

Michigan Tree Fruit Commission

2016 Legislative Summary



AgBioResearch
MICHIGAN STATE UNIVERSITY



Extension
MICHIGAN STATE UNIVERSITY

Message from the chairman

The Michigan Tree Fruit Commission (MTFC) has now completed two years of operation, and we're already seeing significant impact from our new program. In 2014, growers of apples, cherries, peaches and plums established the MTFC under the authority of Public Act 232. The commission has three objectives:



JIM NUGENT

1. Address the dire need to improve the infrastructure at our fruit research centers.
2. Assure that researchers are in place and equipped to address the industry's pressing issues.
3. Enhance the capabilities of the Michigan State University (MSU) fruit extension team to keep the Michigan industry on the cutting edge of information and technology.

The MTFC is a partnership among the tree fruit industry, MSU AgBioResearch, MSU Extension and the Michigan Legislature. The commission chose not to hire an executive director. Instead, the administrative functions are shared between organizations that support the fruit industry, including the Michigan Apple Committee, the Cherry Marketing Institute, Michigan Farm Bureau (MFB), the Michigan Agricultural Cooperative Marketing Association and the Michigan State Horticulture Society.

This report highlights some of the MTFC accomplishments to date. Strategic investments have been made to address high-impact needs in each of the focus areas. The industry

greatly appreciates the support of the Michigan Legislature and the governor in partnering with us and matching the growers' monetary contributions. The partnership of the funders and support organizations is helping to position MSU to address some very critical emerging issues facing the fruit industry. This work is essential not only for current growers, packers and processors but also for future generations of fruit growers.

It is worth noting that the MTFC has aggressively solicited donations from the agribusiness community to help support the operations at the MSU fruit research centers. Many agribusinesses responded by donating equipment, pesticides and other supplies, which have greatly reduced the need for direct financial support from the MTFC. Again, this commission believes in partnerships.

MSU is a world-class resource for fruit research and information. The continued efforts of the MTFC will assure that MSU is positioned to meet both current and emerging challenges that will keep the Michigan fruit industry a vibrant part of the Michigan agricultural economy. The MTFC extends a huge "thank you" to every one of our public and private partners.

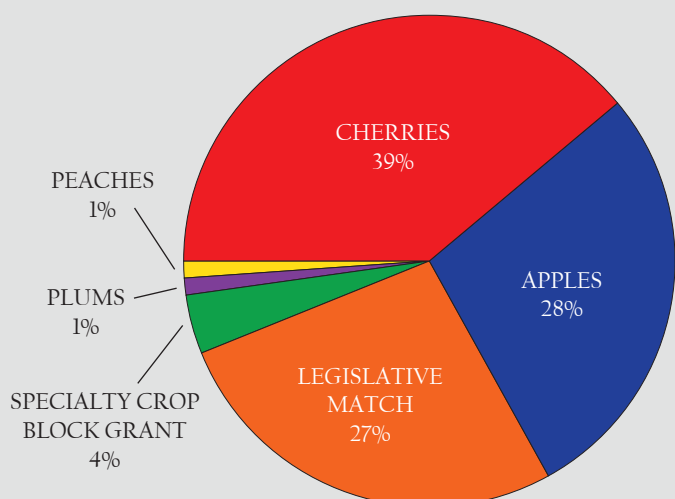
We appreciate the commitment of Michigan growers to this new endeavor. This money is going to advance the industry and help the state's economic growth. Thank you for your help and support.

Jim Nugent

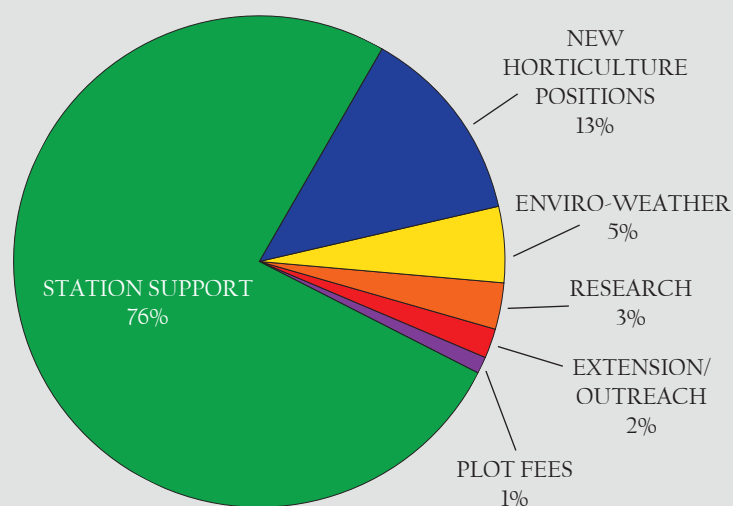
Chairman, Michigan Tree Fruit Commission

Finance and Operations

Michigan Tree Fruit Commission
Funding Since Inception =
\$1,688,100



Michigan Tree Fruit Commission Research
and Station Support Spending =
\$1,521,515



Clarksville Research Center

Investments by the Michigan Tree Fruit Commission (MTFC) have helped the Clarksville Research Center (CRC) purchase new tree fruit equipment – a narrow tractor and two sprayers – and modernize key infrastructure elements, including general use plantings, irrigation systems, storage and cooling equipment, deer fencing and roads. Some of these investments were directly from the MTFC; others represent leveraged funding from Michigan State University (MSU) AgBioResearch (ABR) made possible by MTFC funds. In addition to infrastructure improvements, MTFC investments have resulted in the appointment of a research center coordinator and the hiring of a new assistant farm manager.



