not been systematically studied and documented in Florida. This knowledge is needed in order to improve land and water use projections. Projections entail projecting managerial behavior in the use of water.

Specific areas needing consideration include 1) improving land and water use data bases and projection methods, 2) detailed assessments of data bases and analytical systems in areas with inadequate water to meet 2010 demands, 3) improving understanding of grower water management strategies, irrigation costs, and technology adoption strategies, and 4) continued discussions and research about alternative approaches for allocating water. Water issues in Florida's maturing water economy have become complex social, political, and economic phenomena, in addition to technical phenomena. A social science research program to supplement and complement continued study and research of physical, engineering, and biological issues related to water is needed.

1 INTRODUCTION

Gary D. Lynne and Clyde F. Kiker

The St. Johns River Water Management District is engaged in an ongoing effort to improve estimates of agricultural water use for the Water Supply Needs and Sources Assessment as a part of the District Water Management Plan as established in state water policy (Chapter 17-40, Florida Administrative Code). This Supplement presents an improvement on the water use estimates provided in the original study (see Lynne and Kiker, 1991).

In the original study, estimates could not be made to account for the fact that multiple crops are often grown on the same agricultural land during any given year. Rather, the total irrigated acreage reported on any given permit in the Consumptive Use Permit (CUP) data base was divided equally among all withdrawal points and all crops. This Supplement addresses the multiple cropping problem directly and provides a more realistic estimate of water use in such situations. Additionally, acreage estimates for vegetables and projections for citrus were revised based on information which became available in late 1991 and early 1992.

Insufficient information was available at the time of the original study to allow incorporating frost and freeze water use estimates into the data bases and projections. This Supplement includes a projection of water use for frost and freeze protection. Information was not available, however, for ascertaining the amount of irrigation water pumped from four inch wells.

2 AGRICULTURAL WATER USE FROM FOUR INCH WELLS

William G. Boggess

It was not possible to complete Task "a" of the Scope of Work entitled "use District furnished Land Use Maps, Consumptive Use Permit Files, Well Completion Report Files, and Overlay Maps.. estimate the quantity of agricultural water use obtained from wells 4 inches and smaller, and discuss the significance of this quantity in relation to the overall agricultural water use." Inconsistencies and inaccuracies in some of the data bases prevented the District from being able to provide the required data and overlay maps. District personnel can provide an assessment of whether or not the data problems can be solved.

3 CONSIDERATIONS IN ESTIMATING ACREAGE AND WATER USE UNDER MULTIPLE CROPPING SYSTEMS

Cynthia Moore, Michael Martin, and Gary D. Lynne

Multiple cropping systems are defined for the purposes of this study as all systems that include more than one crop on a farm, but especially including cases where the same acre may be used more than once. The system is described in the CUP data base in the field "Proj_desc". Both sequential and simultaneous multiple cropping systems are represented in that data base.

Crops included in a multiple crop system may be sequential (also called relay cropping, e.g., cabbage-corn-potatoes sequence) on the same acre. There may also be several plantings of the same crop in sequence. Such systems are referred to as sequential systems.

Another system is the simultaneous system, which takes two forms. First, the planting dates may be staggered for the same crop, with planting sometimes done every few days, in order to better utilize labor and machinery resources and to have product available for harvest over a market window period. This has the effect of spreading water use over a longer period of time. Second, a simultaneous system may involve several different kinds of crops all grown during the same time period on the same farm but on different tracts of land (e.g., citrus and pasture).

Some permits in the CUP data base have a mixture of the sequential and simultaneous systems. For example, various vegetables may be sequentially grown with other vegetables, and possibly with strawberries, and some of the vegetables may be planted several times at spaced planting intervals, while all of these crops may be simultaneously grown with citrus.

The net effect of multiple cropping systems on irrigated acreage and on irrigation water demand depends on whether the system is predominantly sequential or simultaneous. Sequencing of crops has the effect of doubling or even tripling crop acreage and water use for irrigation. Total irrigated acreage is greater than the physical amount of land under irrigation. Water use on a particular tract of land may be spread over several months even though the planting to harvest time for a particular crop grown on that land during that period may be only a few weeks.

As a result, in the revised CUP data base and estimates related thereto total irrigated acreage is now the total amount of acreage irrigated during the year which may be more than the total number of acres available for cropping for that year. The total, annual irrigated acreage based on the CUP data base is now more comparable with the harvested acreage in any given year.

3.1 Proportionate Acreage, Cropping Sequences, Planting Dates, and Representative Water Use Periods

The actual acreage planted to each crop at any particular point in time is not reported in the CUP data base. Some assumptions and adjustments had to be made.

For the sequential cases, it was assumed that all of the irrigated acreage was used for each crop grown in the sequence. The county extension offices were used as the main information sources for the kinds of crops planted in sequence.

For the simultaneous cases, it was assumed that the proportion of total irrigated acreage in each of the crops listed for a single permit holder was identical to the proportion of total harvested acreage for the county as a whole. Proportionate irrigated crop acreage at the county level was obtained from the District 1988 Annual Water Use Survey (Florence, 1990). The original county level land use projections of harvested acreage (Section 4 in Lynne and Kiker, 1991) showed small changes in land use proportions over the years. Therefore, the use of the 1988 county data seems justified, even for the more current permits.

In the case of staggered planting, an assumption had to be made about a representative planting to harvest period within the longer crop growing period. Water use was estimated for a representative water use period corresponding to the number of days for one planting to harvest interval within this broader window. The effect is a slight temporal distortion, due to concentration of the total water use for a given crop within a restricted time period. In reality the water use would be spread out over a longer period of time, but at a lesser intensity.

A specific example of the stagger planting case is that for potatoes. The Vegetable Summary 1986-87 (Florida Agricultural Statistics Service, 1988) describes usual planting dates spanning from September 15 through March 1, with most of the harvest occurring during the period February 1 through June 1. Days to harvest specified in the Vegetable Gardening Guide (Stevens et al., 1987) run from 85 to 110. Thus, some acreage is planted as early as September 15 and harvested at the end of the year. Other acreage will be planted as late as March 1 for harvest in May/June. Based on such publications and on conversations with county extension agents, a representative period of February 15 to May 23 for potatoes grown in the northern counties was selected. Such periods were selected for all the crops. The representative period for each crop is recorded in the crop codebook, Cropcode.

The assumptions and adjustments allow aggregate estimates of water use at the county level. For estimates at a smaller scale, more specific information would be needed to assure accurate reflection of farmers' actual water management practices.

Appendix Table 7.1.1 describes common cropping sequences in the District. Appendix Table 7.1.2 shows how acreage was divided among crops grown in the simultaneous systems.

Permits with multiple crops redefined in the data base for sequencing or simultaneous cropping are identifiable by two new fields, SR and SC. The field SR, which assigns a "Season-Region" code to select crops, was used to associate regional or seasonal specific planting to harvest dates for crops in a crop sequence. This code is also appended to the cropcode where the original crop description contained multiple crops typically planted in a sequence.

For example, in a potato-corn-cabbage sequence in Putnam county, the crop codes would be as follows:

- Potatoes 46 SN
- Corn 29 UN
- Cabbage 23 WN

The first character code refers to the planting to harvest season, where S denotes Spring, U denotes Summer and W denotes a Fall/Winter crop. The second code refers to Region, or the geographic location of the county, identified in the Field ZONE in the data base Wd_Desc. Counties in Zone 1 and 2 are classified as Northern (N), whereas counties in Zone 3 are classified as Southern (S). County zonation was based on the map of Vegetable producing areas in Florida, found in Vegetable Summary, 1986-87 (Florida Agricultural Statistics Service, 1988). County zone classification is found in Appendix Table 7.1.3. Observations where the crop is derived from a multiple crop simultaneous system are identified by the code "P" for proportionate, in the field SC.

3.2 Accessing the Data Base for the Multiple Crop Investigation

To extract only the permits with multiple crop systems from the completed data bases (WD_Desc, WD_Afsir), it was simplest to return to the original CUP data base, Projdesc. The crop field (proj_desc) was coded using the Cropcode file, which contains codes for single crop systems only. Using this procedure, all permits with multiple crops (i.e., no cropcode for the crop field) were extracted into a separate file. All records for these permits in WD_Desc and WD_Afsir were flagged.

Using the crop sequences and crop acreage proportions outlined below for each county, the permits were redefined with several lines of data describing each component of the cropping pattern. The data was eventually reintegrated into the base files for analysis, WD_Desc and WD_Afsir, replacing the original records for these permits. WD_BMP was completely recreated from WD_Afsir.

4 **CONSIDERATIONS IN ESTIMATING ACREAGE AND WATER USE FOR FROST AND FREEZE PROTECTION**

Frank Casey, Cynthia Moore, and Gary D. Lynne

The Scope of Work specifies "an estimation of the quantity of water used in frost and freeze protection and to discuss the significance of this quantity in terms of overall agricultural water use". The Benchmark Farm Survey data furnished by the District and other relevant data were to serve as the information base to carry-out this task. This section thus responds to two questions:

- o How much water does agriculture use for frost and freeze protection on an annual basis? This annual amount would then be projected to indicate future quantities of water use for frost and freeze protection for the years 1995 and 2010;
- o What proportion of total agricultural water use is and will be associated with frost and freeze protection?

The questions were addressed in the following manner. First, a baseline estimate of water use for frost and freeze protection is provided. The estimate is for the year 1990 and is based on data obtained from the CUP data base. Second, the estimate is incorporated into the current 1990 base calculation for total water use. Third, total crop water use accounting for both multiple crops and frost and freeze protection is provided for the years 1995 and 2010.

4.1 Information Available for Estimating Frost and Freeze Water Use

This section describes and evaluates information currently available to estimate water use for frost and freeze protection. Based on the evaluation a specific method for estimating water use for frost and freeze protection is developed.

4.1.1 Frost and Freeze Water Use Estimates from the Benchmark Farm Survey Data

The implicit assumption in the Scope of Work is that the Benchmark Farm Data is adequate for estimating and projecting water use for frost and freeze protection. The sample survey design for the estimation of agricultural water use is quite rigorous with respect to taking into account the variety of crop-irrigation system combinations in the District (See Portier, 1988). Although the data from the Benchmark Farm Survey program are useful, estimating water quantities for frost and freeze protection from this data base was not possible at the time of this study.

An attempt was made to make inter-year comparisons of water use estimates from the Benchmark Survey for specific crops across the District. For example, Figures 4.1 and 4.2 show monthly total water use for the citrus and cut foliage, which use the majority of water for frost and freeze protection. Peaks were observed in the data for the months of December, January, and February, the three coldest months in which water would be used for frost and freeze protection.

All that can be inferred from the occurrence of peaks is that water use is relatively higher in the three coldest months. It can be guessed that increased water use during the colder years is due to use for frost and freeze protection. It is also possible, however, that annual amounts of water used over the survey period have been influenced by changes in irrigated acreage and irrigation systems. Because changes in irrigated acreage and irrigation systems are decisions which are not only technical decisions but economic (behavioral) as well, understanding frost and freeze water use requires knowing more about the economic forces at work.

4.1.2 Frost and Freeze Water Use Estimates from the CUP Data

Water for frost and freeze protection is allocated by the District as a separate amount in the CUP. The District calculates annual water use for frost and freeze protection for each applicant requesting such water use. The resulting estimate becomes a condition of the permit and is valid for the duration of the permit (generally seven years). The method used by the District to estimate frost and freeze water use involves several steps.¹

The first step entails identifying the geographic location of the farm permitted for frost and freeze protection and associating the farm with one of nine NOAA weather stations located in the District. For each weather station the District has used from 50 to 100 years of weather data depending on the station to determine the number of freeze events (days) per year. A freeze event is defined as reaching a temperature of 32°F or less within a 24-hour period. For example, if the temperature was 32°F at 4:00 AM, but the temperature rose to 60°F during the day, that day would still be considered a freeze event. A regression analysis on the temperature data suggests the probability of such a freeze event at 1-in-7 years.² Notably, frost protection may be needed more frequently. Frost could be a problem for cut foliage, for example, with temperatures as high as 38° or 39°. Water use for such frost events was not calculated herein.

¹The description of this methodology is based on conversations with Rick Levin and Larry Lee of the District's Department of Resource Management.

²Based on information provided by the District.

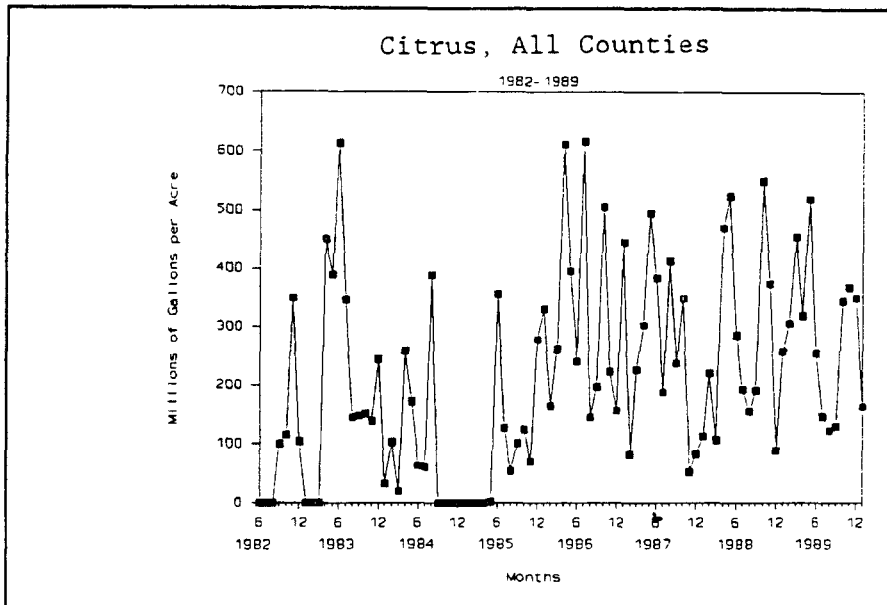


Figure 4.1. Water use for citrus from Benchmark Farm data, St. Johns River Water Management District, 1982-1989 (in millions of gallons per acre).

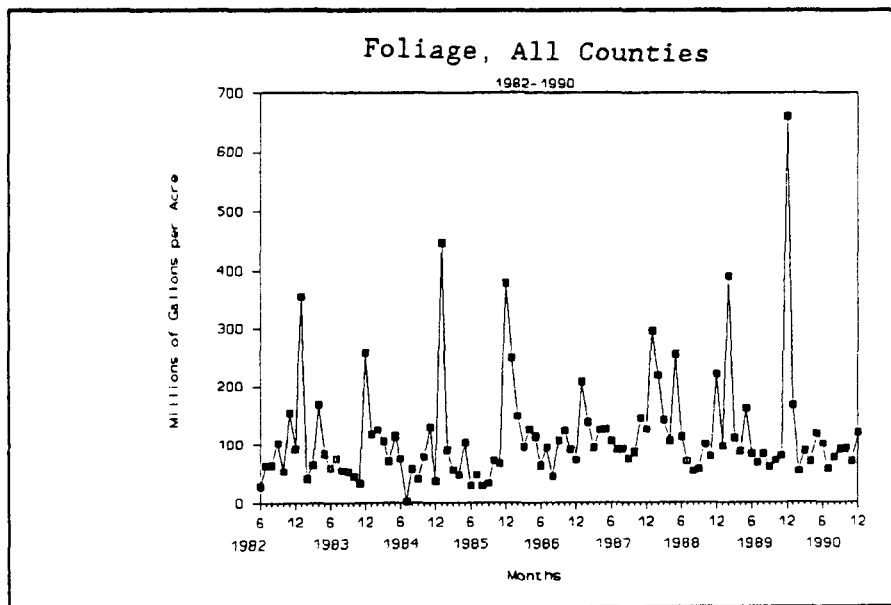


Figure 4.2. Water use for cut foliage from Benchmark Farm data, St. Johns River Water Management District, 1982-1990 (in millions of gallons per acre).

The number of annual freeze days has been calculated for each of the eight NOAA weather stations. The freeze scenario for each NOAA weather station is the basis for determining the number of freeze days that a grower will be allowed to use water for freeze protection. The NOAA stations and the number of freeze days for the 1-in-7 event are summarized in Table 4.1.

Table 4.1 Freeze Days for NOAA Stations at the 1-in-7 Freeze Probability Levels, St. Johns River Water Management District

Station	Freeze Days
Gainesville	23.0
Jacksonville	23.0
Ocala	18.0
Deland	17.6
St. Augustine	15.2
Clermont	6.6
Orlando	5.6
Melbourne	4.4

The second step entails determining the hours of pumping. For each freeze day the District assumes an 8-hour pumping period for freeze protection.

In the third step, for each type of irrigation system, a pumping capacity is calculated in gallons/minute/acre. The capacity of the system determines how much is pumped per minute. The irrigation system information for this calculation comes from the CUP. Thus, 8-hours X 60 minutes X the outflow capacity of the pump (in gallons/minute/acre) represents the number of gallons/day/acre that are allowed for frost and freeze protection. The result is then multiplied by the estimated number of annual freeze days and the total number of acres to get a total annual figure in million gallons per year (mgy) for each permit holder. It is assumed that the farmer maintains an adequate pumping system to deliver the water for frost and freeze protection.

For ferneries the District uses a standard water use figure for each of the two major types of fernery operation. For hammock ferneries the figure permitted for frost and freeze protection is 200 gallons/minute/acre. For shadehouse ferneries the figure is 150 gallons/minute/acre.

Since the District assumes 8-hours a day of pumping, the daily allotment per acre is 150 gallons/minute/acre X 480 minutes = 72,000 gallons/acre/day. Then, assuming that the fernery is closest to the

Deland NOAA weather station, the 1-in-7 freeze event is 17.6 days. Thus, 17.6 days X 72,000 gallons/acre/day gives 1.3 mgy per acre permitted.

4.2 Base Estimate of Water Use for Frost and Freeze Protection.

Appendix Table 7.1.4 shows the distribution of water use for frost and freeze by county and crop category for data drawn from the file WD_Desc. It is assumed that the majority of water use for frost and freeze protection is concentrated in the months December through February. January, being the month most likely to have the greatest number of severe freeze occurrences, is allotted 50 percent of the frost and freeze allotment. The remaining amount is divided equally between December and February (25% to each month). The largest concentrations for frost and freeze water use are in Indian River, Lake, and Marion County for citrus, and Volusia County for ornamentals (ferns) (Appendix Table 7.1.4).

The total amount of water currently permitted for frost and freeze protection based on the CUP data base is 29,814 millions of gallons per year (Table 4.2). Citrus accounts for about 60 percent of the water permitted for frost and freeze. Cut foliage and woody ornamentals account for about 30 percent of water for frost and freeze protection. Citrus and cut foliage, then, account for most of the frost and freeze allocation.

4.3 Incorporating Frost and Freeze Allocations into the Data Bases

Frost and freeze (FF) allocations for each permit were added to the data bases itemizing crop consumptive use (i.e., WD_Desc, WD_Afsir and WD_Bmp). The intermediary work files which were eventually merged into these files are named FF_Desc, FF_Afsirs, FF_Bmp.

Observations in the data bases concerning frost and freeze allocations are identifiable in two ways: the Use_Code is "FF", and the first character of the line identifier field, ID, is "F". This contrasts with an ID associated with crop consumptive water use, which is prefaced by a "C". This is a modification of the data base from that described in Lynne and Kiker (1991) in order to facilitate distinguishing between allocations for crop consumptive use and for frost and freeze. Note that the numeric string of the identifier of a frost and freeze allocation is identical to that of the first observation for each permit.

The total water allocated to a single permit (in million gallons per year, mgy) for frost and freeze is attributed to a single withdrawal point, generally the withdrawal point with the lowest identification number. The mgy allocation is taken directly from the CUP data file, with no modifications made for any of the parameters used in calculating frost and freeze allocations (i.e., number of frost and freeze days per year, pumping capacity, acres permitted for frost and freeze).

Table 4.2 Break Down of Frost and Freeze Allocations in Consumptive Use Permits by Crop, St. Johns River Water Management District, 1990

Crop Category	Crop	Number of Permits	Water Use (mgy/year)	Percent
Citrus	Oranges	1048	17729.26	59.47
Other Fruit	Blueberries	4	21.89	0.07
	Watermelons	1	7.60	0.03
Vegetables	Vegetables	1	106.00	0.36
Pasture	Rye Grass	1	1.44	0.00
Ornamentals	Plum Fern	586	8047.67	26.99
	Woody Ornamentals	63	737.62	2.47
	Trees	20	274.01	0.92
Sod/Turf	Sod, Trees	1	0.44	0.00
	Turf, Shrubs	1	63.10	0.21
Miscellaneous		104	2825.49	9.48
TOTAL		1830	29814.52	100.00

The actual area used in permitting for frost and freeze is not included in any of the CUP data bases. For some permits, apparently less than 100 percent of the area planted in a frost and freeze crop was used in the original calculations. In addition, there is no record of which NOAA station was used to determine the number of frost and freeze days in a year. The absence of these two parameters from the CUP data base makes an analysis of frost and freeze allocations difficult at best.

Because of these limitations in the CUP data bases, it was not possible to disaggregate CUP allocations for frost and freeze by crop for permits with multiple crops. Fortunately, permits in this category accounted for only 104 permits of a total of 1830. It would be useful to have a breakdown by crop in future data sets. Frost and freeze water use for these cases are grouped together in a single category referred to as "Miscellaneous FF" or "Miscellaneous Frost and Freeze" in the water use analyses under current technology conditions (see Appendix Tables 7.4.1 and 7.4.3 in Appendix 7.2. NOTE: ALL APPENDIX TABLES IN APPENDIX 7.2 retain the SAME identifying labels as used in Lynne and Kiker, 1991).

For frost and freeze water use analyses under best management practice (BMP) technology conditions, revised calculations were made for both multiple and single crop permits based upon the following:

1. 100 percent of the irrigated area is included in any frost and freeze activity.³
2. The only crops for which frost and freeze protection is used are citrus and cut foliage. Assuming best management irrigation practices, pumping capacities are:
 - o Citrus 45 gal/min/acre under micro spray
 - o Cut foliage 110 gal/min/acre⁴
3. For farms permitted for both cut foliage and citrus, proportionate crop acreage from the datafile WD_Desc is representative of irrigated area included in frost and freeze activities.
4. The annual number of freeze days for a county (assuming a 1-in-7 probability) corresponds to that from the nearest NOAA station. In case of ambiguity, the station with the highest mean number is used. Appendix Table 7.1.5 shows the NOAA station and annual number of freeze days associated with each county for this study.

³Phone discussion with Larry Lee, Department of Resource Management, St. Johns River Water Management District.

⁴This is a compromise between 100 gallons/minute/acre for shadehouse and 120 gallons/minute/acre for hammock. The CUP databases do not consistently distinguish between ferns grown under shadehouse or hammock.

5 REVISED ESTIMATES OF AGRICULTURAL WATER USE IN 1990, 1995, AND 2010

Gary D. Lynne and Cynthia Moore

Projections incorporating irrigation, multiple cropping, frost protection, freeze protection water use, and adjustments in counties bordering with other water management districts are provided for current and best management irrigation practices for 1990, 1995, and 2010. The conceptual and theoretical basis for projecting water use is discussed in Appendix 7.3.

5.1 Changes in Citrus Acreage Projections Due to Border County Breakdowns and Revised 1990 Acreage Estimates

Citrus acreage and water use projections were revised in four border counties - Polk, Marion, Orange, and Lake- wherein county citrus acreage is in more than one water management district. The revised estimates through 1990 are taken from Florida Agricultural Statistics Service (1991), which was distributed as a special publication in December, 1991, and updates the 1990 acreage and tree count published in the 1990 Commercial Citrus Inventory (Florida Agricultural Statistics, 1990). Citrus in these three counties was severely affected by the 1989 Christmas freeze.

The water management districts sharing land in the four counties agreed to use the FASS Citrus inventory reports as the basis for citrus acreage assessments, and assigned a percentage of the county total acreages to each water management district. The 1990 irrigated acreage in the District and percentage of total citrus acreage assigned to the District is:

County:	<u>Orange</u>	<u>Lake</u>	<u>Marion</u>	<u>Polk</u>
Irrigated Acreage	3,733	13,569	277	2119
% irrigated	100	100	100	85
% in District	44.4	97.2	100	2.5

Considerable replanting has occurred since the 1989 December freeze which caused heavy loss in the tree population in these counties. Additionally, planting densities have increased since the pre-1990 period, so that in some counties, such as Polk, acreage decreases from 1990 to 1991 are significantly higher than tree number decreases. (Recall that FASS counts are for the previous year, i.e. the 1990 count contains all acres in production as of December, 1989).

Because of the impact of the 1989 freeze, compounded by the 1985 freeze from which producers were only just beginning to recover, forecasting models of the type used in Lynne and Kiker (1991) could not be used to project replanting in these counties. The historical data upon which such models would be based show a steady decline in acreage since 1966, with only one exception in 1986 to 1988. Thus, projections for 1995

and 2010 were instead developed based on information provided by county extension staff⁵. In all cases, it is expected there will be continued replanting for several years, with 1984 acreages achieved by 2010.

Also, Orange county citrus water use continues to be affected by the ConservII project which uses recycled water from urban sewage. Currently roughly one-third of the acreage is under ConservII now, with 50-60 percent expected by 2010. Lake county is also involved in the project.

5.2 Changes in the CUP Acreages and Water Use Coefficients

Better estimates in the CUP data base along with accounting for the effect of multiple cropping and freeze protection affects the water use coefficient.

5.2.1 Changes in Orange County Vegetable Acreage from New Information

More information on permitted vegetable acreage in Orange County was made available in early 1992. Based on the new estimates, and accounting for double cropping, irrigated acreage was estimated at 32,343 acres as compared to 1,575 acres in the original report (Appendix Table 7.1.6).

5.2.2 Changes Due to Considering Multiple Cropping and Freeze Protection

Lynne and Kiker (1991) develop per acre water use coefficients for each crop in each county based on the CUP acreage, crop mix, soil type, location, and irrigation system type data, and then project total water use from the acreage projections based on the Annual Water Use Survey reports. Appendix Table 7.1.6 illustrates the impact on the per acre water use coefficient for each crop in each county from incorporating multiple crops and frost and freeze into the procedure. Generally, water use estimates did not change much, but some significant changes occurred in the acreage data.

First, CUP acreage increased by 46,374 acres from 275,884 to 322,258 acres. Recall that accounting for frost and freeze water use has no impact on acreage. The increase is due solely to more accurately accounting for acreage under multiple cropping, and due to the adjustments based on better information.

Second, the difference between projected and CUP acreage generally decreased for each crop in each county (see Appendix Tables 7.6.1 and 7.6.2 in Appendix 7.2). A better accounting for the multiple crops, and the improved acreage estimates, shows the CUP data base to now be more

⁵Personal communication with Mr. John L. Jackson, Extension Agent (citrus specialist) for Lake County, Mr. William J. Phillips, County Extension Director for Marion County, and Mr. Mark Hammond, Southwest Florida Water Management District.

similar to the Annual Water Use Survey data base. Some of the large differences between the CUP data base acreage and the Annual Water Use Survey were eliminated, although some differences still remain.

Third, per acre estimates of water use developed from the CUP data changed little, although frost and freeze water use has some impact. When only the addition of multiple cropping is considered, water use per acre based on the CUP data actually decreases from 1.05 mgy/acre (38.7 acre inches) to 0.96 mgy/acre (35.4 acre inches). This decrease in water use per acre is due mainly to shifting of acreage from crops with higher water demand like citrus to crops with lower demand like field crops in simultaneously grown multiple crops systems (see Appendix Table 7.6.1).

Introducing frost and freeze allocations increased the per acre water use coefficient used in the projections back to the original 1.05 mgy/acre (38.7 acre inches)(see Appendix Table 7.1.6). The impact of frost and freeze is temporal and restricted to the months December, January and February.

5.3 Base and Adjusted Base Projections

Appendix Tables 7.4.1 - 7.4.4 (numbers also in Lynne and Kiker, 1991) assume 100 percent of the pasture is irrigated. Lynne and Kiker (1991) argued that 10 percent of the pasture land would be irrigated as needed throughout the year under 2-in-10 year drought conditions, as assumed herein (see Table 5.1). In contrast, Florence (1992, unpublished draft) reported that 100 percent of the pasture would be irrigated but only in March, April, and May under 5-in-10 year drought conditions leading to quite different 1990 estimates. Although both sets of assumptions provide reasonable starting points, the differences suggest that further research is needed on this matter.

5.4 Revised Annual Water Use Estimates Under Current and Best Management Practice Irrigation Technology

Appendix Table 7.4.5 shows the adjusted base acreage and monthly water demand assuming only 10 percent of the pasture is actually irrigated in any given year under 2-in-10 drought conditions. Table 5.1 and Figures 5.3 - 5.6 (all based on Appendix Table 7.4.5 in Appendix 7.2) summarize the revised water use estimates.

The adjusted base water use is estimated for the base acreage in 1990 at 231.5 bgy (Table 5.1, Figure 5.3) as compared to 253.7 bgy in Lynne and Kiker (1991, Table 5.1, p. 5-9). Average per acre use for all crops in all counties remains nearly the same at 24.6 acre inches as compared to 25.4 acre inches. Again, recall all water estimates are for 2-in-10 drought conditions. Under current technology, water use increases by 7 percent to 247 bgy (Figure 5.3) by 2010. With a shift in technology use drops to 178 bgy overall and to 19.0 acre inches on average by 2010 (calculated from BMP projected use in Appendix Table 7.4.5) as compared to 18.2 acre inches in Lynne and Kiker (1991, p. 5-10, and Appendix Table 7.4.5). The projected drop is now 23 percent from 1990 use as compared to 28 percent in the earlier estimates.

Table 5.1 Irrigation Water Use With Current Technology Assuming 2-in-10 Drought and 1-in-7 Freeze Conditions, Under Varying Assumptions About Pasture Irrigation, 1990 Projected Acreage, St. Johns River Water Management District.

	Pasture Water Use	Other Crops Water Use	Base Water Use ^a (Pasture and Other Crops)	Average Water Use per Acre
	bgyc	bgyc	bgyc	Acre Inches
Pasture (100% ^b)	202.2	211.3	413.5	44.0
Pasture (10% ^b)	20.2	211.3	231.5	24.6

^aBased on 346,235 irrigated acres out of the 358,935 acres projected for 1990, from the Annual Water Use Survey Acreage.

^bPercent of improved pasture receiving irrigation water.

^cBillion gallons per year.

Overall projected water use under both current and BMP technology for 1995 and 2010, then, is slightly lower (compare Figure 5.3 here and in Lynne and Kiker, 1991, p. 5-11). The distribution of the use within a year, however, shows more change.

5.5 Distribution of Water Use Within a Year

The revised water use estimates suggest a substantial increase of the water use in December, January, and February, the three coldest months (compare the original Figures 5.4 and 5.5 in Lynne and Kiker, 1991 to Figures 5.4 and 5.5 herein, or Appendix Table 7.4.5, in both reports). Also, the revised estimates suggest more water used in the fall and winter months with less in the spring and summer months. Water use is still the highest in May at 36 bg for the base acreage in 1990 as compared to 52 bg in Lynne and Kiker (1991, Appendix Table 7.4.5). The lowest water using month is now August at 11 bg rather than December at 8 bg in the original estimates.

More accurately representing actual planting/harvest periods over the entire growing period rather than choosing representative planting to harvesting dates would likely smooth the curves in Figures 5.4 and 5.5 even more. Accounting for staggered planting will spread the water use within the spring months and within the fall months. The same accounting could also cause some shift in projected water use from the months of heavy May and June use periods to lighter use in November through March, reflecting staggered plantings of potatoes, cabbage and watermelons in particular.

