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# DRAFT DOCUMENT

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## AN EXCERPT FROM A NEW LOOK AT AGRICULTURE

A Discussion Paper Devoted to:

Redefining agriculture's role in our  
economy, landscape, environment  
& social culture

### *Executive Summary*

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**This is an Excerpt**  
from a Concept Paper that explains why agriculture  
is important to each one of us.

It also describes the obstacles faced by agriculture,  
suggests more than 250 ways to overcome these obstacles,  
and proposes 20 priority actions for immediate attention.

This document is designed so it can be adapted for use  
at the local, regional and state levels.

Copies of the Full Document  
and instructions on how to adapt this document  
for use at the local level are  
available for download at <http://us-farm.com/download.htm>.

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**A Concept Paper  
to Stimulate a Dialog for Change**

**A PROJECT FUNDED BY  
U.S. DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE;  
FLORIDA STEWARDSHIP FOUNDATION; &  
SOUTH FLORIDA ECOSYSTEM RESTORATION WORKING GROUP**

prepared by  
*Craig Evans*  
President  
Florida Stewardship Foundation

**on behalf of the Sustainable Agriculture Task Team  
as a report to the  
South Florida Ecosystem Restoration Working Group**

with input from over 100 ag leaders and producers

This paper is being used as a basis for the agricultural element  
of the Strategic Plan being developed by the  
South Florida Ecosystem Restoration Working Group

## *What Does this Mean to Me?*

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**F**ood. It's a matter of survival. If you eat right, it also can be a source of great pleasure.

Like most Americans, you probably pay little attention to where your food comes from. You buy it at a store, order it at a restaurant, expect it to be safe, nutritious, affordable and ... mostly ... to be there.

*That's why the following message should concern you.*

U.S. farmers and ranchers are the world's most efficient food producers. As a result, Americans have more abundance and variety to choose from — and spend only 10.7 cents of every dollar earned on their food bill,<sup>1</sup> compared with over 51 cents in India, 33 cents in Mexico, 21 cents in Spain and 18 cents in Japan.<sup>2</sup> That gives us more money to spend on houses, cars, college educations and the things that bring us pleasure.

Moreover, the average U.S. farmer feeds almost 130 people every day.<sup>3</sup> That means that, for every farmer, 130 other people can be doctors, lawyers, teachers, business managers, entrepreneurs, artists and students.

But we are losing our farmers and ranchers. Rapidly. In Florida alone, almost 150,000 acres of productive agricultural land are converted to another use each year. That's over 17 acres an hour — or one acre every three and a half minutes.<sup>4</sup> & <sup>5</sup> As a result, we are relying more and more on food from other countries. From countries where, in many cases, our own State Department warns us to not eat the produce when we travel there.<sup>6</sup>

*We eat 3 times a day*, thanks to the farmers who grow our food. Yet our food could become more expensive and less safe in the very near future, because of current government attitudes toward our farmers and ranchers. As populations skyrocket in the developing, high-birth nations that currently fill our supermarkets with cheap imports — and we lose our farms and ranches — we will be competing for the first time with the world's hungry billions for every meal we eat.

*We eat 3 times a day.* Yet we forget where our food comes from, because we are blessed with the world's most sophisticated food production and distribution system.

The world's population passed the 6 billion mark in October 1999.<sup>7</sup> It is projected to grow to 9 billion in the next 30 years, then begin to level off. That's 3 billion new mouths to feed! Yet there are currently huge unmet nutritional needs in much of the world. A statement prepared for the 1996 World Food Summit reports that 800 million people are currently underfed — and 2 billion are insufficiently nourished.<sup>8</sup> That's almost *half* of the world's population! (In fact, in 1996, it *was* half of the world's population.) The United Nations Food and Agricultural Organization (FAO) also reports that arable land (that which is fit for cultivation) is diminishing at a rate of 10% per year in some developing nations because of soil erosion and spreading water scarcity.<sup>9</sup> & <sup>10</sup>

According to the FAO, current food production will have to DOUBLE just to maintain current rates of malnutrition in the world. To adequately feed tomorrow's people, it is estimated that current food production will have to increase by 174 percent — almost THREE TIMES!<sup>11</sup>

These changes will have to occur in the span of just one generation — at a time when we are losing our farms ... and our farmers, who know how to grow safe, affordable, abundant food. At a time when the rest of the world is losing the land it needs to farm.

