USDA Agricultural Marketing Service
U.S. DEPARTMENT OF AGRICULTURE

Transportation and Marketing
Acer Access and Development Program

Fiscal Year 2025 Description of Funded Projects

Number of Grants Awarded: 17
Amount of Funds Awarded: $4,600,478.68

For more information, please visit the grant program's website: https://www.ams.usda.gov/acer.
NOTE: The project descriptions below were provided by the grant recipients.

ILLINOIS

Recipient: Northwestern University
Project Type: Producer and Landowner Education
Supplemental Award Amount: $273,071.00

Sap to Survivors: Identifying Microbiological Hazards and Optimal Shelf Life of Potable Maple Water for Cancer Survivor Consumers

This producer/landowner education-focused project will leverage multiple, long-standing university/community-based partnerships to 1) increase understanding of microbiological hazards for safe consumption of potable maple water and with this supplemental funding, 2) increase understanding and advance producer knowledge of hydration outcomes after cancer survivors consume maple water following moderate intensity physical activity. Originally funded year 1 and 2 activities focus on collecting maple water, testing different pasteurization and maple water storage approaches and techniques, and conducting microbiological hazard analyses to determine the optimal shelf-stable consumption period using different storage containers (e.g., bags, cans). In years 3 and 4, supplemental funding activities will focus on evaluating the rehydration potential of maple water following moderate physical activity. This initiative intends to considerably advance the understanding and knowledge of microbiological hazards present in maple water for safe consumption, and maple water's hydration potential following exercise.

MICHIGAN

Recipient: Michigan State University
Project Type: Producer and Landowner Education
Supplemental Award Amount: $273,119.66

Pure Maple Yeast for Pure Maple Distillates

This project increases the variety of commercial, maple-based distillation products by optimizing the microbiology of maple sap fermentation by wild yeast strains ("pure maple yeast"). Michigan State University (MSU) seeks to add significant commercial value to the maple syrup industry by increasing the profitability of low-quality, "end-of-the-season" sap that typically yields low or no profit, and

supplemental funding will enable additional research aimed to improve overall development and viability of these yeasts. This project is based on the premise that yeasts that are indigenous to maple trees, and are present in sap tubing systems, naturally ferment sugars in concentrated sap and will outperform traditionally used yeast strains in the beer, wine, and spirit industries. MSU aims to identify prototypical yeast strains from sap lines of different ages during first sugaring season, purify them, and then evaluate them for their influence on experimental distillation products made from maple sap, in comparison to commercially available yeast strains (e.g., distillers and rum yeast). MSU will generate small, research-sized batches for parallel fermentation trials, age them in charred white oak barrels, and evaluate the full flavor profiles of the unique spirits that are "Pure Maple." MSU will disseminate results using print and electronic media to inform and stimulate future research centered on maple sap and support putting into practice the refinement of maple sap into high-value craft spirits. Supplemental funds will support expanded screening of selected maple yeast strains and aid advancements in understanding maple yeast strains genomes— and enable brewers, vintners, and distillers to rapidly integrate a niche line of maple products and increase demand for maple products across the U.S. The funding will support further research into the feasibility, product quality, and overall product development of these new novel yeasts vs. "old" lines of domesticated commercial yeast that can be shared with industry partners.

Recipient: Grand Traverse Band of Ottawa and Chippewa Indians
Project Type: Producer and Landowner Education
Supplemental Award Amount: $253,272.00

Grand Traverse Band Sugar Bush Grant

This project enables Grand Traverse Band (GTB) and the surrounding community of maple product producers and consumers to learn more about maple product production, and how various modern processing methods can help producers and consumers access a wide range of products. The GTB of Ottawa and Chippewa Indians will conduct a minimum of 10 events per year related to sugar bush activities. These events, open to the public, will bring in outside vendors to teach people about the modern maple syrup industry in Michigan, and highlight industry leaders in sustainability, cultural engagement, and education. Additional tools and supplies for the GTB Sugar Bush will enable the Traditional Agriculture Workshop Instructors to host annual events that bring awareness to the maple syrup industry and how this modern industry is based on traditional Anishinaabe (also referred to as Ojibwe, Chippewa) tradition. Supplemental funds will enable GTB and the surrounding community of maple product producers and consumers to further explore maple product production and how various modern processing methods can help producers and consumers access a wide range of products through annual events and community engagement.