The distribution of percentage declines in moving to BMP technology are virtually unchanged from the original estimates (compare Figure 5.6 to Lynne and Kiker, 1991, Figure 5.6, p. 5-14). Absolute declines, however, changed significantly. In the original, declines ranged from about 18 to almost 50 percent (Lynne and Kiker, 1991, Figure 5.6, p. 5-14). In Figure 5.6, the declines range from about 11 to 42 percent. The greatest percentage decline from BMP technology occurs in August and September at

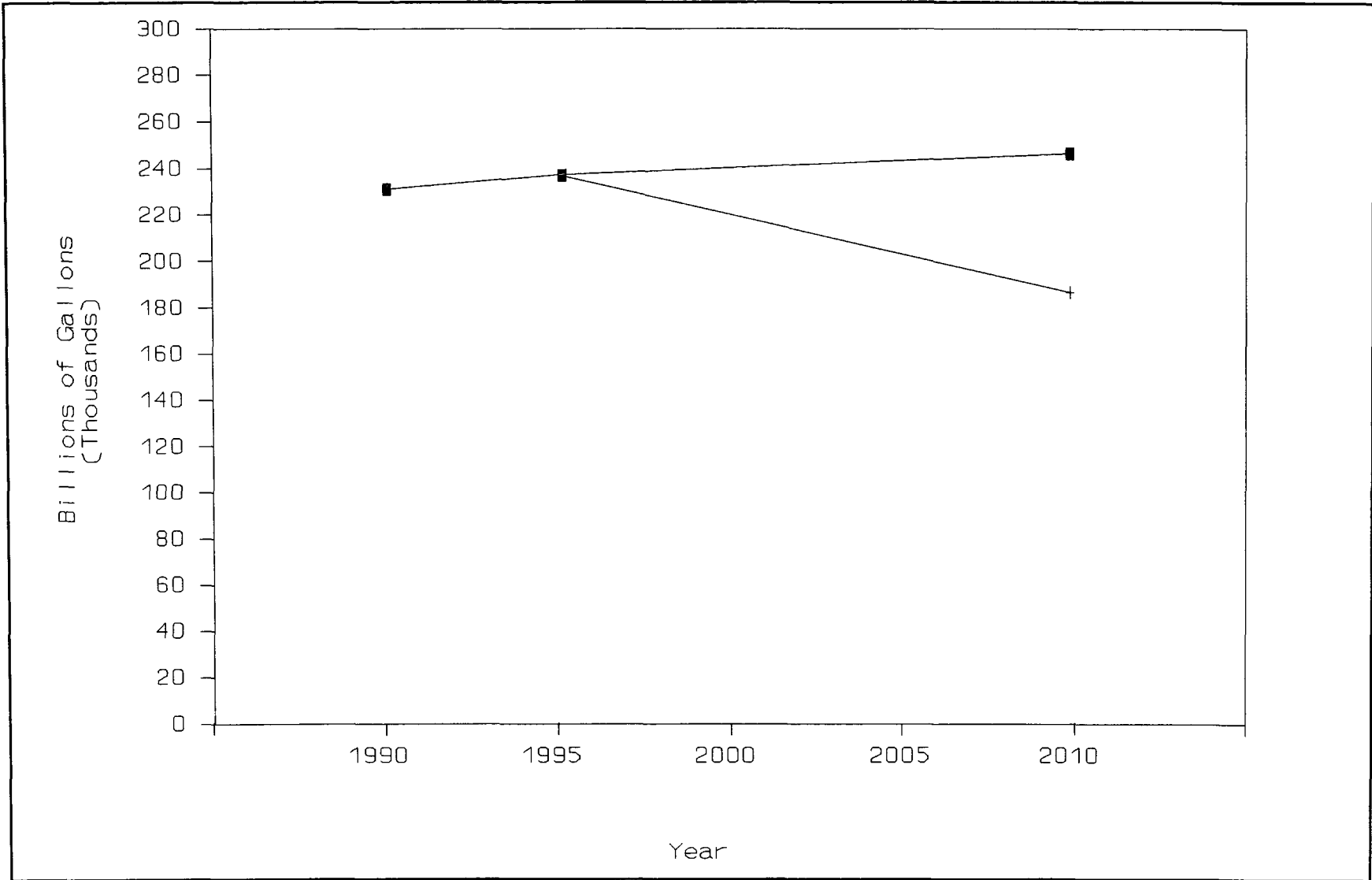


Figure 5.3 Projected water use under current and best management practice (BMP) irrigation technology, assuming 2-in-10 drought and 1-in-7 freeze conditions, St. Johns River Water Management District, 1990, 1995 and 2010.

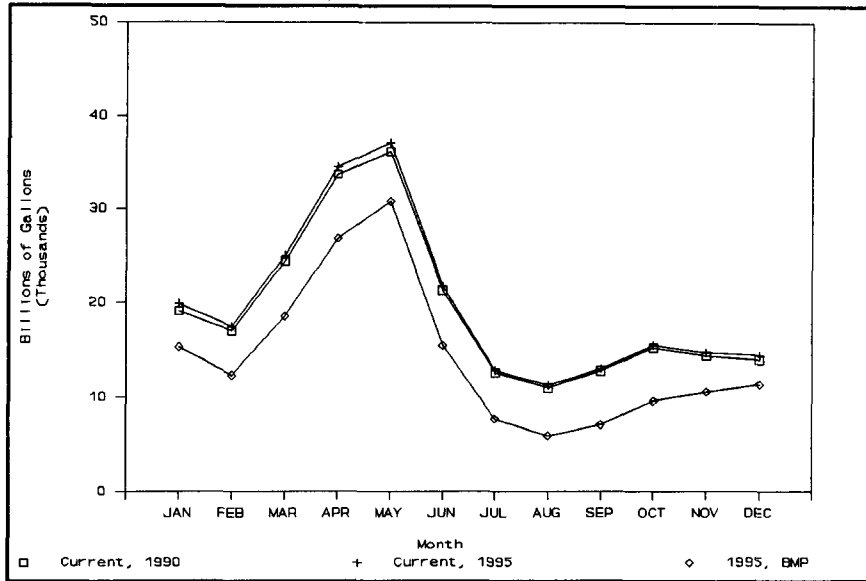


Figure 5.4 Projected water use under current and best management practice (BMP) irrigation technology, assuming 2-in-10 drought and 1-in-7 freeze conditions, St. Johns River Water Management District, 1990 and 1995.

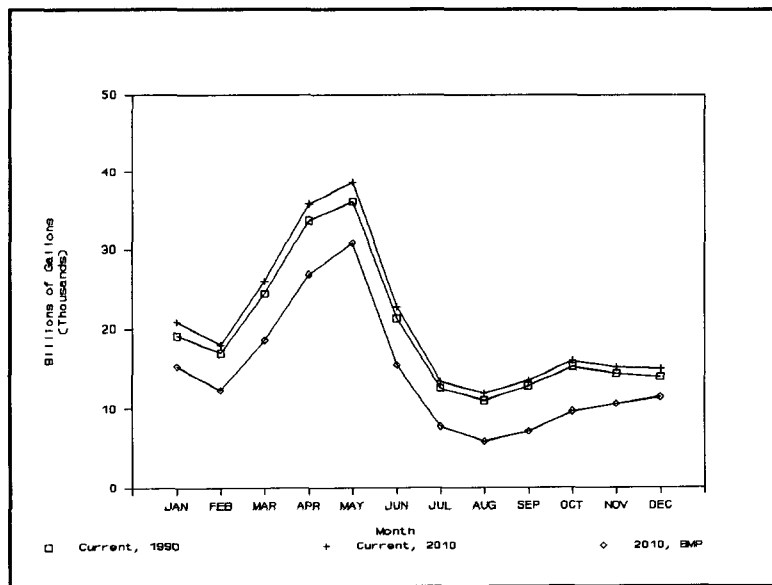


Figure 5.5 Projected water use under current and best management practice (BMP) irrigation technology, assuming 2-in-10 drought and 1-in-7 freeze conditions, St. Johns River Water Management District, 1990 and 2010.

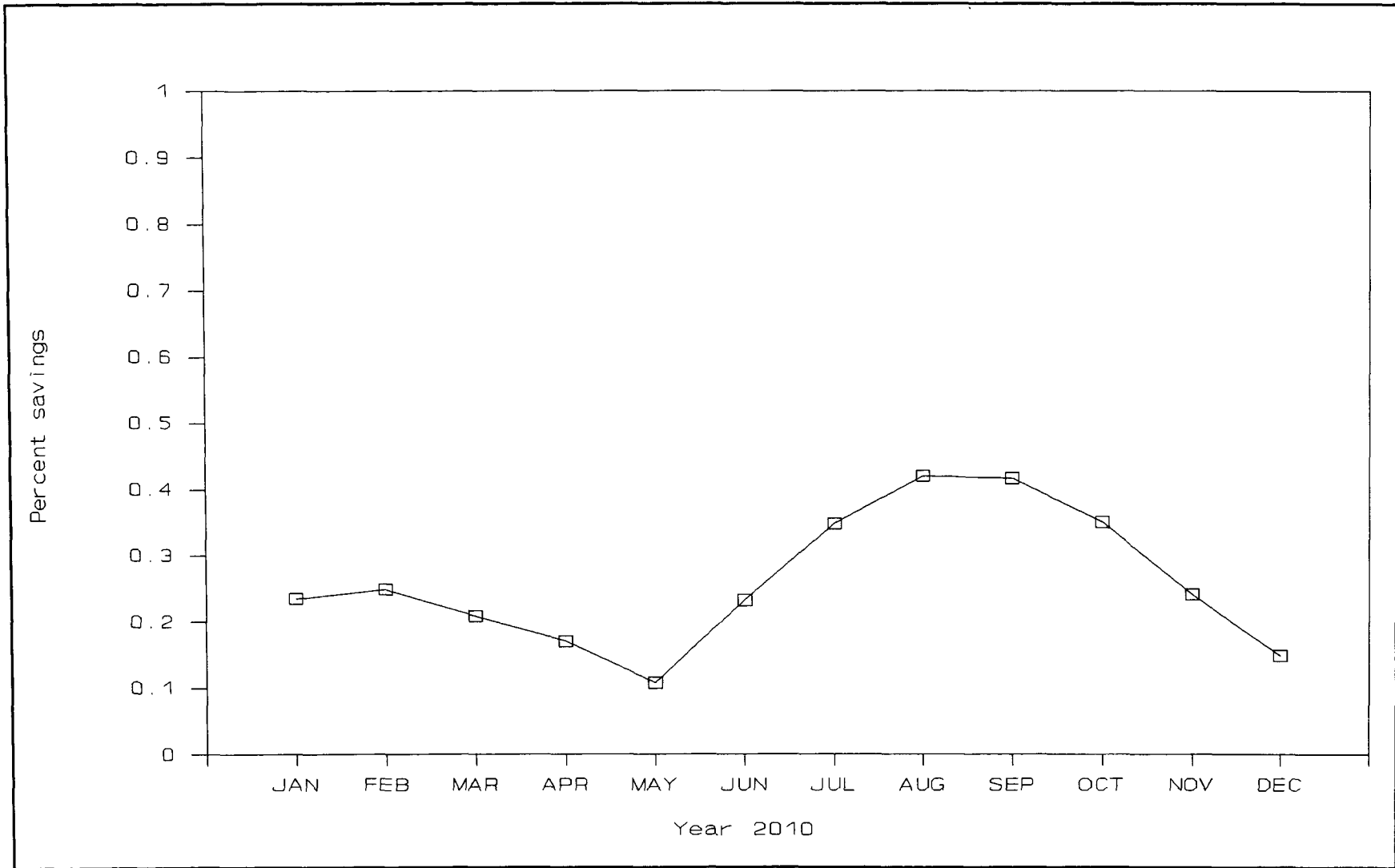


Figure 5.6 Projected savings in water use under best management technology, St. John's River Water Management District.

42 percent and the lowest in May at 11 percent. Importantly, May is also the month of highest irrigation water use. Adding frost/freeze estimates also caused somewhat less decline in December, January, and February.

5.6 Distribution of Water Use Across the District

In comparing county water use (Figures 5.7 and 5.8 compared to Figures 5.7 and 5.8 in Lynne and Kiker, 1991, pp. 5-15 and 5-16), only Polk changes classification under conditions of current technology. Under best management practice irrigation technology, Okeechobee and Flagler each move down one classification. Indian River remains in the >50 bgy category rather than dropping a classification.

5.7 Comparing Projected Water Use With Permitted Water Use

The adjusted base estimate of water use (10 percent of the pasture irrigated) compared to the permitted quantities of water still suggests considerable variation (Appendix Table 7.4.6). Only Alachua and Orange Counties now show estimates within +/- 10 percent, as compared to only Lake County in Lynne and Kiker (1991, Appendix Table 7.4.6, p. 7-70). Large differences persist in several counties, suggesting areas for further exploration and research. On average, the projected water use for the District is about 12 percent higher than the permitted water use.

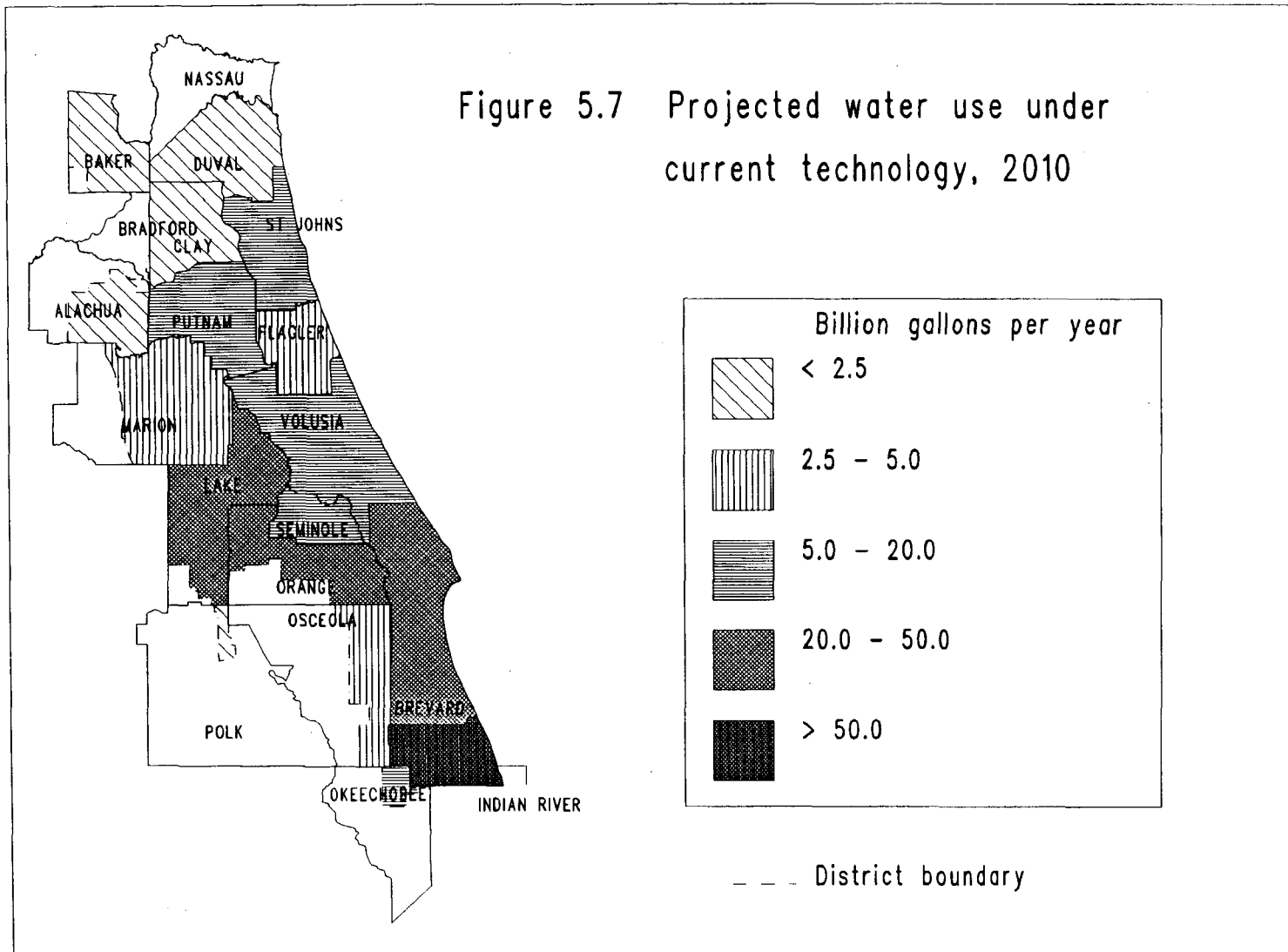
5.8 Other Agricultural Water Use in 1990, 1995, and 2010

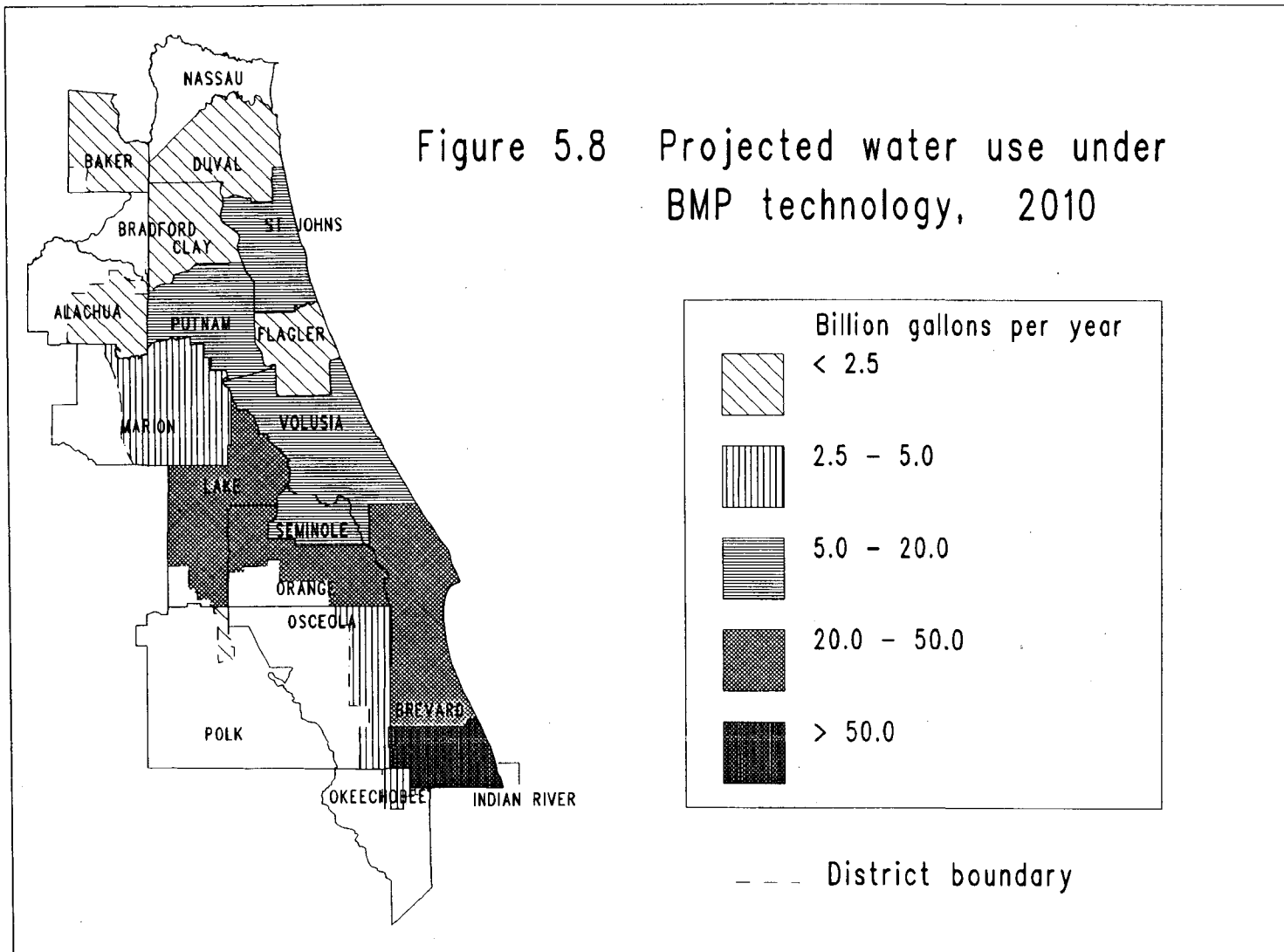
The revised estimates still do not include some agricultural water uses. Livestock uses (e.g., dairies) are not included. Also, some water is used to implement various cultural practices (e.g., fertigation).

5.9 Summary and Limitations of the Water Use Projection Approach

Better accounting for the multiple cropping, including the frost and freeze water use, and using the acreage estimates that became available in late 1991/early 1992, all led to improved estimates of the temporal distribution of the water use over the year. Further improvements are still possible by moving away from using representative water use periods within the growing (market window) periods and by obtaining from permit holders actual acreage for crops and withdrawal points. Also, the frost and freeze projections are still lacking because of imprecise or incomplete attribute description in the data bases. The acreage base for frost and freeze allocations of each crop and NOAA station or number of freeze days used in calculations need to be recorded with the data base to permit reevaluation of estimates. Other limitations highlighted in Lynne and Kiker (1991, Section 5.7, pp. 5-18 to 5-20) still apply, although accuracy has been improved by better handling of multiple crop, frost, and freeze water use.

Figure 5.7 Projected water use under current technology, 2010





Some improvements could still be made in the frost and freeze protection water estimates. First, given the recent history of freeze events in the District (i.e. there were five serious freezes in the ten-year period of 1980-1990), the District might consider going to more frequent events than 1-in-7.⁶ Second, the NOAA data base has hourly temperature data. It may be more appropriate to use the hourly data instead of freeze-days to estimate the frequency of freeze events.

Third, refinements could be made in the citrus water use estimates. The 32°F cut-off for determining a freeze event is higher than the 28°F freezing temperature which adversely affects citrus. Thus, the estimated water use for citrus may be somewhat higher than actual use. Even if 32°F occurs only briefly during a 24-hour period, that day is considered a freeze day. Consequently, the procedure likely overestimates the number of days a producer may actually need water for frost and freeze. The likely overestimate is partially offset in two ways. First, the assumption of 8-hours of pumping per day may be more than sufficient on some days. Second, given the recent increase in the frequency of freezes, citrus growers have probably used more water than the 1-in-7 freeze scenario has predicted.

Fourth, for cut foliage the CUP estimates for frost and freeze protection may underestimate the water requirements.⁷ The temperature data used for determining a frost or freeze event are recorded in the warmer urban areas. Cut foliage operations (as are citrus groves) are located in rural areas where temperatures are colder. Also, the NOAA devices for measuring temperatures are located 5 feet from the surface, which is warmer than ground level temperatures where foliage is grown. Additionally, estimating water requirements for frost and freeze should incorporate the probability of a radiation freeze. A radiation freeze or frost (Ingram and Yeager, undated) "occurs on calm, clear nights when heat radiates from the surfaces of objects into the environment. These surfaces can become colder than the air above them due to this rapid loss of heat or long wave radiation. When the air is moist, a radiant freeze results in deposits of ice or frost on surfaces. Dry radiational freezes leave no ice deposits but can cause freeze damage". As a result, growers are likely to begin sprinkling at higher dry bulb temperatures and use more water than estimated. For these reasons cut foliage growers may require more water than currently permitted in the CUP.

The amount of water currently permitted by the District for frost and freeze protection is thus a high-end estimate of what a producer may

⁶This recommendation is based on discussions with Dr. Robert H. Stamps, Central Florida Research and Education Center, Apopka, and Drs. John Gerber and J.D. Martsolf of the Fruit Crops Department, all in the Institute of Food and Agricultural Sciences, University of Florida.

⁷These comments are based on discussions with Dr. Robert H. Stamps, Central Florida Research and Education Center, Apopka, Institute of Food And Agricultural Sciences, University of Florida.

actually use for citrus and a low-end estimate for cut foliage. Nonetheless, the estimated amount for frost and freeze protection on the CUP are currently the only reasonable figures available for the base case.

Future studies might also consider that frost events appear to be occurring on a different basis and should also be analyzed. Economic research information is lacking on which probability may be more appropriate, for both frost and freeze events (which is also a problem with the 2-in-10 probability event chosen for crop irrigation use).

6 DISCUSSION AND RECOMMENDATIONS

Gary D. Lynne and Clyde Kiker (with contributions from William G. Boggess, Frank Casey, Cynthia Moore, Michael Martin, Timothy Taylor, and John Reynolds)

Recommendations in Section 6 of Lynne and Kiker (1991) remain appropriate. Section 6.1 presents an overview of the additional recommendations. The remaining Sections elaborate on the recommendations.

6.1 Overview: Areas for Joint Effort Between the District and FRED During 1991-1992

Both the District and FRED are publically funded entities. Both have expertise appropriate to identifying water issues, clarifying water problems, and finding solutions. Water issues are becoming increasingly economic as well as technical in nature. It is likely the public interest will be well served by a regular working relationship between the District and FRED with the goal of improving understanding of the issues. General issues in four areas are discussed in Sections 6.1.1 to 6.1.4, while detailed recommendations pertaining to the four areas are presented in Sections 6.2 - 6.5, respectively.

6.1.1 Improving Land and Water Use Data and Projection Methods

The main concern expressed at two water management district meetings (meeting of all water districts on October 11, 1991 in Kissimmee, and the meeting of the District and the FRED project team on October 21, 1991, in Palatka) has been over agricultural acreage estimates and acreage projection methods. As addressed herein, the methods do need improvement. The CUP data base, for example, suggests 322,258 irrigated acres as compared to 358,935 acres based on the District's Annual Water Use Survey reports and other sources. County level data shows even greater variability. Due to lack of information, projections could only be made for 346,235 acres.

The overall recommendation for land projections is that the District move toward working with the Florida Agricultural Statistics Service (FASS) and FRED to improve acreage estimates, and that the District continue discussions with the other water districts and FRED about a common data base and land use projection method. At this time, FRED recommends moving toward econometric modeling in all five water districts.

Less concern was expressed by the districts at the referenced meetings over per acre water use projection methods. It has become clear to FRED personnel on the study team, however, that many problems also exist in the per acre water projection data bases and methods. It is not at all clear that actual water use per acre can be projected using either the modified Blaney-Criddle or AFSIRS methods due to the kind of irrigator behavior presumed in these two methods. That is, actual irrigator behavior (and, thus, actual water use) may be quite different than the models presume. Further research is needed on the matter.

The overall recommendation for water projections is that for now the District continue using the AFSIRS model, but also start a process that ultimately facilitates determining how producers manage and use water on the farms. Such knowledge can then be related to actual measures (e.g., future metering of water use, Benchmark Farm data) of withdrawals. AFSIRS and the modified Blaney-Criddle approaches simulate water use, with neither approach having a direct connection to real water using behavior. Yet, it is actual water use that needs to be determined if the District is to truly plan and manage the water supply system. Econometric modeling should also be researched as a possible alternative method for water use projections. It is recommended the District engage the other water districts to the same end, with all districts eventually using the same water use projection data base, similar knowledge about irrigator water using behavior, including technology adoption behavior, and projection method.

Reliable research knowledge is also needed to improve understanding of emerging agricultural water and land use, including technology change patterns. Improvements can simultaneously be made in agricultural land and water data bases through a collaborative effort among state and federal agencies and the University.

6.1.2 Developing Management Plans in Water Problem Areas

Economic issues will arise in rule development pertaining to areas with water problems resulting from the quantity and quality shortfalls. The natural resource and agricultural economics faculty and students in FRED can be helpful in collecting data and analyzing detailed farm and grower information useful in writing management plans for such areas. Understanding economic effects of alternative plans generally requires going beyond economic impact studies to look at affects on economic behavior, and thus affects on profits, water use, the environment, and other general conditions in the water problem areas.

Interaction might be started with the District by involving faculty and students in a case study for a test water problem area. Activities might include helping evolve the data base and analytical system, collecting data, determining effects of alternative management plans, and helping write management plans. Ways to develop and use the geographic information system in analytical systems need further exploration. It may be, for example, that a linear programming model could be developed to use data from the GIS system in gaining an indication of the impact of particular technology changes on costs, returns, and the optimal allocation of water among uses. Alternatively, a farm budget cost generator might use the GIS data to suggest the cost impacts. The GIS system can also be developed so it can be used to run AFSIRS. Knowledge gained from the case study about data needs, data systems, and ways to analyze the data while developing management plans would likely prove useful to the District in developing rules for other water problem areas.

6.1.3 Improving Understanding of Agricultural Water Management, Irrigation Costs and Technology Changes

Knowledge of trends in agricultural water management, cost and technological change become key factors in projecting change. Unfortunately, very limited information exists regarding costs faced by growers, strategies growers follow in deciding how to manage water, and how growers view technological change. Importantly, costs, irrigation technologies and technology changes need to be understood in order to implement the reasonable beneficial use standard because the standard focuses on cost efficiency rather than technical efficiency. It is recommended the District consider funding research on costs, water management, and technologies for other crops similar to that recently completed for the ferneries (see Boggess et al., 1991).

A detailed analysis of the Benchmark Farm Survey data may well be a good place to start. The actual data on water use should be compared, on a case by case basis, with the results predicted with AFSIRS. Differences would suggest areas for further inquiry. It is recommended that the growers participating in the Benchmark Farms Survey project be asked to participate in more indepth studies to improve understanding of why there are differences. Explaining the differences will be helpful in comparing Benchmark Farm data to projections by AFSIRS and other models that presume yield maximizing behavior. It might reasonably be expected that differences in water use estimates from the Benchmark Farm data and the AFSIRS model will be due to profit seeking rather than yield maximizing behavior on the part of the irrigator (see Appendix 7.3).

6.1.4 Continue Discussions About Alternative Water Management Institutions

From a broader perspective than considered in the present study, it is recommended that a systematic dialogue and interaction between FRED and District staff regarding alternative institutional arrangements appropriate to water management and water allocation in Florida be undertaken. Such discussion is important because data needs of alternative arrangements and allocation approaches are quite different. The dialogue might be started with seminars presented by FRED on the broad range of water institutions being discussed in the current academic and professional literature. Joint, collaborative efforts could then be developed as the issues and questions become clarified while evolving and comparing what presently exists to what might be possible. Such dialogue would be especially useful in clarifying what water management approaches are viewed as positive by those with interest in Florida's water resources.

We now turn to a detailed discussion with more specific recommendations.

6.2 Considerations in Collecting Projection Data and Developing Projection Methods

6.2.1 Acreage Data and Projections

It was noted in Lynne and Kiker (1991, Section 6.3.1, p. 6-4) that a working relationship needs to be developed among

the District and the Food and Resource Economics Department (FRED) at the University of Florida, and the Florida Agricultural Statistics Service (FASS) in Orlando to collect annual agricultural land use data. Such data are valuable and will continue to be of importance not only for formulating land use projections but in analyzing numerous other economic issues as well. The current working relationship between FRED and county extension personnel, and between FRED and the FASS, should augment the ability of the District to obtain data and allow for consistent data collection and maintenance of a consistent data base. Such a working relationship could be quite complementary to efforts at using satellite imagery and aerial photos for obtaining such data.

The recommendation still stands. It was specifically recommended that the District update land use projections at least every 3 to 5 years, and include economic factors and forces in land use projection models.

It is recommended the District continue with stages already started toward organizing a joint effort with FASS and FRED. As noted in conversations with District personnel, FRED and FASS are already tied together, through a long history of the National Agricultural Statistics Service (NASS) involvement with agricultural economics departments like FRED throughout the U.S.

Collection of detailed irrigated acreage data by specific spatial locations, system type, ownership boundary, and withdrawal point could be extremely costly. The District will likely have to set some priorities and consider tradeoffs. Suggested areas for extended thought and discussion between FRED and the District include

- o spatial and temporal priorities, e.g., possibly focusing mainly on water supply problem areas during critical months,
- o crop priorities, e.g., focusing mainly on major water users like cut foliage (including ferns) and citrus,
- o data detail priorities, e.g., withdrawal area possibly as large as a section (640 acres) of land, as compared to withdrawal point associated with a pump,

- o end use priorities, e.g., deciding on whether needs and sources planning is to be indicative in character, such as to provide general direction for the agricultural industry, or if the planning is to lead to detailed management plans for specific farms or types of farms, or some other focus.

Such matters will have to be resolved shortly after the first meeting of the District, FASS, and FRED and before an overall strategy can be specified for improving land and water use projections.

While subject to revision after further discussion of priorities, and given that all five water districts face similar projection problems, the following specific recommendations seem appropriate at this time.

- o Use Florida Agricultural Statistics Service (FASS) annual estimates of crop acreage for the major crops as the basis for land use projections. Decisions on data collection strategies for the minor crops can be made after further discussion of the crop priorities issue. The District may be able to contract with FASS to collect data on the minor crops, for example.
- o Standardize the land use (and water use) projection methods across all five water management districts.

Generally, it is recommended the District pursue avenues of cooperation with FASS and FRED in order to improve agricultural land (and water) data availability of various kinds at all levels.

6.2.2 Change Frost and Freeze Water Use Calculation

Some specific problems arose with respect to frost and freeze water use projections. Recommendations for changes in the District procedures for calculating this water use include

- o Consider changing the event probability from 1-in-7 years to a more frequent event, in light of frost and freeze occurrences in the 1980's.
- o Calculate water use for radiation freezes in addition to the advection freezes. Foliage at ground level may be damaged even though NOAA temperatures at 5 feet above ground indicate no damage.
- o Calculate water use for citrus at the 28° temperature where damage occurs.

