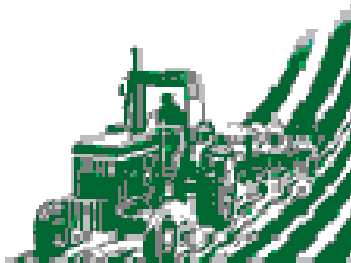

THE CONTRIBUTION OF AGRIBUSINESS TO POLK COUNTY, FLORIDA

An Analysis of:

- 1. Polk County's Total Economic Output – By Industry*
- 2. The Economic Impacts of Agriculture, Agribusiness & Mining*
- 3. The Community Revenues & Expenses
Generated by Agriculture, Agribusiness & Mining
Compared with Other
Commercial & Industrial Land Uses*



January 2006

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Prepared for
Polk County Farm Bureau

Prepared by
Stewardship America, Inc.

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- Supplement 1:* Description of Calculations + APPENDIX:
A Guide to the Spreadsheets
- Supplement 2:* Comparisons Between the 1999 & 2005 Studies
- Supplement 3:* Conclusions/Public Policy Considerations
- Supplement 4:* Does the Rural Lands Stewardship Program Make Sense for Polk County?
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STUDY REPORT

OVERVIEW OF FINDINGS

INTRODUCTION

THIS IS AN UPDATE OF A PREVIOUS STUDY. This study, like its 1999 predecessor, looks at the economic impact of agriculture and agribusiness to Polk County.

The study also analyzes fiscal impacts (of or relating to government expenditures, revenues and debt). It compares the revenues generated and expenses incurred by agricultural land uses to other types of commercial and industrial land use in Polk County.

The purpose of this study is to provide information with which Polk County can assess the contributions that agriculture and mining make to the county and its residents so informed decisions can be made for the future. This study was commissioned by the Polk County Farm Bureau. Funding for the study also was provided by the Board of County Commissioners, Florida Farm Bureau Federation, Mosaic, Inc., Polk County Cattlemen's Association and Taxpayer's League of Polk County.

This study reports:

- The total economic output of Polk County broken down by industry ("output" is defined as the gross market value of goods and services),
- The economic impacts of agriculture, agribusiness and mining on the county, and
- The fiscal impacts of various types of land uses on the revenues collected and expenses incurred by county government and the county school district (in this case, each land use is viewed as a separate economic activity).

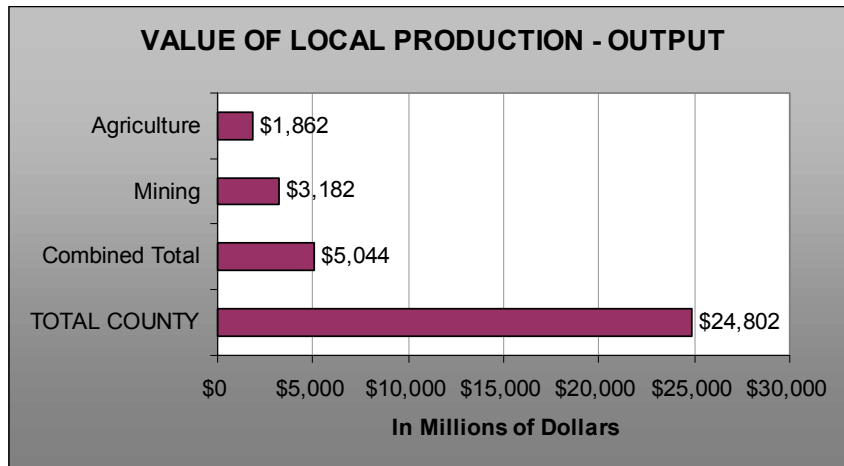
The results of these analyses are reported on the following pages.

QUICK FACTS

HERE ARE SOME QUICK FACTS, BASED ON THE FINDINGS OF THIS STUDY:

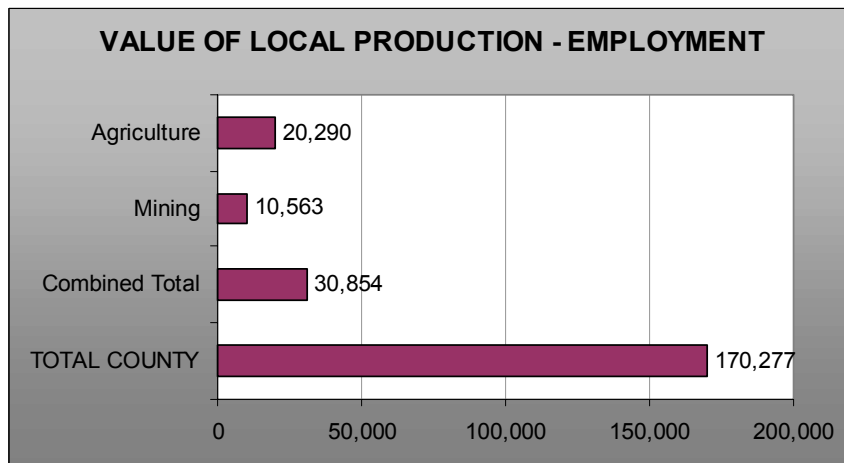
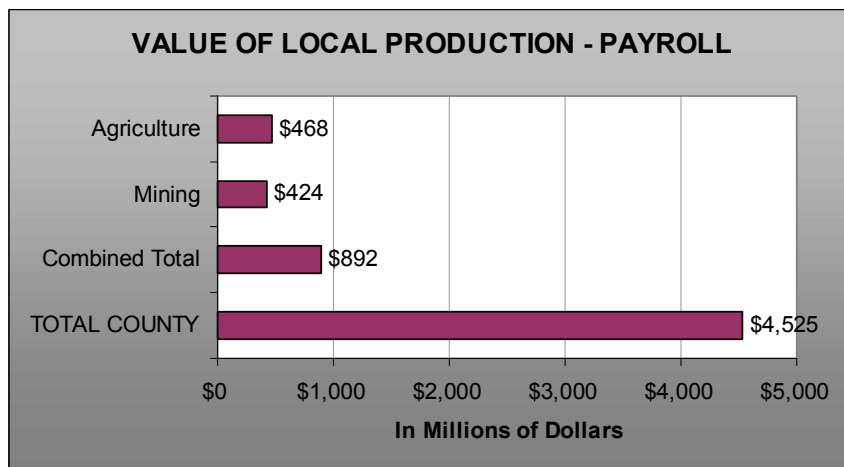
- The Food and Fiber industry, of which agriculture and agribusiness is a part, is the second largest industry in Polk County.¹
- Polk County covers a land area of 1,874 square miles; 52% of that area is agricultural land.²
- Polk County has 3,114 farms, the largest amount of any county in the state, and its land in farms, 626,634 acres, is the 2nd largest amount of any county in the state.³
- The total value of agricultural products sold places Polk 5th among Florida's 67 counties (behind Palm Beach, Dade, Hillsborough and Hendry counties). Of 3,078 U.S. counties, Polk ranks 81st in the value of agricultural products sold.⁴
 - ✓ Polk County farms, ranches and agricultural operations produce \$285 million in total annual sales.⁵
 - ✓ The county is the #1 producer of tangerines and the #2 producer of oranges in the U.S.⁶
- Agriculture production and the businesses which support the production industry have an economic impact to the county of:
 - ✓ \$605 million in annual sales;
 - ✓ 16,615 jobs; and
 - ✓ \$297 million in payroll.⁷
- Agricultural processing accounts for:
 - ✓ \$2.5 billion in annual sales;
 - ✓ 7,351 jobs; and
 - ✓ \$343 million in payroll.⁸
 - ✓ Half of the value of this industry relies on local produce grown in Polk County; the other half comes from produce brought in from other places.
- Phosphate mining and fertilizer production have an economic impact of:
 - ✓ \$3.2 billion in annual sales;
 - ✓ 10,563 jobs; and
 - ✓ \$424 million in payroll.⁹

The value of these industries to the local economy is shown by the following charts:



Locally-based agriculture, agribusiness, mining and fertilizer manufacturing account for *one-fifth* of the county's total economic output.

They also account for *one-fifth* of the county's payroll and provide more than *one-sixth* of the county's jobs.



SUMMARY OF FINDINGS TABLE

Polk County, Florida

*Economic Output & Economic Impact calculations
are based on most recent available and verifiable data.
Calculations completed October 2005.*

PART 1: POLK COUNTY'S ECONOMIC OUTPUT - ALL INDUSTRIES

	<u>Output</u>	<u>Employment</u>	<u>Payroll</u>
TOTAL (all sectors):	\$ 24.8 billion	170,277	\$ 4.5 billion
FOOD & FIBER:	\$ 4.5 billion	35,404	\$680 million

PART 2: ECONOMIC IMPACT OF AGRICULTURE & AGRIBUSINESS

	<u>Output</u>	<u>Employment</u>	<u>Payroll</u>
DIRECT IMPACT:			
<i>Agricultural Production</i>	\$285 million	7,284	\$125 million
<i>Agricultural Services</i>	\$191 million	5,514	\$ 87 million
<i>Agricultural Processing</i>	\$ 1.5 billion	3,638	\$154 million
<i>Agricultural Wholesale (sales margin)</i>	\$101 million	1,744	\$ 54 million

	<u>Output</u>	<u>Employment</u>	<u>Payroll</u>
TOTAL IMPACT:			
<i>Agricultural Production</i>	\$406 million	11,038	\$208 million
<i>Agricultural Services</i>	\$199 million	5,577	\$ 89 million
<i>Agricultural Processing</i>	\$ 2.5 billion	7,351	\$343 million
<i>Agricultural Wholesale</i>	\$132 million	2,551	\$ 70 million

**POTENTIAL LOSS IF POLK COUNTY
AGRICULTURE WAS TO DISAPPEAR:**

	<u>Output</u>	<u>Employment</u>	<u>Payroll</u>
<i>Agricultural Production & Agricultural Services</i>	\$605 million	16,615	\$297 million
Plus at least <i>50% of Agricultural Processing</i>	\$ 1.25 billion	3,675	\$171 million
TOTAL:	\$ 1.85 billion	20,290	\$468 million

PART 3: ECONOMIC IMPACT OF MINING

	<u>Output</u>	<u>Employment</u>	<u>Payroll</u>
DIRECT IMPACT:			
<i>Mine Production</i>	\$523 million	1,994	\$ 85 million
<i>Fertilizer Manufacturing</i>	\$ 1.4 billion	1,843	\$ 98 million

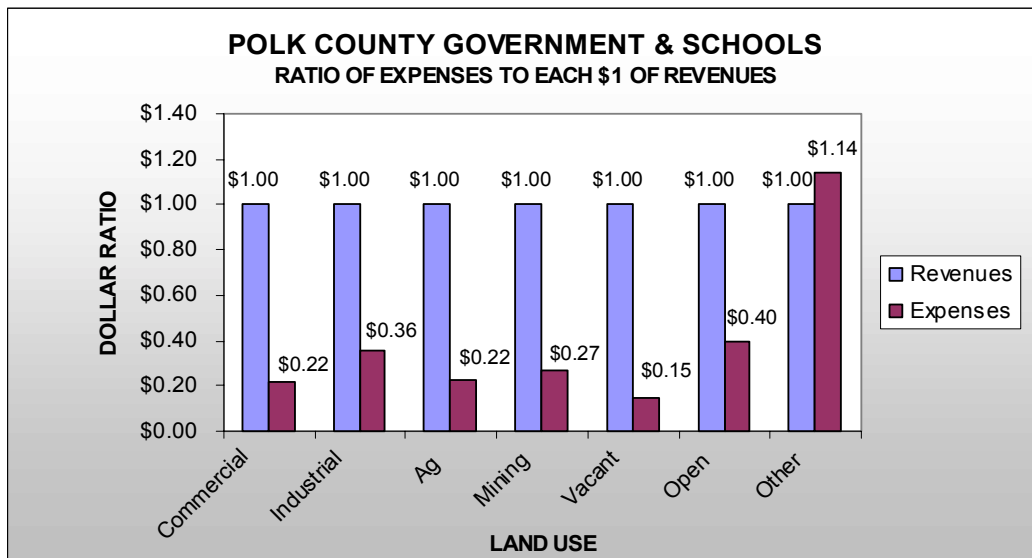
	<u>Output</u>	<u>Employment</u>	<u>Payroll</u>
TOTAL IMPACT:			
<i>Mine Production</i>	\$619 million	2,807	\$106 million
<i>Fertilizer Manufacturing</i>	\$ 2.9 billion	9,152	\$377 million

