

Putting Maple on the MAP in the Lower Midwest

2022 Missouri Maple Syrup Producer Survey and Interviews



Exceed



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Putting Maple on the MAP in the Lower Midwest: 2022 Missouri Maple Syrup Producer Survey and Interviews

Executive Summary

A producer survey and interviews were conducted to better understand the economics behind syrup production. A total of 50 syrup producers responded to the survey during the summer of 2022 and 7 interviews were conducted. This information will serve as foundational knowledge for the development of tools and educational materials to promote expanded syrup production in the lower Midwest.

Syrup production is hobby for most, but there is interest in sales

- During the 2021 and 2022 season, most survey respondents (76%) did not sell syrup but produced it as a hobby during that time. Some of the respondents without sales were new to the craft or had stopped sales once the COVID-19 pandemic began.
- Even though a minority of respondents sold syrup in the past two seasons, 57% of producers had either sold syrup at some point or had an interest in sales. 43% of respondents had no interest in sales.

Missouri production levels are higher than prior estimates

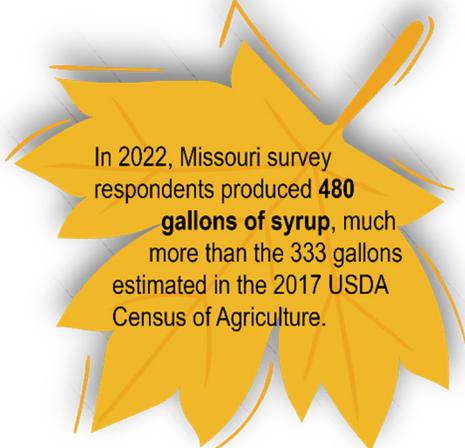
- Respondents produced 701 gallons of maple syrup – 480 in Missouri and 221 in Illinois – during the 2022 season.
- While the survey respondents represent a sizable number of producers, total syrup production is likely much higher. Conservatively assuming 50 more producers made 10 gallons of syrup – the median value of survey respondents – would bring total Missouri production to nearly 1,000 gallons in 2022.

Missouri syrup is in high demand

- Interviewed producers reported quickly selling out of their product each year; supply could not meet demand. Most sold directly from their farms or at farmers' markets.
- Similarly, 95% of survey respondents with sales interest preferred direct farm stand, farmers' market, or a combination of these places to sell their products.
- All survey respondents used word-of-mouth advertising and 80% also had social media sites. None had the need to use paid advertising.
- High demand, evident in quick sales and little need to advertise, is also shown through the high prices producers receive for their syrup. For example, pints of maple syrup in several Midwestern states sold for less than \$10 in 2020-21, whereas average Missouri pints sold for \$15 in 2022.

Production costs are highly variable

- The costs of syrup processing equipment, machinery, etc. ranged drastically – from \$50 to over \$12,000 in investments. Small or beginning producers could often use existing cookware and other equipment to start processing sap, but larger investments were needed to gain efficiencies that help producers profit from syrup sales.
- The costs of annual supplies, such as tubing, containers and wood, vary based on production levels but had a median value of \$1,000.
- The time it takes to make a gallon of syrup – typically 15 hours of labor – is a cost that can outweigh the financial benefits from sales. Most of the interviewed producers made a profit from syrup production but initially had to work to break even as they sought to improve processing efficiencies.



In 2022, Missouri survey respondents produced **480 gallons of syrup**, much more than the 333 gallons estimated in the 2017 USDA Census of Agriculture.

The USDA estimate, however, only includes agricultural producers with at least \$1,000 in sales, a subset of farmers.

Introduction and Methodology

The *Putting Maple on the MAP in the Lower Midwest: 2022 Missouri Maple Syrup Producer Survey and Interviews* report was funded by the United States Department of Agriculture, Agricultural Marketing Service to better understand the economics behind current syrup production activities in Missouri and southern Illinois. This information will serve as a foundation for developing tools and educational materials to promote expanded syrup production and sales in the lower Midwest region.

A 26-question, online syrup producer survey, conducted from July 1 to September 30, 2022, was the primary method of data collection. A copy of the survey, including data collection worksheets, was provided to producers in early 2022 so they could record production and cost information as the season progressed. See Appendix A for details of the survey instrument.

Producer outreach before and during the survey included emails to 98 individuals who were either producers or knowledgeable about production – thanks to contacts collected by John Stolwyk – and postings to the Missouri Maple Syrup Facebook page maintained by James Brochtrup. The Facebook group currently has over 1,300 members. During the 3-month survey period, weekly emails and postings were made to remind producers about the survey.

A total of 50 syrup producers responded to the survey. Of those responses, 20 largely completed all questions while the remaining 30 partially completed the survey. Sales-related questions were only provided to respondents who indicated they had sold syrup in the prior two seasons. Out of 31 respondents to the sales question, 10 indicated they had sold syrup in either 2021 or 2022.

Interviews were conducted to expand on selected survey questions and to gain additional producer insights. A total of 7 telephone interviews, lasting approximately 30 minutes, were conducted between September 15 and October 31, 2022. Some of the 14 interview questions covered production output, but the majority focused on marketing practices. See Appendix B for the list of questions.