As one environmental leader recently noted: “Who is going to worry about a clean environment if there is no food on the table?”<sup>12</sup>

We have taken our food — and our farmers and ranchers — for granted far too long. This is more than a business problem or tax problem or regulatory problem for a few farmers or ranchers. *We eat 3 times a day!* The loss of our farms and ranches is a matter affecting our national interests. It also could very well become a matter of survival.

Agriculture is more than just another business venture — it is our food supply. It is more than just a value that enhances our quality of life — it is our life support system.<sup>13</sup>  
*Agriculture is the cornerstone of our civilization and society.*

Unfortunately, our government — at all levels — is driving farmers and ranchers out of business. Not on purpose. More by default. The effect, however, is the same. Every day, government policies, estate taxes and regulations whittle away at our farms. Profits disappear, competition for land and water intensifies, families are forced to sell land to satisfy estate taxes, farms are taken out of production to protect wildlife habitats and urban sprawl devours fields.

That's why each of us needs to:

- Help others to understand and appreciate the importance of agriculture;
- Identify government policies that are working against agriculture; and
- Do everything we can to change these policies – and put new ones in place that will promote and encourage agriculture.

## The Many Values of Agriculture



Some key attributes of agriculture include:

- ◆ **economics:** Agriculture is a major component of the U.S. economy. The direct input to the national economy from the agricultural sector averages \$90 billion annually. Jobs in agriculture and related industries account for 18 percent of all U.S. civilian employment. Overall, the food and fiber sector accounts for 15 percent of the Gross Domestic Product. In addition, the agricultural sector regularly generates a positive trade balance in excess of \$11 billion.<sup>14</sup>

Agriculture is important to the economies of many states as well. For example, agriculture is Florida's second most important industry, producing \$18 billion in economic value each year.<sup>15</sup> It is the foundation for all other contributing economic segments — such as food wholesaling and retailing — that add another \$35 billion to Florida's economy.<sup>16</sup> It also accounts for more than 500,000 jobs and generates a payroll of \$10 billion per year.<sup>17</sup>

- ◆ **open space:** About 402 million acres of the nation's total land area of 1,893 million acres are in federal ownership. Of the remaining land, almost 90% is devoted to agriculture and forestry. The largest group of private landowners is America's ranchers, who control 523 million acres of rangeland and pastureland — 35% of all the non-federal land in the U.S. Second are farmers, who control 375 million acres plus 33 million acres enrolled in the USDA/NRCS's Conservation Reserve Program — 27% of non-federal land. Third are timber companies and private woodland owners, who control 399 million acres — also 27% of non-federal land. Together, these three groups of private landowners control 1,330 million acres — 70% of the total U.S. land area.<sup>18</sup>

Almost 8 million acres of Florida's total land area of 35 million acres is in public ownership. Of the remainder, 66% is devoted to agriculture and forestry.<sup>19</sup> The owners of these lands are the major stockholders in the state's future, since their lands include:

- *every acre to be used for future development,*
- *every acre to be protected, and*
- *every acre to remain in agriculture & forestry*

These are the lands that will be needed to sustain the state's water

resources, wildlife, open space and environment. They are the lands needed for future food and fiber production. And they are the lands that will provide the services for Florida's built environment.

- ◆ **wildlife habitat/habitats for threatened and endangered species:** 75 percent of the nation's threatened and endangered plant and animal species are found on private agriculture and forestry lands. Some endangered plant species in Florida – Lakla's mint, for example -- are found only on private agricultural lands.<sup>20</sup>

**Agriculture offers many other values to society as well, including:**

- ◆ buffers between natural areas and urban areas
- ◆ a positive cash flow from ad valorem taxes due to ag's low demand for services
- ◆ an economically viable growth management tool that offers an alternative to public land purchases and the current tendency to develop every square foot of land near our urban areas<sup>21</sup>, and
- ◆ traditional rural character; culture & values.