6.2.3 Adequacy of the Modified Blaney-Criddle and AFSIRS Models

We reemphasize the concerns and recommendations of Section 6.5.2 in Lynne and Kiker (1991, p. 6-7). Generally, both the modified Blaney-Criddle and AFSIRS models fail to account for economic (behavioral) factors. Thus, the overriding limitation on the water projections still remains the lack of explicit consideration of the economic factors affecting water use changes in agriculture. Generally, the need is to account for agricultural input/output price ratios in understanding, explaining, and projecting as noted in Section 5.5 of Lynne and Kiker (1991, p. 5-7) and as argued in Lynne, Anaman, and Kiker (1987) (As noted, Appendix 7.3 provides a theoretical discussion). Thus, metering and benchmark farm methods for collecting water use data also need to be supplemented with systematic efforts to associate economic data with the water use data.

As a starting point, the District should first compare the AFSIRS results for each farm with the actual reported withdrawals on each farm in the Benchmark Farm Survey. Given the expectations of considerable differences, the District should then immediately proceed to collect important economic (irrigation behavior) data, at least from the Benchmark Farm Survey participants. The District should continue programs focused on the physical and biological aspects of agricultural water use, but need to add programs to identify the economic (behavioral) dimension of water use.

6.2.4 Collecting Land and Water Use Data: Postcards

Requiring growers to periodically submit basic information on postcards about acres of each crop planted at particular times under specific irrigation systems could likely prove to be a cost effective way to determine main tendencies pertaining to what is going on in the agricultural sector. Such grower supplied information could be especially useful in identifying trends, and thus serve well in needs and sources planning. There is no real substitute for information provided by actual growers. Some thought needs to be given to specific format of the questions, and how data will be entered into District data bases.

Importantly, detailed data at specific farm locations are not currently and generally available from FASS, FRED, other units in IFAS, or other sources in the State. Some sample information is available from FASS, and from occasional and isolated surveys of farmers by FRED. The CUP database could be greatly improved for use in needs and sources planning with regular input from growers. It is recommended the District proceed to collect more data from growers with postcards, at least for smaller operations, and simple forms for the larger operations.

6.2.5 Collecting Water Use Data: Metering

With the need for the District to continue making decisions about current water use, then direct measurement of water use ultimately will be

needed. Without direct measurement, the District has to enter into an expensive data collection process to obtain all manner of information needed for estimating water use (see Lynne, 1988, with regard to information needed for agricultural water use modeling). It may be less costly in the long run to measure water use, and the associated economic and behavioral variables related to that water use, directly. To the extent that metered water use can be related to crop type, acreage, irrigation system data, and economic factors affecting water using behavior, these data become useful in projecting changes in water use.

Political resistance to metering is no doubt real. Current users likely feel threatened by the possibility that a central management agency could first meter, and then eventually control actual pumping. The concern may be unfounded, however, depending upon the overall vision the District plans to implement. It could happen, for example, that metering gives an even more secure and less uncertain water supply to end users. It seems all users will eventually be able to see the efficacy of having reliable, defensible water use estimates, no matter what vision the District adopts, but resistance to metering will likely remain strong if central control at the farm level is expected by the users.

Accuracy of meter data is likely no more of an issue than for other data sources. Data management costs could be a problem. Accurately recording literally thousands of data points every month (or possibly even weekly) requires good design of data base systems, and ease of entry. The District should explore the use of data entry scanners to reduce errors.

It is recommended the District also collect other essential information along with the meter data. At this time, it appears it may be necessary only to collect planting and harvest dates, and crop acreage under each type of irrigation system during these growing periods, for all the metered uses. Postcards could be used for such a limited data collection effort. For planning purposes, it would also be useful to get an indication of planned cropping and system changes by the growers. Also for planning purposes, more detailed information would likely be needed for only a small subset, such as for the participants in the Benchmark Farm Survey program.

6.2.6 Collecting Water Use Data: Benchmark Farm Survey

The sample survey design and the sampling frame for the Benchmark Farm Survey program appears to give a good starting point for estimating current water use and projecting water use into the future for general categories of use over larger spatial areas. It could also serve as a data source for checking withdrawal point calculations of water use. At each of the 113 survey farms, pumps used for irrigation are metered. Meters are scheduled for reading at the beginning and end of each month, generally giving a monthly estimate of the number of gallons pumped. The quality of the pumping data is rated according to four indicators: Estimated, Good, Inaccurate, and Unconfirmed.

A problem arises, however, in that the pumping estimates from the Benchmark Farm Survey program have been associated mainly with water supply related characteristics of the sample location. These characteristics include the geographical location of the pump, the type of water source used, and the type of irrigation system. Projections of future water use could be improved if the data collection effort also addressed the demand side, or behavioral aspect, of the use.

Specifically, to explain the variability in the pumping data, socio-economic indicators would have to be added to the Benchmark Survey. Ideally, data would be collected on such variables as annual crop prices, production costs, farm size, institutional factors associated with water use and farmer characteristics. Fortunately, some of these data are already available from other sources, e.g., the FARM (Florida Agricultural and Resource Management) laboratory in FRED at the University. It is recommended the District consider associating these data with the Benchmark Farm Survey data each year. The effects of these variables on changes in cultural or irrigation practices could then be ascertained, and then effects on water use accounted for.

More analysis of the current data would also improve understanding of water using patterns in the District. First, current estimates of frost and freeze water use at each of the benchmark farms could be associated with temperature data from one of the nine weather stations in the District. Regression analysis would show the relationship of temperature to water use. This exercise would require updating current cropping patterns and irrigation systems used at each of the benchmark farms. Second, current estimates of overall water use could be related to general tendencies in climate, input/output price ratios, and District policy changes over the time of the data collection process.

6.2.7 Improving the Structure of Current Data Bases

Once overall District visions and objectives are clarified, it is recommended that the District focus on improving the structure of existing data bases to minimize data entry and analysis costs, and to facilitate end users. In addition, the District might consider carefully delineating what decisions and what end uses the data is needed to support. Data bases (and the analytical systems that use the data) are best developed and maintained with specific purposes in mind. The geographical information system (GIS) being developed by the District has a great deal of potential if structured appropriately for use in various kinds of analytical systems. Ideally the data bases, analytical systems, and the purposes would be evolved simultaneously. It became quite clear during discussions with District personnel, for example, that different divisions and groups within the District are thinking about quite different spatial and temporal dimensions, each of which may well be perfectly valid, depending upon what question the analyst is trying to answer. These divisions and groups need to coordinate their efforts more effectively.

Which questions are asked depend in turn on what problems are identified. It is clear that problems arise in the gap between "what is"

and "what ought to be", with the latter depending upon the overall vision guiding the District. In order for the data bases, the GIS as a way to organize data, and the analytical systems to be part of the solution (i.e., to help close the gap and move closer to what ought to be), problems must not only be clearly described, but the desired direction needs to be clearly identified.

6.3 Conduct In-depth Water Use Studies in Areas With Inadequate Water to Meet the 2010 Demands

As noted in Lynne and Kiker (1991, Section 6.5.1, p. 6-6), several matters will have to be addressed in order to accurately assess the problems and find solutions in areas experiencing inadequate water resources based on the 2010 projections, including

- 1) identifying the impact of water conservation, 2) determining the cost of switching to alternative irrigation methods, 3) characterizing the technology adoption process, 4) identifying the institutional (laws, rules, regulations, customs, and habits) factors affecting technology adoption, 5) determining the environmental (and social) impact of alternative irrigation practices, and 6) improving understanding of the economic impacts of allocating water in various ways among the different competing uses.

The latter point suggests the important role the District plays in actually helping decide who gets to use how much water for what purpose, when the water will be used, and where the water will be used. This matter is raised here, because needs and sources planning has to assume some allocation of water, and a particular process for allocating water, among alternative uses and users into the future. The allocation issue has to be faced squarely in planning, because alternative allocations and ways to allocate water will create or alleviate shortages. There is a demand (human decision to use varying amounts of water) component that should be explicitly accounted for in needs and sources planning. It is recommended that each of these matters be addressed by the District.

6.4 Knowledge of Grower Water Management Strategies, Irrigation Costs, and Agricultural Technology: Implications for Implementing the Reasonable Beneficial Use Standard

As noted in the earlier report, the best management practice irrigation technology needs further consideration in Florida. Importantly, reliable research based knowledge about BMP technology is needed by the District because of the charge to implement the reasonable beneficial use standard which is the keystone of the 1972 Florida Water Resources Act. The current lack of reliable research knowledge in Florida about actual grower water management strategies, irrigation costs, best management practice technology, and agricultural technology changes could adversely affect implementation of the reasonable beneficial use standard.

To clarify, Maloney et al. (1972) in the Model Water Code (the basis of the 1972 Florida Water Resources Act) argued that costs were to be considered in defining economic and efficient use in the reasonable beneficial use standard. That is, it is not the least water use per unit of output that is of concern in the reasonable beneficial use standard, but rather the least cost per unit of output and the lowest social costs produced by the irrigation process (See Maloney et al., 1972, p. 171). Given the role of cost in defining reasonable beneficial use, it becomes important that reliable information about actual grower water management practices and actual costs be available. The possibility exists that well managed high water using (but lower cost) systems could well meet the reasonable beneficial use standard as envisioned by Maloney et al. (1972).

The lack of detailed analysis of grower management, agricultural irrigation technology and costs per unit of output in Florida suggests currently available projections of both land and water use should be used with caution. To help alleviate this information gap, the District should conduct an analysis of the Benchmark Farm Survey data from the perspective of irrigation technology adoption behavior on the part of growers. The District should also survey a sample of growers, possibly the growers in the Benchmark program, to discern trends in technologies.

6.5 Institutional Setting and Water Management Visions Influence Both the Data Base Needs and the Related Analytical Systems

This report, as did the earlier Lynne and Kiker (1991) report, concentrates on inventorying and projecting water use. It is not focused on the broader water allocation problem, per se, so little has been said about the who, how much, when, and where of allocating a water resource among competing uses. Yet, the main reason behind conducting a Water Supply Needs and Sources Assessment rests fundamentally in the allocation problem. There may be no particular reason to determine where needs will occur in the future, relative to supplies in the future, if the concern is not over a scarcity in supply. That is, without a fundamental scarcity, there may be no particular reason to plan for balancing needs and sources. Also, any projection of water need presumes a particular allocation of water to particular groups into the future.

It has become clear in conducting these studies for the District that both the kinds of data and the analytical systems developed to use the data depend upon the institutional setting and the overall visions guiding District water allocation programs. For example, a water institution (defined generally to include all the laws, rules, regulations, and customs guiding the District and the individuals using water) with an emphasis on controlling management and allocating water among crops on farms requires a substantially different data base and analytical system than does an institution organized to facilitate mainly decentralized decision making. That is, the institution may reflect the perspective that the community through the District should have a strong influence on individual behavior in using water. Alternatively, the perspective may be that the individual should have considerable freedom to

decide on water using options, with the community, through the District, providing only overall guidelines for reasonable behavior.

Similarly, if consumptive use permitting and the water shortage plans continue to be the means for allocating water among competing uses, it will be necessary for the District to invest heavily in economic value information. That is, if the District intends to continue in the business of resource allocation in the economy, it will become necessary for the District to better understand the impact of management decisions on that economy.

Several western U.S. states, for example, have recently been moving away from centralized planning and control of water allocation during droughts and in water supply problem areas to decentralized individual decisions, through leasing and rental markets, as well as some limited and administered buying and selling of water and water rights. In such a setting, resources would be put into monitoring, metering, and improving understanding of hydrologic and related biological systems. Much less information on water value and water use is needed in such a setting than in situations where central water authorities prescribe detailed technologies and operations (See Lynne and Carriker, 1979; Lynne, 1988).

More decentralized institutions may serve a role in Florida. The District might consider starting a dialogue with University water and natural resource scientists regarding alternative institutional arrangements for allocating water and for solving water problems. A considerable academic and professional literature exists on alternative water policy and institutions. Water policy research focusing on alternative allocative approaches is sorely needed in Florida to help facilitate such dialogue. Some of the issues needing attention have been identified in Lynne et al. (1991).

The view also affects how needs and sources planning proceeds: should the planning be primarily indicative (i.e., provide general direction) involving a highly participatory process of many people and organizations? Or, should the planning be more directed in nature, resulting in specific requirements that are chosen by the planning and other District staff for farms, other business firms, and households?

Additionally, the character of the information will vary with the function. Statistical information based on sampling will generally be suitable for water planning. Greater user specific accuracy will generally be necessary for permit and water allocation purposes. For permitting purposes, the estimates need to be legally justifiable.

6.6 A Final Point

Water issues in Florida involve complex technical, social, political, and economic phenomenon. The Florida water economy has matured, which generally requires consideration of the wide array of forces at work that influence water allocation and use. It may well be time that citizens, Florida agencies, and Florida universities concerned

with water consider putting more effort into recognizing and systematically addressing such phenomenon. Well organized social science research programs are needed in order to supplement and complement current, ongoing programs in the physical, engineering, and biological sciences. A collaborative effort between the District and FRED could well be an important starting point for evolving such a research program (which ultimately may involve other water management districts and universities throughout the State). Such efforts potentially could be helpful in dealing with the problems of a more mature water economy.

7 APPENDICES

7.1 DATA AND BACKGROUND INFORMATION TABLES FOR THE CURRENT REPORT

Appendix Table 7.1.1 Cropping Sequences Common to the St. Johns River Water Management District.

County	Sequence
Flagler	Vegetables-Corn ^a -Cabbage (Spring-Summer-Fall) Potatoes-Corn ^a -Cabbage (Spring-Summer-Fall) Potatoes-Corn ^a (Spring-Summer) Corn ^a -Cabbage (Spring-Fall)
Marion	Melon-Vegetables (Spring-Fall) Melon-Millet-Rye (Spring-Fall) Melon-Rye-Vegetables (Spring-Fall)
Orange	Vegetables-Corn ^a -Cabbage (Spring-Summer-Fall)
Putnam	Potatoes-Cabbage (Spring-Fall) Potatoes-Corn ^a (Spring-Summer) Potatoes-Corn ^a -Cabbage (Spring-Summer-Fall)
St. Johns	Corn ^a -Vegetables (Spring-Fall) Potatoes-Corn ^a -Cabbage (Spring-Summer-Fall) Potatoes-Corn ^a (Spring-Summer-Fall) Potatoes-Corn ^a -Vegetables (Spring-Summer-Fall) Potatoes-Cabbage/Vegetables (Spring-Fall) (Vegetables considered negligible)
Seminole	Peas-Squash-Cabbage (Spring-Summer-Fall)

^aCorn planted in this sequence is used as a soil binder rather than a commercial crop.

Appendix Table 7.1.2 Proportion of Acreage in Each Crop, St. Johns River Water Management District, 1988^a.

County	Crop	Percentage
Alachua	Vegetables	75
	Melon	25
Brevard	Citrus	12
	Pasture	88
	Pasture	99
	Melon	1
	Pasture	83
	Citrus	12
	Vegetables	5
	Field Corn Pasture	2 98
Clay	Pasture	63
	Vegetables	37
Flagler	Cabbage	70
	Pasture	27
	Sod	3
Indian River	Fld Corn/sorg	10
	Pasture	90
Lake	Pasture	16
	Vegetables	80
	Melon	4
	Citrus	98
	Fern/Foliage	2
	Citrus	91
	Pasture	7
	Melon	2

(Appendix Table 7.1.2, cont.)

County	Crop	Percentage
(Lake, cont.)		
	Sweet Corn	95
	Sod	5
	Citrus	90
	Nursery	3
	Pasture	7
	Alfalfa	28
	Sweet Corn	72
	Sweet Corn	97
	Sorghum	3
	Field Corn	19
	Sorghum	6
	Pasture	75
Marion	Field Corn	13
	Melon	51
	Pasture	36
	Citrus	34
	Pasture	27
	Melon	39
	Citrus	99
	Foliage	1
Orange	Citrus	96
	Foliage	4
	(Pasture	0)
Putnam	Field Corn	22
	Fern	45
	Pasture	33
	Cabbage	92
	Foliage	8
	Fern	91
	Woody Orn	9

(Appendix Table 7.1.2, cont.)

County	Crop	Percentage
(Putnam, cont.)		
	Citrus	0
	Fern	100
	Citrus	1
	Fern	12
	Vegetables	87
St. Johns		
	Field Corn	25
	Pasture	75
Seminole		
	Citrus	40
	Sweet Corn/veg	60
Volusia		
	Citrus	60
	Vegetables	40
	Citrus	15
	Fern	67
	Pasture	7
	Vegetables	11
	Fern	100
	Woody Orn	0
	Citrus	18
	Fern	82
	Vegetables	14
	Fern	86
	Fern	90
	Pasture	10
	Foliage	24
	Pasture	76

^aProportions derived from Florence, 1990.

Appendix Table 7.1.3 Classification of Counties by Zone, St. Johns River Water Management District.

County	Zone	Relative Location
Alachua	1	North
Baker	1	North
Bradford	1	North
Brevard	3	South
Clay	1	North
Duval	1	North
Flagler	1	North
Indian River	3	South
Lake	2	North
Marion	1	North
Nassau	1	North
Okeechobee	3	South
Orange	2	North
Osceola	3	South
Polk	3	South
Putnam	1	North
St. Johns	1	North
Seminole	2	North
Volusia	2	North

Appendix Table 7.1.4 Water Use for Frost and Freeze (FF) Protection for CUP Acreage, 1990, St. Johns River Water Management District (in Millions of Gallons per Year, mgy)

County	Crop	December	January	February	mgy
Alachua	Misc. FF	4.475	8.950	4.475	17.900
	Other Fruit	4.173	8.345	4.173	16.691
	Vegetable	26.500	53.000	26.500	106.000
Baker	Ornamentals	25.225	48.450	25.225	96.900
Brevard	Misc. FF	55.475	110.950	55.475	221.900
	Citrus	161.758	323.510	161.758	647.026
	Ornamentals	0.686	1.372	0.686	2.744
Flagler	Sod/Turf	0.110	0.219	0.110	0.439
Indian River	Misc. FF	1.033	2.065	1.033	4.131
	Citrus	1726.033	3452.026	1726.033	6904.092
	Ornamentals	0.033	0.065	0.033	0.131
Lake	Misc. FF	79.366	158.729	79.366	317.461
	Citrus	1502.674	3005.250	1502.674	6010.598
	Other Fruit	2.850	5.700	2.850	11.400
	Ornamentals	167.193	334.370	167.193	668.756
Marion	Misc. FF	150.868	301.735	150.868	603.471
	Citrus	578.362	1156.717	578.362	2313.441
	Other Fruit	0.350	0.700	0.350	1.400
	Ornamentals	27.526	55.050	27.526	110.102
Okeechobee	Citrus	29.325	58.650	29.325	117.300
	Imp. Pasture	0.360	0.720	0.360	1.440
Orange	Misc. FF	6.195	12.385	6.195	24.775
	Citrus	209.826	419.629	209.826	839.281
	Ornamentals	79.727	159.440	79.727	318.894
Osceola	Misc. FF	7.863	15.725	7.863	31.451
	Citrus	21.723	43.445	21.723	86.891
Polk	Citrus	94.527	189.039	94.527	378.093
Putnam	Misc. FF	63.239	126.475	63.239	252.953
	Citrus	18.570	37.140	18.570	74.280
	Ornamentals	336.613	673.208	336.613	1346.434
St. Johns	Citrus	3.658	7.315	3.658	14.631
	Ornamentals	1.903	3.805	1.903	7.611
Seminole	Misc. FF	1.675	3.350	1.675	6.700
	Citrus	21.391	42.779	21.391	85.861
	Ornamentals	2.950	5.900	2.950	11.800
Volusia	Misc. FF	317.621	635.230	317.621	1270.472
	Citrus	83.008	166.015	83.008	332.031
	Ornamentals	1624.013	3247.896	1624.013	6495.922
	Sod/Turf	15.775	31.550	15.775	63.100
Total					29814.52

Appendix Table 7.1.5 Freeze Days and Associated NOAA Station for Counties, St. Johns River Water Management District

COUNTY	NOAA ^a Station	Freeze Days	Freeze Minutes
Alachua	Gainesville	23	11040
Baker	Jacksonville	23	11040
Bradford	Gainesville	23	11040
Brevard	Melbourne	4	2112
Clay	Gainesville	23	11040
Duval	Jacksonville	23	11040
Flagler	DeLand	18	8448
Indian River	Melbourne	4	2112
Lake	Clermont	7	3168
Marion	Ocala	18	8640
Nassau			
Okeechobee	Melbourne	4	2112
Orange	Orlando	6	2688
Osceola	Orlando	6	2688
Polk	Orlando	6	2688
Putnam	Gainesville	23	11040
St. Johns	St. Augustine	15	7296
Seminole	Deland	18	8448
Volusia	Deland	18	8448

^aNational Oceanographic and Atmospheric Administration

Appendix Table 7.1.6 Projected Annual Water Use for CUP Acreage After Incorporating Multiple Crop, Frost, and Freeze Water Use, St. Johns River Water Management District, 1990

CROP	REVISED WITH MC and FF ¹			REVISED WITH MC ONLY			ORIGINAL ESTIMATES ²		
	ACRES	ANNUAL MG/	ACRE	ACRES	ANNUAL MG/	ACRE	ACRES	ANNUAL MG/	ACRE
ALACHUA									
Misc. FF	0	17.9							
Other Fruit	658.72	371.03	0.563	658.72	354.34	0.538	262.50	211.43	0.805
Vegetables	1590.19	413.27	0.260	1590.19	307.27	0.193	1042.80	372.14	0.357
Field Crops							46.67	6.21	0.133
Imp. Pasture	677.20	172.88	0.255	677.20	172.88	0.255	540.00	155.68	0.288
Ornamentals	4.00	16.60	4.149	4.00	16.60	4.149	4.00	16.28	4.070
Sod/Turf	3.00	2.47	0.823	3.00	2.47	0.823	4.60	4.04	0.879
Total	2933.11	994.14	0.339	2933.11	853.55	0.291	1900.57	765.78	0.403
BAKER									
Vegetables	5.00	1.93	0.386	5.00	1.93	0.386	5.00	1.93	0.386
Field Crops	30.00	9.94	0.331	30.00	9.94	0.331	30.00	10.75	0.358
Ornamentals	372.66	1643.09	4.409	372.66	1546.19	4.149	372.66	1524.11	4.090
Total	407.66	1654.96	4.060	407.66	1558.06	3.822	407.66	1536.79	3.770
BREVARD									
Misc. FF	0	221.9							
Citrus	9949.15	11958.44	1.202	9949.15	11311.41	1.137	27070.65	21942.16	0.811
Other Fruit	56.70	43.47	0.767	56.70	43.47	0.767	5578.47	4276.16	0.767
Vegetables	364.50	131.93	0.362	364.50	131.93	0.362			
Imp. Pasture	45347.77	80206.04	1.769	45347.77	80206.04	1.769	33772.27	61144.34	1.810
Ornamentals	42.00	111.28	2.650	42.00	108.53	2.584	42.00	109.53	2.608
Total	55760.12	92673.06	1.662	55760.12	91801.38	1.646	66463.39	87472.18	1.316
CLAY									
Other Fruit	50.00	89.47	1.789	50.00	89.47	1.789	50.00	97.35	1.947
Vegetables	17.75	2.84	0.160	17.75	2.84	0.160	8.00	3.11	0.388
Imp. Pasture	30.25	52.00	1.719	30.25	52.00	1.719	40.00	48.99	1.225
Sod/Turf	35.00	39.16	1.119	35.00	39.16	1.119	35.00	41.53	1.187
Total	133.00	183.47	1.380	133.00	183.47	1.380	133.00	190.98	1.436
DUVAL									
Ornamentals	207.14	859.17	4.148	207.14	859.17	4.148	207.14	851.85	4.112
Sod/Turf	610.00	618.41	1.014	610.00	618.41	1.014	610.00	632.83	1.037
Total	817.14	1477.57	1.808	817.14	1477.57	1.808	817.14	1484.68	1.817
FLAGLER									
Other Fruit	160.00	85.37	0.534	160.00	85.37	0.534	80.00	28.67	0.358
Vegetables	7649.84	3906.32	0.511	7649.84	3906.32	0.511	4204.21	2305.33	0.548
Field Crops	3002.00	1358.24	0.452	3002.00	1358.24	0.452	1607.43	1501.88	0.934
Imp. Pasture	80.00	31.72	0.396	80.00	31.72	0.396	270.00	139.17	0.515
Sod/Turf	720.00	741.55	1.030	720.00	741.11	1.029	770.00	792.02	1.029
Total	11611.84	6123.20	0.527	11611.84	6122.76	0.527	6931.64	4767.07	0.688

(Appendix Table 7.1.6 continued)

CROP	REVISED WITH MC and FF			REVISED WITH MC ONLY			ORIGINAL ESTIMATES ¹		
	ACRES	ANNUAL MGY	ANNUAL MGY/ ACRE	ACRES	ANNUAL MGY	ANNUAL MGY/ ACRE	ACRES	ANNUAL MGY	ANNUAL MGY/ ACRE
INDIAN RIVER									
Misc. FF	0	4.13							
Citrus	40087.65	55558.94	1.386	40087.65	51468.04	1.284	40087.65	51842.90	1.293
Vegetables	165.00	106.63	0.646	165.00	106.63	0.646	3409.95	3181.52	0.933
Field Crops	345.00	122.35	0.355	345.00	122.35	0.355			
Imp. Pasture	13195.12	20703.61	1.569	13195.12	20703.61	1.569	10300.12	17608.75	1.710
Ornamentals	7.00	31.38	4.483	7.00	31.25	4.465	7.00	28.87	4.124
Total	53799.77	76527.04	1.422	53799.77	72431.88	1.346	53804.72	72662.05	1.350
LAKE									
Misc. FF	0	317.46							
Citrus	57350.35	48629.80	0.848	57350.35	42622.40	0.743	57090.51	41683.56	0.730
Other Fruit	1104.80	447.56	0.405	1104.80	436.16	0.395	1732.00	827.37	0.478
Vegetables	2078.11	1027.40	0.494	2078.11	1027.40	0.494	1676.01	1082.62	0.646
Field Crops	555.00	211.16	0.380	555.00	211.16	0.380	236.00	39.89	0.169
Imp. Pasture	2926.92	2165.11	0.740	2926.92	2165.11	0.740	3364.52	2673.96	0.795
Ornamentals	1729.18	5158.76	2.983	1729.18	4490.01	2.597	1950.25	5143.92	2.638
Sod/Turf	72.38	62.64	0.866	72.38	62.64	0.866	157.38	148.98	0.947
Total	65816.74	58019.89	0.882	65816.74	51014.88	0.775	66206.67	51600.30	0.779
MARION									
Misc. FF	0	603.47							
Citrus	5648.73	5507.30	0.975	5648.73	3193.86	0.565	6280.19	3655.81	0.582
Other Fruit	2572.98	912.70	0.355	2572.98	911.30	0.354	1776.00	638.25	0.359
Vegetables	1435.11	382.76	0.267	1435.11	382.76	0.267	935.26	323.09	0.345
Field Crops	2128.40	646.12	0.304	2128.40	646.12	0.304	3196.98	814.12	0.255
Imp. Pasture	1221.46	359.39	0.294	1221.46	359.39	0.294	1772.24	592.53	0.334
Ornamentals	76.90	352.14	4.579	76.90	242.04	3.147	194.90	739.71	3.795
Sod/Turf	750.00	679.56	0.906	750.00	679.56	0.906	790.00	748.53	0.948
Total	13833.58	9443.44	0.683	13833.58	6415.03	0.464	14945.57	7512.03	0.503
OKEECHOBEE									
Citrus	2570.06	3365.63	1.310	2570.06	3248.33	1.264	2570.06	3325.26	1.294
Total	2570.06	3365.63	1.310	2570.06	3248.33	1.264	2570.06	3325.26	1.294
ORANGE									
Misc. FF	0	24.78							
Citrus	10303.09	9863.56	0.957	10303.09	9024.28	0.876	10240.70	8769.84	0.856
Vegetables	32343.33	10221.73	0.316	32343.33	10221.63	0.316	1575.00	1150.21	0.730
Field Crops	0.45	0.11	0.244	0.45	0.11	0.244	15.00	2.53	0.168
Imp. Pasture	737.00	1203.73	1.633	737.00	1203.73	1.633	649.00	1129.89	1.741
Ornamentals	1491.77	5629.09	3.773	1491.77	5310.20	3.560	1525.95	5377.23	3.524
Sod/Turf	157.00	175.14	1.116	157.00	175.14	1.116	157.00	171.65	1.093
Total	45032.64	27118.13	0.602	45032.64	25935.19	0.576	14162.65	16601.35	1.172

(Appendix Table 7.1.6 continued)

CROP	REVISED WITH MC and FF			REVISED WITH MC ONLY			ORIGINAL ESTIMATES ¹		
	ACRES	ANNUAL MGY	ANNUAL MGY/ ACRE	ACRES	ANNUAL MGY	ANNUAL MGY/ ACRE	ACRES	ANNUAL MGY	ANNUAL MGY/ ACRE
OSCEOLA									
Misc. FF	0	31.45							
Citrus	1170.01	896.85	0.767	1170.01	809.96	0.692	1170.01	802.41	0.686
Imp. Pasture	800.00	1470.66	1.838	800.00	1470.66	1.838	800.00	1507.59	1.884
Total	1970.01	2398.96	1.218	1970.01	2280.62	1.158	1970.01	2310.00	1.173
POLK									
Citrus	4364.39	3144.63	0.721	4364.39	2766.54	0.634	4364.39	2875.07	0.659
Total	4364.39	3144.63	0.721	4364.39	2766.54	0.634	4364.39	2875.07	0.659
PUTNAM									
Misc. FF	0	252.95							
Citrus	331.00	305.03	0.922	331.00	230.76	0.697	391.50	297.81	0.761
Other Fruit	217.50	112.76	0.518	217.50	112.76	0.518	217.50	112.81	0.519
Vegetables	5901.23	3450.28	0.585	5901.23	3450.28	0.585	4304.79	2579.22	0.599
Field Crops	1785.36	727.00	0.407	1785.36	727.00	0.407	612.09	568.39	0.929
Imp. Pasture	315.04	532.09	1.689	315.04	532.09	1.689	55.00	92.89	1.689
Ornamentals	2124.77	4758.05	2.239	2124.77	3411.61	1.606	2322.66	4164.84	1.793
Sod/Turf	20.00	19.44	0.972	20.00	19.44	0.972	20.00	19.28	0.964
Total	10694.90	10157.60	0.950	10694.90	8483.94	0.793	7923.54	7835.25	0.989
ST JOHNS									
Citrus	38.01	56.44	1.485	38.01	41.81	1.100	38.01	41.60	1.094
Other Fruit	24.00	11.38	0.474	24.00	11.38	0.474	24.00	11.30	0.471
Vegetables	28053.08	15558.26	0.555	28053.08	15558.26	0.555	17327.13	10925.63	0.631
Field Crops	11497.62	4318.50	0.376	11497.62	4318.50	0.376	3017.62	2656.19	0.880
Imp. Pasture	56.00	61.58	1.100	56.00	61.58	1.100	81.00	88.64	1.094
Ornamentals	7.50	38.71	5.161	7.50	31.10	4.147	7.50	30.51	4.068
Sod/Turf	135.00	180.87	1.340	135.00	180.87	1.340	135.00	180.44	1.337
Total	39811.21	20225.74	0.508	39811.21	20203.50	0.507	20630.26	13934.30	0.675
SEMINOLE									
Misc. FF	0	6.7							
Citrus	1713.01	1256.52	0.734	1713.01	1170.96	0.684	1701.44	1143.61	0.672
Other Fruit	7.00	1.29	0.185	7.00	1.29	0.185	7.00	0.06	0.008
Vegetables	523.07	404.89	0.774	523.07	404.89	0.774	399.34	338.46	0.848
Field Crops							29.24	12.78	0.437
Imp. Pasture	599.94	1085.76	1.810	599.94	1085.76	1.810	599.94	1058.43	1.764
Ornamentals	320.00	618.66	1.933	320.00	606.85	1.896	183.49	742.81	4.048
Sod/Turf	164.16	301.22	1.835	164.16	301.22	1.835	331.96	480.68	1.448
Total	3327.19	3675.04	1.105	3327.19	3570.97	1.073	3252.41	3776.83	1.161

(Appendix Table 7.1.6 continued)

CROP	REVISED WITH MC and FF			REVISED WITH MC ONLY			ORIGINAL ESTIMATES ¹		
	ACRES	ANNUAL MGY	ANNUAL MGY/ ACRE	ACRES	ANNUAL MGY	ANNUAL MGY/ ACRE	ACRES	ANNUAL MGY	ANNUAL MGY/ ACRE
VOLUSIA									
Misc. FF	0	1270.47	0.000						
Citrus	1014.47	1113.31	1.097	1014.47	781.28	0.770	1093.20	832.91	0.762
Other Fruit			0.000			0.000	8.00	3.30	0.412
Vegetables	456.95	307.71	0.673	456.95	307.71	0.673	351.15	146.27	0.417
Field Crops			0.000			0.000	83.00	81.81	0.986
Imp. Pasture	199.58	107.61	0.539	199.58	107.61	0.539	277.34	139.27	0.502
Ornamentals	6246.34	14891.23	2.384	6246.34	8397.00	1.344	6130.13	8413.71	1.373
Sod/Turf	1458.07	1999.06	1.371	1458.07	1935.96	1.328	1458.07	1886.27	1.294
Total	9375.41	19689.38	2.100	9375.41	11529.54	1.230	9400.89	11503.54	1.224
District Total	322258.77	336871.88		322258.77	309877.22		275884.57	290153.48	
MGY/Acre	1.05			0.96			1.05		

¹MC is multiple crops, FF is frost freeze.

