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## **The “Phantom Costs” of Florida’s Citrus Industry**

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**Abstract:** Regulatory compliance, the “phantom costs of production,” is an increasingly “fact-of-life” for U.S. agriculture. A survey was developed and implemented to enumerate regulatory

compliance costs for Florida's 748,500 acres citrus industry. Complying with 61 production related regulations, 643,757 hours were expended at a total annual cost of over \$24.3 million.

***Key Words:*** citrus, compliance costs, government regulations

**JEL Classifications:** Farm Management or Extension

Regulatory compliance is an increasingly important “fact-of-life” for U.S. agricultural producers. In an environment characterized by increasing global competition, not only are growers required to produce commodities of the highest quality, but they are also expected to produce them at reasonable prices comparable to prices being charged elsewhere. U.S. agricultural producers, being some of the most efficient in the world, are increasingly being placed at a disadvantage because of the increasing burden to comply with government regulations. To remain competitive, growers must now either absorb most of the compliance costs further reducing an already small profit margin or ignore them entirely when computing their costs and returns.

### **“Phantom Costs”**

Despite being faced with burdensome paperwork, growers seldom account for the cost of regulatory compliance. Growers normally do not write checks for costs such as: the time it takes to fill out the numerous regulatory forms each year; the time to attend class for training; the endless hours spent learning the regulatory requirements and the compliance process; the small costs such as stamps to send in reports, copying forms and telephone calls to government agencies seeking helpful instructions and guidance to meeting various regulatory obligations. These cost items are known as the “phantom costs” of citrus production that costs the grower both time and money. A grower’s time is no longer spent just growing citrus but now includes the time devoted to the paperwork and bureaucratic process.

Some contend that these phantom costs are just a cost of doing business. If they are a cost of doing business, then there should be an accounting for them. This is particularly useful when comparing Florida’s citrus costs with foreign competitors’ costs. Often in discussions with

government officials, these officials are not aware of the regulatory requirements imposed on Florida citrus growers or the costs associated to comply with the regulations. For an agricultural industry such as citrus where Florida's primary competitors are highly integrated from production, harvesting, processing/packaging and export/shipping, these regulatory "phantom costs" become an important negotiating item to consider in areas of foreign trade policy.

### **Methodology/Approach**

A group of growers from Florida's Peace River Valley citrus growing region posed the question: "What are the total costs of governmental regulatory compliance?"

In a search of other agricultural crops produced in the United States, compliance cost information was not found. Therefore, a working group of growers and UF/IFAS personnel had to start from scratch to develop and implement a survey to enumerate regulatory compliance costs.

The first step was to identify what were the local, regional, state, and federal government agencies and specific departments to which growers had to report. A total of sixty-one regulatory items were identified and grouped under six regulatory categories. The six regulatory categories selected were: payroll and administration (11 items); chemicals (17 items); water (15 items); DEP/departments of environmental protection (8 items); citrus canker decontamination (5 items); and other compliance regulations (5 items). A copy of the compliance cost survey which lists each regulation item under the six regulatory categories can be obtained by going to the Citrus Research and Education Center (CREC) web page under compliance cost survey. The CREC web page address is: [www.crec.ifas.ufl.edu/extensiontab.htm](http://www.crec.ifas.ufl.edu/extensiontab.htm).

An EXCEL Compliance Cost Survey questionnaire was designed to make data entry as simple as possible. Four employee categories were identified whose time would likely be required to comply with the regulations: owner/operator; manager; labor; and clerical. The average per hour cost for each of these employee categories along with the total number of employees within each category can be entered onto the EXCEL worksheet. Other descriptive information requested on the worksheet questionnaire was the net planted acreage (not total land area) in the predominant counties where citrus was owned or managed.

To inform the citrus growers about the compliance cost survey, an article was published in the *Citrus Industry*. The article explained the purpose of the survey and that a copy of the EXCEL compliance cost survey questionnaire and instructions could be obtained from the UF/IFAS Citrus Research and Education Center's web page. Coincided with the release of the magazine article, the questionnaire, along with a personalized letter, was mailed to a select number of citrus growers. After a couple of weeks, the growers were contacted to answer any questions about the survey instrument and to arrange an appointment to further explain the information being requested and to assist the grower with completing the survey questionnaire.

When completing the questionnaire, it was suggested that someone in charge of an employee category assist with completing that portion of the questionnaire. For example, under Payroll and Administration, clerical staff would most likely be able to provide the best estimate of time expended annually for each regulatory item listed. An example of the data collection form for the Payroll/Administration Regulatory category is shown in Table 1. Reading across the line titled IRS, the first column suggests which data source would likely provide the information; clerical (C); manager (M); and/or professional/accountant-CPA (P). Under each employee category column, the estimated annual hours expended on the regulatory item would

be entered. Likewise, total professional fees, accountant or attorney, should also be entered. Under the other five regulatory categories, e.g., citrus canker, both the cost of the disinfectant materials and the capital costs of the decontamination spray equipment should be included under the “materials cost” column. For all capital expenditures, a ten-year useful life was assumed and only one-tenth of the total capital cost was reported under the materials cost column.