**When carried out with environmental compatibility in mind, agriculture also can provide for:**

- ◆ preservation of wetlands
- ◆ water storage
- ◆ ground water recharge
- ◆ water filtration
- ◆ flood control
- ◆ purification of air
- ◆ carbon sequestering<sup>22</sup>
- ◆ generation of oxygen
- ◆ soil creation, conservation and health
- ◆ decomposition of wastes
- ◆ forests and woodlands
- ◆ ambient healthful living conditions
- ◆ a healthful quality of life

Hence, agriculture produces not only our food and fiber and horticultural products, but can accommodate many important resource values as well.

## **How Would You Answer This Question?**

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*If there was an industry that was a major economic generator for the state, an important part of the answer for future food needs, a buffer between preserved natural systems and urban areas, an integral part of a sustainable landscape for Florida, and finally, an industry adaptable to the environment — what would you do to ensure its strength and continued presence in Florida?*

— Frank “Sonny” Williamson, Jr.  
Williamson Cattle Company

### **A Call to Action**

*You have only to visualize a Florida whose agriculture is weak and struggling, ever diminishing in scope, vanishing here and there, leaving only houses packed together and rubbing raw against fragmented but “preserved” natural areas, and you will picture a nightmare we must avoid. Agriculture provides areas for open space, aquifer recharge, and wildlife habitat. It is that essential buffer between intense urban uses and preserved wetlands and natural areas.*

### **But more than that ...**

*Our vision of Florida agriculture must account for the coming global imperative to increase food production to meet the demands of a rapidly expanding population. It will mean that agriculture production must take center stage for protection in public policy, much as wetlands and remaining pristine uplands do now. It suggests that even here in the U.S. cheap food prices will fade into memory as scarcity and market forces adjust those prices upward.*

— Frank Williamson, Jr.

# The First Component for Success: *Producer Profitability*

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## GUIDING PRINCIPLE:

*Without profit, there will be no agriculture.*

## RECOMMENDATIONS:

1. Improve opportunities for **profitability**, especially for small- and medium-size producers
2. Improve **education** of consumers and policy makers to expand awareness about where food comes from; what it takes to have a safe, affordable and abundant food supply; current threats to South Florida’s agricultural productivity; and the underlying premise that *agriculture is vital to sustaining our lives*.
3. Reduce the impact on profitability caused by 1) **invasive plants, pests and diseases** that often accompany shipments and passengers coming into the state and 2) the loss of “**minor crop**” tools
4. Initiate **economic development** efforts to retain and capitalize on existing agricultural activities
5. Expand **marketing** to increase sales of agricultural products from South Florida
6. Address **trade** imbalances to ensure that all foreign produce meets American food safety and environmental standards so South Florida producers can operate on a “level playing field”
7. Examine the effects of **consolidation** on small- and medium-size producers and the nation’s food security and identify policies that put small- and medium-size producers and South Florida’s continued ability to maintain its food production capability at risk

## The Second Component for Success: *A Conducive Business Climate*

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### GUIDING PRINCIPLE:

*“How law works, not what it aims to do, is what is driving us crazy.”*

### RECOMMENDATIONS:

1. **Improve the regulatory climate** so agricultural operations can comply with laws that are important to public health, safety and protection of the environment, without being placed at an economic disadvantage to foreign producers and other types of land uses that could displace agriculture and result in even greater environmental impacts.

In order to accomplish this, there is a need to engage farm groups and regulators to work together in constructive efforts to improve the regulatory climate by:

- developing standards that will *simplify* current rules, regulations and permitting procedures without weakening them;
- developing more efficient, cost-effective approaches for agricultural enterprises and business operations to comply with all “external” demands and requirements that are placed on these operations by society;
- using prototype programs to test “whole farm plans,” “integrated operating plans” and other approaches to improving the regulatory climate; and
- providing training to policy makers, regulators and agency staff about the differences between agriculture and other types of land uses and businesses.

