Missouri Maple Syrup Production Economic Impact Brief

Introduction

In 2022, the University of Missouri surveyed producers in collaboration with the Missouri Maple Syrup Initiative and the Missouri Maple Syrup Facebook group to understand the industry's economic contribution, production processes, and sales methods. The findings aimed to guide the development of educational tools and materials available on the University of Missouri's Tree Sugaring Resource Hub (including report results).

The survey revealed that most respondents view syruping as a hobby, though many expressed interests in selling syrup to supplement their income One in four respondents sold syrup that year or the prior season, while others produced smaller amounts for family, friends, or gifting. Notably, 57% of producers had either sold syrup or expressed an interest in doing so.

To assist hobbyists or beginners in transitioning their operations into revenue-generating endeavors, MU Extension developed two guides: Marketing Maple Syrup in Missouri and Missouri Maple Syrup: Hobby to Sales. These guides, along with outreach efforts from the University of Missouri Center for Agroforestry, aim to expand syrup production and sales across Missouri and the lower Midwest.

The survey responses and producer interviews provided insight into the direct impacts of respondents' sales and production spending. To assess the industry's broader impact on Missouri, this brief estimates the 2022 economic contribution of maple syrup production and explores the potential impacts under two five-year growth scenarios.

2022 Missouri Maple Syrup Production and Sales

In 2022, 26 survey respondents reported producing a total of 480 gallons of syrup, with a median of 10 gallons per producer. This exceeds the 377 gallons reported by 45 farms in the 2022 U.S. Census of Agriculture but remains an undercount. The Census only includes farms with at least $1,000 in sales, excluding many respondents from the University of Missouri survey who had little or no sales that year.

While the exact count of Missouri maple syrup producers and production levels is unknown, the Missouri Maple Syrup Facebook group's 1,300 members in 2022 suggest a larger number of producers. By 2024, Facebook membership had grown to over 2,100, indicating a significant and rising interest in maple syrup production.

Given that the 480 gallons reported by the 26 Missouri survey respondents is an undercount, a conservative estimate assumes an additional 50 producers each produced 10 gallons—the median reported by survey respondents. This adjustment would bring the estimated total production in Missouri to 980 gallons, which can serve as a basis for projecting total syrup sales for that year.

Survey respondents reported $27,349 in syrup sales, and a review of online pricing from Missouri sources indicated an average price of $1.14 per ounce. If 25% of the additional 50 producers sold syrup, similar to the share of survey respondents, it would add over $18,200 in revenue to generate total sales of $45,600.

As a baseline for describing the impact of syrup production in Missouri, it is estimated that **980 gallons of maple syrup were produced in Missouri in 2022, generating total sales of $45,600**.

The Economic Impact of Missouri Syrup Production in 2022

The $45,600 in direct maple syrup sales generated additional spending ripple effects, analyzed using an economic modeling tool to illustrate the broader impact of syrup production in Missouri. These effects include *indirect* spending on supply-chain and investment purchases, as well as *induced* household purchases by producers and supply-chain workers due to increased income. Spending impacts are described in terms of jobs, labor income, gross domestic product (GDP), and gross sales supported by syrup production and its ripple effects. For details and definitions, please see the **Methodology** section.

Table 1 summarizes the economic impact of maple syrup production in Missouri in 2022. Direct syrup sales of $45,600 (Gross Sales) supported three full-time equivalent jobs and generated $17,328 in labor income. Most producers treat syrup production as supplemental activity and do not seek significant labor compensation, leading to modest income figures. Gross Domestic Product (GDP), representing the total new wealth generated from syrup sales after accounting for production inputs, totaled $18,240 in 2022.

Table 1. Economic Impact of Missouri Syrup Production, 2022

Impact	Jobs	Labor Income	GDP	Gross Sales
Direct	3.0	$17,328	$18,240	$45,600
Indirect	0.2	$12,166	$19,633	$33,813
Induced	0.1	$7,580	$14,105	$23,334
Total	**3.3**	**$37,074**	**$51,978**	**$102,747**

When considering supply chain (*indirect*) and household spending (*induced*) impacts, the total economic contribution grows significantly. Total gross sales exceeded $102,000, resulting in nearly $52,000 in new Missouri GDP and just over $37,000 in labor income.

The Impact of Syrup Production under Different Growth Scenarios

While the U.S. Census of Agriculture undercounts total maple syrup production, it provides valuable historical data to analyze growth trends over time. Table 2 presents compound annual growth rates (CAGR) for 2017-22 in the U.S., Missouri, and surrounding states with available data. During this period, Missouri syrup production grew at an annual rate of 2.5%, less than half the U.S. rate, and lagged neighboring states, particularly Iowa.

Table 2. U.S. Agriculture Census Syrup Production

Area	2017 Syrup Produced	2022 Syrup Produced	CAGR
U.S.	4,440,176	5,845,209	5.7%
Missouri	333	377	2.5%
Illinois	2,384	2,871	3.8%
Iowa	4,307	8,096	13.5%
Kentucky	1,569	2,655	11.1%
Tennessee	148	261	12.0%

Source: U.S. Census of Agriculture 2017 and 2022 figures and calculated compound annual growth rate (CAGR).