	<u>Output</u>	<u>Employment</u>	<u>Payroll</u>
COMBINED IMPACT:			
<i>Mine Production (less local sales) & Fertilizer Manufacturing</i>	\$ 3.2 billion	10,563	\$424 million

PART 4: COMMUNITY REVENUES & EXPENSES

Shows the impacts of different land uses on the revenues generated and the expenses incurred for providing necessary public services:

	<u>% of Total</u> <u>REVENUES</u> <u>Generated</u>	<u>% of Total</u> <u>EXPENSES</u> <u>Incurred</u>	Ratio of <u>REVENUES</u> to <u>EXPENSES</u> <u>Generated</u> <u>Incurred</u>	
COMMERCIAL: (creates \$0.78 surplus)	10.6%	2.3%	\$1.00	: \$0.22
INDUSTRIAL: (creates \$0.44 surplus)	2.7%	1.0%	\$1.00	: \$0.36
AGRICULTURAL RELATED: (creates \$0.78 surplus)	2.2%	0.5%	\$1.00	: \$0.22
MINING: (creates \$0.73 surplus)	0.5%	0.1%	\$1.00	: \$0.27
VACANT: (creates \$0.85 surplus)	3.5%	0.5%	\$1.00	: \$0.15
OPEN: (creates \$0.60 surplus)	1.3%	0.5%	\$1.00	: \$0.40
OTHER: (results in \$0.14 deficit - includes institutional land uses such as schools and government buildings which do not generate property tax revenues)	1.5%	1.7%	\$1.00	: \$1.14



ABOUT THIS STUDY

THIS STUDY CONSISTS OF FOUR ANALYSES:

1. *The Economic Output of Polk County by Industry,*
2. *The Economic Impacts of Agriculture & Agribusiness,*
3. *The Economic Impacts of Mining & Phosphate Fertilizer Manufacturing, and*
4. *The Community Revenues & Expenses Generated by Agriculture, Agribusiness & Mining Compared with Other Land Uses.*

All data in this study was drawn from the most recent, available and verifiable source documents and sources. All sources are footnoted and shown in the Endnotes to this study. They also are cited in footnotes to the spreadsheets in the Appendix, which can be found at the end of Supplement 1.

The study followed a five-step process – the compilation, calculation, review, verification and finalization of data – from June to October 2005. All findings are as of October 2005.

The first section this study, the **Economic Output by Industry**, shows the direct economic output (business revenues), employment, and payroll for each industry segment. These numbers demonstrate the order of magnitude of each industry's economic contribution to the county. The analysis uses data from the 2002 Economic Census series for Florida, which was released by the U.S. Department of Commerce from May to September 2005.

The **Economic Impact** section presents the value contributed to the overall county economy by *agriculture & agribusiness* and by *mining and the manufacture of phosphatic fertilizer*. The results are shown as the "economic impacts" of *agriculture & agribusiness* and of *mining & phosphatic fertilizer production*. This refers to the amount of economic activity that is **directly** and **indirectly** produced by an industry. The economic impact looks at three factors: output or sales (in dollars), employment (number of jobs), and earnings (payroll). Other information presented for agriculture includes: federal income tax generated by employees, property tax generated and the value of capital investment.

The numbers in this section were calculated by taking cash receipts figures (or output) for the value of products exported out of the county (see pages 11 to 14 in Supplement 1 for a more detailed explanation of why exported value was used).

Figures for output were taken from U.S. Census information. Employment and payroll figures were supplied by the Florida Agency for Workforce Innovation (formerly the Florida Department of Labor).

To calculate economic impact, these figures were multiplied by *Regional Economic Multipliers*, calculated by the U.S. Department of Commerce, Bureau of Economic Analysis, and provided by Enterprise Florida. This multiplier is applied only to sales outside the county, not to local sales that are generated within the county.

This multiplier accounts for the *indirect* impacts (such as sales of fertilizers and equipment to growers) and *induced* impacts (such as spending by employees) that result when money brought in from outside the county is spent locally.

The *indirect* and *induced* impacts that result from agricultural industry sales were calculated by multiplying the numbers for the *direct* cash sales of agricultural produce and manufactured products by the most recently available *Regional Economic Multipliers* computed for Florida by the U.S. Department of Commerce, Bureau of Economic Analysis. The multipliers are calculated using the Regional Input-Output Modeling System (RIMS II).

The basis of the RIMS model is a transactions table showing the distribution of sales and the pattern of purchases for each sector of the economy. For each sector, the transactions table reflects the dollar value of sales to every other sector and the dollar value of purchases from every other sector. In effect, the table provides a picture of interactions between sectors in the Polk County and Florida economies and allows the flow of dollars to be traced through the economy.

This information allows the calculation of multipliers that can be used to assess the total contribution of a particular sector to the county economy.

For example, the output multiplier for agricultural products that are sold outside Polk County -- such as oranges, tangerines and poultry -- is 1.7542. This means that a one dollar increase in sales outside the county by the fruit and vegetable industry will have a total impact on the county of \$1.75. This total includes the initial sale of \$1.00 plus an additional \$0.75 in indirect and induced effects.¹⁰

The **Community Revenues & Expenses** (CRE) section analyzes the costs of services provided by the county and schools to each of seven types of land uses: *Commercial, Industrial, Agriculture Related, Mining, Vacant, Open* and *Other* and then compares these expenses to the revenues contributed by each land use. ("Revenue" represents all operating funds for county government and schools and includes property taxes, fees, state and federal aid and other taxes. For a list of revenue items, see pages C-7 through C-9 in the Appendix, at the end of Supplement 1).

All land uses were considered in this analysis. However, results are reported only for non-residential land uses.

The results of this analysis are reported, first, with the revenues and expenditures of each land use category shown as a percent of the total and, second, as ratios. The ratios show the relationship between revenues and expenditures for each land use category by

comparing the amount spent for each land use to every \$1.00 contributed in revenue. For example, this study found that only \$0.22 is spent by Polk County government and schools on agricultural land uses for each \$1.00 contributed in revenue.

The results of this section were calculated by taking the actual 2004 revenues and expenses reported in the *Polk County Annual Budget for Fiscal Year 2005-2006* and the *Comprehensive Annual Financial Report for the Fiscal Year Ended June 30, 2004 of the Polk County District School Board*. These revenues and expenses were then allocated to land uses based upon the allocation methods shown in the Appendix on page C-1. The sums of all revenues for each land use category were compared to the sum of all expenses for each land use category and the results were presented as a ratio.

POLK COUNTY: AN OVERVIEW

POLK COUNTY IS THE FOURTH LARGEST COUNTY IN FLORIDA, with an area of 2,010 square miles, of which 1,875 square miles is land and 135 square miles is water. The county is located in central Florida, with the Tampa/St. Petersburg metropolitan area to the west and the Orlando area to the northeast. The county has 17 municipalities, of which Lakeland is the largest. Approximately 7.6 million people reside within a 100-mile radius of Polk County, making this one of the largest concentrations of population in the Southeastern United States.¹¹

POLK COUNTY AGRICULTURE

Agricultural production in 2002 occupied 626,634 acres.¹² This acreage represents 52% of the county's total land area.

ECONOMIC VALUE OF AGRICULTURE

Of the 3,078 U.S. counties rated, Polk County consistently ranks among the top producers for 8 commodities. Here are some of its **NATIONAL RANKINGS**:¹³

1st in acres of <i>tangerines</i>
2nd in acres of <i>oranges</i>
5th in acres of <i>grapefruit</i>
15th in value of <i>fruits and berries</i>
25th in number of <i>colonies of bees</i>
43rd in acres of <i>sod harvested</i>
43rd in value of <i>animals and animal products</i> (other than beef cattle)
49th in value of <i>aquaculture</i> (commercially grown fish)
81st in <i>total value of agricultural products sold</i>

The county's **STATE RANKINGS** are as follows:¹⁴

1st in value of <i>fruits and berries</i>
1st in acres of <i>tangerines</i>
1st in acres of <i>oranges</i>
2nd in number of <i>cattle and calves</i>
3rd in acres of <i>grapefruit</i>
3rd in number of <i>colonies of bees</i>

3rd in value of <i>aquaculture</i> (commercially grown fish)
3rd in value of <i>animals and animal products</i> (other than beef cattle)
4th in value of <i>cattle and calves</i>
5th in <i>total value of agricultural products sold</i>

The annual sales volume of Polk County agricultural products has remained fairly stable over the past 10-15 years. It has not grown significantly. But neither has it declined.

The total value of agricultural products sold in 1992 was \$203,350,000.¹⁵ When adjusted for effects of inflation, this figure represents \$261,027,762 in 2002 dollars.¹⁶ This figure has grown 9.1% since the 1992 census and has remained almost the same, increasing just 0.2% since the 1997 census to \$284,787,000 in the 2002 census.¹⁷

This underscores the resilience and strength that has characterized the county’s agricultural industry over the last decade. Agriculture in Florida has faced significant challenges in recent years – development pressures, diseases and pests, weather damage (most recently from multiple hurricanes), increasing foreign competition, a low return on investment and declining profits.

The stable returns demonstrate that agricultural producers in Polk County have been able to successfully adjust to the natural and market force challenges they have faced.

These forces, however, represent a continuing (and increasing) challenge, especially to the citrus industry, which accounts for the bulk of Polk County’s agricultural revenues.

LAND IN FARMS

Unlike many counties in Florida, Polk County has actually experienced an *increase* in the amount of land in farms since 1992. After declining from 680,156 acres in 1982 to 611,336 acres in 1992, the amount of land in farms once again increased to 626,634 acres in 2002. At the same time, the number of farms has increased, moving up from 2,357 farms in 1982 and from 2,294 farms in 1992 to 3,114 farms in 2002.¹⁸

Again, this data underscores the strong economic stability that has characterized agriculture in Polk County over the past decade.

PRINCIPAL AGRICULTURAL PRODUCTS

The following table shows the principal agricultural products that are raised in Polk County. The list is ranked according to sales value, as reported in the 2002 Census of Agriculture:

POLK COUNTY'S AGRICULTURAL PRODUCTS Ranked According to Sales Value	Farms	Dollars	State Rank	U.S. Rank
Total Sales	3,114	\$284,787,000	5	81
Fruits and berries	1,765	\$217,620,000	1	15
Nursery, greenhouse, floriculture, and sod	141	\$28,270,000	14	102
Cattle and calves	801	\$18,783,000	4	554
Poultry and eggs	54	see below	--	--
Milk and dairy products	9	see below	--	--
revenues for poultry, eggs, milk & dairy products		\$8,372,000	--	--
Aquaculture	24	\$5,476,000	3	49
Vegetables and melons	38	\$3,038,000	23	424
Colonies of bees	59	confidential	3	25
Other animals and animal products	73	\$2,194,000	3	43
Horses and ponies	122	\$650,000	9	249
Certified organically produced commodities	19	\$393,000	--	--
Hogs and pigs	33	\$44,000	19	1,752
Sheep, goats and their products	54	\$35,000	13	1,510

Source: 2002 Census of Agriculture

Six product categories account for 97% of Polk County's agricultural revenues. These products, in their order of importance, are:

- ✓ Citrus
- ✓ Nursery and greenhouse products, including floriculture and sod
- ✓ Cattle and calves
- ✓ Poultry and eggs
- ✓ Aquaculture
- ✓ Milk and dairy products

THE HIGHEST GROSSING CROP IN POLK COUNTY IS CITRUS. Citrus products were grown on 1,762 farms with 119,901 acres in production in 2002. By far the largest proportion of this acreage was devoted to oranges – involving 1,670 farms with 104,807 acres in production. Other major citrus products include tangerines (312 farms, 5,550 acres), grapefruit (224 farms, 2,020 acres) and tangelos (126 farms, 1,670 acres).¹⁹

Citrus groves utilize 19% of Polk County's agricultural land but account for the majority the county's ag production value.