Next to improving profitability, this is the single most important step that needs to be taken to improve the viability of agricultural enterprises in South Florida.

### Also need to find ways to:

2. Reduce unnecessary burdens and costs on agriculture due to **local government regulations** and permits
3. Better consider the needs and requirements of agriculture and integrate them into **all policy areas** and all phases of policy development where agriculture has an impact or is impacted.
4. **Adapt federal programs to state needs** to avoid the potential for adverse unintended consequences.

## The Third Component for Success: *Adequate Infrastructure*

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### **GUIDING PRINCIPLE:**

*Agriculture is essential to our livelihood. Without it, we will not survive. It is in our interest to give attention to all the infrastructure that agriculture needs to thrive.*

### **RECOMMENDATIONS:**

1. Improve the state's **transportation systems** to:
  - coordinate state and county planning of road, rail, air and waterborne transportation facilities;
  - take the needs of agriculture into consideration;
  - provide for the transportation of agricultural products and supplies.
2. Ensure an ongoing, stable supply of trained and trainable **labor** for the agricultural industry. Also need practical, workable programs to ensure the health, safety and welfare of all workers in the agriculture industry.
3. Acknowledge and accommodate agriculture's concerns with the Comprehensive Everglades Restoration Plan (CERP) to achieve **environmental restoration** and meet the water-related needs of the region.

## **The Fourth Component for Success:** ***Enhancing Environmental Compatibility***

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### **GUIDING PRINCIPLE:**

*Agriculture can be one of the best friends the environment has.*

### **RECOMMENDATIONS:**

1. Celebrate, acknowledge and reward agricultural landowners and operators for their **private stewardship** efforts. One of the best ways to support and encourage the environmental value in the region is to take advantage of the strong stewardship ethic of many of the region's farmers and ranchers, and adjust programs to improve the ability of these owners and operators to nurture the ecological values associated with the lands under their care.
2. Determine what agricultural activity, if any, can take place on public lands and what public lands, if any, can be leased or sold back to ag producers. This **new approach to public land use** should be considered as a possible land management strategy and should be discussed by the Working Group as part of its land acquisition strategy.

## The Fifth Component for Success: *Integrating Agriculture into the Landscape*

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### GUIDING PRINCIPLE:

*Preserving land alone is not enough. Local and state governments also must preserve the conditions that allow the land to be used profitably for agriculture.*

### RECOMMENDATIONS:

1. Provide **landowner equity**, so landowners can realize full value of their land without converting it out of agriculture. Retaining agriculture as a part of the landscape is essential to a sustainable ecosystem. However, land is currently undervalued in agriculture and overvalued in development; therefore, today's market tends to favor development.
2. Review **tax issues**. Consider creating more enlightened tax structures, that reward responsible stewardship and use of land for food production. The current taxing system – federal, state, local – impacts the decisions of landowners and discourages the protection of natural resources and continuation of agriculture.
3. Reconcile urban development needs with their impact on agriculture and accommodate **new development** without displacing agriculture.
4. Address the problems and needs of **rural communities**. Rural communities are often built around nodes of agriculture production and services. These communities provide important economic contributions to the state; have a unique character and valued quality of life; and contain many important natural values, including open space, wildlife habitats, wetlands, and water recharge areas. However, state and federal policies currently are not sensitive enough to the problems and challenges faced by rural areas.

## Endnotes

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1. Judith Jones Putnam and Jane E. Allshouse, "Food Consumption, Prices and Expenditures, 1970-97," Food and Rural Economics Division, Economic Research Service, U.S. Department of Agriculture, Washington, D.C., Statistical Bulletin No. 965.