Missouri Maple Syrup Production Survey and Interviews

The survey asked 26 questions regarding the background of maple syrup producers, their operation size and output, marketing and sales information, and the costs of production. A total of 50 syrup producers responded to the survey, but some questions were left uncompleted. The number of survey respondents answering each question is noted.

Survey answers and analyses for each section are provided below. Related interviewee insights and other research findings are highlighted throughout the report.

Maple Producer Background

Most survey respondents produced maple syrup in Missouri (92%), while the remainder produced it in Illinois. Nearly 1 in 3 respondents were relatively new to syrup production, having started in either 2021 or 2022. Another third had been producing syrup before 2015.

Half of the respondents indicated their primary household income came from salary or wage earnings. One in three relied mostly on retirement income. Only 3 producers (7%) made their primary household income from farming in either crop or animal production.

TABLE 3: RESPONDENTS BY PRIMARY HOUSEHOLD INCOME (Answered: 44)

Primary Income	Count	Percent
Salary or wage	22	50%
Retirement	15	34%
Crop or animal production	3	7%
Other sources of income	4	9%
Total	44	100%

TABLE 1: RESPONDENTS BY STATE (Answered: 50)

State	Count	Percent
Missouri	46	92%
Illinois	4	8%
Total	50	100%

TABLE 2: RESPONDENTS BY PRODUCTION START YEAR (Answered: 50)

Year	Count	Percent
2022	13	26%
2021	3	6%
2020	6	12%
2019	2	4%
2018	4	8%
2017	5	10%
2015 or Earlier	17	34%
Total	50	100%

Interview Insights

Maple Syrup Income



Agricultural producers typically make most of their income from off-farm jobs or retirement income, and this is true with Missouri maple syrup producers. Maple syrup earnings, however, can supplement farm income since the processing season avoids the typically busy times of farming. For non-farmers, maple syrup sales could bring in extra cash for supplemental income.

"Maple syrup is one of over 50 products we sell. In a good year, maple syrup sales make up 13% of farm income. In a bad year, it's more like 5%."

-Nicki Morgan

"For years, we've been a one-income family. Our earnings from maple syrup are enough to keep us in the black, as well as give us a financial cushion and a little extra spending money."

-Mark & Christal Gihring

Ten survey respondents sold syrup in 2022, one less than in 2021. Over the two seasons, an average of 24% of the respondents sold syrup. While most respondents (76%) did not sell syrup, many were still relatively new to the craft and may not have been prepared, or at a large enough scale, to consider making revenue at that time. Of the 10 producers who were selling product in 2022, 6 had been making syrup for at least 5 years.

Even though 1 in 4 of the respondents sold syrup in 2021 or 2022, there is potential for more sales. When asked about sales interests, most respondents (57%) had either sold syrup in past years – some before the pandemic – or had an interest in sales.

These producers may have either stopped sales due to pandemic concerns, or were still new to the craft, but clearly there is more experience or interest in generating revenue than the 2022 figures suggest.

TABLE 5: RESPONDENT'S INTEREST IN SALES (Answered: 42)

Sales Interest	Count	Percent
Not interested in sales	18	43%
Have sold maple syrup	15	36%
Interested in sales	9	21%
Total	42	100%

Two out of three (68%) specifically indicated that direct farm stand or farmers' market sales would be their preferred sales market, with 95% preferring one or both of these options.

Online sales and sales to other retailers or wholesalers interested 42% and 26%, respectively, of survey respondents seeking income from syrup making.

TABLE 4: RESPONDENTS WHO SOLD SYRUP IN A GIVEN YEAR (Answered: 44)

Year	Count
2022	10
2021	11
2020	9
2019	8
2018	6
2017	5
2016	3
2015	3
Before 2015	4

Interview Insights Selling to Retailers



Selling syrup at a farm stand or farmers' market is typical, but there is interest from retailers in selling Missouri syrup at their store locations. A producer would need to have a large enough operation to justify the added costs and potentially lower pricing associated with retail sales.

"80% of our sales are through the farmers market. 10% through events. 10% through our home."

We were approached by a large grocer to sell commercially, but we can't afford to build our own commercial kitchen. We would also have to offer our product at a lower price point."

-Mark & Christal Gihring

TABLE 6: RESPONDENTS WITH INTEREST IN DIFFERENT SALES MARKETS (Answered: 19)

Interested in Sales in the Following Markets	Count	Percent
Direct sales at farm stand	13	68%
Direct sales at farmers' markets or other events	13	68%
Direct sales online	8	42%
Other retailers/wholesalers	5	26%

Operation Size and Output

Respondents' woodland acres spanned from one to well over 1,000, but the median respondent had 20 acres of woodland. Typically, less than 10% of the woodlands were used for sap collection. Although sugar maples are the primary tree for syrup production, 39% of respondents tapped a variety of maple and other trees. One in ten tapped exclusively non-maple trees such as walnut.