While the number of available trees for sap harvest varies considerably between states, these differences do not fully explain the growth rates. Missouri's growth may be limited by increasing difficulties related to sap flow season predictability, which can sometimes create very short windows for syrup gathering as the state is in the southernmost range for native sugar

maples.[1] Given this unpredictability, using a growth scenario that mirrors a similar southern state, like Tennessee, is a more reasonable approach.

Two scenarios are modeled to understand the potential impact of syrup production growth and sales on Missouri's economy by 2027. These scenarios consider annual growth rates aligned with the U.S. historical rate of 5.7% and Tennessee's rate of 12.0%, which were considerably higher than the Missouri growth rate.

Growth Scenario Matching the U.S. Annual Growth Rate (5.7%)

Assuming a U.S. growth rate of 5.7%—more than double Missouri's historic growth rate—syrup sales would reach $60,000 by 2027, with total Missouri syrup production nearing 1,300 gallons. Table 3 outlines the economic impact of this growth scenario.

Under this scenario, the total impact of syrup production would increase gross sales to more than $135,000. New wealth in Missouri (GDP) would grow by $68,500, including nearly $49,000 in labor income.

Table 3. 2027 Economic Impact of Missouri Syrup Production with 5.7% CAGR

Impact	Jobs	Labor Income	GDP	Gross Sales
Direct	4.0	$22,800	$24,000	$60,000
Indirect	0.3	$16,054	$25,934	$44,650
Induced	0.2	$9,931	$18,615	$30,739
Total	**4.4**	**$48,784**	**$68,549**	**$135,389**

Growth Scenario Matching the Tennessee Annual Growth Rate (12.0%)

If Missouri production grew at Tennessee's historical rate of 12.0%, syrup sales would reach $80,400 by 2027, with total Missouri syrup production surpassing 1,728 gallons. Table 4 illustrates the economic impact of this growth scenario.

Under this higher growth situation, the total impact of syrup production would increase gross sales to over $181,000. This growth would generate nearly $92,000 in new wealth for Missourians (GDP), including $65,000 in labor income.

Table 4. 2027 Economic Impact of Missouri Syrup Production with 12.0% CAGR

Impact	Jobs	Labor Income	GDP	Gross Sales
Direct	5.3	$30,552	$32,160	$80,400
Indirect	0.4	$21,512	$34,752	$59,831
Induced	0.2	$13,307	$24,944	$41,191
Total	**5.9**	**$65,371**	**$91,855**	**$181,421**

Economic Impact Methodology

The 2022 producer survey provided valuable insights into the production process, including sales, prices, input purchases, and labor hours. This data was used to customize a model of Missouri's economy to estimate the total impact of maple syrup production. After establishing a baseline impact, growth scenarios were modeled to explore the potential impact of increased maple syrup production and sales.

[1] Rapp, J.M., Lutz, D.A., Ryan, D.H., Dufour, B., Ahmed, S., Morelli, T.L., Stinson, K.A. 2019. **Finding the sweet spot: Shifting optimal climate for maple syrup production in North America**. *Forest Ecology and Management, 448*: 187-197

The estimates for new jobs, labor income, gross domestic product (GDP), and gross sales were derived using IMPLAN, an input-output economic model. This model is widely used by development professionals and researchers to analyze the broader effects of business activities. IMPLAN data are updated annually from three main sources: the U.S. Bureau of Labor Statistics, the Bureau of Economic Analysis, and the Census Bureau.

Economic models track the flow of spending within an economy through primary relationships between businesses and consumers. Spending effects describe how a business's gross sales cause money to flow to regional supply chains and consumer-oriented firms, supporting additional jobs, wages, profits, and taxes. These spending impacts can be categorized as direct, indirect, and induced effects.

Spending Effects

Spending starts with consumers buying syrup products, called direct effects, which describes gross sales:

- **Direct effects** include the revenue and subsequent labor income, profit, and jobs that come from selling a product for consumption. For Missouri maple syrup producers, sales are overwhelmingly bottled syrup, with minor revenues from candies or other related products. To make these sales, producers often build sugar shacks, purchase equipment, and buy supplies for collecting, processing, and bottling syrup. Labor is primarily provided by the landowner, who receives modest compensation from sales.

These direct effects from maple syrup production and sales drive the other ripple effects – indirect and induced spending – in the Missouri economy.

- **Indirect effects** are impacts from supply-chain purchases made by the maple syrup producer. At each step in the supply chain, some purchases are made outside the state for specialized inputs or price considerations.
- **Induced effects** capture the household spending of the maple syrup producer and supply-chain workers from their extra labor income.

Economic Analysis Terms

- **Gross Sales** estimate the total value of all sales, including the input cost of making a good or service, along with the money received when that product is sold for final use.
- **Gross Domestic Product (GDP)** is the value-added part of total sales that represents new wealth to the community. Value-added deducts the cost of goods and services from total sales to show what new money from final sales is left to pay wages, profits, rents, interests, and taxes.
- **Labor Income**, which captures wages, benefits, and owner pay, is a part of the value-added impact. It represents all spending, including health, retirement, and other benefits directed to workers, and income earned by proprietors.
- **Jobs** estimates the annual average number of full-time jobs needed for business operations. Full-time jobs are calculated by dividing all labor hours by full-time employment in a typical year. Actual jobs are less than part-time in most cases.

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