This is the average price spent by all consumers on all food, both inside and outside the home, including snacks. The average expenditure by Americans for food to be eaten at home is only 7.4 percent of every dollar earned. The report goes on to note, however, that "The proportion of income spent for food varies widely among households of different sizes and incomes. Data from the 1996 Consumer Expenditure Survey conducted by the U.S. Department of Labor showed that the percentage of aftertax income spent for food [both inside and outside the home] varied from 8.7 percent for households with incomes of \$70,000 ... to 34.2 percent for households with incomes of \$5,000-\$9,999."

2. "Farm Facts - Food is Most Affordable in the United States," a comparison of percent of income spent on food in 14 countries, from the American Farm Bureau web site, <http://www.fb.com/today/farmfacts/ffacts2.html>. Data from USDA and United Nations System of National Accounts.
3. U.S. Department of Agriculture, Washington, D.C., 1997.
4. *Mapping & Monitoring of Agricultural Lands Project*,: Department of Community Affairs, Tallahassee, Florida, 1984; and *Major Land Uses*, U.S. Department of Agriculture, Economic Research Service, Washington, D.C.,1992.

Over a 20-year period, the average loss is a little bit less -- but still significant. According to Florida Department of Agriculture and Consumer Services, *Agricultural Facts*, 1996, farmland losses averaged over 139,000 acres per year from 1974 through 1995, a 28% loss during that time.

A high rate of loss also is projected to continue. According to an April 1999 estimate by Dr. John Reynolds, University of Florida, Department of Resource Economics, Institute of Food and Agricultural Science, we can expect an average of 130,000 acres per year to be converted to residential or other urban uses from 2000 through 2020.

5. As Tim W. Williams says: "Please focus on farmers, not acreage. I got the feeling my land value would be in peril as those concerned might blanket Ag areas under a cover of 'no development'. Without any other remedies in place to mitigate the possible effect my land worth as much as 20+ K per acre falls overnight to 5000.00 Where does the million dollar production loan come from if I only own 150 acres ?  $150 \times 5000 = 750,000$  while  $150 \times 20,000 = 3,000,000$  ltv. @ 33%. **DO YOU UNDERSTAND THIS?"**

6. Foreign travel advisories, U.S. Department of State, Washington, D.C.  
  
Also: Center of Disease Control Travel Information: "Food and Water Precautions and Travelers' Diarrhea," Division of Quarantine, National Center for Infectious Diseases, Centers for Disease Control and Prevention, Atlanta, GA, July 12, 1996.
7. U.S. Census Bureau projection as reported by Jack Z. Smith, columnist and editorial writer for the Fort-Worth-Star-Telegram, in an article entitled "At nearly 6 billion, we can't afford to forget Earth's growing problem," Sun-Sentinel, Fort Lauderdale, Florida, June 9, 1999, p 27A..
8. The World Bank, *Food Security for the World*, Statement Prepared for the World Food Summit, Rome, Italy, November 12, 1996.
9. Food and Agricultural Organization of the United Nations, Soil Resources Management and Conservation Service, *World Reference Base for Soil Resources*, 1998.
10. Ferdinand F. Wirth, Ph.D., Assistant Professor of Food and Resource Economics, University of Florida, Indian River Research and Education Center offered a dissenting comment to this and the following paragraph:

"... the gist of this paragraph is that there is not enough food for the current world population, and that increasing population will just exacerbate the situation. This is not true, for two reasons!! First, there is currently plenty of food produced to feed the world's population. Look at the huge U.S. grain surpluses every year. The U.S. is having problems finding storage for all the grain. The real problem is food distribution - actually getting the food to the people. Many third world countries lack an adequate food transportation and distribution infrastructure. This is evident every time there is a major African drought; people in the countryside starve while emergency food shipments end up rotting in central warehouses in major cities, with no way to get the food to the countryside.