²From Lynne and Kiker, 1991.

7.2 WATER USE PROJECTION TABLES FOR REPLACEMENT IN THE ORIGINAL REPORT

Appendix Table 7.4.1

Projected Agricultural Water Use for 1990 CUP Acreage Under Current Irrigation Technology, Assuming 2-in-10 Drought and 1-in-7 Freeze Conditions, St. Johns River Water Management District (in Millions of Gallons)^a

CROP	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<u>Alachua</u>														
Other Fruit	658.72	15.22	14.01	33.40	67.29	105.03	48.62	16.70	15.47	12.21	15.49	15.94	11.66	371.03
Vegetables	1590.19	53.00	26.50	9.42	34.24	68.42	23.39	0.21	38.00	69.92	63.68	0.00	26.50	413.27
Imp. Pasture	677.20	0.79	0.37	5.76	36.04	57.55	21.79	14.26	12.58	0.75	1.07	10.97	10.97	172.88
Ornamentals	4.00	0.78	0.95	1.49	1.88	2.24	1.87	1.75	1.51	1.29	1.19	0.97	0.68	16.60
Sod/Turf	3.00	0.08	0.11	0.24	0.36	0.49	0.27	0.20	0.18	0.12	0.16	0.16	0.10	2.47
Misc. Frost Freeze	0.00	8.95	4.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.48	17.90
TOTAL	2933.11	78.82	46.41	50.29	139.80	233.72	95.93	33.11	67.74	84.29	81.59	28.04	54.39	994.14
<u>Baker</u>														
Vegetables	5.00	0.00	0.00	0.18	0.49	0.94	0.33	0.00	0.00	0.00	0.00	0.00	0.00	1.93
Field Crops	30.00	0.00	0.00	0.00	1.22	3.42	3.18	2.12	0.00	0.00	0.00	0.00	0.00	9.94
Ornamentals	372.66	121.31	112.25	138.65	175.05	208.46	173.02	161.92	140.65	120.40	112.34	90.06	88.98	1643.09
TOTAL	407.66	121.31	112.25	138.82	176.76	212.82	176.53	164.03	140.65	120.40	112.34	90.06	88.98	1654.96
<u>Brevard</u>														
Citrus	9949.15	935.53	792.16	1220.09	1689.01	1921.47	1212.63	678.47	503.27	637.56	805.27	821.91	741.06	11958.44
Other Fruit	56.70	0.00	0.00	5.07	11.54	16.46	10.39	0.00	0.00	0.00	0.00	0.00	0.00	43.47
Vegetables	364.50	0.00	0.00	3.27	7.32	10.59	4.55	0.00	25.84	38.48	41.88	0.00	0.00	131.93
Imp. Pasture	45347.77	4745.83	5110.13	9049.70	12199.38	13263.58	7150.43	4376.76	3343.73	4885.35	5644.53	6181.02	4255.60	80206.04
Ornamentals	42.00	7.60	8.19	11.01	14.41	15.61	10.17	7.73	7.13	7.58	8.12	7.62	6.13	111.28
Misc. Frost Freeze	0.00	110.95	55.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	55.47	221.90
TOTAL	55760.12	5799.90	5965.96	10289.13	13921.67	15227.71	8388.17	5062.96	3879.97	5568.97	6499.80	7010.56	5058.27	92673.05
<u>Clay</u>														
Other Fruit	50.00	3.66	6.52	8.69	11.40	14.53	8.96	7.33	7.47	5.70	6.11	5.84	3.26	89.47
Vegetables	17.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.67	1.11	1.06	0.00	0.00	2.84
Imp. Pasture	30.25	2.14	2.71	5.18	6.82	8.87	5.34	4.35	4.35	3.28	3.61	3.45	1.89	52.00
Sod/Turf	35.00	1.71	2.09	3.71	5.13	6.37	4.18	3.23	3.04	2.66	2.85	2.57	1.62	39.16
TOTAL	133.00	7.51	11.32	17.57	23.36	29.77	18.48	14.92	15.54	12.76	13.63	11.86	6.77	183.47
<u>Duval</u>														
Ornamentals	207.14	40.78	48.93	77.06	97.31	115.87	96.18	89.99	78.18	66.93	62.15	50.06	35.72	859.17
Sod/Turf	610.00	25.69	29.82	59.60	82.79	107.56	67.07	51.35	47.98	38.10	43.88	40.57	24.00	618.41
TOTAL	817.14	66.47	78.75	136.66	180.10	223.43	163.25	141.34	126.17	105.03	106.03	90.63	59.72	1477.57

(Appendix Table 7.4.1 continued)

CROP	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<u>Flagler</u>														
Other Fruit	160.00	0.00	0.00	13.25	23.90	36.71	11.51	0.00	0.00	0.00	0.00	0.00	0.00	85.37
Vegetables	7649.84	0.00	283.76	668.97	1042.05	644.28	160.03	116.96	3.01	213.27	275.50	319.07	179.41	3906.32
Field Crops	3002.00	0.00	0.00	38.97	58.46	392.68	624.39	243.74	0.00	0.00	0.00	0.00	0.00	1358.24
Imp. Pasture	80.00	0.22	0.00	4.35	7.39	10.21	5.86	2.61	1.09	0.00	0.00	0.00	0.00	31.72
Sod/Turf	720.00	30.73	36.05	69.80	98.26	127.23	77.98	64.36	60.87	48.36	50.14	48.82	28.96	741.55
TOTAL	11611.84	30.94	319.81	795.34	1230.05	1211.11	879.78	427.67	64.97	261.63	325.64	367.89	208.37	6123.20
<u>Indian River</u>														
Citrus	40087.65	4892.46	4026.35	5284.41	7180.84	7875.33	5649.85	3440.79	3008.78	3350.53	3914.15	3561.14	3374.31	55558.94
Vegetable	165.00	0.00	0.00	12.10	26.88	47.94	19.71	0.00	0.00	0.00	0.00	0.00	0.00	106.63
Field Crops	345.00	0.00	0.00	0.00	0.00	19.68	50.78	21.36	15.55	14.99	0.00	0.00	0.00	122.35
Imp. Pasture	13195.12	1201.40	1399.58	2191.93	3381.87	3825.46	1919.71	1058.77	834.29	1053.73	1279.03	1484.83	1072.99	20703.61
Ornamentals	7.00	1.79	2.01	2.89	3.67	3.97	3.14	2.72	2.70	2.47	2.47	1.98	1.57	31.38
Misc. Frost Freeze	0.00	2.07	1.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.03	4.13
TOTAL	53799.77	6097.72	5428.98	7491.33	10593.26	11772.38	7643.19	4523.63	3861.33	4421.72	5195.65	5047.95	4449.90	76527.04
<u>Lake</u>														
Citrus	57350.35	5406.67	2712.34	4934.62	7117.94	8367.73	5289.11	2499.42	2993.12	2201.03	2239.50	2257.56	2610.77	48629.80
Other Fruit	1104.80	6.62	3.99	37.72	116.93	184.24	84.73	4.56	1.68	1.25	1.03	1.09	3.72	447.56
Vegetables	2078.11	0.00	8.00	76.94	185.06	289.15	128.25	29.26	91.76	119.91	99.06	0.00	0.00	1027.40
Field Crops	555.00	0.00	0.00	9.11	53.54	79.74	41.61	13.69	8.77	4.70	0.00	0.00	0.00	211.16
Imp. Pasture	2926.92	59.86	153.86	163.55	421.64	532.98	299.14	114.68	151.10	127.93	39.48	65.80	35.08	2165.11
Ornamentals	1729.18	572.30	440.79	410.55	537.88	608.22	455.90	442.33	402.02	355.98	306.37	260.14	366.28	5158.76
Sod/Turf	72.38	4.05	4.42	4.44	9.59	11.20	4.95	4.81	3.39	3.11	4.40	4.26	4.01	62.64
Misc. Frost Freeze	0.00	158.73	79.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	79.37	317.46
TOTAL	65816.74	6208.23	3402.77	5636.94	8442.58	10073.27	6303.68	3108.75	3651.84	2813.92	2689.84	2588.85	3099.23	58019.89
<u>Marion</u>														
Citrus	5648.73	1201.16	587.55	370.08	576.77	809.27	455.76	215.05	120.73	23.80	164.77	185.58	796.81	5507.30
Other Fruit	2572.98	1.97	2.22	79.28	227.42	415.17	171.24	3.22	2.96	2.33	2.74	2.57	1.57	912.70
Vegetables	1435.11	0.00	0.02	24.14	80.51	156.46	48.38	0.00	15.92	27.88	29.45	0.00	0.00	382.76
Field Crops	2128.40	0.00	0.00	34.68	67.08	138.08	133.83	123.42	114.22	31.03	3.80	0.00	0.00	646.12
Imp. Pasture	1221.46	1.29	16.29	61.12	96.86	93.30	37.59	16.06	25.40	1.66	2.34	1.36	6.11	359.39
Ornamentals	76.90	67.42	41.11	21.90	27.74	33.24	26.88	24.87	21.57	18.47	17.29	14.26	37.37	352.14
Sod/Turf	750.00	22.70	30.79	66.53	101.42	128.06	72.83	53.00	46.95	40.35	47.82	45.46	23.65	679.56
Misc. Frost Freeze	0.00	301.73	150.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	150.87	603.47
TOTAL	13833.58	1596.27	828.86	657.73	1177.79	1773.58	946.52	435.63	347.75	145.53	268.20	249.23	1016.38	9443.45
<u>Okeechobee</u>														
Citrus	2570.06	235.57	223.61	326.44	467.28	509.84	361.74	204.89	171.43	212.16	248.36	225.19	179.12	3365.63
TOTAL	2570.06	235.57	223.61	326.44	467.28	509.84	361.74	204.89	171.43	212.16	248.36	225.19	179.12	3365.63

(Appendix Table 7.4.1 continued)

CROP	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<u>Orange</u>														
Citrus	10303.00	900.33	576.06	993.21	1418.76	1680.17	1048.54	619.89	677.52	488.45	472.07	448.21	540.35	9863.56
Vegetables	32343.00	0.00	1156.55	2620.18	1710.14	171.07	301.41	130.34	2.51	179.78	1376.56	1718.15	855.04	10254.32
Field Crops	.45	0.00	0.00	0.00	0.00	0.01	0.02	0.03	0.03	0.02	0.00	0.00	0.00	0.11
Imp. Pasture	737.00	55.24	84.43	117.07	164.86	188.83	128.06	102.88	94.04	81.26	61.78	66.61	58.66	1203.73
Ornamentals	1492.00	433.16	406.45	479.02	617.90	697.98	542.53	538.38	485.13	433.35	373.72	306.62	314.86	5629.09
Sod/Turf	157.00	8.14	9.85	17.06	25.14	28.60	17.13	15.79	13.72	12.38	10.24	9.83	7.26	175.14
Misc. Frost Freeze	0.00	12.39	6.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.19	24.78
TOTAL	45033.00	1409.26	2239.54	4226.54	3936.80	2766.65	2037.68	1407.31	1272.97	1195.23	2294.37	2549.42	1782.37	27150.72
<u>Osceola</u>														
Citrus	1170.01	90.83	56.29	91.62	145.09	180.28	88.96	29.68	10.18	22.15	47.25	64.41	70.12	896.85
Imp. Pasture	800.00	86.89	112.96	160.75	217.23	234.61	128.17	82.55	67.34	86.89	104.27	112.96	76.03	1470.66
Misc. Frost Freeze	0.00	15.73	7.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.86	31.45
TOTAL	1970.01	193.45	177.12	252.37	362.32	414.89	217.13	112.23	77.52	109.05	151.52	177.37	154.01	2398.96
<u>Polk</u>														
Citrus	4364.39	336.92	223.59	350.19	500.13	615.12	327.72	115.66	23.85	71.73	132.39	199.34	247.99	3144.63
TOTAL	4364.39	336.92	223.59	350.19	500.13	615.12	327.72	115.66	23.85	71.73	132.39	199.34	247.99	3144.63
<u>Putnam</u>														
Citrus	331.00	41.46	23.85	24.39	37.81	52.75	29.81	18.09	11.39	8.19	12.05	17.62	27.62	305.03
Other Fruit	217.50	1.47	1.83	9.23	20.66	30.49	14.64	9.64	6.07	4.93	6.11	5.30	2.40	112.76
Vegetables	5901.23	0.00	201.69	583.03	1116.79	1065.15	3.58	2.17	0.17	133.76	140.54	161.32	42.08	3450.28
Field Crops	1785.36	0.00	0.00	26.51	39.76	62.40	301.22	284.91	12.21	0.00	0.00	0.00	0.00	727.00
Imp. Pasture	315.04	20.53	30.80	54.75	70.15	92.39	53.89	48.76	35.07	37.64	35.07	35.07	17.96	532.09
Ornamentals	2124.77	821.42	519.27	322.19	426.83	529.64	367.62	326.47	282.00	240.90	238.41	213.52	469.79	4758.05
Sod/Turf	20.00	0.65	0.98	1.79	2.82	3.42	2.06	1.63	1.52	1.25	1.36	1.30	0.65	19.44
Misc. Frost Freeze	0.00	126.48	63.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63.24	252.95
TOTAL	10694.90	1012.00	841.66	1021.89	1714.81	1836.24	772.82	691.66	348.42	426.68	433.54	434.13	623.75	10157.61
<u>St. Johns</u>														
Citrus	38.01	7.62	4.07	4.23	9.19	10.73	4.54	3.51	1.55	0.72	1.34	3.51	5.41	56.44
Other Fruit	24.00	0.30	0.38	0.94	1.95	2.91	1.45	0.98	0.60	0.46	0.52	0.57	0.33	11.38
Vegetables	28053.08	0.00	746.12	2440.80	4601.60	4532.40	101.61	0.00	31.51	855.20	919.85	1051.22	277.94	15558.26
Field Crops	11497.62	0.00	0.00	147.88	220.88	352.53	1769.34	1765.73	62.14	0.00	0.00	0.00	0.00	4318.50
Imp. Pasture	56.00	0.46	0.61	6.23	13.53	15.81	6.69	5.17	2.28	1.06	1.98	5.17	2.59	61.58
Ornamentals	7.50	5.29	3.68	2.79	3.52	4.19	3.48	3.26	2.83	2.42	2.24	1.81	3.19	38.71
Sod/Turf	135.00	4.24	6.24	18.47	31.58	38.72	18.97	15.90	9.38	8.09	8.95	13.51	6.83	180.87
TOTAL	39811.21	17.91	761.10	2621.34	4882.25	4957.31	1906.09	1794.55	110.29	867.96	934.87	1075.79	296.28	20225.74

(Appendix Table 7.4.1 continued)

CROP	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<u>Seminole</u>														
Citrus	1713.01	97.04	55.74	140.03	205.61	250.38	153.11	65.72	73.62	57.63	55.32	52.01	50.31	1256.52
Other Fruit	7.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.38	0.48	0.13	1.29
Vegetables	523.07	0.00	28.79	58.19	104.11	136.20	59.86	5.74	0.00	2.52	3.04	3.66	2.77	404.89
Imp. Pasture	599.94	54.50	70.88	102.82	143.63	162.90	117.66	100.05	88.63	71.20	61.31	61.15	51.03	1085.76
Ornamentals	320.00	40.04	40.14	55.90	74.79	85.37	61.13	58.02	53.13	45.89	39.98	35.16	29.11	618.66
Sod/Turf	164.16	14.13	18.73	29.96	40.17	45.90	31.25	27.62	25.79	19.48	17.14	17.33	13.72	301.22
Misc. Frost Freeze	0.00	3.35	1.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.67	6.70
TOTAL	3327.19	209.07	215.96	386.90	568.30	680.76	423.01	257.14	241.17	197.03	177.17	169.78	148.74	3675.03
<u>Volusia</u>														
Citrus	1014.47	211.12	103.86	89.63	131.03	150.00	96.19	44.83	53.87	39.52	45.04	44.33	103.89	1113.31
Vegetables	456.95	0.00	0.00	33.78	83.09	137.69	53.15	0.00	0.00	0.00	0.00	0.00	0.00	307.71
Imp. Pasture	199.58	0.95	8.73	6.10	22.14	25.86	16.12	7.52	7.65	8.19	2.58	0.95	0.81	107.60
Ornamentals	6246.34	3657.42	2129.91	794.42	1099.82	1283.95	858.82	773.88	717.17	596.04	504.09	496.51	1979.20	14891.23
Sod/Turf	1458.07	123.14	132.06	186.15	265.09	303.59	194.64	179.61	161.39	134.12	111.71	109.58	97.98	1999.06
Misc. Frost Freeze	0.00	635.23	317.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	317.62	1270.47
TOTAL	9375.41	4627.86	2692.18	1110.08	1601.18	1901.09	1218.92	1005.83	940.09	777.87	663.42	651.36	2499.50	19689.38

^aAll estimates for water use on improved pasture in this table assume 100 percent of the pasture is irrigated (See text, Table 5.1, wherein it is assumed only 10 percent is irrigated).

Appendix Table 7.4.2

Projected Agricultural Water Use for 1990 CUP Acreage Under Best Management Practices, Assuming 2-in-10 Drought and 1-in-7 Freeze Conditions, St. Johns River Water Management District (in Millions of Gallons)^a

CROP	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<u>Alachua</u>														
Other Fruit	658.72	6.38	8.52	31.40	64.89	103.60	46.92	15.81	13.93	10.60	12.92	14.84	8.08	337.89
Vegetables	1590.19	0.00	0.00	9.42	34.24	68.42	23.39	0.21	38.00	69.92	63.68	0.00	0.00	307.27
Imp. Pasture	677.20	0.79	0.37	5.76	36.04	57.55	21.79	14.26	12.58	0.75	1.07	10.97	10.97	172.88
Ornamentals	4.00	0.78	0.95	1.49	1.88	2.24	1.87	1.75	1.51	1.29	1.19	0.97	0.68	16.60
Sod/Turf	3.00	0.08	0.11	0.24	0.36	0.49	0.27	0.20	0.18	0.12	0.16	0.16	0.10	2.47
TOTAL	2933.11	8.03	9.95	48.29	137.40	232.29	94.23	32.23	66.19	82.68	79.03	26.94	19.83	837.10
<u>Baker</u>														
Vegetables	5.00	0.00	0.00	0.18	0.49	0.94	0.33	0.00	0.00	0.00	0.00	0.00	0.00	1.93
Field Crops	30.00	0.00	0.00	0.00	1.22	3.42	3.18	2.12	0.00	0.00	0.00	0.00	0.00	9.94
Ornamentals	372.66	247.21	175.20	138.65	175.05	208.46	173.02	161.92	140.65	120.40	112.34	90.06	151.93	1894.89
TOTAL	407.66	247.21	175.20	138.83	176.76	212.82	176.52	164.04	140.65	120.40	112.34	90.06	151.93	1906.76
<u>Brevard</u>														
Citrus	9949.15	786.73	483.16	739.17	1150.62	1461.19	720.19	239.74	69.80	158.85	388.63	505.59	607.96	7311.61
Other Fruit	56.70	0.00	0.00	1.51	4.84	7.57	3.17	0.00	0.00	0.00	0.00	0.00	0.00	17.09
Vegetables	364.50	0.00	0.00	2.51	5.63	8.15	3.50	0.00	19.87	29.59	32.21	0.00	0.00	101.47
Imp. Pasture	45347.77	4745.83	5110.13	9049.70	12199.38	13263.58	7150.43	4376.76	3343.73	4885.35	5644.53	6181.02	4255.60	80206.04
Ornamentals	42.00	7.30	8.04	11.01	14.41	15.61	10.17	7.73	7.13	7.58	8.12	7.62	5.98	110.68
TOTAL	55760.12	5539.86	5601.33	9803.89	13374.88	14756.09	7887.46	4624.23	3440.52	5081.36	6073.50	6694.23	4869.55	87746.89
<u>Clay</u>														
Other Fruit	50.00	2.17	2.31	4.75	6.38	8.01	5.43	4.07	3.53	2.99	3.40	3.26	1.90	48.20
Vegetables	17.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.67	1.11	1.06	0.00	0.00	2.84
Imp. Pasture	30.25	2.14	2.71	5.18	6.82	8.87	5.34	4.35	4.35	3.28	3.61	3.45	1.89	52.00
Sod/Turf	35.00	1.71	2.09	3.71	5.13	6.37	4.18	3.23	3.04	2.66	2.85	2.57	1.62	39.16
TOTAL	133.00	6.02	7.11	13.63	18.33	23.25	14.95	11.66	11.60	10.04	10.92	9.28	5.41	142.21
<u>Duval</u>														
Ornamentals	207.14	40.78	48.93	77.06	97.31	115.87	96.18	89.99	78.18	66.93	62.15	50.06	35.72	859.17
Sod/Turf	610.00	25.69	29.82	59.60	82.79	107.56	67.07	51.35	47.98	38.10	43.88	40.57	24.00	618.41
TOTAL	817.14	66.47	78.75	136.66	180.10	223.43	163.25	141.34	126.17	105.03	106.03	90.63	59.72	1477.57

(Appendix Table 7.4.2 continued)

CROP	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<u>Flagler</u>														
Other Fruit	160.00	0.00	0.00	12.38	22.38	34.32	10.64	0.00	0.00	0.00	0.00	0.00	0.00	79.72
Vegetables	7649.84	0.00	218.67	517.37	807.23	507.18	130.34	95.29	3.01	168.53	218.40	252.72	140.83	3059.59
Field Crops	3002.00	0.00	0.00	29.98	44.96	302.05	480.28	187.48	0.00	0.00	0.00	0.00	0.00	1044.75
Imp. Pasture	80.00	0.22	0.00	4.35	7.39	10.21	5.86	2.61	1.09	0.00	0.00	0.00	0.00	31.72
Sod/Turf	720.00	30.51	35.94	69.80	98.26	127.23	77.98	64.36	60.87	48.36	50.14	48.82	28.85	741.11
TOTAL	11611.84	30.72	254.62	633.88	980.22	980.99	705.12	349.73	64.97	216.89	268.54	301.53	169.68	4956.89
<u>Indian River</u>														
Citrus	40087.65	2906.48	1813.05	2838.15	4486.45	5672.25	2744.90	841.83	289.56	525.26	1403.83	1952.00	2192.76	27666.52
Vegetables	165.00	0.00	0.00	12.10	26.88	47.94	19.71	0.00	0.00	0.00	0.00	0.00	0.00	106.63
Field Crops	345.00	0.00	0.00	0.00	0.00	15.14	39.05	16.43	11.97	11.53	0.00	0.00	0.00	94.11
Imp. Pasture	13195.12	1201.40	1399.58	2191.93	3381.87	3825.46	1919.71	1058.77	834.29	1053.73	1279.03	1484.83	1072.99	20703.61
Ornamentals	7.00	1.85	2.03	2.89	3.67	3.97	3.14	2.72	2.70	2.47	2.47	1.98	1.60	31.48
TOTAL	53799.77	4109.73	3214.67	5045.07	7898.87	9564.77	4726.51	1919.75	1138.51	1592.99	2685.33	3438.81	3267.34	48602.35
<u>Lake</u>														
Citrus	57350.35	4742.63	2549.83	4289.43	6159.20	7994.88	4765.22	2576.15	2620.13	1854.89	1198.67	1558.23	2377.81	42687.07
Other Fruit	1104.80	0.92	1.14	25.05	89.50	147.72	71.09	4.56	1.68	1.25	1.03	1.09	0.87	345.91
Vegetables	2078.11	0.00	6.31	61.69	150.78	236.14	105.10	25.13	70.58	92.24	76.20	0.00	0.00	824.16
Field Crops	555.00	0.00	0.00	9.11	53.54	79.74	41.53	13.59	8.66	4.61	0.00	0.00	0.00	210.77
Imp. Pasture	2926.92	59.86	153.86	163.55	421.64	532.98	299.14	114.68	151.10	127.93	39.48	65.80	35.08	2165.11
Ornamentals	1729.18	507.84	408.55	410.55	537.88	608.22	455.90	442.33	402.02	355.98	306.37	260.14	334.04	5029.83
Sod/Turf	72.38	4.05	4.42	4.44	9.59	11.20	4.95	4.81	3.39	3.11	4.40	4.26	4.01	62.64
TOTAL	65816.74	5315.31	3124.10	4963.82	7422.14	9610.89	5742.93	3181.25	3257.55	2440.01	1626.15	1889.52	2751.82	51325.48
<u>Marion</u>														
Citrus	5648.73	1144.87	561.17	297.78	486.37	711.01	401.76	186.37	129.18	80.25	124.11	187.71	656.53	4967.12
Other Fruit	2572.98	1.10	1.48	57.97	181.64	356.50	148.15	2.68	2.35	1.67	2.02	2.22	1.33	759.12
Vegetables	1435.11	0.00	0.02	24.14	80.51	156.46	48.38	0.00	15.92	27.88	29.45	0.00	0.00	382.76
Field Crops	2128.40	0.00	0.00	27.55	55.95	120.21	115.97	112.61	106.62	25.62	3.80	0.00	0.00	568.33
Imp. Pasture	1221.46	1.29	16.29	61.12	96.86	93.30	37.59	16.06	25.40	1.66	2.34	1.36	6.11	359.39
Ornamentals	76.90	39.70	27.25	21.90	27.74	33.24	26.88	24.87	21.57	18.47	17.29	14.26	23.51	296.68
Sod/Turf	750.00	22.70	30.79	66.53	101.42	128.06	72.83	53.00	46.95	40.35	47.82	45.46	23.65	679.56
TOTAL	13833.58	1209.65	637.00	557.00	1030.49	1598.78	851.56	395.60	347.99	195.90	226.83	251.01	711.13	8012.96
<u>Okeechobee</u>														
Citrus	2570.06	217.93	129.91	192.54	297.10	383.83	185.58	59.95	14.07	36.24	94.95	132.60	162.04	1906.72
TOTAL	2570.06	217.93	129.91	192.54	297.10	383.83	185.58	59.95	14.07	36.24	94.95	132.60	162.04	1906.72

(Appendix Table 7.4.2 continued)

CROP	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<u>Orange</u>														
Citrus	10303.00	679.64	368.96	753.06	1102.17	1440.92	865.88	464.80	497.15	334.64	221.85	267.40	383.79	7380.25
Vegetables	32343.00	0.00	919.35	2083.11	1359.70	131.59	231.85	100.25	2.51	139.36	1091.41	1361.58	676.11	8521.47
Field Crops	.45	0.00	0.00	0.00	0.00	0.01	0.02	0.03	0.03	0.02	0.00	0.00	0.00	0.11
Imp. Pasture	737.00	55.24	84.43	117.07	164.86	188.83	128.06	102.88	94.04	81.26	61.78	66.61	58.66	1203.73
Ornamentals	1492.00	374.04	376.89	479.02	617.90	697.98	542.53	538.38	485.13	433.35	373.72	306.62	285.30	5510.86
Sod/Turf	157.00	8.14	9.85	17.06	25.14	28.60	17.13	15.79	13.72	12.38	10.24	9.83	7.26	175.14
TOTAL	45033.00	1117.07	1759.48	3449.32	3269.76	2487.92	1785.45	1222.13	1092.60	1001.01	1759.01	2012.04	1411.12	22791.55
<u>Osceola</u>														
Citrus	1170.01	96.57	58.19	88.14	138.84	173.55	85.70	27.94	8.77	20.09	45.24	62.02	71.85	876.90
Imp. Pasture	800.00	86.89	112.96	160.75	217.23	234.61	128.17	82.55	67.34	86.89	104.27	112.96	76.03	1470.66
TOTAL	1970.01	183.46	171.15	248.89	356.07	408.16	213.87	110.49	76.11	106.98	149.51	174.98	147.88	2347.56
<u>Polk</u>														
Citrus	4364.39	280.02	170.00	306.78	437.68	588.23	292.65	80.90	18.36	55.28	126.60	171.63	215.46	2743.59
TOTAL	4364.39	280.02	170.00	306.78	437.68	588.23	292.65	80.90	18.36	55.28	126.60	171.63	215.46	2743.59
<u>Putnam</u>														
Citrus	331.00	55.73	27.43	16.26	28.18	40.96	23.85	11.30	6.00	3.76	5.95	11.89	33.85	265.16
Other Fruit	217.50	2.69	2.24	8.22	18.31	27.22	14.93	10.03	6.48	4.11	4.48	5.70	3.22	107.63
Vegetables	5901.23	0.00	155.22	448.93	859.76	820.55	3.58	2.17	0.17	103.01	108.17	124.08	32.37	2658.01
Field Crops	1785.36	0.00	0.00	20.39	30.58	48.00	231.70	219.15	9.40	0.00	0.00	0.00	0.00	559.22
Imp. Pasture	315.04	20.53	30.80	54.75	70.15	92.39	53.89	48.76	35.07	37.64	35.07	35.07	17.96	532.09
Ornamentals	2124.77	1093.02	655.06	322.19	426.83	529.64	367.62	326.47	282.00	240.90	238.41	213.52	605.58	5301.23
Sod/Turf	20.00	0.65	0.98	1.79	2.82	3.42	2.06	1.63	1.52	1.25	1.36	1.30	0.65	19.44
TOTAL	10694.90	1172.62	871.73	872.53	1436.63	1562.18	697.64	619.51	340.63	390.68	393.44	391.57	693.63	9442.78
<u>St. Johns</u>														
Citrus	38.01	7.39	3.90	1.55	2.37	3.72	1.96	0.00	0.00	0.00	0.21	0.00	3.70	24.79
Other Fruit	24.00	0.30	0.38	0.94	1.95	2.91	1.45	0.98	0.60	0.46	0.52	0.57	0.33	11.38
Vegetables	28053.08	0.00	573.93	1877.47	3539.58	3486.35	78.16	0.00	24.25	657.81	707.56	808.59	213.79	11967.49
Field Crops	11497.62	0.00	0.00	113.74	169.90	271.17	1360.98	1358.19	47.81	0.00	0.00	0.00	0.00	3321.79
Imp. Pasture	56.00	0.46	0.61	6.23	13.53	15.81	6.69	5.17	2.28	1.06	1.98	5.17	2.59	61.58
Ornamentals	7.50	4.50	3.28	2.79	3.52	4.19	3.48	3.26	2.83	2.42	2.24	1.81	2.79	37.12
Sod/Turf	135.00	4.24	6.24	18.47	31.58	38.72	18.97	15.90	9.38	8.09	8.95	13.51	6.83	180.87
TOTAL	39811.21	16.88	588.35	2021.19	3762.44	3822.87	1471.69	1383.50	87.15	669.85	721.45	829.65	230.02	15605.03

(Appendix Table 7.4.2 continued)

CROP	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<u>Seminole</u>														
Citrus	1713.01	168.12	111.04	120.32	171.17	227.01	135.55	66.75	75.44	64.48	27.32	32.88	89.14	1289.22
Other Fruit	7.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
Vegetables	523.07	0.00	22.55	46.11	81.00	104.78	46.04	4.40	0.00	1.93	2.34	2.81	2.13	314.10
Imp. Pasture	599.94	54.50	70.88	102.82	143.63	162.90	117.66	100.05	88.63	71.20	61.31	61.15	51.03	1085.76
Ornamentals	320.00	65.27	52.76	55.90	74.79	85.37	61.13	58.02	53.13	45.89	39.98	35.16	41.72	669.11
Sod/Turf	164.16	14.13	18.73	29.96	40.17	45.90	31.25	27.62	25.79	19.48	17.14	17.33	13.72	301.22
TOTAL	3327.19	302.07	275.96	355.11	510.75	625.96	391.63	256.84	243.00	202.98	148.09	149.33	197.75	3659.45
<u>Volusia</u>														
Citrus	1014.47	225.34	115.88	76.20	109.19	142.45	85.31	47.15	47.74	32.88	21.65	26.82	115.02	1045.63
Vegetables	456.95	0.00	0.00	26.24	64.88	107.52	41.45	0.00	0.00	0.00	0.00	0.00	0.00	240.09
Imp. Pasture	199.58	0.95	8.73	6.10	22.14	25.86	16.12	7.52	7.65	8.19	2.58	0.95	0.81	107.60
Ornamentals	6246.34	3295.00	1948.65	794.42	1099.82	1283.95	858.82	773.88	717.17	596.04	504.09	496.51	1797.94	14166.29
Sod/Turf	1458.07	91.59	116.29	186.15	265.09	303.59	194.64	179.61	161.39	134.12	111.71	109.58	82.20	1935.96
TOTAL	9375.41	3612.88	2189.55	1089.11	1561.13	1863.37	1196.34	1008.15	933.96	771.22	640.02	633.85	1995.98	17495.57

^aAll estimates for water use on improved pasture in this table assume 100 percent of the pasture is irrigated (See text, Table 5.1, wherein it is assumed only 10 percent is irrigated).

