United States Department of Agriculture

Transportation and Marketing

Acer Access and Development Program

Fiscal Year 2021 Description of Funded Projects

Number of Grants Awarded: 11
Amount of Funds Awarded: $5,428,208.66

For more information, please visit the grant program's website: https://www.ams.usda.gov/acer

NOTE: The below project descriptions were provided by the grant recipients.

Indiana

Recipient: Purdue University, Indiana, IN
Project Type: Producer and Landowner Education
Award Amount: $499,957.00

Increasing Consumption and Production of Maple Syrup through an Integrated Marketing Strategy

In the early 1900's, Indiana was the top maple syrup producing state in the country. However, in 2020 its production accounted for only 0.6% of USA production, about 24,000 gallons. This is up 20% from 2019, partly due to new producers and increased production (Indiana Department of Natural Resources, 2020). Because of increased supply, focus must shift to the marketing and promotion of maple syrup and value-added products. To match the increased demand, improved production practices among beginning maple syrup producers will be warranted. An in-depth survey of both supply and demand of the industry is needed to develop an integrated marketing strategy, which can be used to increase consumer awareness and consumption in the Midwest. Information from the study will also guide outreach efforts to increase production and support networking activities of maple syrup producers and consumers to build a more robust industry in the state. Partnering with state and local entities, we will increase consumption and production of maple syrup through an integrated marketing strategy that focuses on potential improvements in production practices and targeted promotion of products. The outcome of this project will be to increase the production and consumption of maple syrup in Indiana and used as a model for other Midwestern states that are also interested. We will fulfill this goal through four objectives, 1) Understand Indiana maple syrup supply and demand, 2) Implement an integrated marketing strategy for maple syrup and its products, 3) Increase maple syrup production capacity, and 4) Improve networking throughout the maple syrup community.

Michigan

Recipient: Michigan State University, East Lansing, MI
Project Type: Producer and Landowner Education

Award Amount: $495,692.66

Creating, evaluating, and disseminating new and innovative distilled maple products to extend the spring maple season by 25-35%.

This project will utilize a partnership between a major land grant institution's research and demonstration center at Michigan State University's Forest Innovation Center with a focus on enhancing maple syrup production and value-added products and a local craft distillery to evaluate the potential use of late season and post season maple sap in the creation of 100% pure maple distillate products. This work will directly support the proposed outreach efforts to inform and educate all maple producers from North American Maple Syrup Council (NAMSC) states, as well as the broader public. Throughout the entire 3-year project cycle, the group aims to refine the handling and initial sap refinement as well as the distillate production processes for various maple products and disseminate working solutions to better utilize off flavored syrup, and post bud break sap. The goal is to extend the traditional maple season by 25-35% and add value to low valued end of season syrup and sap with no value such as buddy/ fermented/ metabolite etc. We will offer information and standard operating procedures to all producers using a combination of traditional written products as well as online modules and educational video series.

Missouri

Recipient: University of Missouri, Columbia MO,
Project Type: Producer and Landowner Education
Award Amount: $473,481.00

Putting Maple on the MAP in the Lower Midwest

Our engaged outreach work strongly suggests that lower Midwest farmers and forest-landowners are primed for a growing regional maple products industry. This project's economic and production analysis and education programs lay the foundation for this industry's regional expansion, taking advantage of the abundance of tappable Acer trees in large river corridors, where maple is currently undervalued and unmanaged. To establish and expand a regional maple syrup industry, this project responds to current needs and circumstances with a multifaceted approach, targeting maple-rich areas and connecting farmers, forest-landowners, and natural resources professionals to create an informed maple network. This project will 1) develop an understanding of the economics and production potential for maple syrup in the lower Midwest, and 2) grow awareness and presence of maple syrup production in the region with strengthened information exchange networks through a comprehensive Maple Awareness Program (MAP). An analysis of the region's maple resources and sugar making potential will involve biophysical and economic components, using information and assumptions from current producers and research sites. Educational materials distilled from this analysis and expanded from existing resources, including a Lower Midwest Maple Decision Support Tool, technical guides for sustainable maple resource management and syrup production specifically for this region, will contribute to producer, landowner, and technical service provider awareness through dissemination and training. Growth in syrup production and committed interest from informal syrup producer networks indicate the potential for these efforts to substantially advance the region's syrup industry while simultaneously providing incentive to sustainably manage maple-rich forest land.