After entering the total annual hours expended across each regulatory item under the six regulatory categories along with the professional fees and materials costs reported, each column was summed. The total hours expended for each employee category were then multiplied by the respective average hourly cost to determine the total cost for each employee category. Then total employee costs along with the total cost for professional fees and materials were summed to estimate the total annual cost to comply to the regulations. The estimated per acre cost was calculated by dividing the total costs by the total net planted acres reported.

### **Summary of 2003-2004 Florida Citrus Grower Compliance Cost Survey**

A total of twenty-seven citrus firms provided data for the compliance cost survey. As shown in Table 2, the compliance survey participants represented all major citrus production regions in Florida: Central Florida/Ridge; Southwest Florida; Indian River/East Coast; and the Peace River Valley. The total net acreage reported was 140,020 acres or 19.2 percent of the total 2004 Florida citrus acreage. The compliance cost data was summarized into four categories: 1) all surveys; 2) up to 1,000 acres; 3) 1,001 acres to 7,500 acres; and 4) greater than 7,500 acres. The number of farms in each size category was 4, 15, and 8 firms, respectively. Average farm

acreage for all surveys was 5,334 acres. Average farm acreage for the other three categories was 738 acres, 3,025 acres and 11,961 acres, respectively.

The summary totals for all surveys, by regulatory category, are shown in Table 3. Payroll and Administration averaged 0.31 hour expended per net acre with a cost of \$9.30 per acre. Similar in the amount of time and costs was the Chemicals category with 0.30 hour expended at a cost of \$9.34 per acre. Complying with citrus canker regulations (decontamination spraying of workers and equipment) required 0.13 hour per acre at a cost of \$6.65 per acre. The three regulatory categories with the lowest costs were Water, Department of Environmental Protection (DEP)-Fuel Tanks and Other Regulations. The total annual time expended and per acre costs were 0.10 hour-\$3.78 per acre, 0.01 hour-\$3.09 per acre, and 0.01 hour-\$0.43 per acre, respectively. The total time expended and costs for all the regulatory categories were 0.85 hour and \$32.48 per net planted acre.

A comparison of the total time expended and cost per acre for the four summary groups of firms is shown in Table 4. The 'Up to 1,000 Acres' acreage group had the highest time expended and cost per acre to comply. The annual time expended per acre for this acreage group was 1.52 hours with a \$54.43 per acre cost. The intermediate acreage group, '1,001 Acres to 7,500 Acres,' expended 1.34 hours per net acre at a cost of \$39.15 per acre. The acreage group with the lowest time expended and costs was the 'Greater Than 7,500 Acres.' Total time expended was 0.65 hours per acre with the total cost at \$28.64 per acre. Due to the size of the firms within the larger acreage size group, more efficient use of people and equipment resources occurred.

## **Concluding Remarks**



The Florida citrus grower/production compliance cost survey was the first attempt to document the “phantom costs” of growing citrus. Most of the costs are already embedded within the total operating costs of a citrus firm, but as presented in this paper, the annual time expended along with the per acre costs required to comply to regulations are substantial. If the summary information for all the surveys is used to estimate the time expended to comply to regulations, a total time of 643,757 hours or 80,470 days (8 hours per day) or 309 full time employee equivalents would be required annually to comply to citrus grower/production regulations. The total cost (labor, professional/consultants fees, chemical and other materials, and amortized capital investment costs) to Florida’s citrus industry for complying to grower/production related regulations is estimated to be over \$24.3 million dollars annually.

The Excel work sheet developed to collect and summarize the compliance cost data can be used as an annual tool by citrus firms in Florida and other citrus producing states. The data collected in compliance cost survey was for the grower/production level only. The survey can also be used to collect similar costs and time expended for the other citrus sectors: harvesting, fresh packing and juice processing. Furthermore, the authors are exploring how the compliance cost survey can be adapted for other agricultural crops grown in Florida.

## References

Carlton, Pat and Ron Muraro. "Compliance Costs: The Phantom Costs" of Florida's Citrus Industry. *Citrus Industry* Vol. 84, No. 5. May 2003. pp. 16-17.

