

# Overview and Economic Contribution of the Mississippi Blueberry Industry



Blueberry consumption in the United States has risen in the past decade, fueled in part by the industry's efforts to promote the health benefits of eating the berries. Although farm and retail prices have fluctuated widely in recent years, they have also shown a promising trend.

This publication presents an overview of the status of the U.S. blueberry industry in top-producing states. An economic contribution analysis puts into perspective the importance of this industry to Mississippi's economy.

## Market Situation and Outlook

### Consumption Continues to Rise

Food availability data, which serve as indicators of individuals' consumption habits, show that blueberry consumption in the U.S. has followed an upward trend since the 1980s. Consumption has grown remarkably over the past decade, with most of the recent growth stemming from increased use of fresh blueberries. After adjusting for food loss and waste, estimated consumption of both fresh and frozen blueberries increased from about 0.56 pound per person in 2004 to 1.37 pounds per person in 2013, with fresh consumption increasing by 157 percent and frozen consumption increasing by 120 percent over this period (Figure 1).

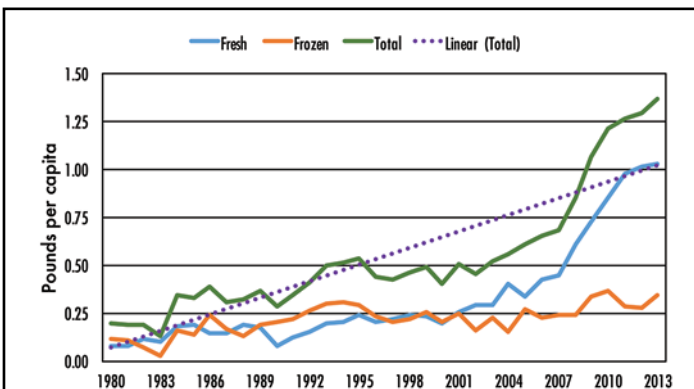


Figure 1. U.S. blueberry consumption per person based on loss-adjusted food availability, 1980–2013 (Source: USDA-ERS, 2015).

## Production Increasing

U.S. production of both cultivated and wild blueberries also increased significantly since the 1990s, from about 179.1 million pounds in 1990 to about 667.6 million pounds in 2014. Historically, Michigan and Maine have competed for being the largest U.S. blueberry producer, followed by New Jersey and Oregon (Figure 2). Maine specializes in producing wild blueberries, while most U.S. production is cultivated. Other top-producing states that have experienced notable growth in recent years include Washington, Georgia, and California. In fact, Washington and Georgia surpassed New Jersey and Oregon in 2014. Washington contributed 14.2 percent and Georgia contributed 13.8 percent to national production. California was responsible for 8.3 percent of total production (55.2 million pounds) that year. In 2014, Mississippi produced about 1.1 percent of the national total (7.3 million pounds), which represented a 16 percent increase over 2013 production.

## Farm and Retail Prices

Prices received at the grower level have fluctuated since the 1990s yet experienced growth overall. As seen in Figure 3—which shows season-average grower prices per pound for conventional blueberries sold in both the

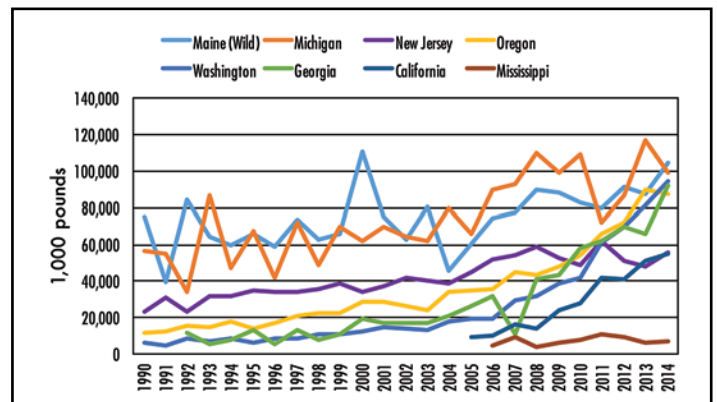


Figure 2. U.S. blueberry utilized production (produced crops that were marketed and either consumed domestically or exported) by top-producing states in 1,000 pounds, 1990–2014 (Source: USDA-ERS, 2013a; USDA-NASS, 2015).