Montana

Recipient: Montana State University, Bozeman, MT
Project Type: Producer and Landowner Education
Award Amount: $499,010.00

The impact of the maple sap microbiome on syrup quality

This project was developed in response to the Acer Access and Development Program as a "Producer and Landowner Education" project type. A highly collaborative team comprised of microbiologists, engineers, academic foresters, and outreach experts was assembled with the overarching goal of improving producer knowledge, awareness, and understanding of cutting-edge research on the role of microorganisms in the maple syrup production process. Our team's particular expertise on microbial biofilms and state-of the-art technologies, like metagenomics, metabolomics, and microelectrochemical sensors, in related industrial food production processes will be useful for stakeholders to understand how microorganisms become established and persist in maple sap tubing. Project activities were developed to help industry partners determine which production and disinfection practices minimize microbial impacts on syrup quality, which should ultimately improve returns in the high-end confectionary marketplace. Project objectives are to: i) quantify microbial load and diversity throughout different types of production processes; ii) assess the impact of particular microorganisms on sap sugar inversion; iii) determine which disinfection practices provide the best sterilization of re-used sap lines; iv) investigate the potential for microbial sensor technology to translate past, current, and future laboratory research into in situ measurement networks; and v) interact with and educate producers on all microbial aspects of maple syrup production, including developing online educational content based on frequently asked questions (FAQs) and in-person meetings; and. Outreach efforts will help develop comprehensive educational resources on maple syrup-relevant microorganisms that can be sustainably maintained as the research field moves forward.

New Jersey

Recipient: Stockton University, Galloway, NJ
Project Type: Producer and Landowner Education
Award Amount: $498,119.00

Developing a Sustainable Maple Syrup Industry in New Jersey through Community Collaboration, Education, and Research

Our research seeks to develop a sustainable sugaring industry in southern New Jersey through a community-oriented strategy. The region currently lacks any sugaring infrastructure but has many engaged hobbyists and a wealth of red maple resources. To accelerate infrastructure development, we propose to develop a network of self-sustaining boiling hubs for processing sap. In exchange for grant sponsored equipment investment (i.e., evaporators, reverse-osmosis, vacuums) and professional consulting, hub owners will be contractually obligated to 1) ensure that sap from hub-owned property accounts for a maximum of 50% of total processed sap with the other 50% coming from community tappers, 2) develop a financially sustainable economic model, and 3) host open-house events and workshops to attract and educate more participants. Alongside hub development, we will initiate a

research program that explores localized strategies for sugarbush management in red maple stands, including soil amendments and seedling transplantation. To aid in hub development, we also propose a multi-faceted approach to producer education that is oriented around the family and the community. We will develop educational modules targeting existing tappers interested in revenue generation, communities of consumers and hobbyists, as well as K-12 classrooms and families. All activities will be conducted with the overarching goal of creating a sustainable, regional sugaring industry.