"The second flaw in the reasoning is the failure to remember the tremendous improvements (past and ongoing) in the technological efficiency of agriculture (that's why one farmer can now feed 130 people). Just prior to World War II, one farm worker supplied food and fiber for only 11 people. Malthus was guilty of the same error (ignoring technological improvement) in 'Population' when he suggested that human population growth is limited by the food supply. The rate of technological improvement has also been accelerating with biotechnology, and it is very possible that within one generation an American farmer will be able to feed 250 people. If we export our technology to developing nations, there is every reason to be optimistic that we can feed the world's population for the foreseeable future if the distribution problems are solved."

**Response:** According to the United Nations Food and Agriculture Organization (FAO), Dr. Wirth is correct in stating that sufficient food is currently produced to feed *most* of today's people. FAO also notes that poor distribution, rather than lack of production, is the major cause for the world's current food deficiencies. Nevertheless, that does not change the FAO statistics cited in these two paragraphs. FAO has taken distribution

problems into account in its projections. Hence, even though world population is going to increase 50%, FAO projects that current food production will have to double to keep pace with that increase, since much of the population increase will come in areas that also have poor distribution.

It's hard to comment on Dr. Wirth's second point. It is clear that there has been a dramatic increase in the amount of food produced per acre over the last 50 years. According to USDA and FAO, however, production increases have leveled off in the last 10 years. There is a lot of *hope* that technology (and biotechnology) will, once again, provide the key to continuing increases in production. But there is no solid evidence to show this is happening at the present time. If Dr. Wirth's projection is correct, and the average farmer can feed 250 people, then that will result in a doubling of food production — exactly what the FAO says is needed, at a minimum. If food distribution problems can be addressed, so much the better. Still, even if Dr. Wirth is completely correct, that does not change any of the points raised in this essay: world population and food demand are increasing at a time when we are losing our farms and farmers. While we might be able to stay exactly where we are *if* each farmer doubles his or her current production, or *if* we *completely solve* all the world's food distribution problems, the fact remains that we are losing our farms and farmers at an alarming rate. And that is going to impact the safety, abundance, variety and cost of our food in the years to come. Moreover, each of us is going to feel that impact *personally*.

11. Food and Agricultural Organization of the United Nations, *Food Requirements and Population Growth*, A Technical Document Prepared for the World Food Summit, November 11-13, 1996.
12. Kevin Burger, comment at Sustainable Agriculture Task Force Meeting, South Florida Water Management District, West Palm Beach, Florida, May 11, 1999.
13. From a presentation by Frank Williamson, Jr., "Agriculture in Florida," at the Third Annual Public Interest Environmental Conference, Florida 2020: Visions of our Future, Reitz Center, University of Florida, Gainesville, spring 1997.
14. The Commission on 21<sup>st</sup> Century Production Agriculture, "Directions for Future Farm Policy: The Role of Government in Support of Production Agriculture," Report to the President and Congress, January 2001.
15. Florida Department of Agriculture and Consumer Services, "Florida Agriculture Overview," Ag Facts, p. 1, 1998.
16. Ibid.
17. Florida Department of Labor, ES-202 reports, 1996, the most recent data available, accessed via Internet at: [http://lmi.floridajobs.org/LMI\\_LIB.htm](http://lmi.floridajobs.org/LMI_LIB.htm) and <ftp://207.156.40.162/ES202/AN96F01.TXT>. Direct employment in 1996 resulting from agricultural production, services and processing was 288,286 jobs. This generated \$5.1 billion in payroll earnings.

However, that is only part of the picture.

[The following information is excerpted from a study on *The Economics of Land Uses in Polk County, Florida*, conducted by Florida Stewardship Foundation, Boca Raton, Florida, January 1999.]

Because agricultural production and other agribusinesses produce products or services for sale outside Florida, which serve to channel outside dollars into the state, they are known as "export" or "basic" industries.

The vast majority of Florida's agricultural products are exported to end-users outside the state, either directly or after packing and/or processing. All of these sales import dollars into the state. The agricultural industries, in turn, use these dollars to pay their employees, pay property taxes and purchase supplies and services. These dollars are then re-spent by each employee, by local governments and by the businesses providing sales and services to agricultural industries. Thus, the dollars generated from the sale of Florida agricultural products are circulated and re-circulated throughout the state economy.