TABLE 7: TYPE OF TREES RESPONDENTS TAPPED IN 2022 (Answered: 31)

Type of Tree Tapped	Percent of Respondents
A mix of maples and other trees	39%
Only sugar maples	35%
Only other maples	16%
Only other non-maple trees (e.g., walnut)	10%
Total	100%

The 2021 and 2022 tapping seasons typically started in mid-January and lasted 6 weeks. The average end date of tapping was early March. However, there was a significant range in start and end dates. Some respondents started tapping trees in December while others tapped until early April.

TABLE 8: RESPONDENT STARTING AND ENDING DATES FOR TAPPING (Answered: 28)

	2022		2021	
	Started Tapping	Ended Tapping	Started Tapping	Ended Tapping
Earliest Date	25-Dec-2021	19-Feb-2022	18-Dec-2020	16-Feb-2021
Average Date	21-Jan-2022	6-Mar-2022	13-Jan-2021	9-Mar-2021
Latest Date	2-Mar-2022	2-Apr-2022	27-Feb-2021	25-Mar-2021

Survey respondents ranged from beginner hobbyists, with a couple of taps, to larger 500 or more tap operations. Table 9 shows that roughly half of the respondents had between 25 to 99 taps and nearly a third had 100 or more.

The median number of taps for a respondent was 70 in both 2021 and 2022. Most respondents (95%) had 2 or fewer taps per tree – see Table 10.

Interview Insights

Other Tree Syrups

Sugar maples are the most common tree for syrup making, but other tree varieties can be an opportunity to branch out with niche products.

Walnut trees have been the beneficial focus of one producer:

"People are often pleasantly surprised. The taste is sweet and buttery. It doesn't have the nuttiness to it."

-Joe & Kelli Hernandez

TABLE 9: PERCENT OF RESPONDENTS BY TOTAL NUMBER OF TAPS (Answered: 25)

Total Taps	2022	2021
1 to 24	20%	18%
25 to 99	48%	50%
100 to 249	20%	23%
250 or more	12%	9%
Total	100%	100%

The total number of taps from the 25 survey respondents was 3,288 in 2022. Although not an apples-to-apples comparison for reasons later discussed, the USDA Census of Agriculture estimated that Missouri farmers had a total of 3,163 taps in 2017, the last time these figures were estimated. Results from the 2022 Census of Agriculture will not be available until 2024.

TABLE 10: PERCENT OF RESPONDENTS BY TOTAL NUMBER OF TAPS PER TREE (*Answered: 24*)

Taps per Tree	2022	2021
1 tap per tree	58%	52%
1 to 2 taps per tree	38%	43%
3 taps per tree	4%	5%
Total	100%	100%

The gallons of sap per tap varied greatly, from just under three gallons per tap to nearly 16, which can vary based on tree type and other factors. The median amount per tap was 8 gallons. Respondents tapping 80% or more sugar maples had a median of 10 gallons per tap over the 2021 and 2022 seasons. Respondents with 80% or more taps in non-sugar maple trees had a median of 5.3 gallons per tap over the same two years.

TABLE 11: GALLONS OF SAP COLLECTED PER TAP

Gallons of Sap Collected per Tap	2022	2021
Minimum	2.6	2.7
Median	8.0	8.0
Maximum	15.7	15.0

The sugar content of sap before processing (a measure termed BRIX – one BRIX equals 1% sugar content) ranged from 1.0 to 3.0. The median BRIX content was 2.0 and 1.8, respectively, in 2022 and 2021.

Sap collection quantities, as with tapping, were highly diverse. The amount of sap collected ranged from seven to several thousand gallons. The median gallons collected were 425 and 500, respectively, in 2021 and 2022. A total of 35,265 gallons of sap was collected by 26 respondents in 2022.

TABLE 12: PERCENT OF RESPONDENTS BY TOTAL SAP COLLECTED (*Answered: 26*)

Total Sap Collected in Gallons	2022	2021
1 to 99	15%	18%
100 to 749	46%	41%
750 to 1,999	23%	27%
2,000 or more	15%	14%
Total	100%	100%

Respondents that collected larger quantities of sap were also more likely to sell syrup: 58% of producers who collected more than 750 gallons of sap also sold syrup in 2021 or 2022. Only 17% of smaller producers – with less than 750 gallons of sap collected – sold syrup in either of those years.

Survey analysis indicated that **50 gallons of sap typically produced 1 gallon of maple syrup.**

TABLE 13: GALLONS OF SYRUP FROM 50 GALLONS OF TREE SAP

Syrup Produced from 50 Gallons of Tree Sap	2022	2021
Minimum Gallons	0.1	0.4
Median Gallons	1.0	1.0
Maximum Gallons	1.8	1.8

Respondents indicated that they made syrup from the sap and no other products, such as candies or dry sugar, in the past two seasons. The total quantity of syrup ranged from 0.25 to over 200 gallons. A median value of 10 gallons of syrup was produced by respondents over the two seasons.

TABLE 14: PERCENTAGE OF SURVEY RESPONDENTS BY TOTAL SYRUP PRODUCED (*Answered: 30*)

Total Syrup Produced in Gallons	2022	2021
Fewer than 2	23%	14%
2 to 9	27%	32%
10 to 49	38%	45%
50 or more	12%	9%
Total	100%	100%

The 2017 USDA Census of Agriculture estimated that Missourians produced 333 gallons of maple syrup from 37 farms, with 44% of those gallons coming from four producers. To be counted in the Census a farm had to have at least \$1,000 in sales, so most of these survey respondents who were producing syrup in 2017 would not have participated in this survey because they had either no or low sales.