Appendix Table 7.4.3

Projected Agricultural Water Use for Annual Water Use Survey Acreage Under Current Irrigation Technology, Assuming 2-in-10 Drought and 1-in-7 Freeze Conditions, Unadjusted Base, St. Johns River Water Management District, 1990, 1995, 2010 (in Millions of Gallons)^a

CROP	YEAR	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<u>Alachua</u>															
Citrus	1990	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Fruit	1990	1180.00	27.27	25.09	59.83	120.55	188.15	87.08	29.91	27.72	21.87	27.75	28.54	20.90	664.66
Vegetables	1990	1352.00	45.06	22.52	8.00	29.11	58.18	19.89	0.18	32.31	59.45	54.15	0.00	22.52	351.37
Field Crops	1990	583.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	1990	664.00	0.77	0.37	5.64	35.33	56.43	21.36	13.98	12.33	0.73	1.05	10.76	10.76	169.50
Ornamentals	1990	59.00	11.55	13.94	21.95	27.72	33.00	27.55	25.80	22.26	19.06	17.63	14.26	10.09	244.79
Sod/Turf	1990	421.00	11.37	16.00	33.12	50.24	68.62	37.75	28.63	25.12	17.12	21.75	22.87	13.75	346.35
Misc. FF	1990	0.00	8.95	4.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.48	17.91
	TOTAL	4259.00	104.97	82.39	128.54	262.94	404.37	193.64	98.49	119.74	118.22	122.33	76.44	82.50	1794.58
<u>Alachua</u>															
Citrus	1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Fruit	1995	1172.00	27.08	24.92	59.42	119.73	186.88	86.49	29.71	27.53	21.72	27.57	28.35	20.76	660.15
Vegetables	1995	1265.00	42.16	21.07	7.49	27.24	54.43	18.61	0.16	30.23	55.62	50.66	0.00	21.07	328.76
Field Crops	1995	341.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	1995	650.00	0.75	0.36	5.52	34.59	55.24	20.91	13.68	12.07	0.72	1.03	10.53	10.53	165.93
Ornamentals	1995	56.00	10.96	13.23	20.83	26.31	31.32	26.15	24.49	21.13	18.09	16.73	13.54	9.58	232.34
Sod/Turf	1995	436.00	11.77	16.57	34.30	52.03	71.07	39.10	29.65	26.02	17.73	22.53	23.69	14.24	358.69
Misc. FF	1995	0.00	8.95	4.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.48	17.91
	TOTAL	3920.00	101.69	80.63	127.57	259.89	398.93	191.26	97.69	116.98	113.87	118.51	76.11	80.66	1763.78
<u>Alachua</u>															
Citrus	2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Fruit	2010	1171.00	27.06	24.90	59.37	119.63	186.72	86.42	29.68	27.51	21.70	27.54	28.33	20.74	659.59
Vegetables	2010	1262.00	42.06	21.02	7.47	27.17	54.30	18.56	0.16	30.16	55.49	50.54	0.00	21.02	327.98
Field Crops	2010	346.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	2010	646.00	0.75	0.36	5.49	34.37	54.90	20.78	13.60	12.00	0.71	1.02	10.47	10.47	164.90
Ornamentals	2010	56.00	10.96	13.23	20.83	26.31	31.32	26.15	24.49	21.13	18.09	16.73	13.54	9.58	232.34
Sod/Turf	2010	435.00	11.75	16.53	34.22	51.91	70.90	39.01	29.58	25.96	17.69	22.48	23.63	14.21	357.87
Misc. FF	2010	0.00	8.95	4.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.48	17.91
	TOTAL	3916.00	101.53	80.52	127.39	259.39	398.14	190.92	97.51	116.75	113.68	118.31	75.96	80.50	1760.60

(Appendix Table 7.4.3 continued)

CROP	YEAR	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<u>Baker</u>															
Citrus	1990	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Fruit	1990	60.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	1990	123.00	0.00	0.00	4.35	12.03	23.05	8.02	0.00	0.00	0.00	0.00	0.00	0.00	47.45
Field Crops	1990	80.00	0.00	0.00	0.00	3.26	9.12	8.47	5.65	0.00	0.00	0.00	0.00	0.00	26.50
Imp. Pasture	1990	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ornamentals	1990	414.00	134.77	124.70	154.03	194.47	231.59	192.22	179.87	156.25	133.76	124.80	100.05	98.85	1825.36
Sod/Turf	1990	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	TOTAL	677.00	134.77	124.70	158.38	209.76	263.76	208.71	185.52	156.25	133.76	124.80	100.05	98.85	1899.32
<u>Baker</u>															
Citrus	1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Fruit	1995	54.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	1995	120.00	0.00	0.00	4.25	11.74	22.49	7.82	0.00	0.00	0.00	0.00	0.00	0.00	46.30
Field Crops	1995	80.00	0.00	0.00	0.00	3.26	9.12	8.47	5.65	0.00	0.00	0.00	0.00	0.00	26.50
Imp. Pasture	1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ornamentals	1995	416.00	135.42	125.30	154.77	195.41	232.71	193.14	180.74	157.01	134.40	125.41	100.53	99.33	1834.18
Sod/Turf	1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	TOTAL	670.00	135.42	125.30	159.02	210.41	264.32	209.44	186.39	157.01	134.40	125.41	100.53	99.33	1906.98
<u>Baker</u>															
Citrus	2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Fruit	2010	48.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	2010	118.00	0.00	0.00	4.18	11.54	22.11	7.69	0.00	0.00	0.00	0.00	0.00	0.00	45.52
Field Crops	2010	80.00	0.00	0.00	0.00	3.26	9.12	8.47	5.65	0.00	0.00	0.00	0.00	0.00	26.50
Imp. Pasture	2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ornamentals	2010	415.00	135.10	125.00	154.40	194.94	232.15	192.68	180.31	156.63	134.08	125.11	100.29	99.09	1829.77
Sod/Turf	2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	TOTAL	661.00	135.10	125.00	158.58	209.74	263.38	208.85	185.96	156.63	134.08	125.11	100.29	99.09	1801.80

(Appendix Table 7.4.3 continued)

CROP	YEAR	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<u>Brevard</u>															
Citrus	1990	9063.00	852.19	721.60	1111.40	1538.53	1750.34	1104.60	618.01	458.41	580.76	733.56	748.69	675.01	10893.09
Other Fruit	1990	195.00	0.00	0.00	17.44	39.70	56.62	35.73	0.00	0.00	0.00	0.00	0.00	0.00	149.49
Vegetables	1990	2945.00	0.00	0.00	26.39	59.17	85.55	36.78	0.00	208.77	310.87	338.35	0.00	0.00	1065.88
Field Crops	1990	4770.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	1990	77071.00	8065.48	8685.13	15380.29	20733.64	22542.50	12152.56	7438.89	5683.22	8302.86	9593.03	10504.78	7232.34	136314.71
Ornamentals	1990	201.00	36.35	39.19	52.67	68.96	74.70	48.65	36.97	34.11	36.26	38.87	36.48	29.34	532.55
Sod/Turf	1990	1681.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Misc. FF	1990	0.00	110.95	55.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	55.47	221.89
TOTAL		95926.00	9064.97	9501.39	16588.18	22440.01	24509.71	13378.32	8093.87	6384.50	9230.75	10703.80	11289.95	7992.16	149177.61
<u>Brevard</u>															
Citrus	1995	8991.00	845.42	715.86	1102.57	1526.31	1736.43	1095.82	613.10	454.76	576.14	727.73	742.75	669.65	10806.55
Other Fruit	1995	198.00	0.00	0.00	17.71	40.31	57.49	36.28	0.00	0.00	0.00	0.00	0.00	0.00	151.79
Vegetables	1995	3117.00	0.00	0.00	27.93	62.62	90.55	38.93	0.00	220.96	329.03	358.11	0.00	0.00	1128.14
Field Crops	1995	4660.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	1995	80617.00	8436.57	9084.73	16087.93	21687.59	23579.67	12711.69	7781.15	5944.70	8684.87	10034.40	10988.10	7565.10	142586.48
Ornamentals	1995	201.00	36.35	39.19	52.67	68.96	74.70	48.65	36.97	34.11	36.26	38.87	36.48	29.34	532.55
Sod/Turf	1995	1598.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Misc. FF	1995	0.00	110.95	55.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	55.47	221.89
TOTAL		99382.00	9429.29	9895.25	17288.80	23385.79	25538.84	13931.38	8431.22	6654.53	9626.30	11159.11	11767.33	8319.56	155427.40
<u>Brevard</u>															
Citrus	2010	9250.00	869.78	736.48	1134.33	1570.28	1786.45	1127.39	630.76	467.86	592.74	748.69	764.14	688.94	11117.85
Other Fruit	2010	198.00	0.00	0.00	17.71	40.31	57.49	36.28	0.00	0.00	0.00	0.00	0.00	0.00	151.79
Vegetables	2010	3299.00	0.00	0.00	29.56	66.28	95.84	41.20	0.00	233.87	348.24	379.02	0.00	0.00	1194.01
Field Crops	2010	4608.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	2010	80671.00	8442.22	9090.81	16098.70	21702.11	23595.46	12720.20	7786.36	5948.68	8690.69	10041.12	10995.46	7570.17	142681.99
Ornamentals	2010	201.00	36.35	39.19	52.67	68.96	74.70	48.65	36.97	34.11	36.26	38.87	36.48	29.34	532.55
Sod/Turf	2010	1589.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Misc. FF	2010	0.00	110.95	55.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	55.47	221.89
TOTAL		99816.00	9459.29	9921.96	17332.97	23447.95	25609.94	13973.73	8454.09	6684.52	9667.93	11207.70	11796.08	8343.91	155900.08

(Appendix Table 7.4.3 continued)

CROP	YEAR	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<u>Clay</u>															
Citrus	1990	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Fruit	1990	13.00	0.95	1.69	2.26	2.97	3.78	2.33	1.91	1.94	1.48	1.59	1.52	0.85	23.26
Vegetables	1990	58.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.21	3.63	3.46	0.00	0.00	9.30
Field Crops	1990	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	1990	160.00	11.29	14.33	27.37	36.07	46.92	28.24	23.04	23.04	17.38	19.12	18.25	10.00	275.04
Ornamentals	1990	50.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sod/Turf	1990	143.00	6.99	8.54	15.15	20.97	26.02	17.09	13.20	12.43	10.87	11.65	10.48	6.60	159.98
	TOTAL	429.00	19.24	24.57	44.78	60.01	76.71	47.66	38.14	39.61	33.36	35.82	30.25	17.45	467.59
<u>Clay</u>															
Citrus	1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Fruit	1995	13.00	0.95	1.69	2.26	2.97	3.78	2.33	1.91	1.94	1.48	1.59	1.52	0.85	23.26
Vegetables	1995	59.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.24	3.69	3.52	0.00	0.00	9.46
Field Crops	1995	10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	1995	170.00	12.00	15.23	29.08	38.33	49.85	30.01	24.47	24.47	18.46	20.31	19.39	10.62	292.23
Ornamentals	1995	50.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sod/Turf	1995	144.00	7.04	8.60	15.25	21.11	26.20	17.21	13.29	12.51	10.95	11.73	10.56	6.65	161.10
	TOTAL	446.00	19.99	25.53	46.59	62.41	79.82	49.55	39.67	41.17	34.58	37.16	31.46	18.12	486.05
<u>Clay</u>															
Citrus	2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Fruit	2010	13.00	0.95	1.69	2.26	2.97	3.78	2.33	1.91	1.94	1.48	1.59	1.52	0.85	23.26
Vegetables	2010	59.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.24	3.69	3.52	0.00	0.00	9.46
Field Crops	2010	10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	2010	173.00	12.21	15.50	29.60	39.00	50.73	30.54	24.91	24.91	18.79	20.67	19.73	10.81	297.39
Ornamentals	2010	50.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sod/Turf	2010	144.00	7.04	8.60	15.25	21.11	26.20	17.21	13.29	12.51	10.95	11.73	10.56	6.65	161.10
	TOTAL	449.00	20.20	25.80	47.11	63.08	80.70	50.08	40.11	41.60	34.91	37.52	31.81	18.31	491.21

(Appendix Table 7.4.3 continued)

CROP	YEAR	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<u>Duval</u>															
Citrus	1990	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Fruit	1990	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	1990	8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Field Crops	1990	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	1990	500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ornamentals	1990	73.00	14.37	17.25	27.16	34.29	40.83	33.90	31.72	27.55	23.59	21.90	17.64	12.59	302.79
Sod/Turf	1990	795.00	33.48	38.86	77.68	107.90	140.17	87.41	66.92	62.53	49.65	57.19	52.87	31.28	805.95
	TOTAL	1396.00	47.85	56.11	104.84	142.19	181.01	121.31	98.64	90.09	73.24	79.10	70.51	43.87	1108.73
<u>Duval</u>															
Citrus	1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Fruit	1995	19.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	1995	9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Field Crops	1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pasture	1995	500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ornamentals	1995	73.00	14.37	17.25	27.16	34.29	40.83	33.90	31.72	27.55	23.59	21.90	17.64	12.59	302.79
Sod/Turf	1995	849.00	35.75	41.50	82.96	115.23	149.70	93.35	71.47	66.78	53.02	61.08	56.46	33.41	860.69
	TOTAL	1450.00	50.12	58.74	110.11	149.52	190.53	127.24	103.18	94.34	76.61	82.98	74.10	46.00	1163.48
<u>Duval</u>															
Citrus	2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Fruit	2010	19.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	2010	9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Field Crops	2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	2010	500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ornamentals	2010	73.00	14.37	17.25	27.16	34.29	40.83	33.90	31.72	27.55	23.59	21.90	17.64	12.59	302.79
Sod/Turf	2010	841.00	35.41	41.11	82.17	114.14	148.29	92.47	70.80	66.15	52.52	60.50	55.93	33.09	852.58
	TOTAL	1442.00	49.79	58.35	109.33	148.43	189.12	126.36	102.51	93.71	76.11	82.41	73.57	45.68	1155.37

(Appendix Table 7.4.3 continued)

CROP	YEAR	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<u>Flagler</u>															
Citrus	1990	15.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Fruit	1990	110.00	0.00	0.00	9.11	16.43	25.24	7.91	0.00	0.00	0.00	0.00	0.00	0.00	58.69
Vegetables	1990	4950.00	0.00	183.60	432.88	674.29	416.89	103.55	75.69	1.93	138.01	178.25	206.46	116.08	2527.62
Field Crops	1990	410.00	0.00	0.00	5.32	7.98	53.63	85.28	33.29	0.00	0.00	0.00	0.00	0.00	185.50
Imp. Pasture	1990	566.00	1.53	0.00	30.74	52.26	72.24	41.49	18.45	7.69	0.00	0.00	0.00	0.00	224.40
Ornamentals	1990	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sod/Turf	1990	221.00	9.43	11.07	21.42	30.16	39.05	23.94	19.75	18.68	14.84	15.39	14.98	8.89	227.61
	TOTAL	6276.00	10.97	194.66	499.47	781.12	607.05	262.17	147.17	28.30	152.85	193.64	221.45	124.97	3223.82
<u>Flagler</u>															
Citrus	1995	6.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Fruit	1995	104.00	0.00	0.00	8.61	15.53	23.86	7.48	0.00	0.00	0.00	0.00	0.00	0.00	55.49
Vegetables	1995	4950.00	0.00	183.60	432.88	674.29	416.89	103.55	75.69	1.93	138.01	178.25	206.46	116.08	2527.62
Field Crops	1995	404.00	0.00	0.00	5.24	7.87	52.85	84.03	32.80	0.00	0.00	0.00	0.00	0.00	182.79
Imp. Pasture	1995	620.00	1.68	0.00	33.67	57.24	79.13	45.45	20.21	8.42	0.00	0.00	0.00	0.00	245.81
Ornamentals	1995	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sod/Turf	1995	220.00	9.39	11.02	21.33	30.03	38.87	23.83	19.66	18.60	14.78	15.32	14.92	8.85	226.58
	TOTAL	6308.00	11.07	194.61	501.73	784.96	611.60	264.35	148.36	28.95	152.78	193.57	221.38	124.93	3238.28
<u>Flagler</u>															
Citrus	2010	6.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Fruit	2010	104.00	0.00	0.00	8.61	15.53	23.86	7.48	0.00	0.00	0.00	0.00	0.00	0.00	55.49
Vegetables	2010	4944.00	0.00	183.37	432.35	673.47	416.38	103.43	75.59	1.93	137.84	178.03	206.21	115.94	2524.55
Field Crops	2010	404.00	0.00	0.00	5.24	7.87	52.85	84.03	32.80	0.00	0.00	0.00	0.00	0.00	182.79
Imp. Pasture	2010	616.00	1.67	0.00	33.46	56.88	78.62	45.16	20.08	8.37	0.00	0.00	0.00	0.00	244.22
Ornamentals	2010	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sod/Turf	2010	219.00	9.35	10.97	21.23	29.89	38.70	23.72	19.57	18.51	14.71	15.25	14.85	8.81	225.55
	TOTAL	6297.00	11.02	194.34	500.89	783.63	610.41	263.82	148.04	28.81	152.55	193.28	221.06	124.75	3232.60

(Appendix Table 7.4.3 continued)

	CROP	YEAR	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
	<u>Indian River</u>															
	Citrus	1990	63607.00	7762.60	6388.69	8384.67	11393.92	12495.60	8964.77	5459.39	4774.34	5316.27	6210.59	5650.21	5353.80	88154.85
	Other Fruit	1990	141.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Vegetables	1990	2500.00	0.00	0.00	183.30	407.30	726.38	298.70	0.00	0.00	0.00	0.00	0.00	0.00	1615.68
	Field Crops	1990	4923.00	0.00	0.00	0.00	0.00	0.00	280.81	724.52	304.73	221.93	213.81	0.00	0.00	1745.79
	Imp. Pasture	1990	22195.00	2020.85	2354.22	3687.03	5688.58	6434.55	3229.15	1780.93	1403.39	1772.49	2151.36	2497.60	1804.90	34825.07
	Ornamentals	1990	57.00	14.61	16.36	23.52	29.87	32.36	25.56	22.12	21.99	20.15	20.12	16.09	12.81	255.55
	Sod/Turf	1990	941.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Misc. FF	1990	0.00	2.07	1.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.03	4.13
	TOTAL		94364.00	9800.13	8760.30	12278.53	17519.67	19969.69	13242.70	7567.17	6421.65	7322.72	8382.07	8163.90	7172.54	126601.06
	<u>Indian River</u>															
	Citrus	1995	63820.00	7788.59	6410.08	8412.75	11432.08	12537.44	8994.79	5477.67	4790.33	5334.08	6231.38	5669.13	5371.73	88450.05
	Other Fruit	1995	148.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Vegetables	1995	2657.00	0.00	0.00	194.81	432.88	771.99	317.46	0.00	0.00	0.00	0.00	0.00	0.00	1717.14
	Field Crops	1995	4527.00	0.00	0.00	0.00	0.00	258.22	666.24	280.22	204.08	196.61	0.00	0.00	0.00	1605.36
	Imp. Pasture	1995	21827.00	1987.35	2315.19	3625.90	5594.26	6327.87	3175.61	1751.40	1380.12	1743.10	2115.69	2456.19	1774.97	34247.65
	Ornamentals	1995	59.00	15.12	16.93	24.35	30.92	33.49	26.46	22.89	22.76	20.85	20.83	16.66	13.26	264.51
	Sod/Turf	1995	1005.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Misc. FF	1995	0.00	2.07	1.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.03	4.13
	TOTAL		94043.00	9793.13	8743.23	12257.81	17490.13	19929.01	13180.56	7532.18	6397.28	7294.64	8367.90	8141.98	7160.99	126288.85
	<u>Indian River</u>															
	Citrus	2010	63678.00	7771.26	6395.82	8394.03	11406.64	12509.54	8974.78	5465.48	4779.67	5322.21	6217.52	5656.52	5359.78	88253.25
	Other Fruit	2010	146.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Vegetables	2010	2620.00	0.00	0.00	192.10	426.85	761.24	313.04	0.00	0.00	0.00	0.00	0.00	0.00	1693.23
	Field Crops	2010	4708.00	0.00	0.00	0.00	0.00	268.54	692.88	291.43	212.24	204.47	0.00	0.00	0.00	1669.55
	Imp. Pasture	2010	21716.00	1977.24	2303.42	3607.46	5565.81	6295.69	3159.46	1742.49	1373.10	1734.24	2104.93	2443.70	1765.95	34073.49
	Ornamentals	2010	57.00	14.61	16.36	23.52	29.87	32.36	25.56	22.12	21.99	20.15	20.12	16.09	12.81	255.55
	Sod/Turf	2010	1003.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Misc. FF	2010	0.00	2.07	1.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.03	4.13
	TOTAL		93928.00	9765.18	8716.62	12217.12	17429.17	19867.37	13165.71	7521.52	6387.00	7281.06	8342.57	8116.31	7139.56	125949.20

(Appendix Table 7.4.3 continued)

CROP	YEAR	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<u>Lake</u>															
Citrus	1990	13569.00	1279.15	641.68	1167.48	1684.05	1979.85	1251.33	591.34	708.17	520.78	529.87	534.08	617.66	11505.43
Other Fruit	1990	687.00	4.12	2.48	23.46	72.71	114.56	52.69	2.84	1.04	0.78	0.64	0.67	2.32	278.30
Vegetables	1990	9015.00	0.00	34.71	333.74	802.79	1254.35	556.32	126.93	398.01	520.17	429.75	0.00	0.00	4456.75
Field Crops	1990	1085.00	0.00	0.00	17.82	104.66	155.89	81.34	26.76	17.14	9.18	0.00	0.00	0.00	412.79
Imp. Pasture	1990	2323.00	47.51	122.12	129.81	334.65	423.02	237.41	91.02	119.91	101.54	31.34	52.22	27.85	1718.39
Ornamentals	1990	1341.00	443.82	341.83	318.39	417.13	471.68	353.55	343.03	311.77	276.07	237.60	201.74	284.05	4000.67
Sod/Turf	1990	279.00	15.63	17.03	17.11	36.98	43.16	19.07	18.55	13.07	12.00	16.98	16.44	15.45	241.47
Misc. FF	1990	0.00	158.73	79.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	79.37	317.46
TOTAL		28299.00	1948.94	1239.22	2007.80	3452.97	4442.52	2551.72	1200.46	1569.12	1440.51	1246.17	805.15	1026.69	22931.27
<u>Lake</u>															
Citrus	1995	16524.00	1557.72	781.42	1421.73	2050.79	2411.02	1523.84	720.12	862.39	634.19	645.26	650.38	752.17	14011.03
Other Fruit	1995	687.00	4.12	2.48	23.46	72.71	114.56	52.69	2.84	1.04	0.78	0.64	0.67	2.32	278.30
Vegetables	1995	9153.00	0.00	35.24	338.84	815.07	1273.55	564.83	128.87	404.10	528.13	436.32	0.00	0.00	4524.97
Field Crops	1995	974.00	0.00	0.00	15.99	93.95	139.94	73.02	24.02	15.39	8.24	0.00	0.00	0.00	370.56
Imp. Pasture	1995	2002.00	40.94	105.25	111.87	288.41	364.56	204.60	78.44	103.34	87.51	27.01	45.00	24.00	1480.94
Ornamentals	1995	1396.00	462.02	355.85	331.45	434.24	491.03	368.06	357.10	324.56	287.39	247.34	210.01	295.70	4164.76
Sod/Turf	1995	308.00	17.25	18.80	18.89	40.83	47.65	21.05	20.48	14.43	13.25	18.74	18.14	17.05	266.57
Misc. FF	1995	0.00	158.73	79.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	79.37	317.46
TOTAL		31044.00	2240.77	1378.41	2262.24	3796.01	4842.32	2808.10	1331.86	1725.25	1559.48	1375.32	924.22	1170.61	25414.59
<u>Lake</u>															
Citrus	2010	24300.00	2290.76	1149.15	2090.77	3015.87	3545.61	2240.95	1058.99	1268.22	932.63	948.92	956.45	1106.14	20604.46
Other Fruit	2010	695.00	4.16	2.51	23.73	73.56	115.90	53.30	2.87	1.06	0.79	0.65	0.68	2.34	281.54
Vegetables	2010	9221.00	0.00	35.50	341.36	821.13	1283.01	569.03	129.83	407.11	532.05	439.57	0.00	0.00	4558.59
Field Crops	2010	1004.00	0.00	0.00	16.49	96.85	144.25	75.27	24.76	15.86	8.49	0.00	0.00	0.00	381.97
Imp. Pasture	2010	1998.00	40.86	105.03	111.65	287.83	363.84	204.20	78.28	103.14	87.33	26.95	44.92	23.96	1477.98
Ornamentals	2010	1375.00	455.07	350.50	326.47	427.71	483.64	362.52	351.72	319.67	283.07	243.62	206.86	291.25	4102.11
Sod/Turf	2010	304.00	17.03	18.56	18.64	40.30	47.03	20.78	20.22	14.24	13.08	18.50	17.91	16.83	263.11
Misc. FF	2010	0.00	158.73	79.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	79.37	317.46
TOTAL		38897.00	2966.61	1740.62	2929.11	4763.24	5983.29	3526.04	1666.68	2129.29	1857.44	1678.20	1226.81	1519.89	31987.22

(Appendix Table 7.4.3 continued)

CROP	YEAR	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<u>Marion</u>															
Citrus	1990	277.00	58.90	28.81	18.15	28.28	39.69	22.35	10.55	5.92	1.17	8.08	9.10	39.07	270.06
Other Fruit	1990	1763.00	1.36	1.52	54.32	155.83	284.48	117.33	2.20	2.03	1.60	1.87	1.76	1.08	625.37
Vegetables	1990	988.00	0.00	0.02	16.62	55.43	107.71	33.31	0.00	10.96	19.19	20.27	0.00	0.00	263.50
Field Crops	1990	735.00	0.00	0.00	11.97	23.17	47.68	46.22	42.62	39.44	10.72	1.32	0.00	0.00	223.13
Imp. Pasture	1990	787.00	0.83	10.49	39.38	62.41	60.11	24.22	10.35	16.37	1.07	1.51	0.87	3.93	231.56
Ornamentals	1990	82.00	71.89	43.84	23.35	29.58	35.45	28.67	26.52	23.00	19.70	18.43	15.21	39.85	375.49
Sod/Turf	1990	722.00	21.85	29.65	64.04	97.64	123.27	70.11	51.02	45.20	38.84	46.03	43.76	22.76	654.18
Misc. FF	1990	0.00	301.73	150.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	150.87	603.47
TOTAL		5354.00	456.58	265.19	227.83	452.33	698.39	342.20	143.27	142.91	92.29	97.52	70.70	257.57	3246.77
<u>Marion</u>															
Citrus	1995	1350.00	287.06	140.41	88.45	137.85	193.41	108.92	51.39	28.85	5.68	39.38	44.35	190.43	1316.20
Other Fruit	1995	1775.00	1.37	1.53	54.69	156.89	286.41	118.13	2.22	2.04	1.62	1.88	1.78	1.08	629.63
Vegetables	1995	987.00	0.00	0.02	16.60	55.37	107.60	33.27	0.00	10.95	19.17	20.25	0.00	0.00	263.23
Field Crops	1995	668.00	0.00	0.00	10.88	21.06	43.33	42.00	38.74	35.84	9.74	1.20	0.00	0.00	202.79
Imp. Pasture	1995	850.00	0.90	11.33	42.53	67.40	64.92	26.16	11.18	17.68	1.16	1.63	0.94	4.25	250.10
Ornamentals	1995	82.00	71.89	43.84	23.35	29.58	35.45	28.67	26.52	23.00	19.70	18.43	15.21	39.85	375.49
Sod/Turf	1995	730.00	22.10	29.97	64.75	98.72	124.64	70.88	51.59	45.70	39.27	46.54	44.25	23.02	661.43
Misc. FF	1995	0.00	301.73	150.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	150.87	603.47
TOTAL		6442.00	685.06	377.97	301.26	566.87	855.78	428.03	181.64	164.06	96.34	129.32	106.52	409.50	4302.34
<u>Marion</u>															
Citrus	2010	1500.00	318.96	156.02	98.28	153.17	214.90	121.02	57.11	32.06	6.31	43.75	49.28	211.59	1462.44
Other Fruit	2010	1713.00	1.32	1.47	52.78	151.41	276.41	114.00	2.14	1.97	1.56	1.82	1.71	1.04	607.64
Vegetables	2010	978.00	0.00	0.02	16.45	54.87	106.62	32.97	0.00	10.85	18.99	20.07	0.00	0.00	260.83
Field Crops	2010	685.00	0.00	0.00	11.16	21.59	44.44	43.07	39.72	36.76	9.99	1.23	0.00	0.00	207.95
Imp. Pasture	2010	844.00	0.89	11.25	42.23	66.93	64.46	25.98	11.10	17.56	1.15	1.62	0.94	4.22	248.33
Ornamentals	2010	82.00	71.89	43.84	23.35	29.58	35.45	28.67	26.52	23.00	19.70	18.43	15.21	39.85	375.49
Sod/Turf	2010	729.00	22.07	29.93	64.66	98.58	124.47	70.79	51.52	45.64	39.22	46.48	44.18	22.99	660.53
Misc. FF	2010	0.00	301.73	150.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	150.87	603.47
TOTAL		6531.00	716.87	393.40	308.91	576.12	866.75	436.49	188.11	167.82	96.92	133.40	111.32	430.56	4426.68

(Appendix Table 7.4.3 continued)

CROP	YEAR	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<u>Nassau</u>															
Citrus	1990	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Fruit	1990	15.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	1990	35.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Field Crops	1990	78.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	1990	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ornamentals	1990	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sod/Turf	1990	28.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	TOTAL	176.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<u>Nassau</u>															
Citrus	1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Fruit	1995	15.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	1995	39.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Field Crops	1995	81.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ornamentals	1995	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sod/Turf	1995	32.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	TOTAL	187.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<u>Nassau</u>															
Citrus	2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Fruit	2010	15.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	2010	38.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Field Crops	2010	80.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ornamentals	2010	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sod/Turf	2010	32.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	TOTAL	185.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

(Appendix Table 7.4.3 continued)

CROP	YEAR	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<u>Okeechobee</u>															
Citrus	1990	4325.00	396.43	376.28	549.36	786.37	857.99	608.74	344.79	288.48	357.03	417.97	378.96	301.41	5663.80
Other Fruit	1990	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	1990	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Field Crops	1990	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	1990	2782.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ornamentals	1990	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sod/Turf	1990	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		7107.00	396.43	376.28	549.36	786.37	857.99	608.74	344.79	288.48	357.03	417.97	378.96	301.41	5663.80
<u>Okeechobee</u>															
Citrus	1995	4341.00	397.90	377.67	551.39	789.28	861.17	611.00	346.06	289.54	358.35	419.51	380.36	302.52	5684.76
Other Fruit	1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Field Crops	1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	1995	2782.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ornamentals	1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sod/Turf	1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		7123.00	397.90	377.67	551.39	789.28	861.17	611.00	346.06	289.54	358.35	419.51	380.36	302.52	5684.76
<u>Okeechobee</u>															
Citrus	2010	4327.00	396.61	376.45	549.62	786.74	858.39	609.03	344.95	288.61	357.19	418.16	379.13	301.55	5666.42
Other Fruit	2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Field Crops	2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	2010	2782.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ornamentals	2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sod/Turf	2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		7109.00	396.61	376.45	549.62	786.74	858.39	609.03	344.95	288.61	357.19	418.16	379.13	301.55	5666.42

(Appendix Table 7.4.3 continued)