Utah

Recipient: Utah State University, Logan, UT
Project Type: Producer and Landowner Education
Award Amount: $500,000.00

Developing a Maple Syrup Industry for the Interior West Through Extension and Research

Maple syrup is an important agricultural commodity in the United States with a total value of $130 million in 2019. Maple syrup production periods and annual yields vary widely between years and regions and depend heavily on climatic conditions. Expanding syrup production outside the northeastern U.S. to western states where maples grow will help supply the ever-increasing demand for maple syrup while providing additional income for landowners who wish to utilize their maple resource. Increasingly, consumers are demanding locally produced agricultural products and are willing to pay premium prices for locally produced maple syrup, especially where it is a novel and unique product. Bigtooth maple (Acer grandidentatum) and boxelder (Acer negundo) are native to the Intermountain West, and Norway maple (Acer platanoides) and other non-native maple species are common in the urban and suburban areas of the region. Although there is great potential to tap these maple species for syrup production, very little Extension or research has been conducted to help advance this incipient industry. The objectives of this proposal are to: 1) educate landowners and homeowners about maple sap collection and production processes through targeted Extension programs; and 2) determine sap yields using traditional buckets/bags, natural gravity-based 3/16" tubing systems, and high vacuum tubing systems for tapping bigtooth maple, boxelder, and Norway maples in the Intermountain West. The overall goal is to spark the development of a robust maple syrup industry in the Intermountain West.

Vermont

Recipient: University of Vermont and State Agricultural College, Burlington, VT
Project Type: Producer and Landowner Education
Award Amount: $499,993.00

Environmental and Economic Benefits from Sap Business Promotion

The production of maple syrup includes two distinct processes, harvesting sap and concentrating it into syrup. Typically, these processes are combined in one business. Business model innovation and industry development have piqued interest in starting up businesses that primarily produce and sell sap. Quality syrup begins with high quality sap. This process begins in the woods, making forest management an integral element of sap production. Awareness of the environmental benefits of forests managed for

carbon sequestration has also increased. Growing interest in combating climate change with forest management, provides an opportunistic nexus to exploit the synergistic potential of managing forests as carbon sinks and as sap producing “working forests”. This approach strengthens a positive reinforcing loop supporting economic development and environmental improvement in rural forest communities. Some producers prefer to structure their businesses to gather and sell sap to maple syrup producers, based on certain skills, lower investment requirements, efficiencies of specialization, focus on business-to-business relationships, preference for forests, amongst many factors. New and existing producers seek guidance on the economic benefits and liabilities associated with a “saponly” business model. This project will collate, compile, and develop resources on the economic and environmental benefits of operating sap-only enterprises. We will produce planning tools and resources needed to help businesses manage for carbon and for profitability. We will engage in outreach activities, presentations, webinars, classes, online formats, to share resources and educate landowners and prospective sap.

Recipient: Vermont Agency of Agriculture Food and Markets, Montpelier, VT
Project Type: Marketing and Development
Award Amount: $493,723.00

Expanding Consumer Engagement with Vermont and U.S. Maple

the Vermont Agency of Agriculture, Food, and Markets’ (VAAFM) 2021 acer application, expanding consumer engagement with Vermont and U.S. maple, takes an integrated approach to increasing sales and consumption of maple products. As the largest producer of maple in the U.S., Vermont has a deep understanding of the need to develop the domestic consumer base for U.S. produced maple, developing more secure markets and leading to stronger businesses. VAAFM’s application is focused on consumer connection through agritourism, innovative consumer engagement strategies, and an increased digital media presence. The three objectives work to think so enhance each other, creating positive feedback cycles that will serve to continue to increase maple awareness and consumption beyond the grant period. By collaborating with multiple partners, VAAFM is able to provide producers with educational opportunities, develop marketing collateral that will benefit all maple producers, and target markets that are prime for enhanced connection through agritourism and marketing efforts. Consumers will also benefit from informative marketing strategies that will highlight multiple aspects of maple production, including forest stewardship, leading edge production practices, use of renewable energy, food safety, and benefits to small businesses and rural communities.