Data from the *Citrus Summary, 2001-02* and *Citrus Summary, 2002-03*, produced by the Florida Agricultural Statistical Service, shows that 68% of Polk Citrus is processed into juice, with the balance packed and sold as fresh fruit.

The on-tree value of this citrus for the 2001-02 growing season was \$135,169,060.²⁰

This value increases significantly as citrus is picked and readied for distribution, based on variety, on how the citrus is sold (fresh packed or processed), and when the citrus is sold.

For the 2001-02 growing season, fresh packed fruit fetched an average price of \$8.63 per box, while processed fruit sold for an average price of \$3.16 per box.²¹

These averages can hide some significant swings in price that occur, based on the date

when the fruit is sold. For example, prices for a box of tangelos sold as fresh fruit ranged from \$4.40 up to \$21.40 per box during the 2001-02 growing season, whereas prices for the same variety sold for processing ranged from a high of \$0.90 per box, down to a low that created a negative return, costing a grower \$0.10 per box delivered.²²

These fluctuations in price underscore why agriculture is often such a risky business. The grower who is able to sell at the top of the market can make a handsome return. On the other hand, a grower who is forced to sell a few weeks earlier or later, or who has fruit with a small blemish due to a bout of bad weather, may face a significant loss.

The total revenues generated in 2002 from the sales of citrus sold as both fresh and processed fruit was approximately \$200 million.²³

There also are numerous citrus by-products that add value to the crop. These by-products include dried citrus pulp and citrus pellets, both used as cattle feed. Other by-products include citrus molasses, used to make beverage ethanol; d-Limonene, extracted from the citrus peel and used as a flavoring, solvent and paint solid; and peel oil, used in perfume and as a food flavoring. These by-products had an economic value of \$213,500,000 in 2002, according to calculations carried out by J.A. Stricker, who recently retired as the Director of the Polk County Cooperative Extension Service.²⁴ (The values of these by-products are included in this study as part of the food processing category.)

ORNAMENTAL PLANTS ARE THE SECOND MAJOR PRODUCER OF REVENUES, accounting for 10% of the county’s annual agricultural sales. Nursery plants are grown on 141 farms, with 3,043 acres in the open and 4.8 million square feet in greenhouse and shadehouse space. The 2002 Census of Agriculture shows the breakdown of nursery products grown in Polk County as follows:²⁵

Description	# of Farms	Acres in Open	Greenhouse/Shadehouse
NURSERY, GREENHOUSE, FLORICULTURE & SOD			
Floriculture crops			
Bedding/garden plants	16	34	238,030 sq. ft.
Cut flowers and cut florist greens	7	22	
Foliage plants	18	13	2,364,280 sq. ft.
Potted flowering plants	16	17	1,020,051 sq. ft.
Nursery stock	103	928	
Sod harvested	4	2,017	
TOTAL	141	3,043	4,816,271 sq. ft.

THIRD IN IMPORTANCE IS CATTLE AND CALVES, which account for 6.6% of the county’s annual agricultural production value. While the impact of the cattle industry on the county’s overall economy is small when compared to some other business activities, its impact on the county’s pastoral appearance and sense of open space is significant. Two-thirds of the county’s agricultural land – and 34.3% of its total land area – is devoted to cattle production.

The following numbers from the 2002 Census of Agriculture describe the extent of Polk County’s beef cattle industry:

Description	Farms	Acres	Number
Cattle and calves inventory	1,120		108,126
Beef cows	923		70,555
Milk cows	21		888
Other cattle	981		36,683
Cattle and calves sold	801		53,764
Total land used		411,959	
Pastureland and rangeland	987	303,046	
Cropland used only for pasture or grazing	398	48,663	
Woodland pastured	220	60,250	

Although Florida is not widely recognized as a range cattle producing state, it was in Florida that the Spanish explorer Juan Ponce de Leon first introduced cattle to North America in 1521.

Florida’s beef cattle production is noteworthy in several other ways:²⁶

- Florida is home to four to the 10 largest cow-calf operations in the U.S.
- One Florida ranch owns the largest brood cow herd in the U.S.
- Florida is the #1 cattle producing state east of the Mississippi and ranks 12th in the nation in the number of beef cows.

And, importantly:

- Wildlife and plant systems are often well-balanced and thriving on Florida’s ranchlands, and
- Much of “natural Florida” remains intact in the working landscape of Florida’s cattle industry.

Because no high energy feed, such as corn or grain sorghum, is grown in Florida, calves are shipped to the west and Midwest to be fed for market.

FOURTH IN IMPORTANCE IS POULTRY AND EGG PRODUCTION. The *1997 Census of Agriculture* rated egg production as Polk County’s third most important agricultural commodity. However, poultry and egg production was not reported in the *2002 Census of Agriculture* because there were too few producers. (The census does not report sales data when doing so could reveal the private financial information of a producer.)

Although 54 farms reported laying hens, as J.A. Stricker notes, “two farms were very large integrated operations and the rest had very small flocks. Publishing the value of egg production would permit a person with knowledge of one of the large operations to determine the value of production for the other operation.”

The same holds true of the county’s dairies. While milk cows were reported on 21 farms, and 9 have some milk production, two are large operations. Hence, the market value of milk and dairy products was not reported in the *2002 Census of Agriculture*.

By looking at other data in the *2002 Census of Agriculture*, it is possible to determine how much value poultry and egg production and milk and dairy products contributed together. (This value can be determined by taking the value reported for the “livestock, poultry and their products” category as a whole, then subtracting the values of the other livestock categories for which sales data is reported.)²⁷

The combined value is \$8,372,000, which represents 3% of the county’s annual agricultural sales.

FIFTH IN IMPORTANCE IS AQUACULTURE, which contributed \$5,476,000 in annual sales for 2002. The major aquaculture product is tropical fish produced in small ponds, primarily in the Lakeland area. Other products include bait fish and fish grown for food, such as catfish.

Other products include:

- *Forestry and forest products.* County woodlands produce cypress mulch, fence posts and pulpwood. Again, sales numbers were not reported in the *2002 Census of Agriculture*. J.A. Stricker estimated this segment of the agricultural industry contributed \$4,667,000, using 1997 Census data that was adjusted to 2002 dollars.²⁸
- *Vegetable and melon production.* The most important vegetable crop in 2002 was 483 acres of watermelons grown on 15 farms. Other vegetables grown included snap beans, head cabbage, cucumbers, southern peas and squash. The value of sales in 2002 was \$3,038,000.²⁹
- *Honey production.* A total of 59 producers maintained 14,856 colonies of bees and produced 1,585,553 pounds of honey valued at \$1,775,820.³⁰
- *Blueberry production.* This is a small segment of the county’s agricultural industry, but it has grown rapidly. A market window is available in the spring where blueberries bring a premium price. Blueberries were grown on 34 farms with 212 acres in 2002. Strawberries also were grown on 7 farms with 67 acres.
- *Other animals and animal products* were raised on 73 farms and had a production value of \$2,194,000 in 2002, which ranked 3rd in the state and 43rd in the nation. In addition, Polk County raises horses and ponies (122 farms, \$650,000 in production value), hogs and pigs (33 farms, \$44,000 in production value), and sheep and goats (54 farms, \$35,000 in production value).

SIGNIFICANCE OF AGRICULTURE

Discussions about the value of agriculture to a local or state economy generally revolve around "farm-gate" sales – the sales directly related to growing or raising raw agricultural products in a specific region. The state of Florida, for example, is said to have an agricultural industry that generates \$6.5 billion per year, of which Polk County contributed \$285 million in 2002. Those numbers are derived solely from direct farm-

gate sales data reported by the U.S. Department of Agriculture and Florida Agricultural Statistical Service.³¹

But farm-gate sales represent only a fraction of the economic impact that agriculture has on Polk County. Another way to determine the value of agriculture is to ask:

What revenues would be lost to Polk County if agriculture and all the activities directly related to local agriculture were to disappear?

That question guided this study. Consequently, this study also examines the economic values of:

- **Agricultural Services**, which include such things as soil preparation and crop services, veterinary services, farm labor and management services, and horticulture services; and
- **Agricultural Processing**, which, according to the definition in the *U.S. Census of Manufactures*, includes food related manufacturing such as citrus, dairy, beverages, and miscellaneous food & kindred products.

In addition to products produced in Polk County, raw agricultural products from outside the county are brought in and turned into value added products.

According to the Polk County Property Appraiser, there are 19 different types of food processing operations in the county, including:

Dog and Cat Food Manufacturing
Other Animal Food Manufacturing
Flour Milling
Chocolate and Confectionery Manufacturing from Cacao Beans
Fruit and Vegetable Preserving and Specialty Food Manufacturing
Frozen Fruit, Juice, and Vegetable Manufacturing
Fruit and Vegetable Canning
Specialty Canning
Fluid Milk Manufacturing
Ice Cream and Frozen Dessert Manufacturing
Retail Bakeries
Commercial Bakeries
Flavoring Syrup and Concentrate Manufacturing
Mayonnaise, Dressing, and Other Prepared Sauce Manufacturing
Perishable Prepared Food Manufacturing
All Other Miscellaneous Food Manufacturing
Soft Drink Manufacturing
Ice Manufacturing
Breweries

Agriculture provides the raw material for every one of these value added products. These products have a large economic impact because virtually all are sold outside Polk County, which brings new money into the county. New money brought into the local economy circulates throughout the economy creating additional economic activity and

jobs (these impacts are described in detail in Supplement 1, in *Part 2: The Economic Impacts of Agriculture & Agribusiness*, starting on page 10).

Another category examined was:

- **Agricultural Wholesale**, which includes merchant wholesalers as well as brokers in industries such as farm supplies, groceries and related items, and beer, wine and liquor. While this category relies very little on local agriculture, and would still remain in business if all local agricultural production was to disappear, it nevertheless is based entirely on agriculture and generates significant revenues from the commissions earned on its sales.

Although some of these activities – such as agricultural wholesale and part of agricultural processing – are not directly related to local agriculture, the value-added revenues they generate have been included since it is the purpose of this study to examine the contributions to Polk County of not only local agriculture, but all agribusiness. Numbers for local agriculture and for value-added activities that purchase agricultural products from outside the county are reported separately.