This spending translates into local retail sales; local bank accounts; purchases of consumer products, automobiles and homes; entertainment purchases through local restaurants, theaters and sporting facilities; and purchases of legal, accounting, medical, beauty, cleaning, repair and other personal services.

This process of expanding the economic employment and income base of the state through economic interactions of the agricultural industry and other economic sectors is known as the "multiplier effect."

Economic impact, which is the combination of direct cash sales outside the state plus the "multiplier effect" that these sales have on the state's job market and economy, is calculated by using a *Regional Economic Multiplier* computed by the U.S. Department of Commerce. This multiplier is applied only to the income that results from sales outside the state, not to local sales that are generated within Florida. This multiplier accounts for the *indirect* and *induced* impacts that result when money brought in from outside the state is spent locally.

When this multiplier is applied to jobs and earnings to determine the economic impact generated by agriculture, it shows that **more than 500,000 jobs — which account for than \$10 billion in payroll earnings — owe their existence to agriculture.**

**In addition, the ES-202 report for 1996 shows that other contributing industries, such as food stores and eating establishments, employed another 674,567 people who had payroll earnings of \$8.1 billion.**

A reviewer from South Florida Water Management District noted that the jobs and earnings cited above "are not heavily dependent on Florida agriculture." This is true. But it is worth remembering that they *are* dependent upon agriculture, as emphasized in

the chapter in Part I entitled “What Does this Mean to Me?”

***An issue often raised about agricultural jobs is:*** Doesn't the large number of migrant workers, who are paid low wages, put a large demand on social services, which must be paid for by all taxpayers? This concern can be answered by understanding that it is low income jobs, regardless of the type of industry, that creates the need for social services.

Many families that have a member doing agricultural work may also have family members who have low-paying jobs in other industries, so although the family is regarded as a “farm worker household,” any social services received also are provided to the members who are in other industries. Thus, it is often assumed that it is farm workers who need social services, whereas it could be any low income person or family member. Agricultural jobs represent only a small portion of the industries which provide jobs to unskilled and often non-English speaking workers. For example, according to the *1997 Florida Statistical Abstract*, in 1996 there were over 40,000 people employed in Polk County in service jobs, almost 38,000 in retail jobs, over 8,000 in construction, and about 10,000 in agriculture (p 212). All of these industries include low paying jobs and employ workers who may use social services. [Studies conducted by Florida Stewardship Foundation in other counties, such as Collier and Hillsborough, show similar breakdowns in the distribution of workers among low-wage jobs.]

The common belief is that migrant workers often earn *hourly* wages that are significantly lower than *hourly* wages paid in other unskilled positions. However, a worker's total income is perhaps more impacted by the fact that farm work is seasonal and variable even during the season. The earnings of farm workers are not simple to calculate since they often earn an hourly rate and/or a piece rate per box. Wages for Florida citrus workers, for example, are most often paid on a piece rate per box. The Florida Agricultural Statistical Service showed an average pay of \$6.19 per hour for field workers in October, 1995. A study done in 1994 by the University of Florida's Institute of Food and Agricultural Sciences shows that although the piece rates for citrus workers can vary, the resulting hourly wage remains fairly level. The piece rate varies due to such factors as height of trees and amount of fruit per tree, and thus reflects how long it would take to fill a box. Additionally, the study found that the mean hourly wage for citrus workers was \$7.08, with a standard deviation of \$1.64. [Data from: Robert Emerson, Rebecca Chung, Leo Polopolus, *Harvest Labor Market Efficiency*, University of Florida Institute of Food and Agricultural Sciences, Gainesville, Florida, 1994, p. 11.]

Another study by Ed Kissam and David Griffith states that "Farmwork pays higher wage rates — about 20% over the minimum wage — more than most of the jobs available to domestic and immigrant workers with few marketable vocational skills or with other serious barriers to employment." [Data from: Ed Kissam and David Griffith, *Final Report: The Farm Labor Supply Study: 1989-1990*, Micro Methods, Berkeley, California: prepared under Grant #3-9-M-9-0044 from the Office of the Assistant Secretary for Policy, U.S. Department of Labor, 1991, p. 94.]