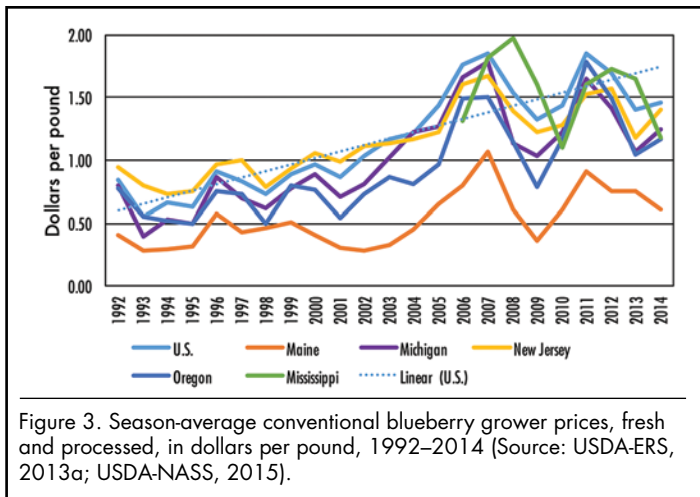


Figure 3. Season-average conventional blueberry grower prices, fresh and processed, in dollars per pound, 1992–2014 (Source: USDA-ERS, 2013a; USDA-NASS, 2015).

fresh and processed markets—this trend may continue into the future. The industry experienced relatively steady growth in grower prices during the 1990s and early 2000s, followed by more favorable price increases around 2001. During 2007 and 2011, nationwide grower prices reached an all-time high of \$1.85 per pound. The United Nations Food and Agriculture Organization (2016) estimates this value at \$4,079 per ton. However, growers have faced sharp price declines recently, with average values of \$1.33 per pound in 2009 and \$1.40 per pound in 2013. In 2014, nationwide prices recovered slightly to \$1.46 per pound.

Blueberries sold in the fresh market command a higher price than berries sold in the processed and frozen market, particularly for growers who are able to enter the market before peak season. In addition, the organic market typically commands price premiums relative to conventional (nonorganic) production. Between 2011 and 2015, the average national retail price for a 6-ounce package of conventional blueberries at major supermarket outlets increased from \$2.67 to \$2.72, while the price for organic blueberries rose from \$3.14 to \$3.70 (USDA-AMS, 2016). Nevertheless, organic blueberries are sold in a small niche market that accounts for about 3 percent of total U.S. production (USDA-ERS, 2013b).

### *The Blueberry Industry in Mississippi*

In response to increased consumer demand, harvested blueberry acreage in Mississippi has expanded over recent decades from about 80 acres in 1981 (Muhammad and Allen, 2000) to 2,100 acres in 2014 (USDA-NASS, 2015). Production, concentrated in the southern part of the state, consists mainly of Rabbiteye or Southern Highbush varieties. About half of total production is sold wholesale through marketing cooperatives, while the remaining production is sold through alternative marketing outlets such as pick-your-own operations or farmers markets (MDAC, 2014).

Based on acreage and total yields, Mississippi does not compare with top-producing states. However, based on farm prices, Mississippi competes relatively well due to seasonality factors (Figure 3). One advantage is that Mississippi’s blueberry season ends before most fruit from states with greater production enters the market, which helps the state’s growers stay in the market in the long run. Based on value of production, the Mississippi Department of Agriculture and Commerce estimates that the state’s blueberry industry ranks ninth nationwide.

In 2014, the state’s volume of blueberry production was estimated at 8.55 million pounds. This volume was determined by multiplying the area harvested (2,100 acres) by the average yield per acre (4,070 pounds per acre). Fifty-nine percent of these berries were used in the fresh market, while 41 percent were used in the processed and frozen-food market. The average price for blueberries (fresh and processed) in Mississippi that year was \$1.15 per pound, resulting in an average total value of production of about \$10.07 million.