Agriculture also provides the raw material for a wide variety of wood and paper products. Locally produced forest products include cypress mulch, fence posts and pulpwood. In addition, raw forest products are brought in from outside the county for 12 types of wood and paper manufacturing operations in the county, including:

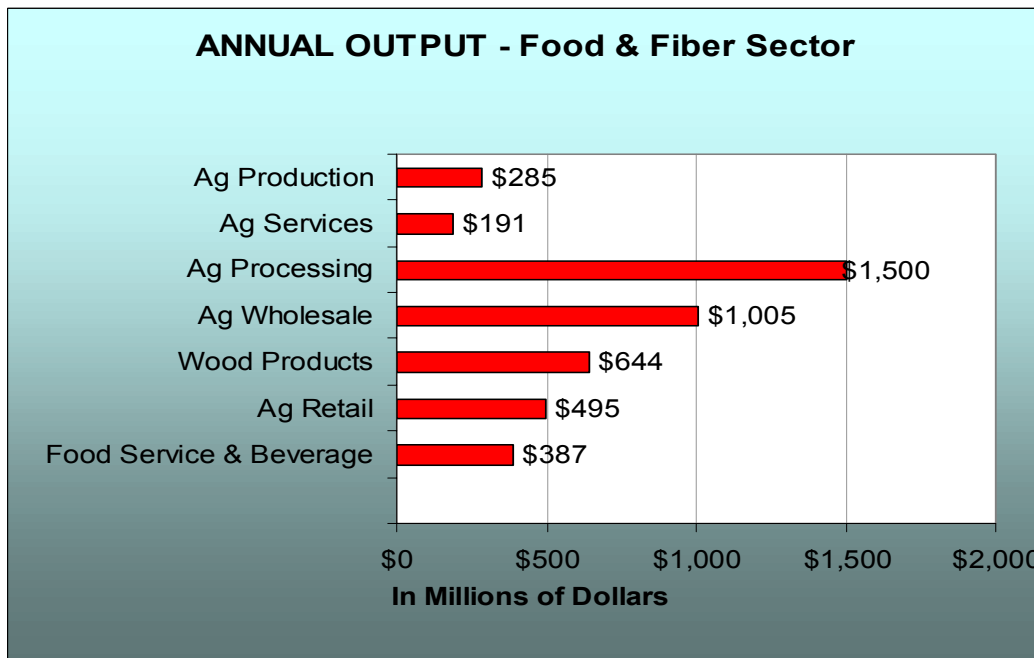
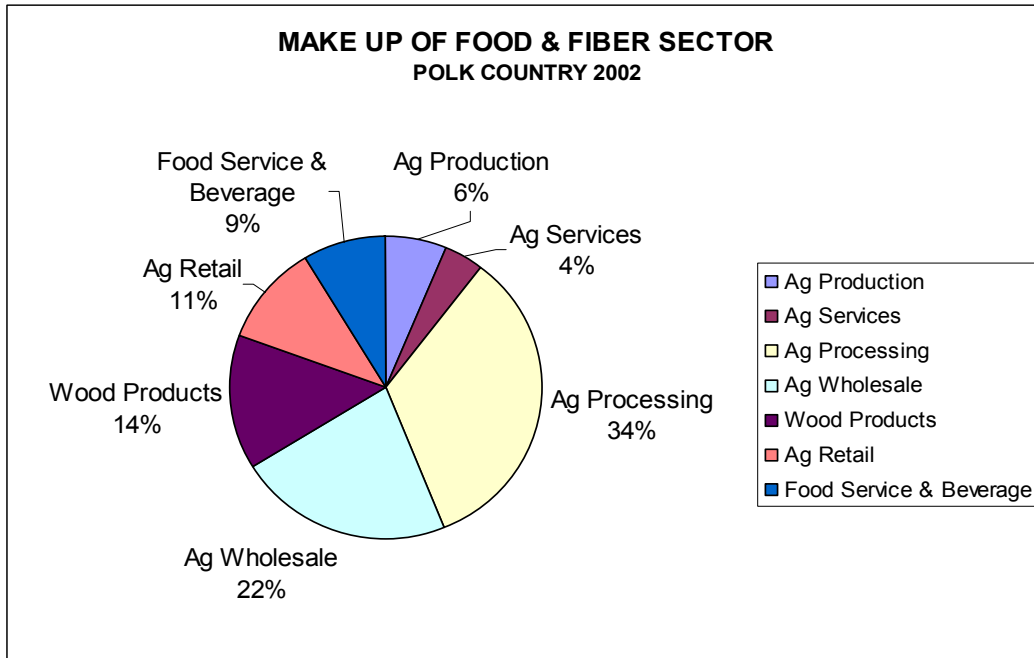
<i>Wood Product Manufacturing</i>
Sawmills
Veneer, Plywood, and Engineered Wood Product Manufacturing
Truss Manufacturing
Other Millwork (including Flooring)
Wood Container and Pallet Manufacturing
Prefabricated Wood Building Manufacturing
All Other Miscellaneous Wood Product Manufacturing
<i>Paper Manufacturing</i>
Paper (except Newsprint) Mills
Newsprint Mills
Paperboard Container Manufacturing
Corrugated and Solid Fiber Box Manufacturing
Coated and Laminated Packaging Paper and Plastics Film Manufacturing

Finally, the place where agriculture has the most direct connection to the average person is at the point of sale and consumption – what is sold on a grocer’s shelf (ag retail) and what is served in a restaurant and bar (food service and beverage). This is where agriculture has its most meaning and value since we all eat, on average, three times a day.

Most of the food sold and served at the retail level in Polk County has very little connection with local agriculture. If local agriculture was to disappear completely, it would not affect the supply of food in county stores and restaurants. For this reason, none

of these sales are considered in the calculations to determine the economic impact of *agriculture & agribusiness*.

But these sales do contribute to Polk County’s overall economy, so they have been grouped under a category called “Food and Fiber” in Part 1 of the study, which describes the total economic output of all economic activities in the county by industry.



TRENDS IN POLK COUNTY AGRICULTURE SINCE 2002

Agriculture in Polk County is influenced almost entirely by market forces and nature. Many people mistakenly assume that agricultural producers receive government subsidies, that they are paid to not grow some crops, and that there always is a safety net if disaster strikes. This is not true for the vast majority of the crops raised in Polk County.

The only commodity for which price supports of some sort exist is milk, and Florida producers do not benefit from this as much as dairies in Wisconsin and the Northeast, for whom the price support program was designed.

Unlike the sales of almost all other consumer products and services, agricultural producers cannot take their costs, add a small profit, and then set a price. Instead, the market sets the price. This price is constantly fluctuating, and sometimes does not cover the costs of production. Environmental regulations, food safety rules, bans on toxic pesticides, and worker safety laws, all of which are designed to protect American workers and consumers, are enforced only on American growers, often at considerable cost to these growers. Yet large food buyers, such as Wal-Mart, demand low prices, and buy only from the producers who will give them the lowest price.

Because foreign producers can sell their products here, without complying with the same laws and standards as American growers, and without the costs of compliance, they can sell for less. This may not seem logical. After all, shouldn't all food sold in the U.S. be required to meet the same standards? Unfortunately, the drive to keep prices low trumps all other considerations. As a result, local growers often are put at a competitive disadvantage. Hence, to remain in business they must rely on "market windows" when they have supply and other producers don't.

In addition, they must contend with weather events – and diseases and pests – that can turn a profitable crop into a loss with one turn of bad luck. Because crop insurance adds to the cost of production, many growers do not maintain crop insurance. So they operate entirely at the whims of weather and the fluctuations in the market economy.

No other industry in the county is so greatly influenced by weather events, or by the market economy.

For these reasons, the economic climate in which Polk County agriculture operates is constantly changing.

The data included in this study from 2002 sources provide a useful snapshot of the economic value of the agricultural industry to Polk County. But it does not address what has happened since 2002, nor what might happen to the industry as it faces ever increasing challenges on a series of fronts – including new diseases and pests, additional foreign competition, rising land values and heightened development pressures.

Several Polk County extension agents were consulted to help close this gap. Here is their view of the current status of several sectors of the county's ag industry:

CITRUS. Chris Oswalt, Citrus Extension Agent for Polk and Hillsborough counties, states:

- “Acreage has shown a steady decrease in the past few years. I would expect this trend to continue into the future. The percentage rate of loss in Polk County is currently less than the overall state average.
- “Fruit values have been trending lower the past few years... This is due in part to the large crops we have produced in the state. These large crops have resulted in higher than desired inventories of orange juice at processing plants. This situation is a contributing factor to lower fruit values [classic supply and demand economics]. Polk County in the 2003-04 season produced more boxes of citrus than any other county (about 42 million boxes). I would expect this trend to continue.
- “Production costs have seen moderate increases over the past few years. With reductions in fruit values growers have adopted production programs geared at reducing costs. There may be increases in production costs this coming year as fuel prices remain at historically high levels.”
- In addition, citrus canker continues to pose a threat to the industry, and a new disease, citrus greening, also known as yellow dragon disease, has officials scrambling to find a plan to combat it, and growers wondering how many more challenges they can sustain.

ORNAMENTAL PLANTS. Development is usually good for the ornamental plant industry, since development increases demand for ornamental plants. Also, due to high transportation costs, foreign producers and producers elsewhere in the state find it harder to compete with local growers on price. As a result, Polk County’s ornamental plant industry continues to grow.

Laura M. Miller, Extension Agent for Commercial Horticulture for Polk and Hillsborough counties, issues an annual report on the county’s nursery industry. She uses estimates based on an economic model described by Alan Hodges, an Economic Analyst with the Food and Resource Economics Department at the University of Florida. The advantage of this model is that allows for annual estimates. It cannot be used in a direct comparison with the data in this study, which is based on census data. But it does show that annual revenues in for the county’s ornamental plant industry have been increasing.

CATTLE & CALVES. Brantley Ivey, Extension Agent for Livestock, says that cattle prices are at historic highs and the “big producers are still in the county and are still producing.” At the same time, land prices have been climbed dramatically, and land sales are occurring at a large scale. Almost 150,000 acres of the county’s pastureland and rangeland has changed ownership in the past 12 months.

DAIRY. Brent Broaddus, Extension Agent for Dairy, said that the county still has two large dairies, one in Lakeland and one in Frostproof. The Lakeland dairy was rebuilt and refurbished after the 2004 hurricane season. It also has increased its herd by over 200

head, buying cows from nearby counties which have had dairies close. For the time being, the county's dairy industry appears stable, although this could change over the next five years.

OTHER AGRICULTURAL VALUES

The county's agricultural lands also are valuable in other ways. They provide:

- ✓ *open space*
- ✓ *preservation of wetlands*
- ✓ *water storage*
- ✓ *ground water recharge*
- ✓ *protection of well fields*
- ✓ *water filtration*
- ✓ *flood control*
- ✓ *purification of air*
- ✓ *carbon sequestering*
- ✓ *generation of oxygen*
- ✓ *preservation wildlife habitat, including habitat for a wide variety of birds and threatened and endangered species*
- ✓ *a buffer between urban development and natural areas*
- ✓ *forests and woodlands, and*
- ✓ *scenic views*

It is hard to assign a dollar value to these attributes, but they are nonetheless important for they affect the purity of the county's water, provide an array of environmental benefits and contribute to the county's quality of life, thus benefiting every citizen.

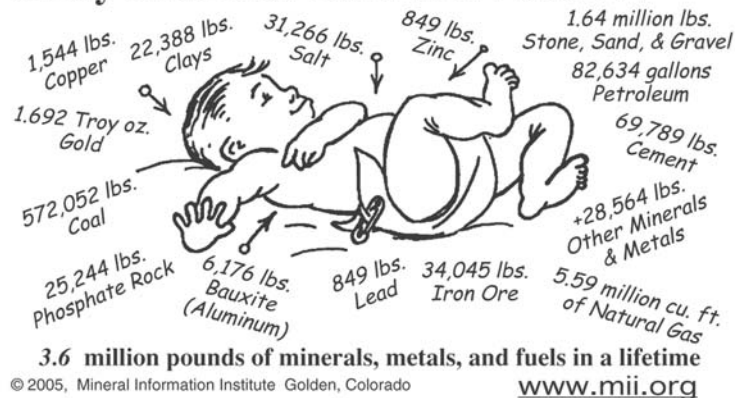
POLK COUNTY'S MINING INDUSTRY

Phosphate is Florida's third largest industry, after tourism and agriculture.