MONTANA

Recipient: Montana State University
Project Type: Producer and Landowner Education
Supplemental Award Amount: $266,289.00

The Impact of Tree Health on Sap Production and Quality

This project is improving producer knowledge, awareness, and understanding of sugarbush management using innovative technologies; such understanding is critical since sap volume and sugar content vary with tree selection and with decisions on how long a tree can be tapped. A team comprised

of engineers, microbiologists, and foresters are developing tools to inform landowners about current tree health and their decision-making through: 1) optical inspection of sap infrastructure for biofilm formation, paired with microbiome analysis to guide decisions on equipment replacement or tree selection; 2) evaluation of tree canopies using airborne hyperspectral imaging, with summer crown volume and spectral data correlated to sap sugar content and volume; 3) continuous measurement of electrochemical xylem properties in tapped trees using sensor-functionalized taps (which monitor sap electrical conductivity and flow rates to assess tap efficiency and replacement needs). Supplemental funds will 4) assist in the evaluation of sap infrastructure in sugarhouses using advanced sensor technologies to study biofilm dynamics, and using collected data correlated to syrup brix as a quality control measure. The team will host outreach meetings to equip landowners and producers with innovative sugarbush and sugarhouse management approaches to increase sap quality and harvesting efficiency.

Recipient: Montana State University
Project Type: Market Development and Promotion
Supplemental Award Amount: $272,900.00

Early Prediction of Maple Syrup Quality Using Carbon Dynamics Spectroscopy

This project is developing protocols for mapping maple sap quantity and quality from leaf spectra collected during the growing season. This project team, consisting of experts in plant physiology, forestry, spectroscopy, remote sensing, microbiology, and engineering, aims to predict sap production potential by following the carbon dynamics of 50 maple trees. The chemical composition of leaves and phloem sap collected throughout the growing season will be combined with leaf and rhizosphere microbial and environmental data, including soil properties, temperature, and precipitation, to determine the factors contributing most to sap quantity and quality in the spring. In addition, leaf spectroscopy will be used to predict leaf chemistry and leaf and rhizosphere microbial composition from spectra, allowing frequent and non-destructive sampling of the same trees. Supplemental funding will be used to demonstrate the link between growing season carbon dynamics of sugar maples, soil properties, and rhizospheric and leaf microbiome composition to tree health and sap quantity/quality. Further, this project will train machine learning methods for predicting sap quantity and quality from foliar spectra directly. Once calibrated, the predictive models will be applied to spectral images collected by an unpiloted aerial system to map production potential across the entire sugar bush. Supplemental funds will also support additional producer workshops and field trainings with landowners and producers and co-create avenues for implementing the results from this study, which could benefit sustainable harvesting practices across Eastern North America.

NEW JERSEY

Recipient: Stockton University
Project Type: Market Development and Promotion
Supplemental Award Amount: $272,794.55

Made in Vermont, Sold in New Jersey: Marketing Vermont Maple Syrup to the New Jersey Consumer

This project will increase NJ demand for maple products by improving consumer knowledge and understanding of the maple industry. NJ ranks third in the nation for per-farm income from agritourism and the ability of agritourism to drive consumption of local, naturally derived foods is well documented.

This project educates NJ consumers about the maple industry and cross-marketing Vermont maple products during tours of NJ land devoted to maple-sugaring and farming. The project exploits growing NJ consumer demand for locally produced foods by developing and marketing maple syrup and value-added maple products blending Stockton University and Vermont maple syrups, promoting NJ retail sales of Vermont maple-sap products, developing marketing materials to promote direct-to-consumer sales of Vermont maple syrup, launching an annual Maple Syrup Festival in the spirit of other popular agricultural festivals in the State, and addressing consumer concerns through research on the ecological impact of sap harvesting on tree health. Supplemental funds will be used to expand from seasonal farm stands to "brick-and-mortar" retailers, deploying a mobile Stockton Maple Museum at schools, festivals, and agritourism sites, introducing new value-added food and personal care products, implementing a point-of-sale system to strengthen retail tracking, and expanding Stockton's grove using a sector model to increase production capacity.