For the 2022 season, 26 survey respondents produced a total of 701 gallons of maple syrup and 75% of those gallons were produced by five survey respondents. Missouri respondents produced 480 gallons of syrup in 2022, while Illinois respondents produced the remaining 221 gallons.

Customer Marketing and Sales

The survey asked if the respondent had sold maple syrup or related products to any customer in 2021 or 2022. Ten producers responded that they sold syrup in those years. Additional marketing and sales questions in this section were only provided to these respondents with recent sales experience.

Of respondents reporting sales, 90% kept some portion of syrup for their family and friends and sold the rest largely at farm stands or farmers' markets. Most sales were direct to customers in small package form, however, one producer sold over half of their syrup in bulk form or to other retail/wholesale businesses.

Six respondents provided sales information, with total revenues of under \$100 to several thousands of dollars reported. The small number of responses and high variability limit the value of median sales figures, but total revenues for all respondents averaged over \$23,000 during the two seasons. The average per-customer purchase amount ranged from \$11 to \$35.

Three out of the 10 producers who sold maple syrup products had additional sales related to agritourism services. While agritourism – attracting visitors for entertainment/education purposes related to farm operations – is a broader business strategy for farming operations, two of the three respondents attributed over 75% of their maple syrup sales to agritourism services.

Interview Insights

Selling at Farmers' Markets



"Most sales are direct to consumers at the farmers' market or at the farm. Customers can order online for pickup at the market or the farm. We limit customers to 32 oz. of syrup."

-Nicki Morgan

"We've tried selling at the one farmers' market, but the price point is too high. We've been successful selling at a larger city farmers' market."

-Mark & Christal Gihring

All respondents advertised their syrup through word-of-mouth, while 80% also used social media sites like Facebook. Websites were used less frequently (20%) and no one used paid advertising.

Syrup Pricing

The small number of respondents limits the ability to develop price-per-ounce estimates from the survey. However, analyses of website and social media postings data provided information on pricing for the most common bottle sizes.

A review of available pricing from online Missouri sources indicated that syrup typically sold for \$1.14 per ounce in 2022. The size of the syrup bottle influenced the price as larger quantities often sold for a lower average price per ounce.

TABLE 16: AVERAGE SYRUP PRICE PER OUNCE FROM ONLINE SOURCES

Bottle Size	Average Price	Price Per Oz.
8 Ounces	\$10.50	\$1.31
12 Ounces	\$13.00	\$1.08
16 Ounces	\$15.00	\$0.94
32 Ounces	\$24.00	\$0.75

Comparative retail pricing information for smaller bottle sizes is limited, but it appears that Missouri producers are receiving premium prices for their syrup. USDA data for 2021 show that a pint (16-ounce) bottle of syrup in Wisconsin and Michigan sold for \$9.60 and \$8.80, respectively¹. A 2020 Indiana survey indicated a retail price of \$8.39 per pint of maple syrup². These prices, while a year or two older, compared to \$15.00 for Missouri producers in 2022.

The premium price enjoyed by Missouri producers likely reflects both a market for locally produced syrup and the relative scarcity of this product. Syrup production is much larger in the other states noted, which drives down prices. The higher prices for Missouri-produced syrup will likely continue due to the state's relatively smaller output and product demand.

TABLE 15: PERCENTAGE OF SURVEY RESPONDENTS BY ADVERTISING METHODS (ANSWERED: 10)

Advertising Methods	% of Respondents
Word-of-mouth	100%
Social media (Facebook, etc.)	80%
Website	20%
Paid advertising	0%

Interview Insights Selling Syrup for a Profitable Price

Distinguishing products by the type of syrup:

"We sell our (walnut) syrup for several dollars an ounce. We sold out within a month in 2022."

-Joe & Kelli Hernandez

"Early season syrup is golden and delicate. Later season syrup is B grade and is used for cooking, making bourbon, and marinades. The late-season syrup is sold as a glaze."

-Interviewed producer

"The darker syrup is highly desired and specifically requested by some of our customers."

-Mark Gihring

Distinguishing products by aging or packaging:

"We hold back 4 gallons of syrup each year to fill maple leaf bottles which sell at a higher price (gifts). We make a profit on each bottle. Those profits are invested right back into syrup making for the next season."

- Interviewed producer

"Bourbon barrel-aged syrup can be sold at a premium (\$2-\$3 per ounce)"

-James Brochtrup

¹ United States Department of Agriculture, National Agricultural Statistics Service (2022). *Wisconsin Ag News – Maple Syrup*. Retrieved at: https://www.nass.usda.gov/Statistics_by_State/Wisconsin/Publications/Crops/2022/WI-Maple-Syrup-06-22.pdf

² Indiana Department of Natural Resources (2020). *Indiana's 2020 Maple Production*. Retrieved at: https://www.in.gov/dnr/forestry/files/fo-maple_syrup_report_2020.pdf

Production Costs

Production cost questions were separated into fixed and variable costs to better understand the investments respondents made to process sap into syrup. Fixed costs are production expenditures that remain the same regardless of output, such as start-up investment costs, while variable costs will rise or fall depending on annual production levels.

