

Economic Impact of the Mushroom Industry in Chester County, PA

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Background

Pennsylvania mushroom farming is essential to the state's agricultural economy as its largest cash crop. Pennsylvania is also the leader in mushroom production for the entire United States. Since 1980, Pennsylvania mushroom growers dominated the domestic industry by consistently accounting for more than half of total mushroom production. Chester County mushroom producers are Pennsylvania's and the nation's leaders. The most recent census reports available (2002) indicate Chester County accounts for 81 percent of PA mushroom farms, 67 percent of PA production and 37 percent of total U.S. production.

In addition to the direct value of crop production, the mushroom industry adds indirect benefits to the local economy by employing a range of material suppliers, post-production enterprises and service-related supporting enterprises.

Objectives

The purpose of the data is to measure direct and indirect costs of the mushroom farm community to Chester County.

1. Measure the direct economic contributions of the mushroom industry in Chester County as a driver of overall economic activity and growth.
2. Calculate the indirect contributions of the mushroom industry to the net worth and well-being of Chester County.

Methods

Surveys were mailed to 170 mushroom industry enterprises in Chester County, PA, using a list of companies provided by the Community Awareness Committee (CAC) of the American Mushroom Institute (AMI). On-site interviews and follow up questions were administered to 24 operations between August 2004 and April 2005. A compilation of the onsite interviews and mailed in surveys comprise the database used in this analysis.

A total of 38 operations provided survey data, of which 31 were mushroom growers. The 2002 Census of Agriculture identified 83 mushroom growers in Chester County, PA, so our survey includes approximately 37 percent of all growers.

Survey Summary

A summary of the survey results is presented in Table 1. The industry is comprised of largely family enterprises, with 86 percent employing family members either full-or part-time. These enterprises are a stable economic force in the community having been in operation, on average, more than 37 years, under the current management for 22.4 years and a third of their staff being employed there more than 10 years. Further, this industry is substantial with an enterprise averaging 66 employees and annual sales of \$16.3 million with more than 60 percent of these enterprises continuing to invest in their operations

during the past 10 years. The average salary is \$27,419 per employee, which is about 83 percent of the PA manufacturing industry average salary (Fuller *et al*, 2005). Employee benefits and workers compensation adds \$3,242 on average.

Payroll & Related Costs

On average, the surveyed enterprises generate a total payroll of \$2.03 million with employee benefits. They spent \$1.275 million on contract services, transportation, administration, professional fees and insurance.

Taxes Paid

On average, an enterprise pays \$45,660 in county, municipal, school and related taxes along with \$300,000 in state and local payroll taxes. As a group, this sample contributed \$1.4 million of which school taxes accounted for \$1.08 million.

The total assets are estimated at \$9.6 million on average for each enterprise (or \$366.4 million for the sample), which clearly demonstrates the level of investment the mushroom industry commits to their operations.

Economic Impact

The evaluation of the economic impact of the Chester County, PA, mushroom industry involves estimating the multiplier effect of the value these enterprises create. The focus on generating the multiplier effect on employment and value-added activities focuses on the subset of the respondents who are engaged in growing activities. The CIM-IMPLAN* multiplier effects seek to project the input supplier and related services impact related to mushroom production (Jones *et al*, 1999). As such, the focus is on the 31 grower respondents in the sample. Survey participants account for approximately 40 percent of all growers in Chester County. Table 2 presents a summary of the Chester County mushroom industry's economic impact.

The focus is on the impact of the mushroom industry on employment and value-added activities, as well as the contribution of these enterprises to the local tax base. With most respondents providing their school tax contributions, these results focus on that aspect of the industry's local tax contribution.

Chester County is comprised of 12 school districts and boasts the fourth highest total school revenue in PA (see Table 3). The total revenue from local sources in 2004 is \$718.35 million. With most respondents not identifying their school districts, using the aggregate Chester County local total school tax revenue is likely to be a dramatic underestimate of the industry's contribution. Two sets of results are reported for the school tax base contribution of the mushroom industry. The first set of results focus on the Avon Grove School District in which many growers' operations are located. For 2005-06, the revenue from local sources is reported to be \$41.45 million. The second set of results uses a Chester County-wide average of the 12 school district local tax revenues, which is calculated to be \$70.19 million.

Generalizing the sample to the county level, it is assumed that the growers responding represent 60 percent of the population of mushroom growers in terms of the value of production in Chester County. For the purposes of estimating the mushroom

* CIM is short for "Community Impact Model" and IMPLAN is a model for regional economic, program and project analysis developed by the Natural Resources Conservation Service at the USDA. For more information on the IMPLAN model and system see <http://www.economics.nrcs.usda.gov/technical/implan/>

industry's contribution to the school tax base, it is assumed that the sample represents 40 percent of the population of the enterprises in Chester County.