Washington

Recipient: University of Washington, Seattle, WA
Project Type: Producer and Landowner Education
Award Amount: $497,846.00

Helping Small Forest Owners and Local Communities Begin Bigleaf Maple Syrup Production in the Pacific Northwest

The University of Washington is conducting research to facilitate the development of a commercial syrup industry from bigleaf maple in the Pacific Northwest (PNW). Results have been promising. Maple

syrup has been produced at test sites, and sap flow data collected will help landowners make informed investment decisions. Over 19,000 potential tapping sites (>250 taps within 4 acres) have been identified and mapped in western Washington. Interest has been phenomenal. The research team has received numerous inquiries from landowners, and the research has been featured on National Public Radio, Q13 Fox evening news, Seattle Times, Kitsap Sun, and UW Today. Obstacles have been encountered. Bigleaf sap can flow from late November through February. Freezing nights can be intermittent, followed by rapidly warming days, with temperatures into the 40s. Irregular sap flow reduces the efficiency of capital employed, leaving expensive equipment idle for weeks between sap events. Sap can quickly develop bacteria, altering the taste. Insulated storage, sanitation, and timely processing become paramount. Our mapping shows tremendous potential, primarily on small landowner forests, and an amazing level of interest has been generated – which is fantastic but needs resources to respond, educate, and help people explore the syrup-making possibilities on their land. More outreach, with improved storage capability and mobile processing resources are needed to spur further production. This proposal is a joint effort between three research universities in Washington and Oregon (University of Washington, Washington State University, and Oregon State University) to facilitate community sugaring and develop improved techniques adapted to PNW weather conditions.

Wisconsin

Recipient: Board of Regents of the University of Wisconsin System, Madison, WI
Project Type: Producer and Landowner Education
Award Amount: $470,387.00

Growing Wisconsin's Maple Syrup Industry through Tailored Education and Outreach with Landowners and Professionals

Wisconsin has a rich cultural tradition in maple syrup production and has experienced growth in production and value over the past decade. There is significant potential to grow the number of landowners actively engaged in sustainable management of lands for maple-sugaring activities; practices that complement the diverse values they hold for their woodlands. However, there are limited educational programs and few prepared professionals to "move" landowners from knowledge to action. In addition, some audiences in Wisconsin have been overlooked by traditional forestry outreach, such as farmers or our tribal communities. One in five landowners in Wisconsin seek advice from professionals to help guide their land management objectives. Yet, professional foresters in the state and region also often lack the preparedness to incorporate sustainable syrup production guidance, including climate considerations, into their engagement with landowner audiences. This project will advance the knowledge and readiness of Wisconsin's woodland owners to engage in, or expand, sustainable maple-sugaring activities, will build the science-based educational resources available to professionals to better serve landowners, and will engage our tribal communities to better understand their educational resource needs around maple syrup production. Integrating findings from a comprehensive needs assessment, we will design, deliver, and evaluate audience-specific learning opportunities to address knowledge gaps and perceived barriers to production. This work will draw from Extension's strengths in applied behavioral research and communications, landowner and community-engaged programming, and our strong partnerships to reach professionals as well as audiences often underserved by traditional forestry outreach programming.

West Virginia

Recipient: Future Generations University Corporation, Franklin, WV
Project Type: Producer and Landowner Education
Award Amount: $500,000.00

Enriching Maple in Appalachia

Enriching Maple in Appalachia will work across Maryland, Virginia, and West Virginia to promote research, education, and natural resource management to advance profitable maple enterprises. Appalachian producers and landowners will be provided with practical education that improves production and profitability. Business and financial skills will be integrated with technical training and land use management planning. Appalachian maple syrup production will increase as a result. Woodlot management practices and behaviors will improve. Maple enterprises will become more financially viable. As a result, regional maple expertise will be established to ensure sustainability of project impact. This project will create eight regional best practice demonstration sites across Maryland, Virginia, and West Virginia. Workshops will demonstrate high production knowledge and business planning skills. Educational materials and training tools will be created to support producers and landowners. Coaching will be provided to support a regional peer mentorship network of Appalachian producers and landowners. Information and knowledge exchanges will be advanced through educational exposure visits across the region. Enriching Maple in Appalachia will benefit maple producers and landowners across Appalachia.