CROP	YEAR	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<u>Orange</u>															
Citrus	1990	3729.00	325.84	208.49	359.48	513.48	608.09	379.50	224.37	245.22	176.79	170.86	162.21	195.59	3569.92
Other Fruit	1990	145.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	1990	40844.00	0.00	1460.58	3308.77	2159.42	216.06	380.67	164.60	3.27	227.09	1738.32	2169.63	1079.92	12908.34
Field Crops	1990	580.00	0.00	0.00	0.00	0.00	14.18	20.62	37.38	43.82	21.91	1.29	0.00	0.00	139.20
Imp. Pasture	1990	217.00	16.27	24.86	34.47	48.54	55.60	37.71	30.29	27.69	23.92	18.19	19.61	17.27	354.42
Ornamentals	1990	1339.00	388.81	364.82	429.97	554.61	626.50	486.97	483.25	435.44	388.97	335.45	275.22	282.62	5052.62
Sod/Turf	1990	495.00	25.68	31.05	53.80	79.25	90.16	53.99	49.77	43.27	39.04	32.29	30.99	22.88	552.18
Misc. FF	1990	0.00	12.39	6.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.19	24.78
TOTAL		47349.00	768.97	2096.00	4186.48	3355.31	1610.59	1359.46	989.66	798.71	877.73	2296.40	2657.67	1604.47	22601.46
<u>Orange</u>															
Citrus	1995	4440.00	387.97	248.24	428.02	611.39	724.03	451.86	267.15	291.97	210.50	203.44	193.14	232.88	4250.59
Other Fruit	1995	153.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	1995	41481.00	0.00	1483.36	3360.38	2193.10	219.43	386.60	167.17	3.32	230.63	1765.43	2203.47	1096.76	13109.66
Field Crops	1995	592.00	0.00	0.00	0.00	0.00	14.47	21.05	38.15	44.73	22.37	1.31	0.00	0.00	142.08
Imp. Pasture	1995	126.00	9.44	14.43	20.02	28.18	32.28	21.89	17.59	16.08	13.89	10.56	11.39	10.03	205.79
Ornamentals	1995	1253.00	363.83	341.39	402.35	518.99	586.27	455.69	452.21	407.48	363.98	313.90	257.54	264.47	4728.11
Sod/Turf	1995	534.00	27.70	33.50	58.04	85.49	97.27	58.25	53.69	46.68	42.12	34.84	33.43	24.69	595.69
Misc. FF	1995	0.00	12.39	6.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.19	24.78
TOTAL		48579.00	801.33	2127.12	4268.79	3437.16	1673.75	1395.35	995.96	810.25	883.49	2329.49	2698.97	1635.02	23056.69
<u>Orange</u>															
Citrus	2010	6660.00	581.95	372.36	642.02	917.08	1086.05	677.79	400.73	437.96	315.75	305.16	289.71	349.32	6375.88
Other Fruit	2010	154.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	2010	41588.00	0.00	1487.19	3369.04	2198.76	220.00	387.60	167.60	3.33	231.23	1769.99	2209.15	1099.59	13143.47
Field Crops	2010	592.00	0.00	0.00	0.00	0.00	14.47	21.05	38.15	44.73	22.37	1.31	0.00	0.00	142.08
Imp. Pasture	2010	135.00	10.12	15.47	21.44	30.20	34.59	23.46	18.84	17.23	14.88	11.32	12.20	10.74	220.49
Ornamentals	2010	1254.00	364.12	341.66	402.67	519.41	586.73	456.05	452.57	407.80	364.27	314.15	257.75	264.68	4731.88
Sod/Turf	2010	531.00	27.54	33.31	57.71	85.01	96.72	57.92	53.39	46.41	41.88	34.64	33.25	24.55	592.34
Misc. FF	2010	0.00	12.39	6.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.19	24.78
TOTAL		50914.00	996.12	2256.18	4492.89	3750.46	2038.56	1623.87	1131.29	957.46	990.38	2436.57	2802.06	1755.07	25230.93

(Appendix Table 7.4.3 continued)

CROP	YEAR	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<u>Osceola</u>															
Citrus	1990	1197.00	92.92	57.59	93.74	148.43	184.43	91.01	30.37	10.41	22.66	48.33	65.89	71.74	917.52
Other Fruit	1990	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	1990	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Field Crops	1990	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	1990	9729.00	1056.76	1373.73	1954.95	2641.81	2853.22	1558.68	1003.94	818.99	1056.76	1268.08	1373.73	924.64	17885.31
Ornamentals	1990	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sod/Turf	1990	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Misc. FF	1990	0.00	15.73	7.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.86	31.45
TOTAL		10946.00	1165.42	1439.18	2048.68	2790.24	3037.66	1649.69	1034.30	829.40	1079.42	1316.41	1439.63	1004.24	18834.28
<u>Osceola</u>															
Citrus	1995	1155.00	89.66	55.57	90.45	143.22	177.96	87.81	29.30	10.05	21.86	46.64	63.58	69.22	885.33
Other Fruit	1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	1995	8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Field Crops	1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	1995	10457.00	1135.84	1476.53	2101.23	2839.49	3066.72	1675.32	1079.06	880.27	1135.84	1362.97	1476.53	993.83	19223.63
Ornamentals	1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sod/Turf	1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Misc. FF	1995	0.00	15.73	7.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.86	31.45
TOTAL		11620.00	1241.23	1539.96	2191.68	2982.71	3244.69	1763.13	1108.36	890.32	1157.70	1409.60	1540.11	1070.91	20140.41
<u>Osceola</u>															
Citrus	2010	1154.00	89.59	55.52	90.37	143.10	177.81	87.74	29.28	10.04	21.85	46.60	63.53	69.16	884.56
Other Fruit	2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	2010	8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Field Crops	2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	2010	10420.00	1131.82	1471.30	2093.79	2829.45	3055.87	1669.39	1075.24	877.16	1131.82	1358.14	1471.30	990.32	19155.61
Ornamentals	2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sod/Turf	2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Misc. FF	2010	0.00	15.73	7.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.86	31.45
TOTAL		11582.00	1237.14	1534.68	2184.16	2972.54	3233.68	1757.13	1104.52	887.20	1153.67	1404.74	1534.83	1067.34	20071.62

(Appendix Table 7.4.3 continued)

CROP	YEAR	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<u>Polk</u>															
Citrus	1990	2172.00	167.68	111.27	174.28	248.89	306.12	163.10	57.56	11.88	35.71	65.88	99.22	123.41	1564.99
Other Fruit	1990	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	1990	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Field Crops	1990	450.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	1990	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ornamentals	1990	55.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sod/Turf	1990	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		2777.00	167.68	111.27	174.28	248.89	306.12	163.10	57.56	11.88	35.71	65.88	99.22	123.41	1564.99
<u>Polk</u>															
Citrus	1995	2454.00	189.45	125.72	196.91	281.20	345.87	184.27	65.03	13.42	40.34	74.43	112.10	139.44	1768.18
Other Fruit	1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Field Crops	1995	480.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	1995	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ornamentals	1995	55.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sod/Turf	1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		3089.00	189.45	125.72	196.91	281.20	345.87	184.27	65.03	13.42	40.34	74.43	112.10	139.44	1768.18
<u>Polk</u>															
Citrus	2010	2818.00	217.55	144.37	226.12	322.91	397.17	211.60	74.68	15.41	46.33	85.47	128.73	160.12	2030.45
Other Fruit	2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Field Crops	2010	480.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	2010	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ornamentals	2010	55.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sod/Turf	2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		3453.00	217.55	144.37	226.12	322.91	397.17	211.60	74.68	15.41	46.33	85.47	128.73	160.12	2030.45

(Appendix Table 7.4.3 continued)

CROP	YEAR	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<u>Putnam</u>															
Citrus	1990	46.00	5.76	3.32	3.39	5.26	7.33	4.14	2.51	1.58	1.14	1.67	2.45	3.84	42.39
Other Fruit	1990	360.00	2.43	3.03	15.28	34.19	50.46	24.24	15.96	10.04	8.16	10.11	8.77	3.98	186.65
Vegetables	1990	6330.00	0.00	216.36	625.40	1197.95	1142.56	3.86	2.34	0.19	143.50	150.78	173.06	45.13	3701.15
Field Crops	1990	500.00	0.00	0.00	7.43	11.14	17.47	84.36	79.79	3.42	0.00	0.00	0.00	0.00	203.61
Imp. Pasture	1990	914.00	59.56	89.35	158.84	203.51	268.04	156.35	141.46	101.76	109.20	101.76	101.76	52.11	1543.69
Ornamentals	1990	1289.00	498.31	315.02	195.45	258.93	321.31	223.01	198.05	171.08	146.15	144.63	129.53	285.00	2886.47
Sod/Turf	1990	226.00	7.37	11.05	20.25	31.91	38.66	23.32	18.41	17.19	14.11	15.35	14.72	7.37	219.71
Misc. FF	1990	0.00	126.48	63.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63.24	252.96
TOTAL		9665.00	699.91	701.37	1026.05	1742.89	1845.84	519.28	458.52	305.26	422.26	424.29	430.29	460.66	9036.62
<u>Putnam</u>															
Citrus	1995	54.00	6.76	3.89	3.98	6.17	8.61	4.86	2.95	1.86	1.34	1.97	2.87	4.51	49.76
Other Fruit	1995	349.00	2.35	2.94	14.82	33.15	48.92	23.49	15.47	9.74	7.91	9.80	8.50	3.86	180.94
Vegetables	1995	6498.00	0.00	222.10	642.00	1229.75	1172.89	3.96	2.40	0.19	147.31	154.78	177.66	46.33	3799.38
Field Crops	1995	517.00	0.00	0.00	7.68	11.51	18.07	87.23	82.50	3.54	0.00	0.00	0.00	0.00	210.53
Imp. Pasture	1995	834.00	54.34	81.53	144.94	185.70	244.58	142.66	129.08	92.85	99.65	92.85	92.85	47.55	1408.58
Ornamentals	1995	1313.00	507.59	320.88	199.09	263.76	327.29	227.16	201.74	174.26	148.87	147.32	131.94	290.30	2940.21
Sod/Turf	1995	241.00	7.86	11.78	21.59	34.03	41.22	24.87	19.63	18.33	15.05	16.36	15.70	7.86	234.29
Misc. FF	1995	0.00	126.48	63.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63.24	252.96
TOTAL		9806.00	705.39	706.38	1034.10	1764.06	1861.58	514.25	453.78	300.76	420.12	423.08	429.52	463.64	9076.65
<u>Putnam</u>															
Citrus	2010	54.00	6.76	3.89	3.98	6.17	8.61	4.86	2.95	1.86	1.34	1.97	2.87	4.51	49.76
Other Fruit	2010	347.00	2.34	2.93	14.73	32.96	48.64	23.36	15.38	9.68	7.86	9.75	8.45	3.83	179.91
Vegetables	2010	6520.00	0.00	222.85	644.18	1233.91	1176.86	3.98	2.41	0.20	147.81	155.31	178.26	46.49	3812.24
Field Crops	2010	520.00	0.00	0.00	7.72	11.58	18.17	87.73	82.98	3.56	0.00	0.00	0.00	0.00	211.75
Imp. Pasture	2010	830.00	54.08	81.14	144.25	184.81	243.41	141.98	128.46	92.40	99.17	92.40	92.40	47.32	1401.82
Ornamentals	2010	1300.00	502.57	317.71	197.12	261.14	324.05	224.91	199.74	172.54	147.39	145.86	130.64	287.43	2911.10
Sod/Turf	2010	241.00	7.86	11.78	21.59	34.03	41.22	24.87	19.63	18.33	15.05	16.36	15.70	7.86	234.29
Misc. FF	2010	0.00	126.48	63.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63.24	252.96
TOTAL		9812.00	700.09	703.54	1033.57	1764.60	1860.96	511.70	451.56	298.56	418.62	421.65	428.32	460.67	9053.83

(Appendix Table 7.4.3 continued)

CROP	YEAR	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<u>St. Johns</u>															
Citrus	1990	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Fruit	1990	30.00	0.37	0.47	1.17	2.44	3.63	1.81	1.23	0.75	0.58	0.64	0.71	0.41	14.23
Vegetables	1990	21535.00	0.00	572.83	1873.76	3532.39	3479.41	77.96	0.00	24.12	656.60	706.13	806.92	213.41	11943.53
Field Crops	1990	2100.00	0.00	0.00	27.01	40.34	64.39	323.17	322.50	11.34	0.00	0.00	0.00	0.00	788.74
Imp. Pasture	1990	1310.00	10.66	14.23	145.83	316.60	369.93	156.52	120.94	53.36	24.89	46.24	120.94	60.47	1440.61
Ornamentals	1990	110.00	77.63	53.91	40.92	51.66	61.51	51.08	47.78	41.54	35.55	32.87	26.58	46.74	567.77
Sod/Turf	1990	116.00	3.64	5.37	15.87	27.14	33.27	16.30	13.66	8.06	6.95	7.69	11.61	5.87	155.42
TOTAL		25201.00	92.31	646.81	2104.56	3970.56	4012.14	626.84	506.11	139.16	724.57	793.58	966.75	326.90	14910.29
<u>St. Johns</u>															
Citrus	1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Fruit	1995	17.00	0.21	0.27	0.67	1.38	2.06	1.03	0.70	0.42	0.33	0.37	0.40	0.23	8.06
Vegetables	1995	21719.00	0.00	577.73	1889.77	3562.57	3509.14	78.62	0.00	24.33	662.21	712.17	813.81	215.24	12045.57
Field Crops	1995	2039.00	0.00	0.00	26.22	39.17	62.52	313.78	313.13	11.01	0.00	0.00	0.00	0.00	765.83
Imp. Pasture	1995	1263.00	10.28	13.72	140.60	305.24	356.66	150.90	116.60	51.44	24.00	44.58	116.60	58.30	1388.92
Ornamentals	1995	115.00	81.16	56.36	42.78	54.00	64.31	53.41	49.96	43.42	37.17	34.36	27.78	48.87	593.58
Sod/Turf	1995	127.00	3.99	5.88	17.37	29.71	36.43	17.84	14.96	8.83	7.61	8.42	12.71	6.42	170.15
TOTAL		25280.00	95.64	653.95	2117.41	3992.08	4031.11	615.58	495.34	139.45	731.32	799.89	971.31	329.06	14972.12
<u>St. Johns</u>															
Citrus	2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Fruit	2010	17.00	0.21	0.27	0.67	1.38	2.06	1.03	0.70	0.42	0.33	0.37	0.40	0.23	8.06
Vegetables	2010	21752.00	0.00	578.60	1892.64	3567.98	3514.47	78.74	0.00	24.36	663.22	713.25	815.05	215.56	12063.88
Field Crops	2010	2040.00	0.00	0.00	26.23	39.19	62.55	313.94	313.28	11.02	0.00	0.00	0.00	0.00	766.20
Imp. Pasture	2010	1212.00	9.87	13.16	134.92	292.92	342.26	144.81	111.89	49.36	23.03	42.78	111.89	55.95	1332.84
Ornamentals	2010	116.00	81.86	56.86	43.15	54.47	64.87	53.87	50.39	43.80	37.49	34.66	28.03	49.29	598.74
Sod/Turf	2010	126.00	3.95	5.83	17.23	29.48	36.14	17.70	14.84	8.76	7.55	8.35	12.61	6.37	168.81
TOTAL		25263.00	95.90	654.72	2114.85	3985.42	4022.34	610.09	491.10	137.72	731.62	799.41	967.98	327.41	14938.54

(Appendix Table 7.4.3 continued)

CROP	YEAR	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<u>Seminole</u>															
Citrus	1990	2084.00	118.06	67.81	170.35	250.14	304.60	186.27	79.96	89.57	70.11	67.31	63.27	61.21	1528.66
Other Fruit	1990	24.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.04	1.30	1.63	0.46	4.43
Vegetables	1990	2608.00	0.00	143.57	290.14	519.10	679.10	298.46	28.61	0.00	12.57	15.15	18.23	13.82	2018.75
Field Crops	1990	88.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	1990	3847.00	349.50	454.48	659.34	920.97	1044.58	754.44	641.56	568.36	456.56	393.12	392.09	327.23	6962.22
Ornamentals	1990	740.00	92.59	92.83	129.26	172.94	197.42	141.37	134.17	122.87	106.12	92.45	81.31	67.31	1430.64
Sod/Turf	1990	427.00	36.76	48.73	77.93	104.48	119.39	81.30	71.83	67.08	50.67	44.57	45.07	35.69	783.51
Misc. FF	1990	0.00	3.35	1.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.67	6.69
TOTAL		9818.00	600.26	809.10	1327.01	1967.63	2345.09	1461.83	956.14	847.87	697.06	613.92	601.60	507.38	12734.90
<u>Seminole</u>															
Citrus	1995	1878.00	106.39	61.11	153.51	225.42	274.49	167.86	72.06	80.72	63.18	60.66	57.02	55.16	1377.55
Other Fruit	1995	27.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.17	1.47	1.83	0.51	4.98
Vegetables	1995	2464.00	0.00	135.64	274.12	490.43	641.60	281.98	27.03	0.00	11.88	14.32	17.22	13.06	1907.28
Field Crops	1995	84.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	1995	3429.00	311.52	405.10	587.70	820.90	931.08	672.46	571.85	506.60	406.95	350.41	349.48	291.67	6205.74
Ornamentals	1995	740.00	92.59	92.83	129.26	172.94	197.42	141.37	134.17	122.87	106.12	92.45	81.31	67.31	1430.64
Sod/Turf	1995	440.00	37.88	50.21	80.30	107.66	123.03	83.77	74.02	69.12	52.21	45.93	46.45	36.78	807.36
Misc. FF	1995	0.00	3.35	1.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.67	6.69
TOTAL		9062.00	551.73	746.57	1224.89	1817.35	2167.62	1347.44	879.13	779.31	641.51	565.23	553.31	466.16	11740.25
<u>Seminole</u>															
Citrus	2010	1916.00	108.54	62.35	156.61	229.98	280.04	171.25	73.52	82.35	64.45	61.89	58.17	56.27	1405.42
Other Fruit	2010	27.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.17	1.47	1.83	0.51	4.98
Vegetables	2010	2505.00	0.00	137.90	278.68	498.60	652.28	286.67	27.48	0.00	12.07	14.55	17.51	13.28	1939.02
Field Crops	2010	84.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	2010	3114.00	282.91	367.89	533.71	745.49	845.54	610.69	519.32	460.06	369.57	318.22	317.38	264.88	5635.66
Ornamentals	2010	740.00	92.59	92.83	129.26	172.94	197.42	141.37	134.17	122.87	106.12	92.45	81.31	67.31	1430.64
Sod/Turf	2010	439.00	37.79	50.10	80.12	107.41	122.75	83.58	73.85	68.96	52.09	45.83	46.34	36.70	805.53
Misc. FF	2010	0.00	3.35	1.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.67	6.69
TOTAL		8825.00	525.18	712.74	1178.38	1754.42	2098.04	1293.56	828.34	734.24	605.48	534.40	522.54	440.62	11227.94

(Appendix Table 7.4.3 continued)

CROP	YEAR	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<u>Volusia</u>															
Citrus	1990	637.00	132.57	65.22	56.28	82.27	94.19	60.40	28.15	33.82	24.82	28.28	27.84	65.23	699.06
Other Fruit	1990	105.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	1990	1060.00	0.00	0.00	78.36	192.74	319.40	123.30	0.00	0.00	0.00	0.00	0.00	0.00	713.79
Field Crops	1990	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	1990	417.00	1.98	18.24	12.74	46.27	54.04	33.67	15.70	15.99	17.12	5.38	1.98	1.70	224.83
Ornamentals	1990	5518.00	3230.95	1881.53	701.78	971.55	1134.22	758.67	683.63	633.52	526.53	445.30	438.63	1748.43	13154.75
Sod/Turf	1990	1178.00	99.49	106.69	150.40	214.17	245.27	157.25	145.11	130.39	108.35	90.26	88.53	79.16	1615.07
Misc. FF	1990	0.00	635.23	317.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	317.62	1270.47
TOTAL		8916.00	4100.23	2389.30	999.55	1507.01	1847.12	1133.29	872.58	813.73	676.82	569.23	556.97	2212.14	17677.97
<u>Volusia</u>															
Citrus	1995	744.00	154.83	76.17	65.73	96.10	110.01	70.55	32.88	39.51	28.99	33.03	32.51	76.19	816.49
Other Fruit	1995	130.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	1995	1033.00	0.00	0.00	76.36	187.83	311.26	120.16	0.00	0.00	0.00	0.00	0.00	0.00	695.61
Field Crops	1995	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	1995	433.00	2.06	18.94	13.23	48.04	56.11	34.96	16.31	16.61	17.78	5.59	2.06	1.76	233.45
Ornamentals	1995	5707.00	3341.62	1945.97	725.82	1004.83	1173.07	784.66	707.04	655.22	544.56	460.55	453.65	1808.32	13605.32
Sod/Turf	1995	1210.00	102.20	109.59	154.48	219.99	251.93	161.52	149.05	133.93	111.30	92.71	90.93	81.31	1658.95
Misc. FF	1995	0.00	635.23	317.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	317.62	1270.47
TOTAL		9258.00	4235.94	2468.30	1035.62	1556.79	1902.39	1171.84	905.27	845.27	702.62	591.89	579.15	2285.20	18280.29
<u>Volusia</u>															
Citrus	2010	755.00	157.12	77.30	66.70	97.52	111.63	71.59	33.36	40.09	29.41	33.52	32.99	77.31	828.56
Other Fruit	2010	139.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	2010	1054.00	0.00	0.00	77.91	191.65	317.59	122.60	0.00	0.00	0.00	0.00	0.00	0.00	709.75
Field Crops	2010	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	2010	471.00	2.24	20.61	14.39	52.26	61.04	38.03	17.74	18.06	19.34	6.08	2.24	1.92	253.94
Ornamentals	2010	5730.00	3355.09	1953.82	728.74	1008.88	1177.80	787.82	709.89	657.86	546.76	462.41	455.48	1815.61	13660.15
Sod/Turf	2010	1186.00	100.17	107.42	151.42	215.63	246.94	158.32	146.09	131.28	109.09	90.87	89.13	79.70	1626.04
Misc. F.F.	2010	0.00	635.23	317.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	317.62	1270.47
TOTAL		9336.00	3614.63	2476.77	1039.16	1565.94	1915.00	1178.36	907.08	847.29	704.60	586.80	579.84	2292.16	18348.91

^aAll estimates for water use on improved pasture in this table assume 100 percent of the pasture is irrigated (See text, Table 5.1, wherein it is assumed only 10 percent is irrigated).

Appendix Table 7.4.4

Projected Agricultural Water Use for Annual Water Use Survey Acreage Under Best Management Practices, Assuming 2-in-10 Drought and 1-in-7 Freeze Conditions, Unadjusted Base, St. Johns River Water Management District, 1990, 1995, 2010 (in Millions of Gallons)^a

CROP	YEAR	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<u>Alachua</u>															
Citrus	1990	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Fruit	1990	1180	11.42	15.26	56.25	116.25	185.59	84.04	28.32	24.95	19.00	23.15	26.59	14.47	605.28
Vegetables	1990	1352	0.00	0.00	8.00	29.11	58.18	19.89	0.18	32.31	59.45	54.15	0.00	0.00	261.26
Field Crops	1990	583	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	1990	664	0.77	0.37	5.64	35.33	56.43	21.36	13.98	12.33	0.73	1.05	10.76	10.76	169.50
Ornamentals	1990	59	11.55	13.94	21.95	27.72	33.00	27.55	25.80	22.26	19.06	17.63	14.26	10.09	244.79
Sod/Turf	1990	421	11.37	16.00	33.12	50.24	68.62	37.75	28.63	25.12	17.12	21.75	22.87	13.75	346.35
	TOTAL	4259	35.11	45.56	124.97	258.65	401.81	190.59	96.90	116.97	115.35	117.73	74.48	49.07	1627.18
<u>Alachua</u>															
Citrus	1995	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Fruit	1995	1172	11.34	15.15	55.87	115.47	184.33	83.47	28.13	24.78	18.87	22.99	26.41	14.37	601.18
Vegetables	1995	1265	0.00	0.00	7.49	27.24	54.43	18.61	0.16	30.23	55.62	50.66	0.00	0.00	244.45
Field Crops	1995	341	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	1995	650	0.75	0.36	5.52	34.59	55.24	20.91	13.68	12.07	0.72	1.03	10.53	10.53	165.93
Ornamentals	1995	56	10.96	13.23	20.83	26.31	31.32	26.15	24.49	21.13	18.09	16.73	13.54	9.58	232.34
Sod/Turf	1995	436	11.77	16.57	34.30	52.03	71.07	39.10	29.65	26.02	17.73	22.53	23.69	14.24	358.69
	TOTAL	3920	34.83	45.31	124.02	255.62	396.39	188.24	96.11	114.22	111.03	113.94	74.16	48.72	1602.58
<u>Alachua</u>															
Citrus	2010	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Fruit	2010	1171	11.34	15.14	55.82	115.37	184.17	83.40	28.10	24.75	18.85	22.97	26.38	14.36	600.66
Vegetables	2010	1262	0.00	0.00	7.47	27.17	54.30	18.56	0.16	30.16	55.49	50.54	0.00	0.00	243.87
Field Crops	2010	346	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	2010	646	0.75	0.36	5.49	34.37	54.90	20.78	13.60	12.00	0.71	1.02	10.47	10.47	164.90
Ornamentals	2010	56	10.96	13.23	20.83	26.31	31.32	26.15	24.49	21.13	18.09	16.73	13.54	9.58	232.34
Sod/Turf	2010	435	11.75	16.53	34.22	51.91	70.90	39.01	29.58	25.96	17.69	22.48	23.63	14.21	357.87
	TOTAL	3916	34.79	45.26	123.84	255.13	395.60	187.90	95.93	114.00	110.83	113.75	74.02	48.61	1599.65

(Appendix Table 7.4.4 continued)

CROP	YEAR	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<u>Baker</u>															
Citrus	1990	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Fruit	1990	60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	1990	123	0.00	0.00	4.35	12.03	23.05	8.02	0.00	0.00	0.00	0.00	0.00	0.00	47.45
Field Crops	1990	80	0.00	0.00	0.00	3.26	9.12	8.47	5.65	0.00	0.00	0.00	0.00	0.00	26.50
Imp. Pasture	1990	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ornamentals	1990	414	274.64	194.63	154.03	194.47	231.59	192.22	179.87	156.25	133.76	124.80	100.05	168.78	2105.09
Sod/Turf	1990	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		677	274.64	194.63	158.38	209.76	263.76	208.71	185.52	156.25	133.76	124.80	100.05	168.78	2179.05
<u>Baker</u>															
Citrus	1995	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Fruit	1995	54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	1995	120	0.00	0.00	4.25	11.74	22.49	7.82	0.00	0.00	0.00	0.00	0.00	0.00	46.30
Field Crops	1995	80	0.00	0.00	0.00	3.26	9.12	8.47	5.65	0.00	0.00	0.00	0.00	0.00	26.50
Imp. Pasture	1995	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ornamentals	1995	416	275.96	195.57	154.77	195.41	232.71	193.14	180.74	157.01	134.40	125.41	100.53	169.60	2115.26
Sod/Turf	1995	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		670	275.96	195.57	159.02	210.41	264.32	209.44	186.39	157.01	134.40	125.41	100.53	169.60	2188.06
<u>Baker</u>															
Citrus	2010	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Fruit	2010	48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	2010	118	0.00	0.00	4.18	11.54	22.11	7.69	0.00	0.00	0.00	0.00	0.00	0.00	45.52
Field Crops	2010	80	0.00	0.00	0.00	3.26	9.12	8.47	5.65	0.00	0.00	0.00	0.00	0.00	26.50
Imp. Pasture	2010	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ornamentals	2010	415	275.30	195.10	154.40	194.94	232.15	192.68	180.31	156.63	134.08	125.11	100.29	169.19	2110.18
Sod/Turf	2010	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		661	275.30	195.10	158.58	209.74	263.38	208.85	185.96	156.63	134.08	125.11	100.29	169.19	2182.21

(Appendix Table 7.4.4 continued)

CROP	YEAR	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<u>Brevard</u>															
Citrus	1990	9063	716.70	440.10	673.29	1048.14	1331.08	656.07	218.42	63.62	144.74	354.00	460.58	553.84	6660.58
Other Fruit	1990	195	0.00	0.00	5.20	16.65	26.03	10.89	0.00	0.00	0.00	0.00	0.00	0.00	58.77
Vegetables	1990	2945	0.00	0.00	20.32	45.53	65.82	28.30	0.00	160.56	239.05	260.25	0.00	0.00	819.83
Field Crops	1990	4770	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	1990	77071	8065.48	8685.13	15380.29	20733.64	22542.50	12152.56	7438.89	5683.22	8302.86	9593.03	10504.78	7232.34	136314.71
Ornamentals	1990	201	34.92	38.48	52.67	68.96	74.70	48.65	36.97	34.11	36.26	38.87	36.48	28.63	529.70
Sod/Turf	1990	1681	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		95926	8817.10	9163.71	16131.77	21912.91	24040.13	12896.47	7694.28	5941.51	8722.90	10246.14	11001.84	7814.81	144383.59
<u>Brevard</u>															
Citrus	1995	8991	711.01	436.60	667.94	1039.81	1320.51	650.86	216.68	63.12	143.59	351.19	456.92	549.44	6607.67
Other Fruit	1995	198	0.00	0.00	5.28	16.90	26.44	11.06	0.00	0.00	0.00	0.00	0.00	0.00	59.67
Vegetables	1995	3117	0.00	0.00	21.51	48.19	69.66	29.95	0.00	169.94	253.01	275.45	0.00	0.00	867.71
Field Crops	1995	4660	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	1995	80617	8436.57	9084.73	16087.93	21687.59	23579.67	12711.69	7781.15	5944.70	8684.87	10034.40	10988.10	7565.10	142586.48
Ornamentals	1995	201	34.92	38.48	52.67	68.96	74.70	48.65	36.97	34.11	36.26	38.87	36.48	28.63	529.70
Sod/Turf	1995	1598	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		99382	9182.50	9559.81	16835.33	22861.45	25070.97	13452.21	8034.81	6211.86	9117.72	10699.90	11481.50	8143.17	150651.23
<u>Brevard</u>															
Citrus	2010	9250	731.49	449.18	687.18	1069.76	1358.55	669.61	222.92	64.93	147.72	361.30	470.09	565.27	6798.01
Other Fruit	2010	198	0.00	0.00	5.28	16.90	26.44	11.06	0.00	0.00	0.00	0.00	0.00	0.00	59.67
Vegetables	2010	3299	0.00	0.00	22.76	51.00	73.73	31.70	0.00	179.86	267.78	291.53	0.00	0.00	918.38
Field Crops	2010	4608	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	2010	80671	8442.22	9090.81	16098.70	21702.11	23595.46	12720.20	7786.36	5948.68	8690.69	10041.12	10995.46	7570.17	142681.99
Ornamentals	2010	201	34.92	38.48	52.67	68.96	74.70	48.65	36.97	34.11	36.26	38.87	36.48	28.63	529.70
Sod/Turf	2010	1589	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		99816	9208.63	9578.48	16866.60	22908.74	25128.88	13481.22	8046.26	6227.58	9142.45	10732.82	11502.02	8164.06	150987.75

(Appendix Table 7.4.4 continued)

CROP	YEAR	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<u>Clay</u>															
Citrus	1990	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Fruit	1990	13	0.56	0.60	1.24	1.66	2.08	1.41	1.06	0.92	0.78	0.88	0.85	0.49	12.53
Vegetables	1990	58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.21	3.63	3.46	0.00	0.00	9.30
Field Crops	1990	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	1990	160	11.29	14.33	27.37	36.07	46.92	28.24	23.04	23.04	17.38	19.12	18.25	10.00	275.04
Ornamentals	1990	50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sod/Turf	1990	143	6.99	8.54	15.15	20.97	26.02	17.09	13.20	12.43	10.87	11.65	10.48	6.60	159.98
TOTAL		429	18.85	23.48	43.75	58.70	75.02	46.74	37.29	38.58	32.65	35.12	29.58	17.09	456.86
<u>Clay</u>															
Citrus	1995	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Fruit	1995	13	0.56	0.60	1.24	1.66	2.08	1.41	1.06	0.92	0.78	0.88	0.85	0.49	12.53
Vegetables	1995	59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.24	3.69	3.52	0.00	0.00	9.46
Field Crops	1995	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	1995	170	12.00	15.23	29.08	38.33	49.85	30.01	24.47	24.47	18.46	20.31	19.39	10.62	292.23
Ornamentals	1995	50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sod/Turf	1995	144	7.04	8.60	15.25	21.11	26.20	17.21	13.29	12.51	10.95	11.73	10.56	6.65	161.10
TOTAL		446	19.60	24.43	45.57	61.10	78.13	48.63	38.83	40.15	33.88	36.45	30.79	17.76	475.32
<u>Clay</u>															
Citrus	2010	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Fruit	2010	13	0.56	0.60	1.24	1.66	2.08	1.41	1.06	0.92	0.78	0.88	0.85	0.49	12.53
Vegetables	2010	59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.24	3.69	3.52	0.00	0.00	9.46
Field Crops	2010	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	2010	173	12.21	15.50	29.60	39.00	50.73	30.54	24.91	24.91	18.79	20.67	19.73	10.81	297.39
Ornamentals	2010	50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sod/Turf	2010	144	7.04	8.60	15.25	21.11	26.20	17.21	13.29	12.51	10.95	11.73	10.56	6.65	161.10
TOTAL		449	19.82	24.70	46.08	61.78	79.01	49.16	39.26	40.58	34.20	36.81	31.13	17.95	480.48

(Appendix Table 7.4.4 continued)