Fixed Costs

Maple syrup production requires the purchase of processing equipment, such as an evaporator, firebox, and food-grade storage tanks, to convert the sap into syrup. Beginning and smaller operators will often use existing cookware and other equipment to make syrup production more affordable, especially if the activity is mainly a hobby. Larger investments, such as a reverse osmosis system and large storage tanks, allow producers to expand syrup production in a more cost-effective manner.

Fixed costs varied greatly, with responses ranging from as little as \$50 to over \$12,000 in investments. Producers with larger operations, those collecting at least 750 gallons of sap, were understandably spending more than smaller operations on processing equipment, machinery and buildings. The high variability in fixed costs is also expected as respondents can use existing resources, such as a tractor, to assist in production that they would not consider a direct expense for syrup processing.

The median spending values for all respondents, including a breakout of smaller and larger producers, are provided in Table 17. Purchasing of equipment, machinery, and buildings usually occurred over several years, with half of the respondents indicating fixed costs spending over 4 or more years.

Interview Insights Gaining Efficiencies



Reverse Osmosis (RO) is a filtering process used to separate water from salt, sugar, minerals, and other impurities. Sap (roughly 97-98% water) is pumped through a series of membranes, typically pressurized cylinders, which filters the water and leaves highly concentrated sap.

This process reduces the amount of fuel and time needed to extract the remaining water – typically 50% – out of the concentrated sap through boiling and evaporation down to the finished product - maple syrup.

Commercial RO systems can start at \$1,000 but reduce other costs significantly.

“Reverse osmosis dramatically reduced input costs, reduced firewood usage, and cut cook time in half. This enabled us to start seeing profits.”
-Nicki Morgan

TABLE 17: MEDIAN SPENDING ON PROCESSING EQUIPMENT, MACHINERY, AND BUILDINGS
(Answered range: 6-14)

Respondents	Major processing equipment (evaporator, firebox, etc.)	Other hardware primarily for maple-product production (tools, storage tanks, etc.)	Other machinery primarily for maple-product production (tractors, computers, etc.)	Building construction or renovations (sugarhouse, other bldg.)
All Respondents	\$750	\$440	\$4,000	\$2,000
Respondents with 1-749 gallons of sap	\$225	\$175	\$3,000	\$585
Respondents with 750 or more gallons of sap	\$5,500	\$1,500	\$5,000	\$3,000

Licensing and property taxes also represent a fixed cost. However, only 3 respondents reported costs associated with either a business license or property taxes, with spending ranging from several hundred to a few thousand dollars.

Variable Costs

Processing materials, fuel and utilities, and labor costs are examples of spending that vary based on the scale of annual syrup production. Respondents answered several questions regarding variable costs in the 2021 and 2022 syrup production seasons.

Spending on processing materials varied substantially, but median values did show expected increases as production levels rose. Packaging containers and labels represented the highest costs for smaller producers, while plastic tubing and associated fixtures were the highest costs for larger operations.

Interview Insights Tapping Tips to Save Money

“Metal taps work best; using plastic tubing as taps can lead to leakage and waste and attract insects.”
-Susan Kraemer

“Installation of new taps each year can reduce product loss by 25-30% through leakage.”
- Interviewed producer

TABLE 18: MEDIAN SPENDING ON PROCESSING MATERIALS (Answered range: 9-14)

Respondents	Plastic buckets or bags for sap collection	Plastic tubing and assoc. fixtures (taps), couplings, etc.	Filters	Packaging containers and labels	Cleaning supplies
All Respondents	\$100	\$250	\$50	\$400	\$100
Respondents with 1-749 gallons of sap	\$75	\$100	\$30	\$160	\$20
Respondents with 750 or more gallons of sap	\$175	\$1,000	\$200	\$750	\$100

Fuel and utility spending, whether the source is wood, gas, or electricity, can represent a sizable cost. Like many questions, however, responses varied substantially. One reason is that many producers use their own harvested wood when boiling sap and may not fully consider it a cost.

TABLE 19: MEDIAN SPENDING ON FUEL AND UTILITIES (Answered range: 5-14)

Respondents	Fuel and Utility Costs
All Respondents	\$100
Respondents with 1-749 gallons of sap	\$100
Respondents with 750 or more gallons of sap	\$575

The median total cost of annual supplies – combining processing materials and fuel – was \$1,000. For smaller producers with less than 750 gallons of sap, the median cost was \$485. Larger producers had a median cost of \$2,800.

Four respondents noted annual, variable costs related to other services:

- Storage container or rental space costs ranged from \$100-\$150.
- Shipping costs ranged from \$300-\$500.
- Other costs (repairs, maintenance, etc.) ranged from \$300-\$500.

Labor hours represent a variable cost as well. Hours of work were reported by 16 respondents for either the 2021 or 2022 production season. The responses ranged from as little as 10 to over 1,000 hours of total work. As with other variable inputs, labor hours increased with production levels – see Table 20.