Polk County's mines produce the raw materials for phosphate-based agricultural fertilizers and animal feed supplements that are used by farmers around the world. In addition, phosphate is used in a variety of consumer products including soft drinks, toothpaste, film, light bulbs and vitamins.

Polk County's mining industry also produces limerock, peat, clay and aggregates. These minerals are the building blocks of society.

Every American Born Will Need . . .



Reproduced with permission from Mineral Information Institute, Golden, CO ³³

Limestone - Most of the stone that is mined in Polk County is used for road construction. Limestone of high purity can undergo calcination (heating) and, together with other ingredients, be used to manufacture portland and masonry cement.

Sand and Gravel - Sand and gravel is subdivided into construction and industrial sand, both of which are mined in Polk County.

Peat - An organic-rich accumulation of decaying plant material, used in the production of horticultural peat.

Clay - Used in the manufacture of brick, cement and lightweight aggregate.

Phosphate – Polk County is the heart of Florida’s “Bone Valley” mining region. This region stretches southward from Polk County into Hillsborough, Manatee, Hardee and DeSoto counties. It is the world leader in phosphate rock production, annually producing 75 percent of the U.S. supply and 25 percent of the world supply.³⁴

Phosphorus (P) is required by every living plant and animal cell. Deficiencies in available P in soils are a major cause of limited crop production. When P fertilizers are added to soils deficient in this element, increased crop and pasture yields ordinarily follow. Phosphorus is a non-renewable resource that must be mined from nature. It cannot be artificially produced.³⁵

Of all the phosphate in commercial production:

- 90 percent is used for fertilizer for the production of food and fiber;
- 5 percent is used for livestock feed supplements; and
- 5 percent is used for vitamins, soft drinks, toothpaste, film, light bulbs, bone china, flame-resistant fabrics and optical glass.

- In 2000, \$1.13 billion dollars worth of fertilizer was exported from Florida making it another one of Florida's leading export commodities.³⁶

Florida's typical phosphate ore (matrix) is found about 15-50 feet below the earth's surface and is about 10-20 feet thick. Draglines strip off the top layers of earth (known as overburden) to get at the matrix, which is then processed to separate the phosphate from the sand and clay that make up this layer of Florida.³⁷

A typical Florida phosphate mine gets about 9,000 tons of phosphate rock per acre of land. In 2003 the Florida industry as a whole mined 4,501 acres of land (down from 6,355 acres in 1995), which produced 22.8 million metric tons of phosphate rock. Mine sites often are miles from the plants that process rock. The rock is dumped in a pit at the mining site and high pressure water guns turn it into a slurry that can then be pumped to the beneficiation plant where the phosphate is separated from the sand and clay.³⁸

Mining in central Florida has been moving south since Florida phosphate mining began. As sites mine out the draglines move south. That is where the contiguous deposit of phosphate pebble is found. Phosphate mining over the years has moved through Lakeland, Mulberry, Bartow and Plant City. In the past 10 years, mining operations on Polk County's southern fringe have wound down. Phosphate companies are now seeking permits to open new mine sites in Manatee, DeSoto and Hardee counties.³⁹

SUMMARY OF FINDINGS: AN OVERVIEW

MANY PEOPLE BELIEVE LAND SHOULD BE USED IT FOR ITS "HIGHEST AND BEST" ECONOMIC USE. It often is assumed that a higher economic return can be gained by building on a parcel of land to create a residential development, and by intensifying use, instead of leaving it as agricultural land or open space. This assumption is based largely on the belief that residential development contributes more to the local economy than agriculture or its related land uses.⁴⁰

With that said, it should be emphasized that the purpose of this study is not to disparage any land use or to suggest that one type of land use is more important than another. *All types of land use play important roles in our society and economy* – providing places to live, work, and play; providing for health and safety; providing for transportation and the delivery of services; maintaining the integrity of the environment; and providing a place to produce food and fiber.

The purpose of this study is to highlight several key *economic* and *fiscal* relationships between seven major categories of land use in Polk County. These relationships are integral to ensuring a growing economy and balanced fiscal budgets.

PUBLIC POLICY CONSIDERATIONS

Sometimes, the relationships between different types of land use are overlooked or, worse, are ignored or misunderstood. When that happens, decisions can be made that cause land uses – and the *economic* and *fiscal* impacts that each land use has – to fall out of balance. This, in turn, can lead to a slowing economy and/or county government and school district budget deficits.

A thorough understanding of the “economics of land use” can assure that a county can have a strong, growing economy and can maintain high levels of public service. An understanding of the “economics of land use” also gives policy makers tools to both balance, and even expand county government and school district budgets *without resorting to cutting back services or raising impact fees or property taxes*.

The findings of this study indicate that agriculture is a major component of Polk County’s economy, and a positive contributor to fiscal budgets. This, in turn, has numerous policy implications for the county. These implications are discussed in Supplement 3 to this study, “Conclusions.”

SUMMARY OF FINDINGS

PART 1:

ECONOMIC OUTPUT BY INDUSTRY

THIS STUDY looks at the most recent available data for Polk County. The first part of the study, the *Economic Output by Industry*, uses data from the most recent U.S. Census Bureau Economic Census Series to calculate the direct output (sales), employment and payroll of each major industry segment in order to show its relative importance to the county. The Economic Census organizes all business activities into 21 sectors. For the purposes of this study, these were combined into "major industry sectors" as follows:

Food & Fiber
Mining Industries
Construction
Non-Agricultural Manufacturing
Non-Agricultural Wholesale
Non-Agricultural Retail
Services
Other Industries

The table on pages 2 and 3 of Supplement 1 shows what businesses are included in each sector. The agricultural industry is included in a category called the *Food & Fiber* sector. This category includes all production agriculture in the county, as well as all agribusiness activities that are related to both local agriculture and agricultural products that imported into the county. Restaurants, supermarkets, and forestry also are part of this category.

***Food & Fiber* is shown as a separate industry to highlight its importance and to show the relationship between agriculture, its related industries and the food each of us eats every day.**

The tables on page 18, under the description of "Polk County Agriculture," above, show the businesses that make up the "Food & Fiber" sector, as well as how much value each business contributes.

TOTAL ECONOMIC OUTPUT

The most recent, available data from the U.S. Census Bureau and other financial reporting services indicate that all businesses, services and industries in Polk County:

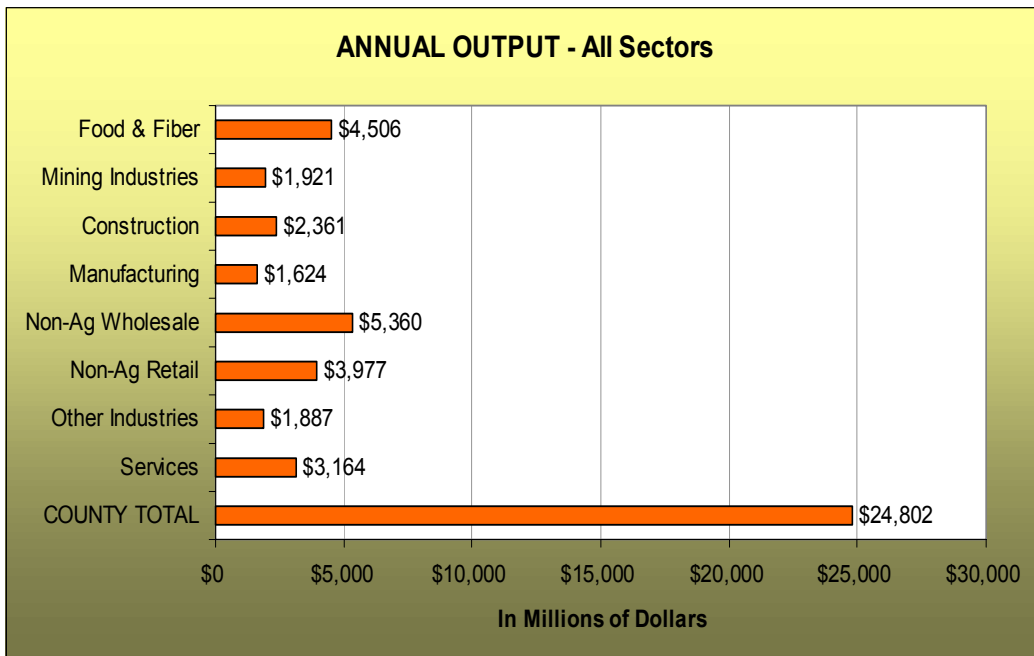
- generate over \$24.8 billion in sales,
- employ over 170,000 people, and
- have a payroll of \$4.5 billion.

INDUSTRY RANKINGS

Here are the rankings of the top industrial sectors:

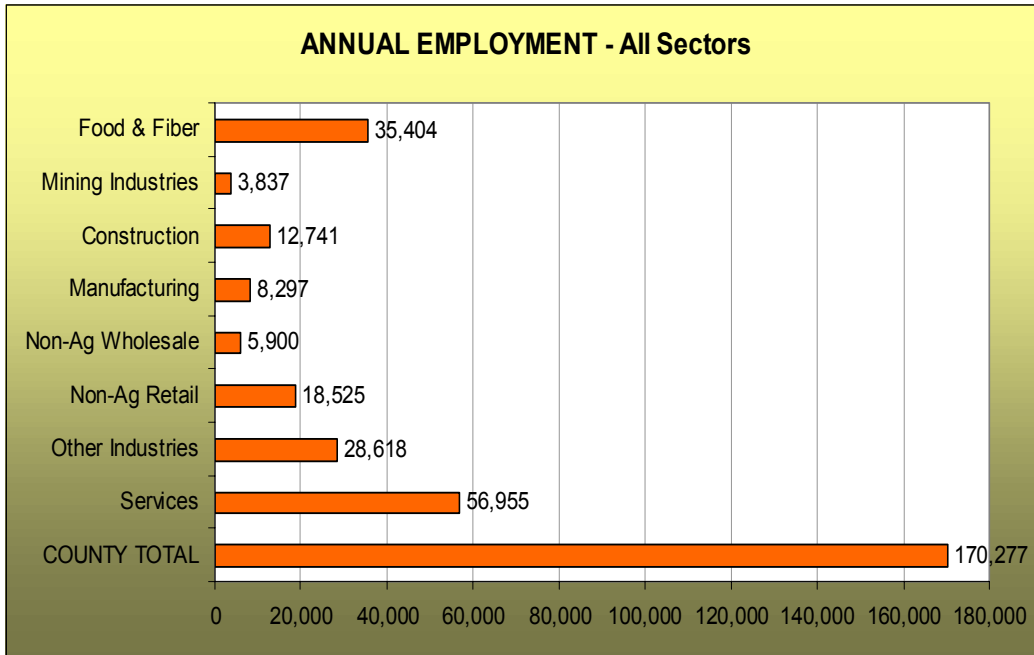
Annual Sales

- The *Non-Agricultural Wholesale* sector was first, with 21.6% of the output (\$5.36 billion in sales);
- **Food & Fiber** was second with 18.2% of output (\$4.5 billion in sales), and
- *Non-Agriculture Retail* was third with 16% of output (\$3.98 billion in sales).