NEW YORK

Recipient: Paul Smith's College of Arts and Sciences
Project Type: Producer and Landowner Education
Supplemental Award Amount: $273,177.00

Determining the Impact of Crown Health on Sugar Yield from Maple Trees

This project develops a comprehensive photo guide illustrating a four-point rating system that producers can use to assess crown health and make better informed management decisions. The project team designates 120 trees to intensively measure and monitor, evenly distributed across the four crown health categories and two research sites. They measure a set of biometric attributes for each subject tree and its neighbors and collect sap from each tree in individual cannisters under high vacuum and quantify the total sugar yield over a three-year period. Supplemental funding will be used to extend monitoring through two additional sugaring seasons, proving a more robust empirical basis for the scientific conclusions developed and management recommendations offered. Additionally, the team will conduct sugarbush-wide sap production and sugar content monitoring, allowing for calibration of more generalized models of stand-yield relationships and for the quantification and correction of the "canister effect" observed in other sap collection studies. This data allows correlation of crown health to syrup yield and application of more advanced methods to develop an empirical multi-factor yield model. This project provides maple syrup producers with a new tool to help steer tapping and sugarbush management decisions, leading to increased production and profitability across the industry.

Recipient: Paul Smith's College of Arts and Sciences
Project Type: Producer and Landowner Education
Supplemental Award Amount: $273,088.00

Developing and Disseminating a Handbook of Sugarbush Silviculture

This project brings together an exceptional team of leading young silviculturists and maple researchers, supported by an Advisory Board of experienced academic and industry experts. The project strengthens the scientific underpinnings of sugarbush management in the United States and drive the continued professionalization of the maple industry. Specifically, the project will: (1) Synthesize existing scientific literature on sugarbush silviculture and consolidate informal producer and manager knowledge; (2) Design and execute original model-based analytical research to address identified knowledge gaps; (3) Produce an accessible, authoritative Handbook of Sugarbush Silviculture; and (4) plan and deliver an

extensive outreach and training campaign for maple producers, sugarbush managers, and professional foresters so that the benefits of this project are equitably and impactfully distributed across the maple industry. The supplemental funds will be used to conduct a targeted analysis of the economics of sugarbush silviculture. This project will present a well-rounded framework for analyzing the ecological, economic, and operational dimensions of silvicultural decisions. By strengthening the connections between maple producers and professional foresters and repositioning silviculture as an essential component of modern sugarbush management, this project will deliver substantial and lasting value to maple producers of all sizes and across the entire geography of the industry.

OREGON

Recipient: Oregon State University
Project Type: Producer and Landowner Education
Supplemental Award Amount: $272,771.00

Increasing Regional Maple Syrup Production in Oregon through Landowner, Partnership, Equipment Training, Improved Program Capacity, and Expanded Geographic Reach

This Oregon State University (OSU) project supports producer participation and expansion of commercial production of maple syrup and other sap-based products in Oregon and the broader Pacific Northwest. This is in the context of commercial maple sugaring rapidly gaining traction as an industry in the region, the sector is in a pivotal period, and the demand for locally sourced maple syrup is outpacing the current supply from existing production. The OSU Maple Sugaring Program helps new producers get established and needs to improve program capacity to assist existing and future producers with making informed decisions on how to scale up production to more advanced procurement and processing systems. Demand is growing for OSU's assistance from areas where the program has yet to establish a presence, but where stakeholders in the state seek support through in-person workshops and equipment demonstrations. Furthermore, OSU aims to extend its outreach to farming and forest communities in both established and emerging maple sugaring regions. In collaboration with the newly established Oregon Maple Syrup Products Association, OSU also endeavors to empower producers to take a leading role in shaping their industry's trajectory. By actively engaging with partner organizations, OSU can help producers access resources and networks essential for their success. The supplemental funds will expand maple sugaring outreach by engaging farmers, schools, and community groups, strengthening partnership with Extension and local organizations, and supporting start-up operations.

RHODE ISLAND

Recipient: University of Rhode Island
Project Type: Producer and Landowner Education
Supplemental Award Amount: $272,303.00

Expanding Existing Maple Value-Added Products (MVPs) Development from Industry By-Products to include High-value, Natural Maple Flavor Fractions

In this project, expert University of Rhode Island (URI) researchers will identify and collect a variety of by-product samples from maple syrup producers in the northeast region, generate research-sized batches to conduct chemical compositional and biological studies, and validate and conduct feasibility studies to generate maple value-added products (MVPs) for commercial nutraceutical and cosmeceutical applications. This work helps the U.S. maple syrup industry to increase profitability and

economic return, broaden the maple product portfolio, and stimulate growth by upcycling and valorization of maple by-products that are not palatable or suitable for table consumption—and offer new market opportunities created by innovative applications of MVP. The dissemination of results includes using a variety of platforms including the URI maple website, print and social media, and peer-reviewed publications, to stimulate future research on MVPs centered on the valorization of maple by-products. Building on the current research, the supplemental project will expand the development of value-added maple products from low-grade syrup byproducts. Supplemental funds will enable URI to provide proof-of-concept for MFF as a foundation for developing authentic maple flavoring products, rather than a ready-to-market ingredient. By deriving both phenolic-rich extracts (MSX) and maple flavor fraction (MFF) from the same maple raw materials, this project maximizes byproduct utilization, expands future market opportunities, and strengthens the long-term resilience and profitability of the U.S. maple sector.