Most producers, 62%, indicated that they had help from unpaid or paid labor during the season. Smaller producers, those collecting less than 750 gallons of sap, had help from unpaid family or non-family members. Three of the larger producers used between 1-3 paid, mostly part-time, employees to help with syrup processing activities.

TABLE 20: MEDIAN HOURS OF LABOR (Answered range: 5-14)

Respondents	Business Owners (Self and any others)	Unpaid labor (family or non-family)	Paid labor (family or non-family)
All Respondents	100	50	150
Respondents with 1-749 gallons of sap	35	38	None
Respondents with 750 or more gallons of sap	300	200	150

Respondent data analysis indicated that a median of 15 total hours of labor - including business owner(s), unpaid, and paid labor - was typically needed to produce 1 gallon of maple syrup.

As the size of the operation increased, the median hours decreased as respondents had more efficient production methods. Smaller producers, with under 750 gallons of sap collected, used 17.3 hours of labor to produce a gallon of syrup. Larger producers had a median of 11.5 hours per gallon of syrup.

TABLE 21: MEDIAN HOURS OF LABOR TO PRODUCE 1 GALLON OF MAPLE SYRUP

Respondents	Median Labor Hours
All Respondents	15.0
Respondents with 1-749 gallons of sap	17.3
Respondents with 750 or more gallons of sap	11.5

The 15 hours of typical labor it takes to make a gallon of syrup is a cost that can outweigh the financial benefits from sales. Most of the interviewed producers made a profit from syrup production but initially had to work to break even as they sought to improve processing efficiencies. For those interested in sales, investments in efficient processing equipment and marketing practices can turn the hobby into a profitable activity to supplement income.

Interview Insights A Labor of Love



Respondents value syrup production as a fun hobby and family tradition, so the labor costs for many are part of the enjoyment found in making syrup for family and friends.

“We receive help from friends and family who all receive some maple syrup for their efforts.”

-Susan Kraemer

“The hourly rate for our efforts comes out to roughly \$5/hr. We do it because we love it and it’s a great family activity.”

-Mark & Christal Gihring

APPENDIX A: Survey Letter, Questions, and Worksheets

Hello Maple Syrup Producers,

Included with this letter is a copy of an upcoming online survey and supporting worksheets for gathering maple syrup production, sales, and cost information. We hope you will participate and provide information you have collected over the coming months to complete the online survey which will be available this summer. Please note that if you did not have sales or are not located in Missouri we would still like you to complete the survey.

The survey will help the **Missouri Maple Syrup Initiative** and **University of Missouri** understand the industry's economic contribution and help us develop tools/education material to benefit others interested in maple syrup production. **All survey responses will be anonymous** – no name, location, or computer addresses collected – and information will only be used in aggregate form.

How to Use

Please use this survey copy and cost and sales worksheet during your 2022 sugaring season to record information that you can use later to complete the online survey. If you have data from prior year business activities, then you can also record information on the survey copy for later online survey input.

Please fill out this worksheet before completing the online survey that will be available in **June 2022**. We will email you a link to the survey during that month with additional instructions. If the copy survey and worksheets are filled out during your sugaring season, then the online survey should only take 15 minutes to complete.

If you have any questions as you record information, please call Alan Spell at (573) 882-8167 or email at alan.spell@missouri.edu.

We sincerely appreciate your participation in this important project.



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MAPLE SYRUP PRODUCTION, SALES, AND COST SURVEY

Background

1. In what state do you produce maple syrup or related sap products? _____ STATE _____
2. What year did you start producing maple syrup or related sap products? _____ YEAR _____
3. How would you describe your household's primary income (over 50% of income)?
 - Crop or animal production
 - Salary or wage income from non-farm business or public-sector job
 - Retirement income
 - Other sources of income
4. If you sell maple syrup or related sap products, in which years have you sold those products? Check all that apply.
 - 2019 or Earlier Years
 - 2021
 - 2022
5. If you produce maple syrup or related sap products as a hobbyist or for home consumption and gifts, are you interested in scaling up operations to begin sales to any of the following markets? Check all that apply.
 - Not interested in sales
 - Direct sales at farm stand
 - Direct sales at farmers' markets or other events (fairs, festivals, etc.)
 - Direct sales online
 - Other retailers/wholesalers

Operation Size and Output

6. When did you start tapping and end (pull) taps for the season?

Year	Date started tapping	Date ended or pull taps
2021		
2022		

7. Acreage in woodland and approximate percentage you use for sap collection:

Year	Woodland acres	Percent used for sap collection
2021		
2022		

8. Percentage of tapped trees by tree type?

Year	Sugar maple	Other maple	Other trees (e.g., walnut)
2021	%	%	%
2022	%	%	%

9. How many total taps, average taps per tree, sap, and average sugar content did you have for all sugarbush tree stands?

Year	Total taps	Average taps per tree	Total collected sap (in gallons)	Average sugar content of sap before processing (in BRIX)
2021				
2022				

10. What quantity of maple syrup or related sap products did you produce?

Year	Maple syrup (in gallons)	Maple candy (in pounds)	Maple sugar (in pounds)	Other products
2021				
2022				

11. If you produced other maple sap products or have a different quantity unit for a product listed in the last question, please describe.