CROP	YEAR	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<u>Duval</u>															
Citrus	1990	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Fruit	1990	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	1990	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Field Crops	1990	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	1990	500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ornamentals	1990	73	14.37	17.25	27.16	34.29	40.83	33.90	31.72	27.55	23.59	21.90	17.64	12.59	302.79
Sod/Turf	1990	795	33.48	38.86	77.68	107.90	140.17	87.41	66.92	62.53	49.65	57.19	52.87	31.28	805.95
TOTAL		1396	47.85	56.11	104.84	142.19	181.01	121.31	98.64	90.09	73.24	79.10	70.51	43.87	1108.73
<u>Duval</u>															
Citrus	1995	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Fruit	1995	19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	1995	9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Field Crops	1995	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	1995	500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ornamentals	1995	73	14.37	17.25	27.16	34.29	40.83	33.90	31.72	27.55	23.59	21.90	17.64	12.59	302.79
Sod/Turf	1995	849	35.75	41.50	82.96	115.23	149.70	93.35	71.47	66.78	53.02	61.08	56.46	33.41	860.69
TOTAL		1450	50.12	58.74	110.11	149.52	190.53	127.24	103.18	94.34	76.61	82.98	74.10	46.00	1163.48
<u>Duval</u>															
Citrus	2010	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Fruit	2010	19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	2010	9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Field Crops	2010	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	2010	500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ornamentals	2010	73	14.37	17.25	27.16	34.29	40.83	33.90	31.72	27.55	23.59	21.90	17.64	12.59	302.79
Sod/Turf	2010	841	35.41	41.11	82.17	114.14	148.29	92.47	70.80	66.15	52.52	60.50	55.93	33.09	852.58
TOTAL		1442	49.79	58.35	109.33	148.43	189.12	126.36	102.51	93.71	76.11	82.41	73.57	45.68	1155.37

(Appendix Table 7.4.4 continued)

CROP	YEAR	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<u>Flagler</u>															
Citrus	1990	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Fruit	1990	110	0.00	0.00	8.51	15.38	23.60	7.32	0.00	0.00	0.00	0.00	0.00	0.00	54.81
Vegetables	1990	4950	0.00	141.52	334.77	522.32	328.18	84.35	61.68	1.93	109.05	141.32	163.55	91.13	1979.80
Field Crops	1990	410	0.00	0.00	4.10	6.14	41.25	65.60	25.60	0.00	0.00	0.00	0.00	0.00	142.69
Imp. Pasture	1990	566	1.53	0.00	30.74	52.26	72.24	41.49	18.45	7.69	0.00	0.00	0.00	0.00	224.40
Ornamentals	1990	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sod/Turf	1990	221	9.36	11.03	21.42	30.16	39.05	23.94	19.75	18.68	14.84	15.39	14.98	8.86	227.48
TOTAL		6276	10.90	152.55	399.54	626.27	504.32	222.69	125.48	28.30	123.89	156.71	178.53	99.99	2629.18
<u>Flagler</u>															
Citrus	1995	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Fruit	1995	104	0.00	0.00	8.05	14.54	22.31	6.92	0.00	0.00	0.00	0.00	0.00	0.00	51.82
Vegetables	1995	4950	0.00	141.52	334.77	522.32	328.18	84.35	61.68	1.93	109.05	141.32	163.55	91.13	1979.80
Field Crops	1995	404	0.00	0.00	4.04	6.05	40.65	64.64	25.23	0.00	0.00	0.00	0.00	0.00	140.60
Imp. Pasture	1995	620	1.68	0.00	33.67	57.24	79.13	45.45	20.21	8.42	0.00	0.00	0.00	0.00	245.81
Ornamentals	1995	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sod/Turf	1995	220	9.32	10.98	21.33	30.03	38.87	23.83	19.66	18.60	14.78	15.32	14.92	8.82	226.45
TOTAL		6308	11.00	152.50	401.85	630.19	509.15	225.18	126.78	28.95	123.82	156.64	178.46	99.95	2644.48
<u>Flagler</u>															
Citrus	2010	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Fruit	2010	104	0.00	0.00	8.05	14.54	22.31	6.92	0.00	0.00	0.00	0.00	0.00	0.00	51.82
Vegetables	2010	4944	0.00	141.35	334.36	521.69	327.79	84.25	61.60	1.93	108.92	141.15	163.35	91.02	1977.40
Field Crops	2010	404	0.00	0.00	4.04	6.05	40.65	64.64	25.23	0.00	0.00	0.00	0.00	0.00	140.60
Imp. Pasture	2010	616	1.67	0.00	33.46	56.88	78.62	45.16	20.08	8.37	0.00	0.00	0.00	0.00	244.22
Ornamentals	2010	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sod/Turf	2010	219	9.28	10.93	21.23	29.89	38.70	23.72	19.57	18.51	14.71	15.25	14.85	8.78	225.42
TOTAL		6297	10.95	152.28	401.13	629.05	508.06	224.68	126.48	28.81	123.62	156.40	178.20	99.80	2639.47

(Appendix Table 7.4.4 continued)

CROP	YEAR	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<u>Indian River</u>															
Citrus	1990	63607	4611.51	2876.94	4503.38	7118.90	9000.39	4355.17	1335.75	459.24	833.25	2227.52	3097.02	3479.30	43898.37
Other Fruit	1990	141	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	1990	2500	0.00	0.00	183.30	407.30	726.38	298.70	0.00	0.00	0.00	0.00	0.00	0.00	1615.68
Field Crops	1990	4923	0.00	0.00	0.00	0.00	215.97	557.28	234.48	170.78	164.48	0.00	0.00	0.00	1342.99
Imp. Pasture	1990	22195	2020.85	2354.22	3687.03	5688.58	6434.55	3229.15	1780.93	1403.39	1772.49	2151.36	2497.60	1804.90	34825.07
Ornamentals	1990	57	15.02	16.56	23.52	29.87	32.36	25.56	22.12	21.99	20.15	20.12	16.09	13.01	256.37
Sod/Turf	1990	941	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		94364	6647.39	5247.73	8397.23	13244.64	16409.65	8465.87	3373.27	2055.40	2790.37	4399.00	5610.72	5297.21	81938.47
<u>Indian River</u>															
Citrus	1995	63820	4626.95	2886.58	4518.46	7142.73	9030.53	4369.76	1340.22	460.78	836.04	2234.98	3107.40	3490.95	44045.37
Other Fruit	1995	148	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	1995	2657	0.00	0.00	194.81	432.88	771.99	317.46	0.00	0.00	0.00	0.00	0.00	0.00	1717.14
Field Crops	1995	4527	0.00	0.00	0.00	0.00	198.60	512.46	215.62	157.04	151.25	0.00	0.00	0.00	1234.97
Imp. Pasture	1995	21827	1987.35	2315.19	3625.90	5594.26	6327.87	3175.61	1751.40	1380.12	1743.10	2115.69	2456.19	1774.97	34247.65
Ornamentals	1995	59	15.55	17.14	24.35	30.92	33.49	26.46	22.89	22.76	20.85	20.83	16.66	13.47	265.36
Sod/Turf	1995	1005	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		94043	6629.85	5218.91	8363.52	13200.79	16362.48	8401.74	3330.13	2020.70	2751.25	4371.49	5580.24	5279.39	81510.50
<u>Indian River</u>															
Citrus	2010	63678	4616.66	2880.16	4508.40	7126.84	9010.44	4360.03	1337.24	459.76	834.18	2230.00	3100.48	3483.19	43947.37
Other Fruit	2010	146	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	2010	2620	0.00	0.00	192.10	426.85	761.24	313.04	0.00	0.00	0.00	0.00	0.00	0.00	1693.23
Field Crops	2010	4708	0.00	0.00	0.00	0.00	206.54	532.95	224.24	163.32	157.29	0.00	0.00	0.00	1284.34
Imp. Pasture	2010	21716	1977.24	2303.42	3607.46	5565.81	6295.69	3159.46	1742.49	1373.10	1734.24	2104.93	2443.70	1765.95	34073.49
Ornamentals	2010	57	15.02	16.56	23.52	29.87	32.36	25.56	22.12	21.99	20.15	20.12	16.09	13.01	256.37
Sod/Turf	2010	1003	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		93928	6608.92	5200.13	8331.49	13149.37	16306.26	8391.04	3326.09	2018.16	2745.86	4355.06	5560.27	5262.14	81254.80

(Appendix Table 7.4.4 continued)

CROP	YEAR	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<u>Lake</u>															
Citrus	1990	13569	1122.16	603.28	1014.83	1457.31	1891.52	1127.45	609.52	619.97	438.82	283.59	368.67	562.57	10099.68
Other Fruit	1990	687	0.58	0.71	15.57	55.65	91.86	44.20	2.84	1.04	0.78	0.64	0.67	0.54	215.09
Vegetables	1990	9015	0.00	27.32	267.57	654.13	1024.37	455.98	108.99	306.15	400.09	330.58	0.00	0.00	3575.17
Field Crops	1990	1085	0.00	0.00	17.82	104.66	155.89	81.18	26.56	16.93	9.01	0.00	0.00	0.00	412.04
Imp. Pasture	1990	2323	47.51	122.12	129.81	334.65	423.02	237.41	91.02	119.91	101.54	31.34	52.22	27.85	1718.39
Ornamentals	1990	1341	393.84	316.84	318.39	417.13	471.68	353.55	343.03	311.77	276.07	237.60	201.74	259.05	3900.70
Sod/Turf	1990	279	15.63	17.03	17.11	36.98	43.16	19.07	18.55	13.07	12.00	16.98	16.44	15.45	241.47
TOTAL		28299	1579.70	1087.29	1781.09	3060.52	4101.51	2318.85	1200.51	1388.84	1238.30	900.73	639.74	865.47	20162.54
<u>Lake</u>															
Citrus	1995	16524	1366.53	734.66	1235.83	1774.68	2303.45	1372.98	742.26	754.98	534.39	345.35	448.96	685.08	12299.14
Other Fruit	1995	687	0.58	0.71	15.57	55.65	91.86	44.20	2.84	1.04	0.78	0.64	0.67	0.54	215.09
Vegetables	1995	9153	0.00	27.73	271.66	664.14	1040.06	462.96	110.66	310.84	406.21	335.64	0.00	0.00	3629.90
Field Crops	1995	974	0.00	0.00	15.99	93.95	139.94	72.87	23.84	15.19	8.08	0.00	0.00	0.00	369.89
Imp. Pasture	1995	2002	40.94	105.25	111.87	288.41	364.56	204.60	78.44	103.34	87.51	27.01	45.00	24.00	1480.94
Ornamentals	1995	1396	409.99	329.83	331.45	434.24	491.03	368.06	357.10	324.56	287.39	247.34	210.01	269.68	4060.68
Sod/Turf	1995	308	17.25	18.80	18.89	40.83	47.65	21.05	20.48	14.43	13.25	18.74	18.14	17.05	266.57
TOTAL		31044	1835.30	1216.98	2001.27	3351.90	4478.55	2546.73	1335.62	1524.38	1337.61	974.73	722.79	996.36	22322.21
<u>Lake</u>															
Citrus	2010	24300	2009.61	1080.38	1817.40	2609.82	3387.42	2019.09	1091.56	1110.27	785.86	507.87	660.23	1007.48	18086.98
Other Fruit	2010	695	0.58	0.72	15.76	56.30	92.93	44.72	2.87	1.06	0.79	0.65	0.68	0.55	217.59
Vegetables	2010	9221	0.00	27.94	273.68	669.08	1047.78	466.40	111.48	313.15	409.23	338.13	0.00	0.00	3656.86
Field Crops	2010	1004	0.00	0.00	16.49	96.85	144.25	75.12	24.58	15.66	8.33	0.00	0.00	0.00	381.28
Imp. Pasture	2010	1998	40.86	105.03	111.65	287.83	363.84	204.20	78.28	103.14	87.33	26.95	44.92	23.96	1477.98
Ornamentals	2010	1375	403.82	324.87	326.47	427.71	483.64	362.52	351.72	319.67	283.07	243.62	206.86	265.62	3999.60
Sod/Turf	2010	304	17.03	18.56	18.64	40.30	47.03	20.78	20.22	14.24	13.08	18.50	17.91	16.83	263.11
TOTAL		38897	2471.90	1557.50	2580.08	4187.88	5566.90	3192.82	1680.71	1877.18	1587.69	1135.73	930.59	1314.44	28083.40

(Appendix Table 7.4.4 continued)

CROP	YEAR	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<u>Marion</u>															
Citrus	1990	277	56.14	27.52	14.60	23.85	34.87	19.70	9.14	6.34	3.94	6.09	9.20	32.20	243.57
Other Fruit	1990	1763	0.76	1.02	39.72	124.47	244.28	101.51	1.83	1.60	1.15	1.39	1.52	0.92	520.17
Vegetables	1990	988	0.00	0.02	16.62	55.43	107.71	33.31	0.00	10.96	19.19	20.27	0.00	0.00	263.50
Field Crops	1990	735	0.00	0.00	9.51	19.32	41.51	40.05	38.89	36.82	8.85	1.32	0.00	0.00	196.27
Imp. Pasture	1990	787	0.83	10.49	39.38	62.41	60.11	24.22	10.35	16.37	1.07	1.51	0.87	3.93	231.56
Ornamentals	1990	82	42.33	29.06	23.35	29.58	35.45	28.67	26.52	23.00	19.70	18.43	15.21	25.07	316.36
Sod/Turf	1990	722	21.85	29.65	64.04	97.64	123.27	70.11	51.02	45.20	38.84	46.03	43.76	22.76	654.18
TOTAL		5354	121.92	97.75	207.22	412.69	647.21	317.57	137.76	140.28	92.73	95.05	70.56	84.88	2425.62
<u>Marion</u>															
Citrus	1995	1350	273.62	134.11	71.17	116.24	169.92	96.01	44.54	30.87	19.18	29.66	44.86	156.91	1187.10
Other Fruit	1995	1775	0.76	1.03	39.99	125.32	245.94	102.20	1.85	1.62	1.15	1.40	1.53	0.92	523.71
Vegetables	1995	987	0.00	0.02	16.60	55.37	107.60	33.27	0.00	10.95	19.17	20.25	0.00	0.00	263.23
Field Crops	1995	668	0.00	0.00	8.64	17.56	37.73	36.40	35.34	33.46	8.04	1.20	0.00	0.00	178.38
Imp. Pasture	1995	850	0.90	11.33	42.53	67.40	64.92	26.16	11.18	17.68	1.16	1.63	0.94	4.25	250.10
Ornamentals	1995	82	42.33	29.06	23.35	29.58	35.45	28.67	26.52	23.00	19.70	18.43	15.21	25.07	316.36
Sod/Turf	1995	730	22.10	29.97	64.75	98.72	124.64	70.88	51.59	45.70	39.27	46.54	44.25	23.02	661.43
TOTAL		6442	339.71	205.52	267.04	510.18	786.21	393.60	171.02	163.27	107.68	119.12	106.78	210.17	3380.31
<u>Marion</u>															
Citrus	2010	1500	304.02	149.01	79.08	129.15	188.80	106.68	49.49	34.31	21.31	32.96	49.85	174.35	1319.00
Other Fruit	2010	1713	0.74	0.99	38.59	120.94	237.35	98.63	1.78	1.56	1.11	1.35	1.47	0.89	505.42
Vegetables	2010	978	0.00	0.02	16.45	54.87	106.62	32.97	0.00	10.85	18.99	20.07	0.00	0.00	260.83
Field Crops	2010	685	0.00	0.00	8.86	18.01	38.69	37.33	36.24	34.31	8.25	1.23	0.00	0.00	182.92
Imp. Pasture	2010	844	0.89	11.25	42.23	66.93	64.46	25.98	11.10	17.56	1.15	1.62	0.94	4.22	248.33
Ornamentals	2010	82	42.33	29.06	23.35	29.58	35.45	28.67	26.52	23.00	19.70	18.43	15.21	25.07	316.36
Sod/Turf	2010	729	22.07	29.93	64.66	98.58	124.47	70.79	51.52	45.64	39.22	46.48	44.18	22.99	660.53
TOTAL		6531	370.05	220.26	273.23	518.05	795.85	401.04	176.65	167.21	109.74	122.14	111.65	227.51	3493.38

(Appendix Table 7.4.4 continued)

CROP	YEAR	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<u>Nassau</u>															
Citrus	1990	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Fruit	1990	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	1990	35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Field Crops	1990	78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	1990	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ornamentals	1990	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sod/Turf	1990	28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	TOTAL	176	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<u>Nassau</u>															
Citrus	1995	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Fruit	1995	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	1995	39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Field Crops	1995	81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	1995	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ornamentals	1995	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sod/Turf	1995	32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	TOTAL	187	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<u>Nassau</u>															
Citrus	2010	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Fruit	2010	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	2010	38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Field Crops	2010	80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	2010	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ornamentals	2010	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sod/Turf	2010	32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	TOTAL	185	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

(Appendix Table 7.4.4 continued)

CROP	YEAR	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<u>Okeechobee</u>															
Citrus	1990	4325	366.72	218.63	324.03	499.97	645.94	312.31	100.90	23.66	60.98	159.81	223.13	272.69	3208.76
Other Fruit	1990	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	1990	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Field Crops	1990	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	1990	2782	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ornamentals	1990	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sod/Turf	1990	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		7107	366.72	218.63	324.03	499.97	645.94	312.31	100.90	23.66	60.98	159.81	223.13	272.69	3208.76
<u>Okeechobee</u>															
Citrus	1995	4341	368.07	219.44	325.23	501.82	648.33	313.46	101.28	23.75	61.21	160.40	223.95	273.70	3220.63
Other Fruit	1995	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	1995	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Field Crops	1995	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	1995	2782	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ornamentals	1995	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sod/Turf	1995	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		7123	368.07	219.44	325.23	501.82	648.33	313.46	101.28	23.75	61.21	160.40	223.95	273.70	3220.63
<u>Okeechobee</u>															
Citrus	2010	4327	366.89	218.73	324.18	500.20	646.24	312.45	100.95	23.67	61.01	159.88	223.23	272.82	3210.24
Other Fruit	2010	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	2010	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Field Crops	2010	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	2010	2782	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ornamentals	2010	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sod/Turf	2010	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		7109	366.89	218.73	324.18	500.20	646.24	312.45	100.95	23.67	61.01	159.88	223.23	272.82	3210.24

(Appendix Table 7.4.4 continued)

CROP	YEAR	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<u>Orange</u>															
Citrus	1990	3729	245.96	133.54	272.55	398.89	521.50	313.39	168.22	179.92	121.12	80.29	96.77	138.91	2671.05
Other Fruit	1990	145	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	1990	40844	0.00	1160.79	2630.76	1717.08	166.24	292.85	126.62	3.27	176.04	1378.08	1719.53	853.64	10224.89
Field Crops	1990	580	0.00	0.00	0.00	0.00	14.18	20.62	37.38	43.82	21.91	1.29	0.00	0.00	139.20
Imp. Pasture	1990	217	16.27	24.86	34.47	48.54	55.60	37.71	30.29	27.69	23.92	18.19	19.61	17.27	354.42
Ornamentals	1990	1339	335.74	338.30	429.97	554.61	626.50	486.97	483.25	435.44	388.97	335.45	275.22	256.08	4946.49
Sod/Turf	1990	495	25.68	31.05	53.80	79.25	90.16	53.99	49.77	43.27	39.04	32.29	30.99	22.88	552.18
Total		47349	623.65	1688.53	3421.55	2798.38	1474.18	1205.53	895.52	733.42	771.00	1845.58	2142.12	1288.78	18888.23
<u>Orange</u>															
Citrus	1995	4440	292.86	159.00	324.52	474.95	620.93	373.14	200.29	214.23	144.21	95.59	115.22	165.39	3180.33
Other Fruit	1995	153	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	1995	41481	0.00	1178.89	2671.79	1743.86	168.83	297.42	128.59	3.32	178.78	1399.57	1746.35	866.95	10384.35
Field Crops	1995	592	0.00	0.00	0.00	0.00	14.47	21.05	38.15	44.73	22.37	1.31	0.00	0.00	142.08
Imp. Pasture	1995	126	9.44	14.43	20.02	28.18	32.28	21.89	17.59	16.08	13.89	10.56	11.39	10.03	205.79
Ornamentals	1995	1253	314.18	316.57	402.35	518.99	586.27	455.69	452.21	407.48	363.98	313.90	257.54	239.64	4628.80
Sod/Turf	1995	534	27.70	33.50	58.04	85.49	97.27	58.25	53.69	46.68	42.12	34.84	33.43	24.69	595.69
Total		48579	644.18	1702.39	3476.71	2851.48	1520.05	1227.44	890.52	732.51	765.35	1855.78	2163.93	1306.69	19137.04
<u>Orange</u>															
Citrus	2010	6660	439.29	238.49	486.78	712.42	931.40	559.71	300.43	321.34	216.32	143.39	172.83	248.08	4770.49
Other Fruit	2010	154	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	2010	41588	0.00	1181.93	2678.68	1748.36	169.26	298.19	128.92	3.33	179.24	1403.18	1750.85	869.19	10411.14
Field Crops	2010	592	0.00	0.00	0.00	0.00	14.47	21.05	38.15	44.73	22.37	1.31	0.00	0.00	142.08
Imp. Pasture	2010	135	10.12	15.47	21.44	30.20	34.59	23.46	18.84	17.23	14.88	11.32	12.20	10.74	220.49
Ornamentals	2010	1254	314.43	316.82	402.67	519.41	586.73	456.05	452.57	407.80	364.27	314.15	257.75	239.83	4632.49
Sod/Turf	2010	531	27.54	33.31	57.71	85.01	96.72	57.92	53.39	46.41	41.88	34.64	33.25	24.55	592.34
Total		50914	791.38	1786.02	3647.29	3095.40	1833.18	1416.38	992.31	840.84	838.97	1907.99	2226.88	1392.39	20769.03

(Appendix Table 7.4.4 continued)

CROP	YEAR	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<u>Osceola</u>															
Citrus	1990	1197	98.80	59.53	90.17	142.05	177.55	87.68	28.58	8.98	20.55	46.28	63.45	73.51	897.13
Other Fruit	1990	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	1990	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Field Crops	1990	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	1990	9729	1056.76	1373.73	1954.95	2641.81	2853.22	1558.68	1003.94	818.99	1056.76	1268.08	1373.73	924.64	17885.31
Ornamentals	1990	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sod/Turf	1990	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		10946	1155.56	1433.26	2045.12	2783.86	3030.77	1646.36	1032.52	827.96	1077.32	1314.35	1437.19	998.15	18782.43
<u>Osceola</u>															
Citrus	1995	1155	95.33	57.44	87.01	137.06	171.32	84.60	27.58	8.66	19.83	44.65	61.23	70.93	865.65
Other Fruit	1995	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	1995	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Field Crops	1995	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	1995	10457	1135.84	1476.53	2101.23	2839.49	3066.72	1675.32	1079.06	880.27	1135.84	1362.97	1476.53	993.83	19223.63
Ornamentals	1995	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sod/Turf	1995	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		11620	1231.17	1533.97	2188.24	2976.56	3238.05	1759.92	1106.64	888.93	1155.67	1407.62	1537.75	1064.76	20089.28
<u>Osceola</u>															
Citrus	2010	1154	95.25	57.39	86.93	136.95	171.17	84.53	27.56	8.66	19.81	44.61	61.17	70.87	864.90
Other Fruit	2010	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	2010	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Field Crops	2010	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	2010	10420	1131.82	1471.30	2093.79	2829.45	3055.87	1669.39	1075.24	877.16	1131.82	1358.14	1471.30	990.32	19155.61
Ornamentals	2010	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sod/Turf	2010	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		11582	1227.07	1528.69	2180.73	2966.39	3227.05	1753.92	1102.80	885.81	1151.63	1402.76	1532.48	1061.18	20020.51

(Appendix Table 7.4.4 continued)

CROP	YEAR	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<u>Polk</u>															
Citrus	1990	7079	454.19	275.73	497.58	709.88	954.11	474.65	131.24	29.80	89.69	205.36	278.35	349.49	4450.07
Other Fruit	1990	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	1990	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Field Crops	1990	450	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	1990	100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ornamentals	1990	55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sod/Turf	1990	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		7684	454.19	275.73	497.58	709.88	954.11	474.65	131.24	29.80	89.69	205.36	278.35	349.49	4450.07
<u>Polk</u>															
Citrus	1995	6855	439.82	267.00	481.84	687.42	923.92	459.63	127.09	28.86	86.85	198.86	269.54	338.43	4309.26
Other Fruit	1995	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	1995	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Field Crops	1995	480	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	1995	100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ornamentals	1995	55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sod/Turf	1995	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		7490	439.82	267.00	481.84	687.42	923.92	459.63	127.09	28.86	86.85	198.86	269.54	338.43	4309.26
<u>Polk</u>															
Citrus	2010	6856	439.88	267.04	481.91	687.52	924.05	459.69	127.11	28.86	86.87	198.89	269.58	338.48	4309.89
Other Fruit	2010	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	2010	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Field Crops	2010	480	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	2010	100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ornamentals	2010	55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sod/Turf	2010	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		7491	439.88	267.04	481.91	687.52	924.05	459.69	127.11	28.86	86.87	198.89	269.58	338.48	4309.89

(Appendix Table 7.4.4 continued)

CROP	YEAR	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<u>Putnam</u>															
Citrus	1990	46	7.74	3.81	2.26	3.92	5.69	3.31	1.57	0.83	0.52	0.83	1.65	4.70	36.85
Other Fruit	1990	360	4.45	3.71	13.60	30.31	45.05	24.72	16.60	10.72	6.81	7.42	9.44	5.33	178.14
Vegetables	1990	6330	0.00	166.48	481.52	922.22	880.19	3.86	2.34	0.19	110.46	116.03	133.12	34.69	2851.10
Field Crops	1990	500	0.00	0.00	5.71	8.57	13.44	64.89	61.38	2.64	0.00	0.00	0.00	0.00	156.62
Imp. Pasture	1990	914	59.56	89.35	158.84	203.51	268.04	156.35	141.46	101.76	109.20	101.76	101.76	52.11	1543.69
Ornamentals	1990	1289	663.09	397.40	195.45	258.93	321.31	223.01	198.05	171.08	146.15	144.63	129.53	367.38	3216.00
Sod/Turf	1990	226	7.37	11.05	20.25	31.91	38.66	23.32	18.41	17.19	14.11	15.35	14.72	7.37	219.71
TOTAL		9665	742.21	671.80	877.63	1459.37	1572.38	499.47	439.81	304.39	387.25	386.00	390.22	471.57	8202.10
<u>Putnam</u>															
Citrus	1995	54	9.09	4.48	2.65	4.60	6.68	3.89	1.84	0.98	0.61	0.97	1.94	5.52	43.26
Other Fruit	1995	349	4.31	3.59	13.18	29.39	43.67	23.97	16.09	10.39	6.60	7.19	9.15	5.17	172.70
Vegetables	1995	6498	0.00	170.90	494.30	946.69	903.55	3.96	2.40	0.19	113.39	119.11	136.65	35.61	2926.76
Field Crops	1995	517	0.00	0.00	5.90	8.86	13.90	67.10	63.46	2.72	0.00	0.00	0.00	0.00	161.95
Imp. Pasture	1995	834	54.34	81.53	144.94	185.70	244.58	142.66	129.08	92.85	99.65	92.85	92.85	47.55	1408.58
Ornamentals	1995	1313	675.43	404.80	199.09	263.76	327.29	227.16	201.74	174.26	148.87	147.32	131.94	374.22	3275.88
Sod/Turf	1995	241	7.86	11.78	21.59	34.03	41.22	24.87	19.63	18.33	15.05	16.36	15.70	7.86	234.29
TOTAL		9806	751.04	677.08	881.67	1473.02	1580.89	493.61	434.25	299.73	384.17	383.80	388.24	475.92	8223.41
<u>Putnam</u>															
Citrus	2010	54	9.09	4.48	2.65	4.60	6.68	3.89	1.84	0.98	0.61	0.97	1.94	5.52	43.26
Other Fruit	2010	347	4.29	3.57	13.11	29.22	43.42	23.83	16.00	10.33	6.56	7.15	9.10	5.14	171.71
Vegetables	2010	6520	0.00	171.48	495.98	949.90	906.61	3.98	2.41	0.20	113.77	119.51	137.12	35.73	2936.67
Field Crops	2010	520	0.00	0.00	5.94	8.91	13.98	67.49	63.83	2.74	0.00	0.00	0.00	0.00	162.88
Imp. Pasture	2010	830	54.08	81.14	144.25	184.81	243.41	141.98	128.46	92.40	99.17	92.40	92.40	47.32	1401.82
Ornamentals	2010	1300	668.75	400.79	197.12	261.14	324.05	224.91	199.74	172.54	147.39	145.86	130.64	370.51	3243.45
Sod/Turf	2010	241	7.86	11.78	21.59	34.03	41.22	24.87	19.63	18.33	15.05	16.36	15.70	7.86	234.29
TOTAL		9812	744.07	673.24	880.63	1472.60	1579.37	490.95	431.92	297.51	382.56	382.26	386.90	472.08	8194.08

(Appendix Table 7.4.4 continued)

CROP	YEAR	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<u>St. Johns</u>															
Citrus	1990	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Fruit	1990	30	0.37	0.47	1.17	2.44	3.63	1.81	1.23	0.75	0.58	0.64	0.71	0.41	14.23
Vegetables	1990	21535	0.00	440.61	1441.34	2717.07	2676.37	60.08	0.00	18.52	505.00	543.11	620.64	164.10	9186.83
Field Crops	1990	2100	0.00	0.00	20.77	31.04	49.54	248.58	248.07	8.74	0.00	0.00	0.00	0.00	606.73
Imp. Pasture	1990	1310	10.66	14.23	145.83	316.60	369.93	156.52	120.94	53.36	24.89	46.24	120.94	60.47	1440.61
Ornamentals	1990	110	65.97	48.08	40.92	51.66	61.51	51.08	47.78	41.54	35.55	32.87	26.58	40.91	544.44
Sod/Turf	1990	116	3.64	5.37	15.87	27.14	33.27	16.30	13.66	8.06	6.95	7.69	11.61	5.87	155.42
TOTAL		25201	80.65	508.75	1665.90	3145.95	3194.26	534.37	431.69	130.96	572.97	630.56	780.47	271.75	11948.26
<u>St. Johns</u>															
Citrus	1995	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Fruit	1995	17	0.21	0.27	0.67	1.38	2.06	1.03	0.70	0.42	0.33	0.37	0.40	0.23	8.06
Vegetables	1995	21719	0.00	444.37	1453.65	2740.29	2699.24	60.60	0.00	18.68	509.31	547.75	625.94	165.50	9265.33
Field Crops	1995	2039	0.00	0.00	20.17	30.14	48.10	241.36	240.87	8.48	0.00	0.00	0.00	0.00	589.11
Imp. Pasture	1995	1263	10.28	13.72	140.60	305.24	356.66	150.90	116.60	51.44	24.00	44.58	116.60	58.30	1388.92
Ornamentals	1995	115	68.97	50.26	42.78	54.00	64.31	53.41	49.96	43.42	37.17	34.36	27.78	42.77	569.19
Sod/Turf	1995	127	3.99	5.88	17.37	29.71	36.43	17.84	14.96	8.83	7.61	8.42	12.71	6.42	170.15
TOTAL		25280	83.45	514.49	1675.23	3160.76	3206.79	525.13	423.08	131.27	578.42	635.48	783.44	273.22	11990.76
<u>St. Johns</u>															
Citrus	2010	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Fruit	2010	17	0.21	0.27	0.67	1.38	2.06	1.03	0.70	0.42	0.33	0.37	0.40	0.23	8.06
Vegetables	2010	21752	0.00	445.05	1455.86	2744.45	2703.34	60.69	0.00	18.71	510.08	548.59	626.89	165.75	9279.40
Field Crops	2010	2040	0.00	0.00	20.18	30.15	48.12	241.47	240.99	8.49	0.00	0.00	0.00	0.00	589.40
Imp. Pasture	2010	1212	9.87	13.16	134.92	292.92	342.26	144.81	111.89	49.36	23.03	42.78	111.89	55.95	1332.84
Ornamentals	2010	116	69.57	50.70	43.15	54.47	64.87	53.87	50.39	43.80	37.49	34.66	28.03	43.14	574.14
Sod/Turf	2010	126	3.95	5.83	17.23	29.48	36.14	17.70	14.84	8.76	7.55	8.35	12.61	6.37	168.81
TOTAL		25263	83.60	515.01	1672.01	3152.85	3196.78	519.57	418.80	129.54	578.48	634.75	779.82	271.44	11952.65

(Appendix Table 7.4.4 continued)