UTAH

Recipient: Utah State University
Project Type: Producer and Landowner Education
Supplemental Award Amount: $273,178.32

Sustaining Maple Syrup Industry through Expanding Research and Extension

This project aims to both spark and sustain the maple sugaring industry through expanding research and extension in the Northeast, Midwest, and Intermountain West regions. Four objectives aim to accomplish the project, with the third and fourth added as part of the supplemental funds: 1) Mapping maple tree distribution and estimating potential production in these regions through remote sensing technologies; 2) Predicting the impacts of changing or varied annual temperatures on maple syrup production in these regions using high-resolution model outputs and knowledge of how temperature and precipitation affect maple sap and syrup production; 3) Mapping, predicting, and projecting droughts and understanding their effects on spatial distribution of maple trees and maple sap yield using remote sensing and model outputs; and 4) Developing a maple syrup industry in South Dakota, especially in tribal communities, and sustaining the emerging maple syrup industry in Utah through extension and education activities.

Recipient: Utah State University
Project Type: Producer and Landowner Education
Supplemental Award Amount: $273,176.48

Sustaining Maple Syrup Industry through Expanding Research and Extension (Phase II)

This project focuses on several areas: collaborating with food scientists to determine the chemical composition of maple syrup products, conducting consumer sensory evaluations of products created from various maple species, unravelling the key drivers of liking for maple syrups, expanding maple sugaring activities through a multi-faceted approach to educate existing maple syrup producers and landowners who wish to utilize their woodlots for production, and increasing public awareness of maple syrup products and their nutritional facts and healthy benefits. The Utah team will disseminate findings to maple producers and the public through a wide range of outreach materials and publications, and findings will be used to build predictive models and develop strategies to improve market competitiveness. This project supports marketing and commercialization of maple syrup products developed from novel maple species, as well as sustaining the maple syrup industry under erratic

weather patterns. The supplemental funds will help expand chemical and consumer testing of maple syrup to identify key drivers of consumer preference.

VERMONT

Recipient: Smokey House Center
Project Type: Producer and Landowner Education
Supplemental Award Amount: $272,985.00

Smokey House Center Adaptive Maple Research and Education Program

This project develops research and education for maple producers through the creation of an adaptive maple research and education program. The project investigates forest management strategies, sap extraction techniques, and long-term production impacts to support an increasing need for syrup producers to actively manage their sugarbushes to withstand the impacts of drought and pest outbreaks. The supplemental funds will help establish new sugarbush research sites at tap including approximately 6,000 tap installation. Data on tree growth, stand health, starch levels, and sap production will be collected to assess long-term impacts on productivity and resilience. Project activities and results include: 1) Specific recommendations for forest management methods and sap extraction practices that allow for more productive and resilient sugarbush management; 2) Field-based workshops and learning opportunities and an online education campaign that promotes the adoption of adaptive management strategies amongst regional producers; and 3) Support for an annual field internship for interested youth that trains the next generation of maple professionals in these innovative adaptive strategies.

Recipient: University of Vermont and State Agricultural College
Project Type: Market Development and Promotion
Supplemental Award Amount: $266,549.00

Increasing Domestic and Foreign Demand for U.S. Maple Syrup Through Integrated Consumer and Market Research, Product Development, and Producer Outreach and Engagement

This project proposes to increase domestic and foreign demand for U.S. maple syrup through integrated consumer and market research, new product development, and producer outreach and engagement. This project has seven specific objectives, with 6 and 7 being added as part of the supplemental funds. The project aims to help overcome challenges of declining producer price, lack of value-added products, increasing competition from imports, limited channels for direct sales to consumers, and lack of demand-side studies and information. Objectives are as follows: (1) Review the consumption trends of traditional and relatively new maple products and identify potential value-added products for development and testing, (2) Develop novel maple syrup products, evaluate and validate their nutritional and sensory properties, and asses their market potential, (3) Assess consumer acceptance and willingness to pay for selected maple products and their attributes in production and non-production regions, (4) Analyze consumer preferences for maple syrup in Japan and China, and develop educational and marketing materials for promoting U.S. maple syrup in these foreign markets; (5) Assess domestic and foreign market potentials for traditional and value-added maple products and disseminate market analysis results and recommendations; (6) Test and compare the chemical and nutritional properties of maple sap and syrup from different production regions and examine potential applications in new product development, and (7) Assess the potentials and obstacles for increasing direct sales from producers to colleges and other institutions. The supplemental funds will extend an outreach into years

4 and 5 by sharing additional technical and extension reports, presenting findings at producer meetings, and updating the project website.