Open-ended

Customer Marketing and Sales

Setup question: Did you sell maple syrup or related sap products/services to any customer in 2022 or 2021?

- If respondents answered “yes,” they were asked to answer questions 12-17.
- If “no,” the respondent skipped to question 18.

12. What methods did you use in 2021 or 2022 to advertise your maple syrup or related sap products if sold or given to others? Check all that apply

- No advertising – home consumption only
- Word-of-mouth
- Social media (Facebook, Instagram, etc.)
- Website
- Paid advertising
- Other (please specify)

13. What percent of your total maple syrup or related sap products did you sell to these customers? Direct sales include farm stand, farmers' markets, fairs, festivals, online, etc.

Year	Customers			
	None – only hobby and gifts	Direct sales to customers in smaller packaged form	Direct sales to customers in bulk form	Other retailers/wholesalers
2021	%	%	%	%
2022	%	%	%	%

14. What was the total gross sales or receipts for your maple syrup or sap-related products?

Year	Maple syrup	Maple candy	Maple sugar	Other maple flavored food or drink
2021	\$	\$	\$	\$
2022	\$	\$	\$	\$

15. What was the average purchase amount of customers buying maple syrup or sap-related products in the last question, if known?

Year	Average purchase amount?
2021	\$
2022	\$

16. What other maple syrup or related sap processing services did you sell?

Year	Other related processing services (sap processing, bottling, packaging, etc.)
2021	\$
2022	\$

17. If you offered maple syrup-related agritourism services (i.e., maple production tours, tastings, or venue rentals), please enter any sales and what percent of total maple product sales you would attribute to these agritourism services. *Note: please enter zero (0) if no agritourism activities offered.*

Year	Maple syrup-related agritourism services (tour or tasting tickets, venue rentals, etc.)	Percent of total maple product sales attributed to agritourism activities
2021	\$	%
2022	\$	%

Fixed Production Costs

Fixed costs are annual production costs that remain the same regardless of production levels

18. How much did you or the business spend on maple syrup or sap related processing equipment, machinery and building construction/renovations? If large initial investment spending occurred before 2021, please provide that year and spending amounts. *Note: if machinery, tools, etc. purchased for other activities, please enter estimated share of costs related to maple production (e.g., half cost of tractor if only 50% of time used for maple production).*

Year	Major processing equipment (evaporator, firebox, reverse osmosis system, filter press, bottling equip., storage tanks)	Other hardware primarily for maple-product production (tools, storage containers, cooking equip., etc.)	Other machinery primarily for maple-product production (tractors, vehicles, computers, etc.)	Building construction or renovations to sugarhouse, house or other bldg.
2021	\$	\$	\$	\$
2022	\$	\$	\$	\$
Enter Earlier Years	\$	\$	\$	\$

19. How much did you or the business spend on commercial insurance, business licenses/fees, or personal property taxes (tractor, etc.) related to maple syrup or sap-related production? *Note: if spending covers other business activities, please enter estimated share of costs related to maple production (e.g., half insurance cost entered if only 50% covers maple production activities).*

Year	Commercial insurance	Business license or fees	State/local property taxes on personal property
2021	\$	\$	\$
2022	\$	\$	\$

20. If any additional fixed costs were not covered in the above question, please describe.
Open-ended

Variable Production Costs

Variable costs are annual production costs that vary based on production levels

21. How much did you or the business spend on maple syrup or sap-related processing materials?

Year	Plastic buckets or bags for sap collection	Plastic tubing and assoc. fixtures (taps), couplings, tools, etc.	Filters	Packaging containers and labels	Cleaning supplies
2021	\$	\$	\$	\$	\$
2022	\$	\$	\$	\$	\$

22. How much did you or the business spend on fuel and utility costs for processing maple syrup or sap related products? Notes: *if used wood harvested on your own land, please enter dollar value estimate if you had sold the wood instead. If utility spending only partially used for maple production, enter estimated share of cost or leave blank.*

Year	Fuel (wood, gas, etc.)	Electricity
2021	\$	\$
2022	\$	\$

23. How much did you or the business pay in storage, shipping, advertising, and other costs related to maple syrup or sap production?

Year	Storage container or space rental costs	Shipping costs	Advertising costs	Other costs (repairs, maintenance, etc.)
2021	\$	\$	\$	\$
2022	\$	\$	\$	\$

24. Any additional variable costs were not covered in the above question, please describe.
Open-ended

25. Approximately how many hours of total labor were provided by these workers for maple syrup or related sap processing, packaging, distribution, or sales?

Year	Business Owners (Self and any others)	Unpaid labor (family or non-family)	Paid labor (family or non-family)
2021			
2022			

26. If you had paid employees, how many full-time (30+ hour week) or part-time (less than 30 hours) workers did the business average during the sugaring season?