CROP	YEAR	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<u>Seminole</u>															
Citrus	1990	2084	204.52	135.08	146.38	208.25	276.17	164.91	81.19	91.78	78.44	33.24	39.99	108.45	1568.42
Other Fruit	1990	24	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13
Vegetables	1990	2608	0.00	112.43	229.90	403.87	522.41	229.56	21.96	0.00	9.62	11.68	14.03	10.61	1566.08
Field Crops	1990	88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	1990	3847	349.50	454.48	659.34	920.97	1044.58	754.44	641.56	568.36	456.56	393.12	392.09	327.23	6962.22
Ornamentals	1990	740	150.94	122.00	129.26	172.94	197.42	141.37	134.17	122.87	106.12	92.45	81.31	96.48	1547.33
Sod/Turf	1990	427	36.76	48.73	77.93	104.48	119.39	81.30	71.83	67.08	50.67	44.57	45.07	35.69	783.51
TOTAL		9818	741.85	872.73	1242.80	1810.52	2159.97	1371.56	950.72	850.08	701.41	575.07	572.49	578.47	12427.69
<u>Seminole</u>															
Citrus	1995	1878	184.31	121.73	131.91	187.67	248.87	148.61	73.17	82.71	70.69	29.95	36.04	97.73	1413.38
Other Fruit	1995	27	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15
Vegetables	1995	2464	0.00	106.22	217.20	381.58	493.56	216.88	20.75	0.00	9.09	11.04	13.26	10.03	1479.61
Field Crops	1995	84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	1995	3429	311.52	405.10	587.70	820.90	931.08	672.46	571.85	506.60	406.95	350.41	349.48	291.67	6205.74
Ornamentals	1995	740	150.94	122.00	129.26	172.94	197.42	141.37	134.17	122.87	106.12	92.45	81.31	96.48	1547.33
Sod/Turf	1995	440	37.88	50.21	80.30	107.66	123.03	83.77	74.02	69.12	52.21	45.93	46.45	36.78	807.36
TOTAL		9062	684.80	805.27	1146.37	1670.74	1993.97	1263.09	873.96	781.30	645.06	529.78	526.54	532.69	11453.57
<u>Seminole</u>															
Citrus	2010	1916	188.04	124.20	134.58	191.47	253.91	151.61	74.65	84.38	72.12	30.56	36.77	99.71	1441.98
Other Fruit	2010	27	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15
Vegetables	2010	2505	0.00	107.99	220.82	387.92	501.78	220.49	21.09	0.00	9.24	11.22	13.48	10.20	1504.23
Field Crops	2010	84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	2010	3114	282.91	367.89	533.71	745.49	845.54	610.69	519.32	460.06	369.57	318.22	317.38	264.88	5635.66
Ornamentals	2010	740	150.94	122.00	129.26	172.94	197.42	141.37	134.17	122.87	106.12	92.45	81.31	96.48	1547.33
Sod/Turf	2010	439	37.79	50.10	80.12	107.41	122.75	83.58	73.85	68.96	52.09	45.83	46.34	36.70	805.53
TOTAL		8825	659.82	772.18	1098.48	1605.23	1921.40	1207.74	823.08	736.28	609.14	498.28	495.28	507.96	10934.87

(Appendix Table 7.4.4 continued)

CROP	YEAR	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<u>Volusia</u>															
Citrus	1990	637	141.50	72.76	47.85	68.56	89.45	53.57	29.61	29.98	20.65	13.59	16.84	72.22	656.56
Other Fruit	1990	105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	1990	1060	0.00	0.00	60.87	150.50	249.41	96.16	0.00	0.00	0.00	0.00	0.00	0.00	556.93
Field Crops	1990	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	1990	417	1.98	18.24	12.74	46.27	54.04	33.67	15.70	15.99	17.12	5.38	1.98	1.70	224.83
Ornamentals	1990	5518	2910.80	1721.45	701.78	971.55	1134.22	758.67	683.63	633.52	526.53	445.30	438.63	1588.30	12514.38
Sod/Turf	1990	1178	74.00	93.96	150.40	214.17	245.27	157.25	145.11	130.39	108.35	90.26	88.53	66.42	1564.10
TOTAL		8916	3128.28	1906.41	973.63	1451.05	1772.39	1099.32	874.04	809.88	672.65	554.54	545.97	1728.64	15516.81
<u>Volusia</u>															
Citrus	1995	744	165.26	84.98	55.88	80.08	104.47	62.57	34.58	35.01	24.11	15.88	19.66	84.35	766.85
Other Fruit	1995	130	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	1995	1033	0.00	0.00	59.31	146.67	243.05	93.71	0.00	0.00	0.00	0.00	0.00	0.00	542.75
Field Crops	1995	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	1995	433	2.06	18.94	13.23	48.04	56.11	34.96	16.31	16.61	17.78	5.59	2.06	1.76	233.45
Ornamentals	1995	5707	3010.50	1780.41	725.82	1004.83	1173.07	784.66	707.04	655.22	544.56	460.55	453.65	1642.70	12943.02
Sod/Turf	1995	1210	76.01	96.51	154.48	219.99	251.93	161.52	149.05	133.93	111.30	92.71	90.93	68.22	1606.59
TOTAL		9258	3253.83	1980.85	1008.73	1499.60	1828.65	1137.42	906.98	840.77	697.75	574.73	566.31	1797.04	16092.66
<u>Volusia</u>															
Citrus	2010	755	167.71	86.24	56.71	81.26	106.02	63.50	35.09	35.53	24.47	16.11	19.95	85.60	778.19
Other Fruit	2010	139	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetables	2010	1054	0.00	0.00	60.52	149.65	248.00	95.62	0.00	0.00	0.00	0.00	0.00	0.00	553.78
Field Crops	2010	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imp. Pasture	2010	471	2.24	20.61	14.39	52.26	61.04	38.03	17.74	18.06	19.34	6.08	2.24	1.92	253.94
Ornamentals	2010	5730	3022.63	1787.59	728.74	1008.88	1177.80	787.82	709.89	657.86	546.76	462.41	455.48	1649.32	12995.18
Sod/Turf	2010	1186	74.50	94.60	151.42	215.63	246.94	158.32	146.09	131.28	109.09	90.87	89.13	66.87	1574.72
TOTAL		9336	3267.08	1989.03	1011.78	1507.67	1839.79	1143.28	908.81	842.73	699.65	575.47	566.80	1803.71	16155.81

^aAll estimates for water use on improved pasture in this table assume 100 percent of the pasture is irrigated (See text, Table 5.1, wherein it is assumed only 10 percent is irrigated).

Appendix Table 7.4.5 Adjusted Base Agricultural Water Use Projections for Annual Water Use Survey Acreage, Assuming 2-in-10 Drought Conditions, St. Johns River Water Management District, 1990, 1995, 2010 (in Millions of Gallons)^a

1) Assuming Current Technology															
	YEAR	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Base	1990	346235	29580	28818	44454	61690	67016	37871	22792	18987	23468	27483	27959	23357	413475
Pasture			11643	13162	22266	31121	34281	18432	11331	8852	11885	13630	15095	10473	202170
Base Adj.			19101	16973	24414	33681	36163	21282	12595	11020	12772	15216	14374	13931	231522
Base	1995	355325	30685	29625	45676	63327	68799	38793	23301	19448	24024	28202	28708	24122	424710
Pasture			12004	13542	22944	31995	35209	18913	11611	9055	12234	14067	15569	10793	207935
Base Adj.			19882	17437	25026	34531	37111	21772	12851	11299	13013	15542	14696	14409	237568
Base	2010	366090	31644	30116	46550	64584	70293	39737	23738	19973	24423	28612	29097	24607	433374
Pasture			11967	13496	22871	31888	35086	18835	11548	9002	12191	14025	15523	10757	207189
Base Adj.			20874	17970	25966	35885	38715	22786	13345	11871	13451	15989	15127	14926	246904
2) Assuming BMP Technology															
	YEAR	ACRES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Base	1990	346235	24532	23454	38052	54093	60767	31603	17715	13646	17594	21683	23953	20158	347251
Pasture			11643	13162	22266	31121	34281	18432	11331	8852	11885	13630	15095	10473	202170
Base Adj.			14614	11608	18012	26084	29914	15014	7518	5679	6898	9416	10368	10733	165298
Base	1995	355325	25553	24207	39182	55611	62484	32478	18205	14063	18113	22299	24636	20856	357688
Pasture			12004	13542	22944	31995	35209	18913	11611	9055	12234	14067	15569	10793	207935
Base Adj.			14750	12019	18532	26815	30796	15457	7755	5914	7102	9639	10624	11143	170546
Base	2010	366090	26371	24625	39904	56651	63857	33296	18611	14492	18422	22503	24884	21270	364885
Pasture			11967	13496	22871	31888	35086	18835	11548	9002	12191	14025	15523	10757	207189
Base Adj.			15601	12478	19320	27952	32279	16345	8218	6390	7450	9880	10914	11589	178415

^aBase adjusted assumes 10 percent of the improved pasture is irrigated (See text, Table 5.1).

Appendix Table 7.4.6 Projected and Permitted Water Use Comparison, 1990 Acreage, St. Johns River Water Management District (in Millions of Gallons)^a

	Projected	Permitted	D ^b	(D/Permitted)
Alachua	1642	1530	-112	-0.07
Baker	1899	3855	-1955	-0.51
Brevard	26494	42466	-15971	-0.38
Clay	220	734	-514	-0.70
Duval	1109	794	315	0.40
Flagler	3022	5102	-2080	-0.41
Indian River	95259	37179	58080	1.56
Lake	21385	31379	-9994	-0.32
Marion	3038	6532	-3494	-0.53
Nassau		38	-38	-1.00
Okeechobee	5664	4755	909	0.19
Orange	22283	23538	-1255	-0.05
Osceola	2738	3298	-560	-0.17
Polk	1565	2336	-771	-0.33
Putnam	7647	9630	-1983	-0.21
St. Johns	13614	20208	-6595	-0.33
Seminole	6469	2072	4397	2.12
Volusia	17476	11968	5507	0.46
Total	231,522	207,404	24,118	0.12

^aAll estimates for water use on improved pasture in this table assume 100 percent of the pasture is irrigated (See text, Table 5.1, wherein it is assumed only 10 percent is irrigated).

^bD is the difference (Projected-Permitted) water use.

Appendix Table 7.6.1 Irrigated Acreage Comparison, Land Use Projection with CUP Data, St. Johns River Water Management District, 1990

County Crop	Citrus				Field Crops			
	Projected	CUP	D ^a	(D/CUP)	Projected	CUP	D ^a	(D/CUP)
	-----acres-----			(D/CUP)	-----acres-----			(D/CUP)
Alachua					583		583	
Baker					80	30	50	1.67
Brevard	9063	9949	-886	-0.09	4770		4770	
Clay					5		5	
Duval					0		0	
Flagler	15		15		410	3002	-2592	-0.86
Indian River	63607	40088	23519	0.59	4923	345	4578	13.27
Lake	13569	57350	-43781	-0.76	1085	555	530	0.95
Marion	277	5649	-5372	-0.95	735	2128	-1393	-0.65
Nassau					78		78	
Okeechobee	4325	2570	1755	0.68	0		0	
Orange	3729	10303	-6574	-0.64	580	0	580	
Osceola	1197	1170	27	0.02	0		0	
Polk	2172	4364	-2192	-0.50	450		450	
Putnam	46	331	-285	-0.86	500	1783	-1283	-0.72
St. Johns	0	38	-38	-1.00	2100	11498	-9398	-0.82
Seminole	2084	1713	371	0.22	88		88	
Volusia	637	1014	-377	-0.37	1		1	
Total	100721	134541	-33819	-0.25	16388	19342	-2454	-0.15

County Crop	Improved Pasture				Ornamentals			
	Projected	CUP	D ^a	(D/CUP)	Projected	CUP	D ^a	(D/CUP)
	-----acres-----			(D/CUP)	-----acres-----			(D/CUP)
Alachua	664	677	-13	-0.02	59	4	55	13.75
Baker	0		0		414	372	42	0.11
Brevard	77071	45348	31723	0.70	201	42	159	3.79
Clay	160	30	130	4.29	50		50	
Duval	500		500		73	207	-134	-0.65
Flagler	566	80	486	6.08	4		4	
Indian River	22195	13195	9000	0.68	57	7	50	7.14
Lake	2323	2927	-604	-0.21	1341	1729	-388	-0.22
Marion	787	1221	-434	-0.36	82	76	6	0.08
Nassau	0		0		20		20	
Okeechobee	2782		2782		0		0	
Orange	217	737	-520	-0.71	1339	1492	-153	-0.10
Osceola	9729	800	8929	11.16	0		0	
Polk	100		100		55		55	
Putnam	914	315	599	1.90	1289	2125	-836	-0.39
St. Johns	1310	56	1254	22.39	110	8	103	13.67
Seminole	3847	600	3247	5.41	740	320	420	1.31
Volusia	417	200	217	1.09	5518	6246	-728	-0.12
Total	123582	66186	57396	0.87	11352	12628	-1276	-0.10

^aD is the difference (projected-CUP) acreage.

Appendix Table 7.6.1 (continued)

County Crop	Other Fruit				Sod/Turf			
	Projected	CUP	D ^a	(D/CUP)	Projected	CUP	D ^a	(D/CUP)
	-----acres-----			(D/CUP)	-----acres-----			(D/CUP)
Alachua	1180	659	521	0.79	421	3	418	139.33
Baker	60		60		0		0	
Brevard	195	57	138	2.44	1681		1681	
Clay	13	50	-37	-0.74	143	35	108	3.09
Duval	20		20		795	610	185	0.30
Flagler	110	160	-50	-0.31	221	720	-499	-0.69
Indian River	141		141		941		941	
Lake	687	1105	-418	-0.38	279	72	207	2.85
Marion	1763	2573	-810	-0.31	722	750	-28	-0.04
Nassau	15		15		28		28	
Okeechobee	0		0		0		0	
Orange	145		145		495	157	338	2.15
Osceola	0		0		0		0	
Polk	0		0		0		0	
Putnam	360	218	143	0.66	226	20	206	10.30
St. Johns	30	24	6	0.25	116	135	-19	-0.14
Seminole	24	7	17	2.43	427	164	263	1.60
Volusia	105		105		1178	1458	-280	-0.19
Total	4848	4852	-4	-0.00	7673	4125	3548	0.86

County Crop	Vegetables			
	Projected	CUP	D ^a	(D/CUP)
	-----acres-----			(D/CUP)
Alachua	1352	1590	-238	-0.15
Baker	123	5	118	23.60
Brevard	2945	365	2581	7.08
Clay	58	18	40	2.27
Duval	8		8	
Flagler	4950	7650	-2700	-0.35
Indian River	2500	165	2335	14.15
Lake	9015	2078	6937	3.34
Marion	988	1435	-447	-0.31
Nassau	35		35	
Okeechobee	0		0	
Orange	40844	32343	8501	0.26
Osceola	20		20	
Polk	0		0	
Putnam	6330	5901	429	0.07
St. Johns	21535	28053	-6518	-0.23
Seminole	2608	523	2085	3.99
Volusia	1060	457	603	1.32
Total	94371	80583	13788	0.17

^aD is the difference (projected-CUP) acreage.

Appendix Table 7.6.2 Irrigated Acreage Comparison, Land Use Projection with CUP Data, St. Johns River Water Management District, 1990

County	Alachua				Baker			
	Projected	CUP	D ^a	(D/CUP)	Projected	CUP	D ^a	(D/CUP)
Crop	-----acres-----			(D/CUP)	-----acres-----			(D/CUP)
Citrus	0		0		0		0	
Other Fruit	1180	659	521	0.79	60		60	
Vegetables	1352	1590	-238	-0.15	123	5	118	23.60
Field Crops	583		583		80	30	50	1.67
Imp. Pasture	664	677	-13	-0.02	0		0	
Ornamentals	59	4	55	13.75	414	373	41	0.11
Sod/Turf	421	3	418	139.33	0		0	
Total	4259	2933	1326	0.45	677	408	269	0.66

County	Brevard				Clay			
	Projected	CUP	D ^a	(D/CUP)	Projected	CUP	D ^a	(D/CUP)
Crop	-----acres-----			(D/CUP)	-----acres-----			(D/CUP)
Citrus	9063	9949	-886	-0.09	0		0	
Other Fruit	195	57	138	2.44	13	50	-37	-0.74
Vegetables	2945	365	2581	7.08	58	18	40	2.27
Field Crops	4770		4770		5		5	
Imp. Pasture	77071	45347	31724	0.70	160	30	130	4.29
Ornamentals	201	42	159	3.79	50		50	
Sod/Turf	1681		1681		143	35	108	3.09
Total	95926	55759	40167	0.72	429	133	296	2.23

County	Duval				Flagler			
	Projected	CUP	D ^a	(D/CUP)	Projected	CUP	D ^a	(D/CUP)
Crop	-----acres-----			(D/CUP)	-----acres-----			(D/CUP)
Citrus	0		0		15		15	
Other Fruit	20		20		110	160	-50	-0.31
Vegetables	8		8		4950	7650	2700	-0.35
Field Crops	0		0		410	3002	-2592	-0.86
Imp. Pasture	500		500		566	80	486	6.08
Ornamentals	73	207	-134	-0.65	4		4	
Sod/Turf	795	610	185	0.30	221	720	-479	-0.69
Total	1396	817	579	0.71	6276	11612	-5336	-0.46

^aD is the difference (projected-CUP) acreage.

Appendix Table 7.6.2 (continued)

County	Indian River				Lake			
	Projected	CUP	D ^a	(D/CUP)	Projected	CUP	D ^a	(D/CUP)
Crop	-----acres-----			(D/CUP)	-----acres-----			(D/CUP)
Citrus	63607	50088	23519	0.59	13569	57350	-43781	-0.76
Other Fruit	141		141		687	1105	-418	-0.38
Vegetables	2500	165	2335	14.15	9015	2078	6937	3.34
Field Crops	4923	345	4578	13.27	1085	555	530	0.95
Imp. Pasture	22195	13195	9000	0.68	2323	2927	-604	-0.21
Ornamentals	57	7	50	7.14	1341	1729	-388	-0.22
Sod/Turf	941		941		279	72	207	2.85
Total	94364	53800	40564	0.75	28299	65817	-37518	-0.57

County	Marion				Nassau			
	Projected	CUP	D ^a	(D/CUP)	Projected	CUP	D ^a	(D/CUP)
Crop	-----acres-----			(D/CUP)	-----acres-----			(D/CUP)
Citrus	277	5649	-5372	-0.95	0		0	
Other Fruit	1763	2673	-910	-0.34	15		15	
Vegetables	988	1435	-447	-0.31	35		35	
Field Crops	735	2128	-1393	-0.65	78		78	
Imp. Pasture	787	1221	-434	-0.36	0		0	
Ornamentals	82	77	5	0.07	28		20	
Sod/Turf	722	750	-28	-0.04	0		28	
Total	5354	13934	-8580	-0.62	176		176	

County	Okeechobee				Orange			
	Projected	CUP	D ^a	(D/CUP)	Projected	CUP	D ^a	(D/CUP)
Crop	-----acres-----			(D/CUP)	-----acres-----			(D/CUP)
Citrus	4325	2570	1755	0.68	3729	10303	-6574	-0.64
Other Fruit	0		0		145		145	
Vegetables	0		0		40844	32343	8501	0.26
Field Crops	0		0		580	0	580	
Imp. Pasture	2782		2782		217	737	520	0.71
Ornamentals	0		0		1339	1492	-153	-0.10
Sod/Turf	0		0		495	157	338	2.15
Total	7107	2570	4537	1.77	47349	45033	2316	0.05

^aD is the difference (projected-CUP) acreage.

Appendix Table 7.6.2 (continued)

County	Osceola				Polk			
	Projected	CUP	D ^a	(D/CUP)	Projected	CUP	D ^a	(D/CUP)
Crop	-----acres-----			(D/CUP)	-----acres-----			(D/CUP)
Citrus	1197	1170	27	0.02	2172	4364	-2192	-0.50
Other Fruit	0		0		0		0	
Vegetables	20		20		0		0	
Field Crops	0		0		450		450	
Imp. Pasture	9729	800	8929	11.16	100		100	
Ornamentals	0		0		55		55	
Sod/Turf	0		0		0		0	
Total	10946	1970	8976	4.56	2777	4364	-1587	-0.36

County	Putnam				St. Johns			
	Projected	CUP	D ^a	(D/CUP)	Projected	CUP	D ^a	(D/CUP)
Crop	-----acres-----			(D/CUP)	-----acres-----			(D/CUP)
Citrus	46	331	-285	-0.86	0	38	-38	-1.00
Other Fruit	360	218	143	0.66	30	24	6	0.25
Vegetables	6330	5901	429	0.07	21535	28053	-6518	-0.23
Field Crops	500	1785	-1285	-0.72	2100	11498	-9398	-0.82
Imp. Pasture	914	315	599	1.90	1310	56	1254	22.39
Ornamentals	1289	2125	-836	-0.39	110	8	103	13.67
Sod/Turf	226	20	206	10.30	116	135	-19	-0.14
Total	9665	10695	-1030	-0.10	25201	39811	-14610	-0.37

County	Seminole				Volusia			
	Projected	CUP	D ^a	(D/CUP)	Projected	CUP	D ^a	(D/CUP)
Crop	-----acres-----			(D/CUP)	-----acres-----			(D/CUP)
Citrus	2084	1713	371	0.22	637	1014	-377	-0.37
Other Fruit	24	7	17	2.43	105		105	
Vegetables	2608	523	2085	3.99	1060	457	603	1.32
Field Crops	88		88					
Imp. Pasture	3847	600	3247	5.41	417	200	217	1.09
Ornamentals	740	320	420	1.31	5518	6246	-728	-0.12
Sod/Turf	427	164	263	1.60	1178	1458	-280	-0.19
Total	9818	3327	6491	1.95	8916	9375	-459	-0.05

^aD is the difference (projected-CUP) acreage.

7.3 CONCEPTUAL AND THEORETICAL CONSIDERATIONS IN PROJECTING
AGRICULTURAL WATER USE

7.3 CONCEPTUAL AND THEORETICAL CONSIDERATIONS IN PROJECTING AGRICULTURAL WATER USE

Gary D. Lynne

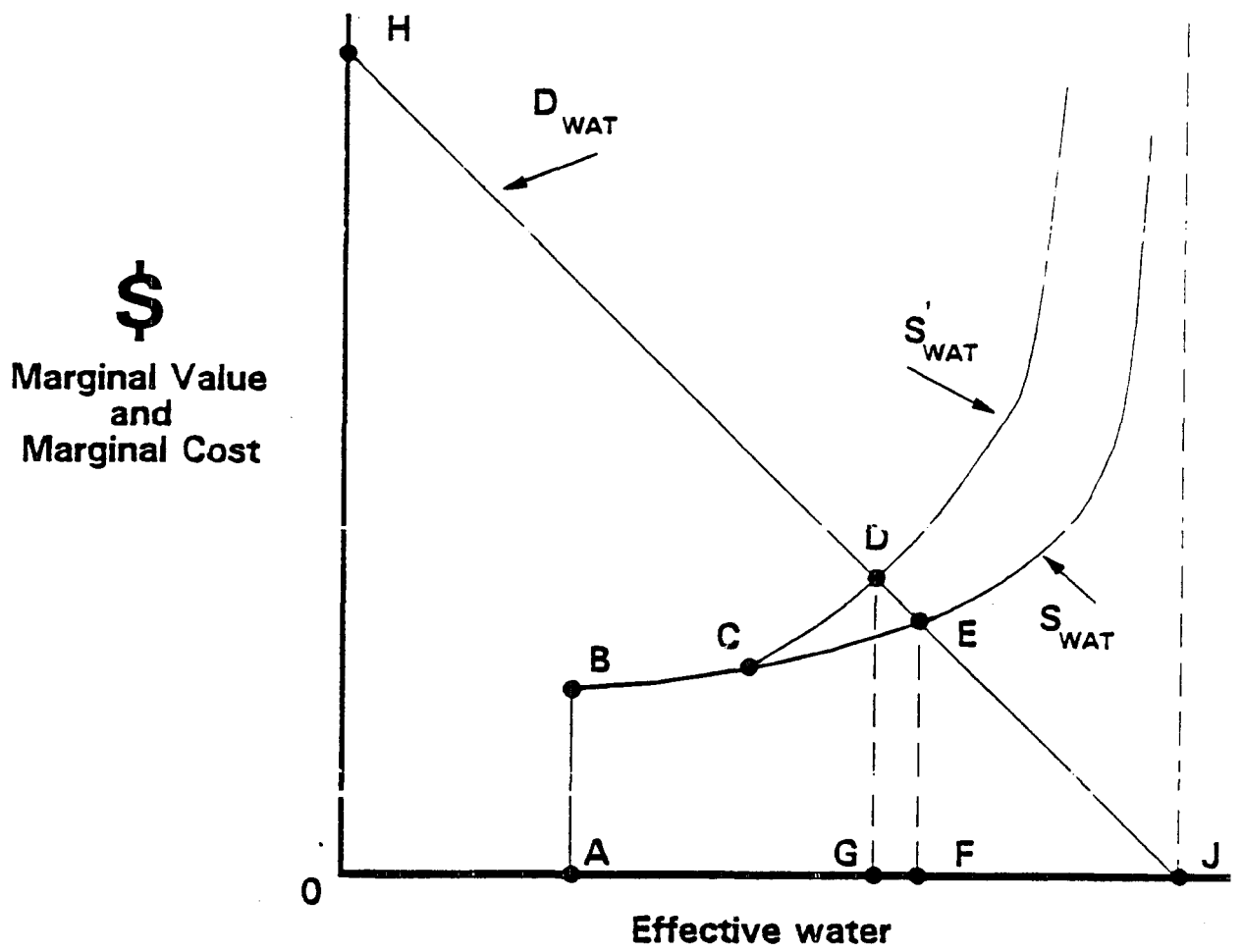
It is reasonable to expect that land and water use in agriculture is driven in part by economic factors and forces. It may go without saying that most agricultural growers are probably primarily motivated by profits in the decisions about what crops to grow, when to grow the crops, how many acres to plant, what irrigation system to purchase, and how to manage that system while irrigating the crops. Yet, it is equally reasonable to argue that different actions and behavior will exist among growers engaged in the real business of farming and irrigating crops. Water use projections in Florida have not generally recognized the behavioral and economic aspects of agricultural water use.

Understanding economic aspects of behavior may be especially important. If profit indeed is an important motivating factor, it becomes necessary to consider economic forces in understanding, explaining, and predicting agricultural water use (more commonly called water demand by economists). Understanding agricultural water use entails gaining knowledge of linkages between the economy and the decision maker, and the linkages of the agricultural crop growing processes to physical (including hydrological) and biological conditions at the farm site.

It is the purpose of this Appendix to clarify the conceptual issues involved in projecting agricultural water use given information on agricultural irrigated acreage. (The acreage projection problem is equally as complex, but is not addressed here). The following economic model catches the essence of the problem facing the analyst trying to project agricultural water use.

Hypothetical seasonal demand and supply curves for available soil moisture in an irrigation process are presented in Appendix Figure 7.3.1. The curves reflect the marginal value and marginal cost of using water on one tract of agricultural land. Marginal value reflects the market value of the crop. Marginal cost reflects the cost of getting water to the crop (mainly irrigation system cost). For ease of understanding the concepts, the curves can be taken to represent water use on one acre of irrigated land.

The negative slope and shape of the demand curve (D_{wat}) reflects a fundamental biophysical relationship between transpiration and water. With crop transpiration (and evapotranspiration) usually increasing at a decreasing rate as available soil moisture approaches field capacity and with yield a linear function of transpiration, yield tends to increase at a decreasing rate over the same range (Lynne et al., 1987, p. 318). Thus, the marginal value of more water declines as effective water increases. The demand curve and the marginal value reaches zero when field capacity is maintained all the time, i.e., there is no plant stress, shown by $D_{\text{wat}} = 0$ at Point J. That is, when all plant transpiration needs have been met, the marginal or additional value of water is zero.



Appendix Figure 7.3.1 Demand (D_{wat}), grower supply costs (S_{wat}), and social supply costs (S'_{wat}) for effective water in agricultural irrigation.

Important economic phenomena are captured in D_{wat} . In particular, a higher product price (e.g., for tomatoes) will cause the curve to be steeper. As the price increases, the curve will pivot around the Point J. For very high agricultural product prices, D_{wat} will be very steep, suggesting a highly inelastic demand for water. For low product prices, D_{wat} will be very flat, suggesting a very elastic demand for water. Elasticity refers to the responsiveness of the grower to changing costs for water: with inelastic demand, a large change in cost is necessary before water use would be reduced. With elastic demand, the grower may be very responsive to higher cost, and reduce demand substantially as costs increase. We might reasonably expect, for example, the demand curve to be very inelastic for high valued crops like tomatoes and very elastic for low valued crops like pasture grass. Thus, cost increases may not affect tomato water use as much as pasture water use.

Also, other motivations behind behavior may be reflected in D_{wat} . Some irrigators may use more water simply because they like to see lush crop growth: the demand curve will be higher in the space. Others may use less water because they feel an obligation to conserve water for wildlife and wetland systems: the demand curve will be lower in the space for such an individual, and they will use less water. D_{wat} suggests the importance of behavioral aspects in understanding an projecting water use.

On the water supply side, Point A recognizes the fact that some water comes free to the grower. Point A represents rainfall and zero water supply costs except for fixed irrigation or facility costs (not shown).

At some point, however, the grower faces rising costs for the water as the irrigation process is started. The positive slope of the supply curve for effective soil moisture starts at point A and reflects more losses in water for a fuller soil profile (Lynne, et al., 1984, p. 77) and the associated increasing costs represented in S_{wat} . This curve represents the grower water supply costs, primarily arising due to the pump and irrigation costs. The positive slope of S_{wat} is due to water losses associated with keeping the soil profile too full of water.

At first increases in available soil moisture add little to grower supply cost because losses to deep percolation and runoff arising from unexpected rainfall are minimal. With attempts to maintain levels of soil moisture closer to field capacity, costs start to increase rapidly due to the unanticipated rainfall. At Point J, the irrigator always keeps the soil profile full at field capacity and thus all rainfall is lost. The additional or marginal cost of such an irrigation strategy is quite high, as shown by the steep S_{wat} curve at Point J.

Social (opportunity) costs and third-party effects (such as environmental losses, or losses in other industries from the agricultural use) can be illustrated by the social water supply curve S'_{wat} which includes S_{wat} but after Point C adds the social opportunity costs. To the right of Point C the marginal social opportunity cost ($S'_{\text{wat}} - S_{\text{wat}}$)

reflects the minimum amounts that would be paid through water markets, if such markets existed.

Importantly, without water markets, such as in Florida, the opportunity costs get represented implicitly in the water laws, rules, and regulations guiding water use. For example, all neighborhood effects from over-pumping are either banned, or reduced to less than significant levels, suggesting $S'_{\text{wat}} > S_{\text{wat}}$ in several Florida locations. It follows the character of Florida water laws, rules, and regulations will affect the profit earned: the higher the S'_{wat} curve, the lower the profits.

The model suggests the direction of adjustments for changing costs. As diesel fuel, irrigation system equipment, or labor costs increase the grower's supply curve S_{wat} will shift up. That is, rising costs cause the grower's economic supply of water to the irrigation process to be less. Also, as social marginal costs increase, such as due to more environmental damage from overpumping, the distances ($S'_{\text{wat}} - S_{\text{wat}}$) will become larger and S'_{wat} will shift up. The socially optimal quantity of water will decrease to points lower than G as costs increase.

The curves as drawn presume profit and wealth maximizing behavior on the part of the grower (Lynne et al., 1987, p. 320). The maximum profit level of water use is at Point F when only grower costs are considered and at Point G when grower and social costs are considered. The triangular area above the supply and below the demand curve represents the profit after all costs have been paid. As product prices increase, the area gets larger. As input prices and social costs increase, the area gets smaller. Recall the commentary in Lynne and Kiker (1991, Section 5.5, p. 5-7, and Section 6.5.2, p. 6-7): the input/output price ratio will affect the amount of water used in agriculture. Rising grower and social costs suggest rising input prices and less water use.

Notice the profit maximizing grower will not knowingly use water to the level at Point J where maximum evapotranspiration (ET) is achieved. Importantly, both the modified Blaney-Criddle and AFSIRS estimates of crop water use presume maximum ET and water use at Point J. That is, both water use estimating procedures used by the District (and in this report) do not account for the economic factors affecting grower behavior.

Ideally, the analyst projecting agricultural water use will have reliable research knowledge about all the relationships in the figure. Such relationships can be developed using statistical, mathematical programming, and simulation procedures as documented in the economics literature. A few studies of this kind have been conducted in Florida. Lynne et al. (1984b, esp. p. 239) review the earlier work on the agricultural economics of water use in Florida. More recent research on water value and cost is reflected in Lynne et al. (1984a, 1987). Unfortunately, quite limited research resources have been available for studies of the economic (behavioral) aspects of agricultural water use in Florida. As the Florida water economy matures, such research becomes more important, and should be expanded.

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