Employment

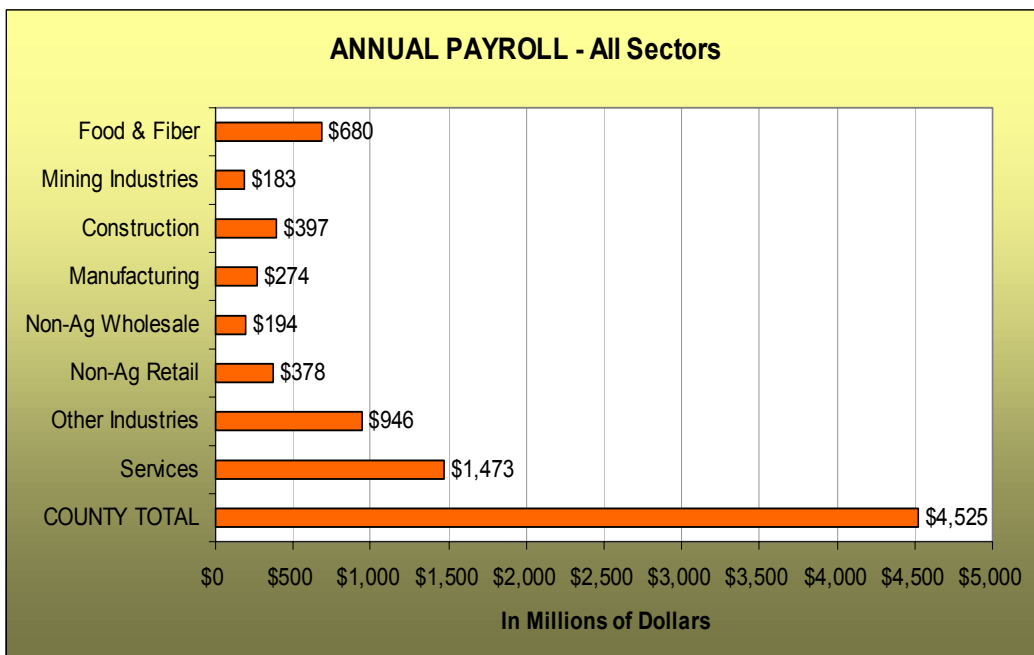
- *Services* ranked first, with 33.4% of the county's workforce (56,955 employees);
- **Food & Fiber** was second with 20.8% of the total workforce (35,404 employees); and
- *Other Industries* was third with 16.8% of the workforce (28,618 employees).



Payroll

- *Services* was first with 32.5% of the county's total payroll (\$1.47 billion);
- *Other Industries* was second with 20.9% of total payroll (\$946 million); and
- ***Food & Fiber* was third** with 15% of total payroll (\$680 million).

(It is not surprising that *Services* ranks high in payroll, even though it often is thought of as being comprised of low paying jobs. Included in *Services* are such professions as lawyers, engineering firms and accountants, as well as housekeepers and janitors).



SUMMARY OF FINDINGS

PART 2:

ECONOMIC IMPACTS OF AGRICULTURE & AGRIBUSINESS

THE SECOND PART OF THE STUDY, an analysis of the *Economic Impacts of Agriculture & Agribusiness*, describes the value of economic activity that is generated by agricultural *production, processing, services* and *wholesaling*.

Here is a summary of the findings:

AGRICULTURAL PRODUCTION

<u>Annual Sales:</u>	\$285 million
<u>Employment:</u>	7,284 jobs
<u>Payroll:</u>	\$125 million in annual earnings

ECONOMIC IMPACT:

When the *Regional Economic Multipliers* are used, these figures reveal an economic impact of:

- \$406 million in annual sales;
- 11,038 jobs; and
- \$208 million in earnings.

OTHER IMPACTS

Agricultural production *alone* generates:

- approximately \$7.3 million in federal income taxes a year from employees, and
- \$6 million in property taxes.⁴¹
- It has a capital investment of \$1.9 billion.

AGRICULTURAL SERVICES

<u>Annual Sales:</u>	\$191 million in direct output
<u>Employment:</u>	5,514 jobs
<u>Payroll:</u>	\$87 million in earnings

ECONOMIC IMPACT:

When the *Regional Economic Multipliers* are used, these figures reveal an economic impact of:

- \$199 million in sales;
- 5,577 jobs; and
- \$89 million in earnings.

AGRICULTURAL PRODUCTION & SERVICES -- COMBINED

Since Agricultural Services are so heavily dependent upon local agriculture (only 5% of Ag Services are exported outside of Polk County), they can be combined to look at impact. The *Regional Economic Multiplier* used is for agricultural production and services combined. This multiplier is designed to avoid any double counting that might occur by combining the sales numbers together.

COMBINED ECONOMIC IMPACT:

- \$605 million in sales;
- 16,615 jobs; and
- \$297 million in earnings.

AGRICULTURAL PROCESSING

<u>Annual Sales:</u>	\$1.5 billion
<u>Employment:</u>	3,638 jobs
<u>Payroll:</u>	\$154 million in earnings

ECONOMIC IMPACT:

When the *Regional Economic Multipliers* are used, these figures reveal an economic impact of:

- \$2.5 billion in sales;
- 7,351 jobs; and
- \$343 million in earnings.

AGRICULTURAL WHOLESALE

<u>Annual</u>	
<u>Sales Margin:</u>	\$100 million

Employment: 1,744 jobs
Payroll: \$54 million in earnings

ECONOMIC IMPACT:

When the *Regional Economic Multipliers* are used, these figures reveal an economic impact of:

- \$132 million in output;
- 2,551 jobs; and
- \$70 million in earnings.

Obviously, money flows out of the county when food processors or wholesalers purchase agricultural products from outside the county. The *Regional Economic Multipliers* used take these transactions into account. Also, the numbers used to calculate impact for agricultural wholesale are its sales *margins*, not total sales.

TOTAL ECONOMIC LOSS IF LOCAL AGRICULTURE WAS TO DISAPPEAR

- **\$1.85 billion in annual sales**
- **20,290 jobs**
- **\$468 million in annual earnings**

Normally, the food processing industry operates independent of local agriculture. This is because food processors regularly buy product outside the local area for their operations. These purchases usually can be increased if local supply lags.

In Polk County, however, 64% of revenues generated – \$954,144,000 of the total 2002 output of \$1,500,062,000⁴² – come from the citrus industry. Polk County is the leader in citrus production; hence, a drop in local production also would precipitate a drop in statewide production, which in turn would adversely affect local packers and processors.

For this reason, it has been estimated for the purposes of this calculation that at least half of Polk County's food processing industry relies on local production. In other words, if Polk County lost its local agriculture, it also would stand to lose at least half of its food processing industry.

The total loss, therefore, represents the combined economic impact of agricultural production and agricultural services, plus half of the economic impact of agricultural production. Agricultural wholesale would not be affected and is not included in this calculation.

For a pictorial depiction of this data, see the charts on pages 33 and 34.

SUMMARY OF FINDINGS

PART 3:

ECONOMIC IMPACTS OF MINING & FERTILIZER PRODUCTION

THE THIRD PART OF THE STUDY describes the value of economic activity that is generated by mining *crushed stone, gypsum byproducts, phosphate, peat* and *industrial sand*, and producing *phosphatic fertilizer*.

MINING

Annual Sales: \$524 million
Employment: 1,994 jobs
Payroll: \$85 million in annual earnings

ECONOMIC IMPACT:

When the *Regional Economic Multipliers* are used, these figures reveal an economic impact of:

- \$619 million in annual sales;
- 2,807 jobs; and
- \$106 million in earnings.

PHOSPHATIC FERTILIZER MANUFACTURING

Annual Sales: \$1.4 billion in direct output
Employment: 1,843 jobs
Payroll: \$98 million in earnings

ECONOMIC IMPACT:

When the *Regional Economic Multipliers* are used, these figures reveal an economic impact of:

- \$2.9 billion in sales;
- 9,152 jobs; and
- \$377 million in earnings.

COMBINED IMPACT:

To avoid double counting, all local sales of mined materials must be backed out so only the values of product sold outside the county are counted. This reduces mining to:

Annual Sales: \$252 million in direct output;

Employment: 1,411 jobs; and

Payroll: \$47 million in earnings.

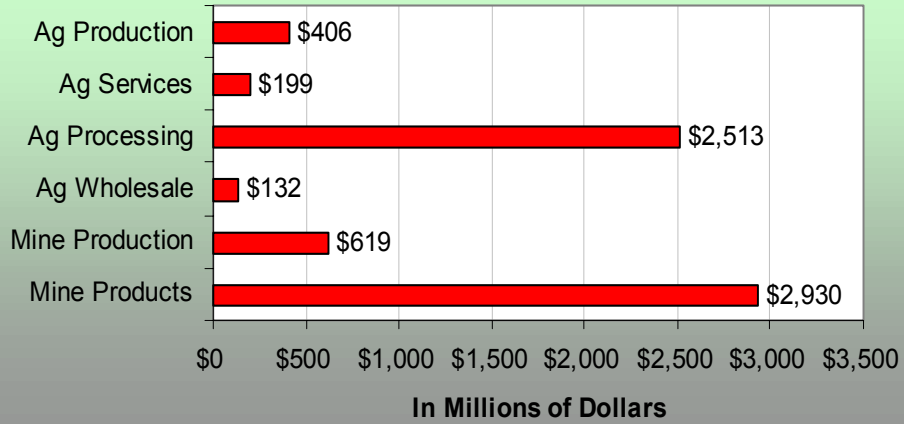
COMBINED IMPACT:

Mine Production (less local sales) & Fertilizer Manufacturing:

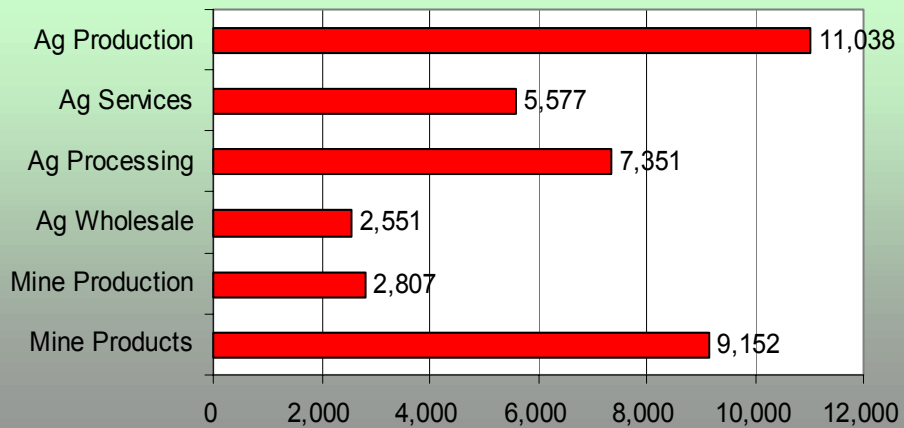
- **\$3.2 billion in sales;**
- **10,563 jobs; and**
- **\$424 million in earnings.**

For a pictorial depiction of this data, see the charts on pages 33 and 34.