Citrus Compliance Cost Survey. CREC Web Page: [www.crec.ifas.ufl.edu/extensiontab.htm](http://www.crec.ifas.ufl.edu/extensiontab.htm)

Table 1. Example Data from a Compliance Cost Survey for the Payroll - Administrative Category

Payroll - Administration		Owner/ Operator	Manager	Labor	Clerical	Professional Fees	Materials
Description	Abbreviation	(O)	(M)	(L)	(C)	(P) or (F)	(MAT)
	Suggested C	Hours	Hours	Hours	Hours	\$	\$
IRS	C,M,P	18.5	10.0	8.5	102.0	1,662.25	200.00
SS Administration	C	8.0	2.0	1.5	13.5	160.70	43.00
Wage and Hour	C,M,O,F	1.5	0.5	0.0	10.0	0.00	45.70
CIS (was INS)	C	3.0	16.5	8.5	81.5	0.00	71.50

Table 2. Florida Citrus Compliance Cost Survey Summary of Total Acreage Owned/Managed by Predominant Production Regions

Predominant Production Regions and Total Acreage Owned/Managed by Category	All Surveys	Up to 1,000 Acres	1,001 Acres to 7,500 Acres	7,500+ Acres
Region	Net Planted Acres	Net Planted Acres	Net Planted Acres	Net Planted Acres
Central Florida/Ridge	23,697	250	18,158	4,000
Southwest Florida	54,694	993	14,194	39,507
Indian River/East Coast	43,120	0	4,960	38,160
Peace River Valley	22,509	1,707	8,068	14,023
Total Net Acres Owned/Managed	140,020	2,950	45,380	95,690
Percentage of 2004 Total Florida Citrus Acreage	19.24%			
Total Citrus Firms Reporting by Category	27	4	15	8
Average Acreage Per Firm	5,334	738	3,025	11,961

Table 3. Florida Citrus Grower/Producer Compliance Cost Survey Summary Results According to Regulatory Category

Regulation Category	Total	Owner/ Operator	Manager	Labor	Clerical	Professional Fees (F/P)	Materials
Payroll - Administration							
Average hours per net acre reported	0.31	0.03	0.09	0.01	0.18	—	—
Cost per net acre reported	\$9.30	\$1.90	\$3.04	\$0.08	\$3.06	\$1.10	\$0.12
DEP - Fuel Tanks							
Average hours per net acre reported	0.01	0.003	0.004	0.005	0.002	—	—
Cost per net acre reported	\$3.09	\$0.17	\$0.12	\$0.06	\$0.04	\$0.46	\$2.24
Chemicals							
Average hours per net acre reported	0.30	0.02	0.12	0.13	0.03	—	—
Cost per net acre reported	\$9.34	\$0.85	\$3.80	\$1.58	\$0.54	\$0.38	\$2.19
Water							
Average hours per net acre reported	0.10	0.01	0.01	0.06	0.01	—	—
Cost per net acre reported	\$3.78	\$0.73	\$0.46	\$0.67	\$0.18	\$0.88	\$0.75
Citrus Canker							
Average hours per net acre reported	0.13	0.005	0.04	0.086	0.001	—	—
Cost per net acre reported	\$6.65	\$0.28	\$1.32	\$1.03	\$0.02	\$0.15	\$3.85
Other Regulations							
Average hours per net acre reported	0.01	0.004	0.004	0.001	0.005	—	—
Cost per net acre reported	\$0.43	\$0.22	\$0.12	\$0.01	\$0.08	\$0.001	\$0.001
Summary Totals							
Average hours per net acre reported	0.85	0.07	0.27	0.28	0.23	—	—
<i>Cost per hour per employee category</i>		\$55.53	\$32.53	\$12.05	\$16.89	—	—
Cost per net acre reported	\$32.48	\$4.14	\$8.87	\$3.43	\$3.92	\$2.98	\$9.14

Table 4. Florida Citrus Compliance Cost Survey Summary Results According to Total Acreage Category

Description	Total	Owner/ Operator	Manager	Labor	Clerical	Professional Fees (F/P)	Materials
All Surveys							
Average Hours Per Net Acre Reported	0.85	0.07	0.27	0.28	0.24	—	—
Cost Per Hour Per Employee Category (from above list)		\$55.43	\$32.53	\$12.05	\$16.89	—	—
Cost Per Net Acre Reported	\$32.48	\$4.14	\$8.87	\$3.43	\$3.92	\$2.98	\$9.14
Up to 1,000 Acres							
Average Hours Per Net Acre Reported	1.52	0.22	0.53	0.39	0.38	—	—
Cost Per Hour Per Employee Category (from above list)		\$41.05	\$22.45	\$9.38	\$12.37	—	—
Cost Per Net Acre Reported	\$54.43	\$9.00	\$11.84	\$3.67	\$4.68	\$7.47	\$17.77
1,001 to 7,500 Acres							
Average Hours Per Net Acre Reported	1.34	0.16	0.39	0.40	0.39	—	—
Cost Per Hour Per Employee Category (from above list)		\$44.24	\$22.03	\$9.83	\$14.26	—	—
Cost Per Net Acre Reported	\$39.15	\$7.12	\$8.58	\$3.97	\$5.62	\$4.63	\$9.23
7,500+ Acres							
Average Hours Per Net Acre Reported	0.65	0.03	0.21	0.23	0.15	—	—
Cost Per Hour Per Employee Category (from above list)		\$88.62	\$42.58	\$14.09	\$20.50	—	—
Cost Per Net Acre Reported	\$28.64	\$2.57	\$8.92	\$3.17	\$3.10	\$2.05	\$8.83