Recipient: University of Vermont and State Agricultural College
Project Type: Producer and Landowner Education
Supplemental Award Amount: $265,448.00

Managing Market Information and Market Uncertainty to Enhance Maple Syrup Business Viability

This project integrates applied market investigation, case studies, national education curricula, and technical assistance to support maple business owner decision-making and improve business outcomes. The project includes six objectives for Years 1 to 3: 1) Examine U.S. consumers preferences and willingness to pay for maple syrup with unique attributes, 2) Examine market trends, collect information and collect a multi-media resources to support educational curricula, 3) Develop and deliver a national maple market Extension education program, 4) Organize information related to market risks and develop a market-monitor webpage, 5) Complete a national maple producer survey to explore the concept of a collective U.S. generic promotion program, and 6) Develop risk management case studies. Supplemental funds for Years 4-5 support the new Objective 7: Use results from consumer demand surveys to develop a pilot technical assistance program to analyze if producers can meet sustainability and forest management criteria to verify marketing claims. Additionally, funds will be used to increase national outreach in Years 4-5, add one additional consumer demand survey, and add one additional national producer survey to strengthen the research. The national dissemination plan will reach maple producers, landowners and industry stakeholders and will assist business managers in short-term marketing decisions. Project resources and in-depth courses will facilitate mid-term and long -term strategic planning for business models that can adapt to risk, realize opportunities and expand markets for maple syrup.

WEST VIRGINIA

Recipient: Future Generations University Corporation
Project Type: Market Development and Promotion
Supplemental Award Amount: $273,178.54

Sweet Appalachia: Building Creative Partnerships to Promote Success in US Maple Syrup

This project promotes regional markets that increase access and raise awareness about maple sap and syrup products across West Virginia, eastern Kentucky, Appalachian Virginia, and western Maryland—directly benefiting the maple industry by increasing the demand for and access to local and regional maple syrup production in Appalachia. It promotes the U.S. maple syrup industry by showcasing the role of sugar-making in Appalachian culture, ecology, and history, and improve consumer demand for Appalachian, as well as U.S.-made, maple sap and syrup products. Sweet Appalachia has two main objectives: 1) Raise public awareness of domestic maple syrup through increased marketing, promotion, storytelling, and enhancing agritourism efforts, and 2) Create new market access opportunities for Appalachian maple syrup producers through direct-to-consumer marketing as well as brokering bulk and wholesale syrup sales across the region. Supplemental funds will expand activities into Eastern Tennessee and increase project impact by working with additional producers and communities to build the network of support required for sustainable economic development.

Recipient: Future Generations University Corporation
Project Type: Producer and Landowner Education
Supplemental Award Amount: $273,178.33

Sweet Economic Futures: Inspiring and Supporting the Next Generation of Maple Syrup Producers and Service Providers

This project utilizes existing resources to design, test, and implement an integrated maple sap and syrup training program for PreK–12 students and educators. The project team creates the resources needed to support the growth of the next generation of syrup producers and forestry service professionals. The team implements and tests initial activities across West Virginia, Maryland, Kentucky, and Virginia—adding Tennessee with the additional funds. The project team creates a standardized maple curriculum for PreK–12 students and work with educators across Appalachia to test and refine the curriculum; and in parallel, create a syrup-in-school resource guidebook for existing maple producers and landowners to engage their local schools and communities. The team will disseminate finalized curricula and educational resources across syrup-producing states. Sweet Economic Futures will build upon these existing efforts and resources by utilizing best practices while also adding increased academic rigor and technical assistance to educators and maple producers. This project brings together State Departments of Agriculture, Education, and Forestry into direct collaboration with local schools and non-profit organizations to advance the next generation of syrup producers across the United States. Additionally, the supplemental funds will provide this project with a comprehensive assortment of educational opportunities and resources for existing maple producers in Appalachia and the entire United States to learn current best practices in maple sap collection and syrup production.