Then why do so many migrant workers live in poverty? The main reasons are unemployment and underemployment. The work is highly seasonal and not steady.

Workers may not find work every day of the week and on the days they do work, they may work long days or only partial days. This is caused not only by such factors as timing of harvests and weather fluctuations, but also by the casual structure of the labor market.

Seasonal under-employment and off-season unemployment cause farm workers to seek jobs outside of agriculture. Due to employment barriers such as inability to speak English, lack of skills and little formal education, the only other employment generally available is entry level jobs in retail, service and construction with hourly wages comparable to agricultural work. These jobs, however, are attractive since they frequently offer steadier work and may provide some benefits.

Thus, migrant farm workers tend to leave farm work for steadier employment in low paying non-agricultural fields such as service, retail and construction. The attraction of other more stable and permanent jobs causes high turnover and exits from agricultural work. According to Kissam and Griffith, "Stability of employment, turnover and exits are closely linked." [Ibid., p. 87]

As residential growth occurs, there is a correlating growth in the demand for people to enter these fields. For example, Polk County has an average of 19 workers in these fields for every 100 residents. [Derived from the 1997 Florida Statistical Abstracts, pp. 11 and 212.] Therefore, if agriculture is replaced by residential growth, there would be a corresponding increase in the demand for service, retail and construction jobs and migrant workers would be likely to continue moving into these unskilled and low paying positions.

18. U.S. Department of Agriculture, Natural Resources Conservation Service, National Resources Inventory, 1997.
19. Sources: *Florida Agriculture*, Florida Department of Agriculture and Consumer Services; *1995 Florida Statistical Abstract*; *1992 Census of Agriculture*; and U.S. Forest Service. According to these sources, agriculture utilizes 10.8 million acres and commercial forestry utilizes 13 million acres of the state's total land area of 34.5 million acres. Eight million acres of state land is in public ownership, leaving 26.5 in private ownership. Forestry utilizes 6.3 million acres of public lands and 6.7 million acres of private lands. Of the private lands, 10.8 million are in agriculture and 6.7 million are in forestry.
20. From Mike Jennings, U.S. Fish and Wildlife Service, Vero Beach, FL, via email June 25, 1999:

*The Road Back: Endangered Species Recovery Success*, U.S. Fish and Wildlife Service, Washington, D.C., no date. Reports that a 1993 study by two project partners, the Association for Biodiversity Information and The Nature Conservancy found: "Only 25 percent of all listed species occur primarily on federal lands. In addition, more than half of the federally listed species have at least 80 percent of their habitat on private lands."

As Mike Jennings note: “Extrapolating, one could conclude that about 75 percent [of listed species] occur primarily on non-Federal lands.”

According to the *South Florida Multi-Species Recovery Plan*, USFWS, 1999, three listed species are found almost exclusively on private lands: The *scrub blue pine* only has a 2 hectare site (about 5 acres) on public lands; the balance of all other sites are on private lands. The *Florida zizphus* has five sites, only one on public lands; the other four, the largest sites, are on private lands. For *Lakla's mint*, all known populations within its historic range are on private lands; one translocated population occurs on federal land.

21. Suggestion from Pat and Brady Pfeil, Carlton Bar A Ranches and Groves, Arcadia, Florida. Response to first draft, June 10, 1999.
22. Carbon sequestering is the process of providing plant cover to take CO<sub>2</sub> from the air and create a “carbon sink.” Plants convert CO<sub>2</sub> to carbon, some of which ends up as roots, stems, leaves, and some of which is returned to the soil via plant residues. The objective is to sequester as much as possible to keep it out of the air and thus avoid contributing to the “greenhouse effect.” Information from Bart Lawrence, Soil Conservationist-Plant Materials,. Guam, Micronesia, USA.