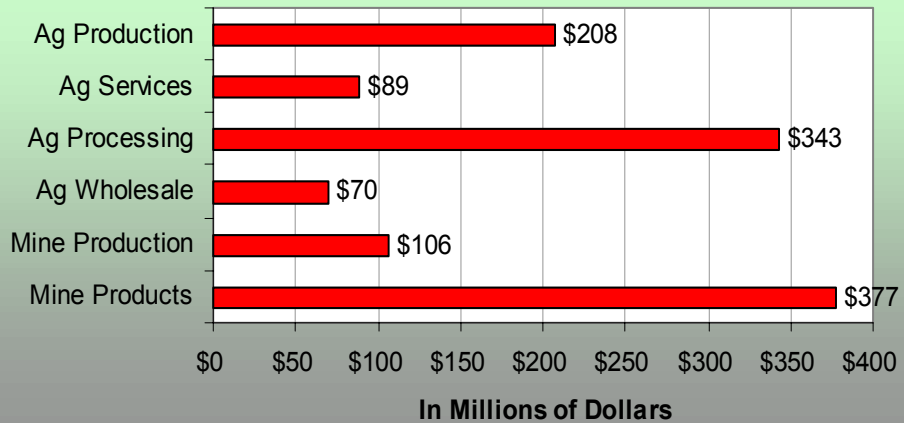
TOTAL ECONOMIC IMPACT - OUTPUT

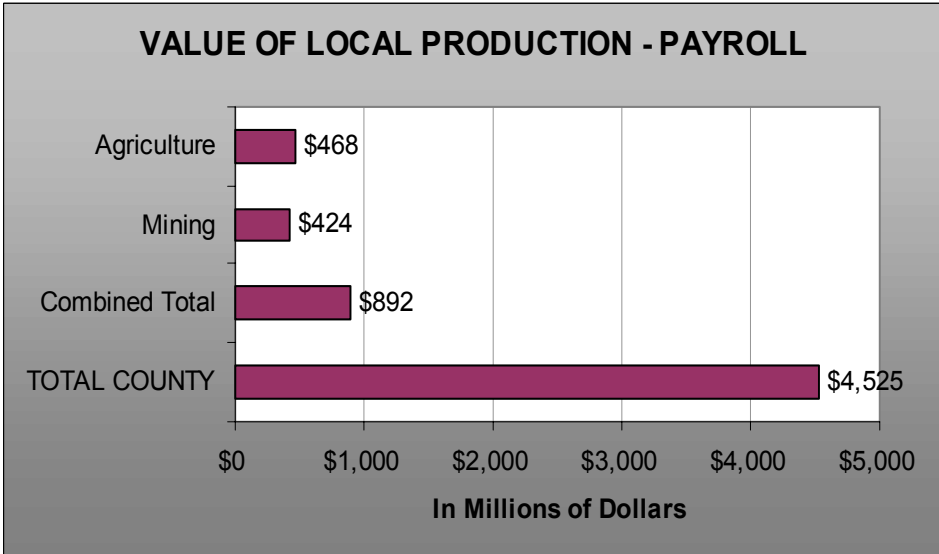
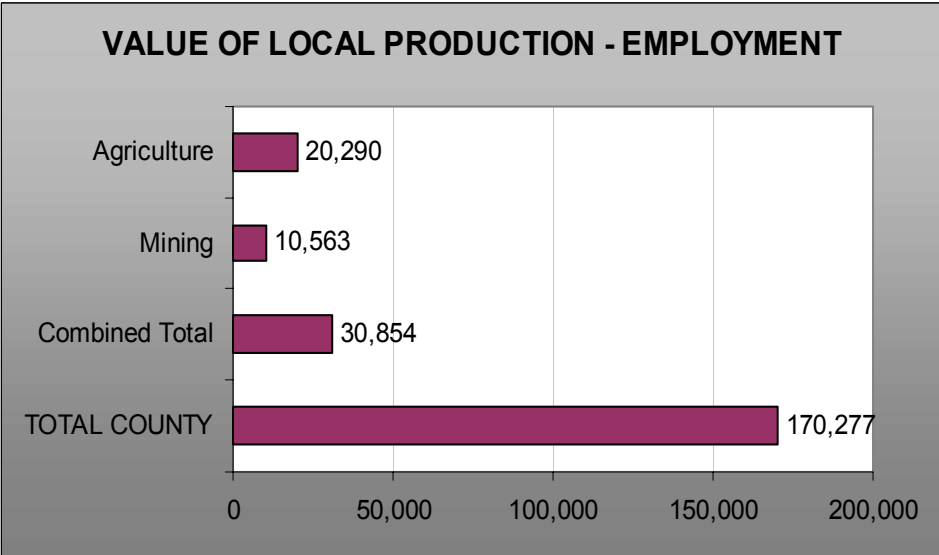
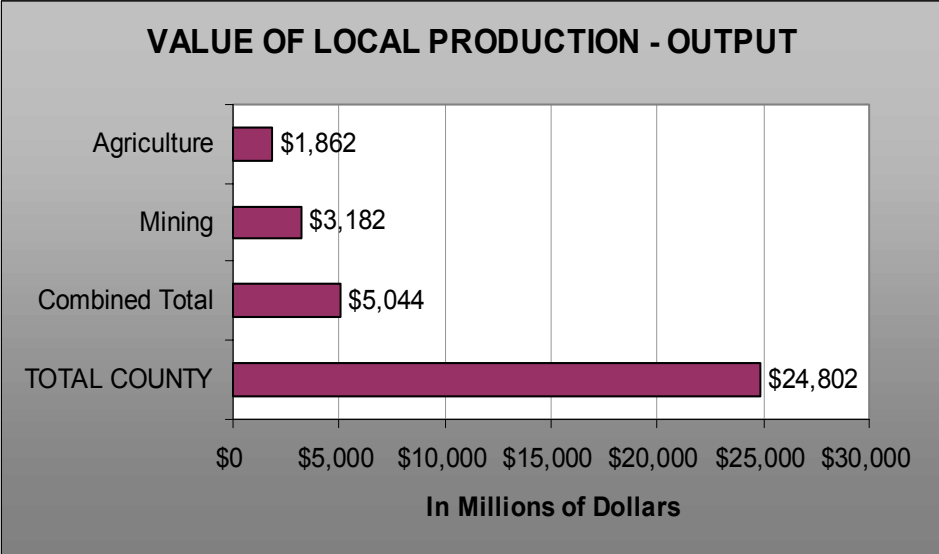


TOTAL ECONOMIC IMPACT - EMPLOYMENT



TOTAL ECONOMIC IMPACT - PAYROLL





SUMMARY OF FINDINGS

PART 4:

COMMUNITY REVENUES & EXPENSES

THE FOURTH PART OF THE STUDY is an *Analysis of Community Revenues & Expenses Generated by Agriculture, Agribusiness & Mining Compared with Other Commercial & Industrial Land Uses*.

For **every \$1.00 generated** by *agriculture related* activities, the county and schools **spend only 22 cents** in direct services.

Consequently, of the \$1.00 contributed by *agriculture related* activities, 78 cents remains, thereby creating a revenue surplus.

Mining activities also create a surplus, since for **every \$1.00 generated**, the county and school **spend only 27 cents** in services.

By taking the surpluses and deficits that are generated by each type of land use into consideration, it is possible for policymakers to balance one type of land use against another – and thus pair land uses that generate a surplus up with land uses that create deficits.

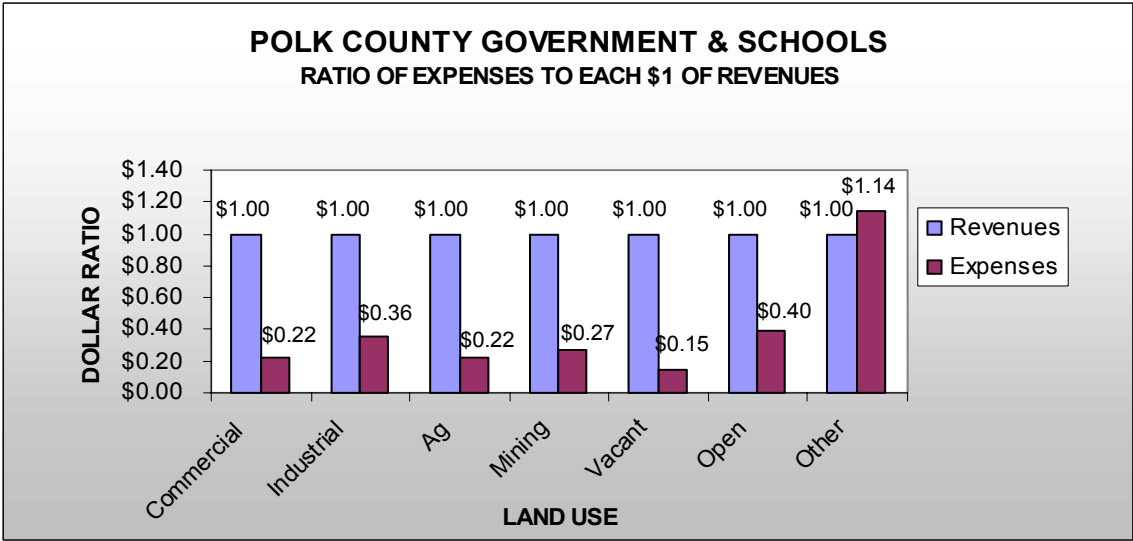
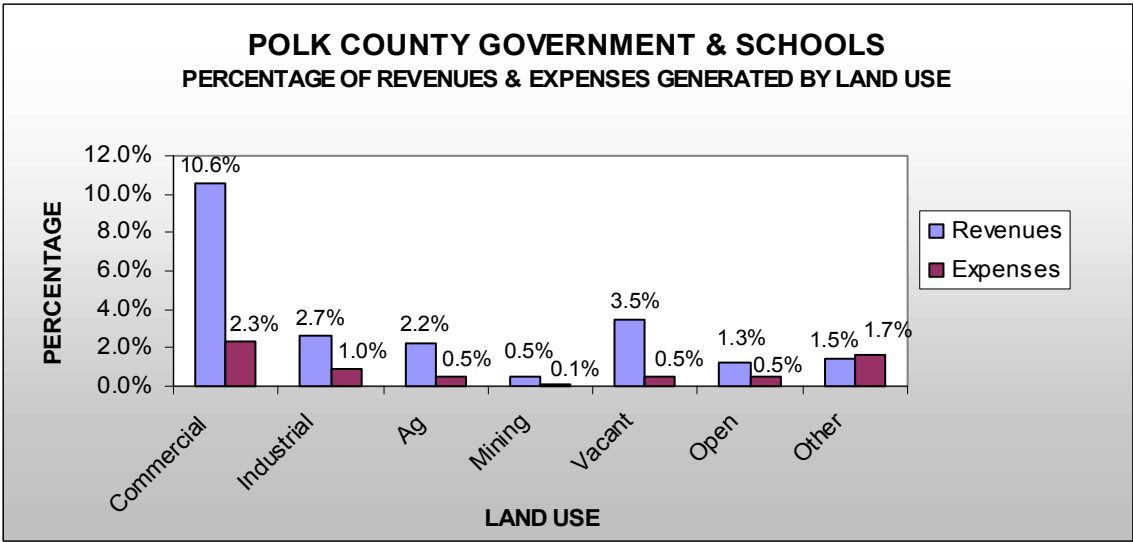
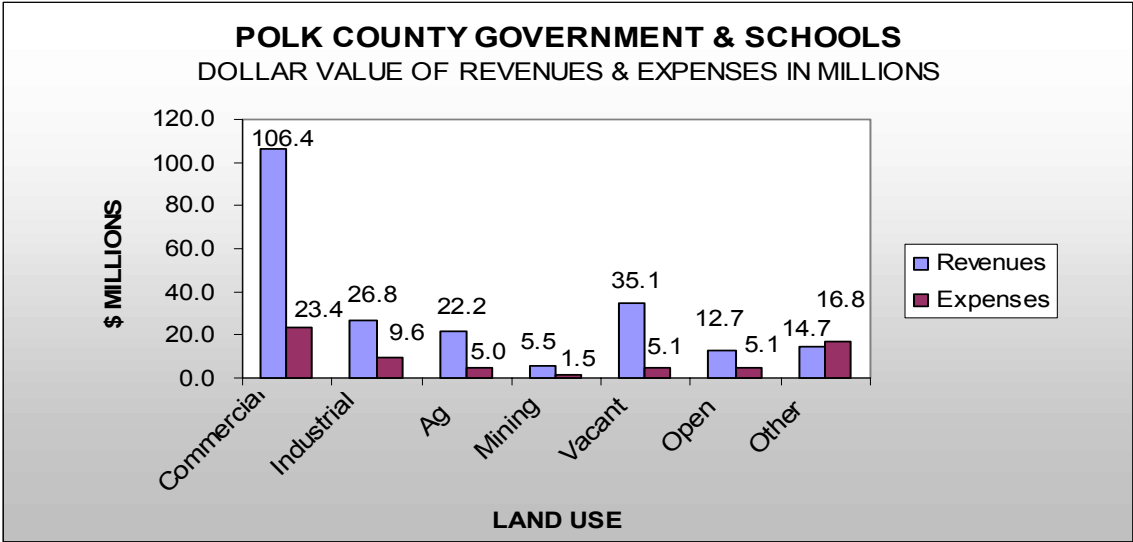
As a result, a deficit that could create budget shortfalls and require some painful corrective measures – such as reduced service levels, an elimination of services, deferred maintenance, increases in impact fees, increases in taxes, or ALL five – can be avoided in a fiscally sound, politically acceptable way.