### **Economic Contribution of the Blueberry Industry in Mississippi**

We estimated the economic contribution of the Mississippi blueberry industry using statistical data available from USDA-ERS (2013a) and USDA-NASS (2014) on the total value of production for 2014. We constructed an input-output model using 2014 IMPLAN data, which is the most recent available. IMPLAN is a computerized database and modeling system for constructing regional economic accounts and regional input-output tables. IMPLAN summarizes the entire U.S. economy into 536 sectors in its input-output model and uses data from the U.S. Bureau of Economic Analysis, U.S. Bureau of Labor Statistics, U.S. Census Bureau, U.S. Department of Agriculture, and U.S. Geological Survey.

Following the procedure for estimating the economic contribution of a single industry on a state’s economy (IMPLAN, 2015), we adjusted the value of production for the blueberry industry to reflect only the industry’s direct contribution and then modeled using the IMPLAN sector corresponding to fruit farming. Results indicated the total economic contribution the blueberry industry had on the Mississippi economy measured as direct, indirect, and induced effects. The sum of these effects measures the total economic contribution. Direct effects represent the economic activity from businesses defined to belong in the blueberry industry—producers, processors, and agricultural support services. Indirect effects represent the economic activity from businesses and organizations that

supply goods and services to the blueberry industry. These groups, which are not traditionally considered agriculture-related, include education, information, and insurance. Induced effects represent spending by households in the form of wages and salaries earned by employees of the direct and indirect businesses (Henderson and Barnes, 2015).

We measured four key metrics related to these direct, indirect, and induced effects: (1) employment—the number of full- and part-time jobs in the sector; (2) employee compensation or labor income—the wages paid by the sector; (3) output—the sector’s total value of production, or often referred to as industry sales; and (4) value-added—the total sector output value less the costs of purchased inputs. Value-added represents the amount of money made available for disbursement either in the form of wages, owner compensation, or taxes as a result of the economic activity of the blueberry sector (Henderson and Barnes, 2015; Barnes and Henderson, 2014; Barnett and Reinschmiedt, 1996). All results are reported in 2016 dollars.

As shown in Table 1, the blueberry industry had a substantial total economic effect on Mississippi’s economy as measured by number of jobs, employee compensation, total output, and value-added. The direct economic contribution included \$10.2 million in industry output, \$8.67 million in labor income, 189 jobs, and \$9.35 million

in value-added. However, the total contribution of the blueberry industry extends beyond these direct effects. The industry also has important indirect and induced effects on the Mississippi economy. Additionally, these indirect and induced effects added \$6.84 million in industry output, \$2.06 million in labor income, 57 jobs, and \$3.67 million in value-added. In sum, the blueberry industry has a total economic contribution of \$17.04 million in industry output, \$10.73 million in labor income, 246 jobs, and \$13.02 million in value-added. Finally, the blueberry industry added tax revenue to the state as well. Total state and local tax-revenue contributions were \$748,454, while federal tax revenue was \$1.53 million, which amounted to \$2.25 million in total tax-revenue contributions.

Overall, these figures highlight the important economic contribution of the blueberry industry to Mississippi’s economy. The market outlook for the industry also looks promising. Given a growing population in the United States, rising health and nutrition concerns, and the industry’s efforts to promote antioxidant compounds found in blueberries, consumer demand for blueberries will likely continue to grow, and growers will have incentives to maintain a robust domestic supply. Increased blueberry production is good news not only for growers and consumers, but also for Mississippi’s economy.

**Table 1. Total economic contribution of the Mississippi blueberry industry, 2014.<sup>1</sup>**

<b>Effect type</b>	<b>Output (\$ million)</b>	<b>Labor income (\$ million)</b>	<b>Employment (jobs)</b>	<b>Value added (\$ million)</b>
Direct effect	10.20	8.67	189	9.35
Indirect/induced effects	6.84	2.06	57	3.67
Total effect	17.04	10.73	246	13.02

<sup>1</sup>2014 was the most recent year for which data were available, but the dollar amounts were calculated to reflect 2016 dollars.

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