Year	Full-time paid workers	Part-time paid workers
2021		
2022		

The remaining pages are printable worksheets that you can use to record weekly costs, production, and sales information during the 2022 season if you otherwise do not collect this data. You can use the worksheets to calculate totals for survey questions regarding:

- **Variable Processing Costs, Questions 21, 22, and 23**
- **Labor Hours, Question 25**
- **Production Amounts, Questions 9 and 10**
- **Sales, Questions 14, 15, 16, and 17**

2022 Season for Maple Syrup or Related Sap Production

Costs Worksheet: December 2021 through March 2022

Record information for later use in completing the online survey. If an item is purchased for more than one season's use, please note like this example: "\$120 / 2 seasons use". When entering cost data for the online survey just enter cost of supplies for 2022 season - for example, \$120 / 2 seasons use = \$60 for one season.

Month and Week	Variable Processing Costs										Labor Hours			
	Plastic buckets or bags for sap collection	Plastic tubing and assoc. fixtures (taps), couplings, tools, etc.	Filters	Packaging containers and labels	Cleaning supplies	Storage container or space rental costs	Shipping costs	Advertising costs	Other costs (repairs, maintenance, etc.)	Fuel (wood, gas, etc.)	Electricity (enter one monthly cost)	Business Owners (Self and any others)	Unpaid labor (family or non-family)	Paid labor (family or non-family)
Dec 2021														
Jan 2-8, 2022														
Jan 9-15														
Jan 16-22														
Jan 23-29														
Jan 30 - Feb 5														
Feb 6-12														
Feb 13-19														
Feb 20-26														
Feb 27 - Mar 5														
Mar 6-12														
Mar 13-19														
Mar 20-26														
Mar 27 - Apr 2														
Totals														

2022 Season for Maple Syrup or Related Sap Production

Production and Sales Worksheet: December 2021 through March 2022

Please record information for later use in completing the online survey.

Month and Week	Production Amounts				Sales								
	Total collected sap (in gallons)	Average sugar content of sap before processing if known (in BRIX)	Maple syrup (in gallons)	Maple candy (in pounds)	Maple sugar (in pounds)	Other Products	Maple syrup	Maple candy	Maple sugar	Other maple flavored food or drink	Total Customers	Other processing services (sap processing, bottling, packaging, etc.)	Maple production agritourism services (tour or tasting tickets, venue rentals, etc.)
Dec 2021													
Jan 2-8, 2022													
Jan 9-15													
Jan 16-22													
Jan 23-29													
Jan 30 - Feb 5													
Feb 6-12													
Feb 13-19													
Feb 20-26													
Feb 27 - Mar 5													
Mar 6-12													
Mar 13-19													
Mar 20-26													
Mar 27 - Apr 2													
Totals													

2022 Season for Maple Syrup or Related Sap Production
Costs Worksheet: April 2022 through June 2022

Record information for later use in completing the online survey. If an item is purchased for more than one season's use, please note like this example: "\$120 / 2 seasons use". When entering cost data for the online survey just enter cost of supplies for 2022 season - for example, \$120 / 2 seasons use = \$60 for one season.

Month and Week	Variable Processing Costs										Labor Hours			
	Plastic buckets or bags for sap collection	Plastic tubing and assoc. fixtures (taps), couplings, tools, etc.	Filters	Packaging containers and labels	Cleaning supplies	Storage container or space rental costs	Shipping costs	Advertising costs	Other costs (repairs, maintenance, etc.)	Fuel (wood, gas, etc.)	Electricity (enter one monthly cost)	Business Owners (Self and any others)	Unpaid labor (family or non-family)	Paid labor (family or non-family)
Apr 3-9														
Apr 10-16														
Apr 17-23														
Apr 24-30														
May 1-7														
May 8-14														
May 15-21														
May 22-28														
May 29 - Jun 4														
Jun 5-11														
Jun 12-18														
Jun 19-25														
Totals														

Add More Weeks if Needed

2022 Season for Maple Syrup or Related Sap Production

Production and Sales Worksheet: April 2022 through June 2022

Please record information for later use in completing the online survey.

Month and Week	Production Amounts						Sales						
	Total collected sap (in gallons)	Average sugar content of sap before processing if known (in BRIX)	Maple syrup (in gallons)	Maple candy (in pounds)	Maple sugar (in pounds)	Other Products	Maple syrup	Maple candy	Maple sugar	Other maple flavored food or drink	Total Customers	Other processing services (sap processing, bottling, packaging, etc.)	Maple production agritourism services (tour or tasting tickets, venue rentals, etc.)
Apr 3-9													
Apr 10-16													
Apr 17-23													
Apr 24-30													
May 1-7													
May 8-14													
May 15-21													
May 22-28													
May 29 - Jun 4													
Jun 5-11													
Jun 12-18													
Jun 19-25													
Totals													

Add More Weeks if Needed

APPENDIX B: Interview Questions

1. How did the respondents get interested in producing maple syrup?
2. How knowledgeable were the respondents when beginning maple syrup production?
3. How many trees are the respondents tapping? How much syrup is produced?
4. Are the respondents selling maple syrup?
5. What is the respondent's income from maple syrup sales?
6. Where is the maple syrup sold?
7. How is maple syrup advertised or marketed?
8. Is syrup sold at farmers' markets?
9. Is maple syrup offered exclusively, or part of a range of products?
10. How is your price point determined?
11. How is the product labeled?
12. What are the largest drivers of production costs?
13. What regulatory or licensing challenges exist for the respondent?
14. Open-ended discussion or comments