This is one of the reasons why agricultural land uses are important. Agricultural land uses provide economic value, open space value, ground water recharge and environmental value, food production value – and fiscal value.

Taken together, the land uses that generate a surplus in revenues can “carry” the cost of services for all of the county’s residential land uses.

This analysis shows that, while non-developed land uses, such as agriculture, do not make up a large percentage of county revenues or expenses, they do help in maintaining fiscal balance.

The purpose of this analysis is to stress that it always is useful for policy makers to look closely at the fiscal impacts of the county’s current mix of land uses, as a way of interpreting what has occurred as a result of past decisions. This helps to identify positive outcomes that are worth repeating and negative outcomes that might be improved by pursuing alternate approaches. This process can inform current decision making so that today’s decisions can produce better results tomorrow.



ENDNOTES

ENDNOTES

1. See findings for “Economic Output by Industry” pages 4 and 25-27; also see pages 4-9 in Supplement 1.

2. County land area (1,874 square miles) is from the *2002 Census, Rankings of States and Counties* (Washington, D.C.: U.S. Department of Commerce, 2003), data available via the Internet at “U.S. Census Bureau, State and County Quick Facts, Polk County, Florida,” <http://quickfacts.census.gov/qfd/states/12/12105.html>.

Land in farms (626,634 acres) is from the *2002 Census of Agriculture* (Washington D.C.: U.S. Department of Agriculture, 2003), pp. 213 and 277.

3. *2002 Census of Agriculture*, “County Profile, Polk County, Florida,” <http://www.nass.usda.gov/census/census02/profiles/fl/cp12105.PDF>

4. Ibid.

5. *2002 Census of Agriculture*, pp. 213 and 231.

6. *2002 Census of Agriculture*, “County Profile, Polk County, Florida.”

7. See findings for “Economic Impacts of Agriculture & Agribusiness,” pages 4 and 28-30; also see pages 15-20 in Supplement 1.

8. Ibid.

9. Ibid.

10. *Regional Multipliers: A User Handbook for the Regional Input-Output Modeling System (RIMS II)* (Washington, D.C.: U.S. Department of Commerce, Bureau of Economic Analysis, 1997), p. M-1.

Also: David Mulkey and Rodney Clouser, "The Economic Impact of the Florida Sugar Industry" (Gainesville, Florida: Food and Resource Economics Department, University of Florida, November 1988), from the explanation of regional multipliers, pp. 5-6.

11. *2002 Census, Rankings of States and Counties*.

12. *2002 Census of Agriculture*, p. 213.

13. *2002 Census of Agriculture*, “County Profile, Polk County, Florida.”

14. Ibid.

15. *1992 Census of Agriculture, County Data, Florida* (Washington, D.C.: U.S. Department of Agriculture, 1994), Table 2, p. 179.

16. CPI annual data from 1987 through 2002 was used to determine 2002 constant dollar values:

Consumer Price Index (CPI) converting forward from 1992 to 2002		
Year	Rate of Inflation	Equivalent Dollar Value
1987	3.60%	
1988	4.10%	-
1989	4.80%	-
1990	5.40%	-
1991	4.20%	-
1992	3%	203,350,000
1993	3%	209,450,500
1994	2.60%	214,896,213
1995	2.80%	220,913,307
1996	3%	227,540,706
1997	2.30%	232,774,142
1998	1.60%	236,498,529
1999	2.20%	241,701,496
2000	3.40%	249,919,347
2001	2.80%	256,917,089
2002	1.60%	261,027,762

Consumer Price Index (CPI) converting forward from 1997 to 2002		
Year	Rate of Inflation	Equivalent Dollar Value
1987	3.60%	
1988	4.10%	-
1989	4.80%	-
1990	5.40%	-
1991	4.20%	-
1992	3%	
1993	3%	
1994	2.60%	
1995	2.80%	
1996	3%	
1997	2.30%	253,457,000
1998	1.60%	257,512,312
1999	2.20%	263,177,583
2000	3.40%	272,125,621
2001	2.80%	279,745,138
2002	1.60%	284,221,060

17. Ibid. Also, *1997 Census of Agriculture, County Data, Florida* (Washington, D.C.: U.S. Department of Agriculture), p. 173.

18. *1987 Census of Agriculture - Florida* (Washington, D.C.: U.S. Census Bureau), p. 194 and *1992 Census of Agriculture, County Data, Florida* (Washington, D.C.: U.S. Department of Agriculture), p. 228.

19. *2002 Census of Agriculture*, Table 31, pp. 420-422.

20. Historical data for 2001-02 crop year from *Citrus Summary, 2002-03*, (Orlando, FL: Florida Agricultural Statistical Service, Feb. 2004), pp. 8-16, and from *2002-2003 Season Fresh Florida Citrus Shipments*, (Lakeland, FL: Citrus Administrative Committee, 2003), pp. 22-27,

<http://www.citrusadministrativecommittee.org/Annual%20Report%202002-2003/General%202002-03/General%20Section-2002-2003.pdf>

The “on-tree value” is the dollar amount a grower receives minus the costs of picking and hauling, according to the [Floridajuice.com](http://www.floridajuice.com/cm_nutrition_glossary.php#o) glossary, http://www.floridajuice.com/cm_nutrition_glossary.php#o

21. *Citrus Summary, 2001-02*, (Orlando, FL: Florida Agricultural Statistical Service, Sept. 2002), pp. 22, 23 & 30.
22. Historical data for 2001-02 crop year from *Citrus Summary, 2002-03*, (Orlando, FL: Florida Agricultural Statistical Service, Feb. 2004), p. 26.
23. This is an approximation, based on three sources of information.

The *2002 Census of Agriculture* reports sales of citrus in a category that includes sales of other products, such as berries. It is not possible from the information given to segregate out citrus sales from the sales of other products. The combined sales for this category, “fruits, tree nuts, and berries” is \$217,620,000

Since the vast majority of these sales were for citrus, it is safe to assume that the bulk of these revenues – \$200 million or more – came from citrus.

J.A. Stricker, the recently retired Director of the Polk County Cooperative Extension Service, estimated that the value of “citrus - delivered” in 2002 was \$205,700,000, using four different sources of information, including data on picking and hauling charges, which were included in his estimate. (See “Economic Contribution of Agriculture to Polk County’s Economy – 2002,” below.)

Finally, using data from the *Citrus Summary, 2001-02*, the *Citrus Summary, 2002-03*, and from *2002-2003 Season Fresh Florida Citrus Shipments*, the author of this study was able to calculate a value of \$190,661,417 for all citrus sold in the 2001-02 crop year and a value of \$192,783,239 for all citrus sold in the 2002-03 crop year. The average between these two growing seasons, both of which overlapped into the 2002 calendar years, was \$191,722,328, or \$192 million. (This average was calculated for consistency, since data in the *2002 Census of Agriculture* is drawn from sales during the 2002 calendar year, a method which works well for most of the U.S., where calendar years and growing seasons usually coincide with each other, unlike Florida, where farms are idle in the summer and winter is a major time of production.)

Despite the care taken in these calculations, one major inconsistency could not be reconciled. Detailed county-level data on the number of boxes sold by variety for fresh fruit shipments is given in only one source – *2002-2003 Season Fresh Florida Citrus Shipments*. However, the numbers reported for some varieties exceed the total number boxes sold for *both* fresh fruit and processing, as reported in the *Citrus Summary*. As a result, calculations using data from these sources produces several negative numbers.

Thus, the author is reluctant to use these calculations for anything more than as a guideline for venturing the estimate of \$200 million given in the text.

The \$200 million estimate appears to be a reasonable midpoint the between \$192 million and \$206 million estimates derived by Evans and Stricker, and appears to be reasonable in context with the data given in the 2002 Census of Agriculture.

24. Stricker, J.A., “Economic Contribution of Agriculture to Polk County’s Economy – 2002” (Bartow, FL: University of Florida, Institute of Food and Agricultural Sciences, Cooperative Extension Service, Oct. 2004), p. 4.

25. *2002 Census of Agriculture*, Table 34, pp. 430-438.

26. *Florida’s Cattle Industry* (Tallahassee, FL: Florida Department of Agriculture and Consumer Services, 2004), http://www.florida-agriculture.com/pubs/pubform/pdf/Florida_Cattle_Industry_Brochure.pdf

27. *2002 Census of Agriculture*, Table 2, p. 240.

28. Stricker, pp. 5-6.

29. *2002 Census of Agriculture*, Table 29, pp. 401-414.

30. *2002 Census of Agriculture*, Table 19, p. 357.

31. "Florida Cash Receipts," *Florida Agricultural Fast Facts 2003 Directory*, p. 8. Cash receipts over the 10-year period 1992-2002 were: 1993 - \$6,134,989; 1994 – \$6,111,730; 1995 - \$6,079,849; 1996 - \$6,412,389; 1997 – \$6,623,818; 1998 - \$7,079,409; 1999 - \$6,701,661; 2000 - \$6,777,112; 2001 - \$6,419,526 and 2002 (from U.S. Census of Agriculture) \$6,242,526, providing a fairly consistent 10-year average of \$6,458,275 or **\$6.5 billion per year**.

32. “Florida’s Minerals: Making Modern Life Possible,” (Tallahassee, FL: Florida Department of Environmental Protection website), <http://www.dep.state.fl.us/geology/geologictopics/minerals.htm>

33. Reproduced with permission from the Mineral Information Institute, 501 Violet Street Golden, CO 80401, <http://www.mii.org>. A PDF file explaining how the numbers in this illustration are derived can be obtained on the Internet at <http://www.mii.org/pdfs/miiMineralsBaby2004.pdf>

34. “Phosphate Facts,” *Florida Agricultural Statistical Directory, 2004*, (Orlando, FL: Florida Agricultural Statistical Service, 2005), source: Florida Phosphate Council.

35. “Phosphate Primer,” (Bartow, FL: Florida Institute of Phosphate Research), website resource, <http://www1.fipr.state.fl.us/PhosphatePrimer>

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36. "Phosphate Facts"
37. "Overview of Mining and Mineral Processing in Florida," Florida Institute of Phosphate Research, <http://www.fipr.state.fl.us/research-area-mining.htm#Overview>
38. Ibid.
39. Ibid.
40. "Does Development Really Pay for Itself?," *PUBLIC Investment*, (Chicago, Illinois: American Planning Association, September, 1991).
41. This is a very small portion of the total property tax revenues generated in Polk County. Because agricultural property taxes form such a small portion of the budget, it is easy to understand why agricultural issues are often overlooked by policy makers. On the other hand, since agriculture only contributes about 2.2% of total county and school revenues, yet occupies 52% of the county's land area, it is easy to see why many people mistakenly believe that agriculture is subsidized by other land uses. The tables and charts on pages 15-20 and 24-25 in Supplement 1, however, put these numbers in perspective.
42. *2002 Economic Census, Manufacturing, Florida* (Washington, D.C.: U.S. Department of Commerce, Bureau of the Census), p. 83.