The range of economic impact in terms of employment, value-added and school tax contributions are:

- **Jobs:** The employment impact of the mushroom industry accounts for 6,128 jobs.
- **Value-Added:** The mushroom industry accounts for value-added activity approaching \$1.4 billion.
- **School Tax Contributions:** The mushroom industry accounts for \$1.8 million (2.6 percent) of the total (percentage) of the locally generated school tax revenue for the weighted average of Chester County School Districts. As mentioned this is likely an underestimate. While this may appear to be a relatively small amount, replacing this industry's tax contributions is not trivial. Some ways to consider the impact of the mushroom's industry's tax contributions involve considering alternatives such as:
 - Tax the remaining enterprises and households to offset the loss (that is, increase taxes by 2.7 percent)
 - Substitute the mushroom industry for other tax paying entities (for example, increase new homes with an aggregate market value of over \$100 million with a tax rate of 18 mills) or
 - Establish an endowment of \$40 million with a standard spend 4.5 percent spending rule.

Concluding Comments

The mushroom industry in Chester County, PA, is a substantial collection of enterprises which are a stable economic force in the community in terms of their longevity, the tenure of their employees and their continuing investment. Long hailed for its mushroom production efficiency, these enterprises have a \$1.4 billion impact on the local economy and generate substantial employment opportunities and tax contributions to the community.

References

Center for Rural Pennsylvania,
http://www.ruralpa2.org/county_profiles.cfm?RDCounty=Chester+County&RDCounty2=0&Submit=Submit+Query

Fuller, T., M. Shields, and S. Smith, *The Economy: Jobs, Income, Population and Forecasts*, Center for Economic Development, Penn State University, January 2005.

Jones, K., T. W. Kelsey, M. Shields, S. M. Smith and D. Shideler (1999), *Economic and Fiscal Impacts of Mushroom Production in Chester County*, Staff Paper No.325, Agricultural Economics and Rural Sociology, Penn State University (also available on line at
http://cimpsu.aers.psu.edu/papers/cimpsu_mushroom.PDF#search=%22chester%20county%20mushroom%20implan%22

Pennsylvania Census of Agriculture, State and County Data, Volume 1, Geographic Area Series, Part 28, June 2004, Chapter 1, table 38 and Chapter 2, table 34.

Various sources for school district budgets.

Table 1. Background Information
(Enterprise Averages Reported)

	All Respondents (38)	Growers (31)
Years under current management	22.4	21.3
Years the operations has existed	37.2	40.6
No. of Full (Part)-time family members working in the enterprise	2.62 (0.46)	3.0 (0.48)
Number of Employees	66.1	74.1
Length of worker employment		
less than 5 years	46.5	49.1
between 5 and 9 years	20.3	21.4
between 10 and 14 years	18.0	20.2
15 years or more	15.2	9.2
Percentage acquiring additional production capacity	60.5%	62.1%
Sales	\$ 16,323,520	\$ 9,005,185
Contract Services	390,197	390,197
Employment		
Total Salaries and Wages	1,812,398	1,971,092
Employee Benefits & Workers Compensation	214,308	206,732
Utilities	436,832	498,723
Transportation	442,235	220,578
Administration	194,016	171,186
Professional Fees	41,785	32,404
Insurance	207,208	240,817
Taxes Paid		
Real Estate/Property Total	36,977	39,704
[County]	[5920]	[6075]
[Municipal]	[2723]	[3114]
[School]	[28334]	[30,515]
Fuel and Highway Use Taxes	15,084	18,326
State & Local Payroll	299,020	366,571
Total Assets	\$ 9,643,183	\$ 4,135,465

**Table 2.
Economic Impact of
Chester County Mushroom Industry**

	Sample Total	County Level
Jobs	2,298	3,830
<i>Multiplier Impact</i>¹ □		6,128
Value-Added	\$ 279.16 mil	\$465.3 mil
<i>Multiplier Impact</i>² □		\$ 1,395.9 mil
School Taxes	\$ 1.08 mil	\$1.8 mil
As % of Local School Tax Collections (Avon Grove total) ³		4.3 %
As % of Local School Tax Collections (Chester County average) ⁴		2.6 %
Notes:		
¹ Multiplier is 1.16 from Jones et al (1999). ² Multiplier is 3.0 from Jones et al (1999). ³ Reported school revenues for Avon Grove School district in 2005 are \$41.45 million from local sources for Chester County (Avon Grove School District, Center for Rural Pennsylvania, 2006) ⁴ Reported school revenues in 2004-6 average \$70.19 million for the 12 school districts in Chester County (average weighted by student enrollment). See table 3 for the list of school districts and locally generated revenues		

Table 3. Chester County School Districts and Local Tax Revenue	
School Districts	Local Revenues (in millions)
Avon Grove	41.45
Coatesville Area	60.57
Downingtown Area	124.36
Great Valley	54.88
Kennett Consolidated School District	40.78
Octorara Area	18.64
Owen J Roberts	50.24
Oxford Area	29.85
Phoenixville Area	50.68
Tredyffrin-Easttown	69.22
Unionville-Chadds Ford	41.04
West Chester Area	95.55