The largest impact has been the transformation of the CRC from a center in the process of being shut down to a center with a new future. This means that we can continue supporting critical MSU research in cherry breeding, apple and stone fruit training systems, stone fruit protected culture and solid set canopy delivery systems.

A reinvigorated CRC will provide the next generation of Michigan's fruit growers with exciting new agricultural practices developed from the research conducted at the station, as well as a venue to put the practices into use. For instance, the MTFC investment has allowed the CRC to expand its annual field day from a small event of fewer than 50 attendees to an event with more than 200 attendees. In addition, the CRC is providing an important training ground for the next generation of agricultural researchers and MSU Extension professionals.

Simply put, without the investments made by the MTFC, the CRC would most likely have been shut down. Beginning in 2009, MSU began making serious cuts to the CRC operating budget (because of systemic budget cuts to the general, MSU Extension and ABR budgets), and by 2014, the CRC was reduced to one full-time support staff member and a half-time administrative assistant. The logical next step was its closure. Establishment of the MTFC provided MSU with the financial ability and support to reinvest in and revitalize the center.

Northwest Michigan Horticultural Research Center

Funding from the Michigan Tree Fruit Commission (MTFC) has helped the Northwest Michigan Horticultural Research Center (NWMHRC) purchase necessary items that will improve the facility's ability to conduct cutting-edge research and outreach programming. We are fortunate to have this infrastructural support to purchase items such as deer fences, irrigation wells and orchard platforms — items that may not be innovative in the granting world but that allow us to produce high quality and valued research results that benefit the grower community. These funds have set up the research center to seek further funding and conduct research that is timely, applicable and responsive to the needs of the Michigan fruit industry.

Once the MTFC funding became available, the center hosted a needs assessment with the NWMHRC Foundation Board, industry leaders and MSU Fruit Team members. The goal was to help establish methods for critical and strategic research in the next five to 10 years to be done critically and strategically. On the basis of these discussions, the center is planting high-density apples to expand plant growth regulator (PGR) work and modernizing processing cherry orchards into two new high-density sweet and tart cherry blocks in 2017. The staff is also planting general-purpose cherry blocks for invasive insect work and plant pathology research. MTFC funding has provided the building blocks for the future of applied research.

We were fortunate to have some new next-generation farmers attend the needs assessment. Many of them weighed in on the necessary research that they will need to continue to successfully operate fruit



farms in the 21st century. Orchard modernization is a high priority for this region, which has relied on older orchard systems for several generations, but the economics show that higher density systems have several advantages, including greater profitability per producing acre. Traditional fruit production systems need to change to keep Michigan growers competitive in a global marketplace.

We are excited about the opportunities for research with the infusion of MTFC funding at our research centers. Horticultural science and technology are moving at a faster pace than ever, and globalization continues to increase the threat of new invasive insects and diseases. MTFC funds have helped to provide a foundation for critical research and Extension programs that are needed for the future of Michigan fruit production. I would like to thank all of the companies that donated products, equipment and time to support the NWMHRC.

Southwest Michigan Research and Extension Center



The Michigan Tree Fruit Commission (MTFC) provided matching money to Michigan State University (MSU) to purchase an orchard sprayer and tractor for the Southwest Michigan Research and Extension Center (SWMREC). MTFC support has also allowed for the renovation of two office rooms into laboratory spaces for work on fruit tree disease and insect research.

Staff members and researchers are now able to do work on research projects at SWMREC that before often required a two-hour drive from the main campus to Benton Harbor.

This infrastructure renovation was also instrumental in acquiring a partner grant from the Michigan Department of Agriculture for the purchase of basic microbiological equipment.

Additional funding from the MTFC will aid in the construction of woven-wire deer fencing to protect the research tree plantings. The deer fence is critical for newly planted trees and plots where yields have fallen short of expectations. The fence will allow the center to begin new tree fruit research projects that were not feasible without deer management.

These new capital improvements have allowed SWMREC to expand the types and numbers of projects that can be done. Growers, particularly inexperienced growers, are reluctant to make new investments in tree fruit plantings if the risks from diseases and insects are too great.

The industry is now able to make headway on these problems, given the management strategies and understanding that the research has provided. MTFC has been an excellent partner to Michigan State University.

Trevor Nichols Research Center

The Michigan Tree Fruit Commission (MTFC) has provided much-needed funding to the Michigan State University (MSU) Trevor Nichols Research Center (TNRC), allowing for upgrades to the infrastructure and the overall enhancement of research capacity to address key challenges facing the Michigan fruit industry.

The impacts of MTFC funding can be clearly seen in all of the projects completed at the TNRC during the past year. The center was able to purchase a new custom-built sprayer in December 2015. With it, the center will now be able to make 700 to 800 individual research sprays for various MSU field projects in a given field season. The new sprayer has also allowed the staff to optimize the quality and capacity of field research trails. The new sprayer was used extensively in 2016 and has become an invaluable asset for the center's tree fruit research.

The TNRC lab was renovated as well. Previously outdated and in desperate need



of renovations, the lab is now better equipped to meet future research needs. The new lab has a modern bench space and lab equipment, including microscopes and a fume hood for chemical studies.

Next-generation farmers will be growing fruit in a more information-intensive environment than ever before. This "information age of agriculture" requires knowledge from cutting-edge research. The value of MSU research is highly influenced by the research equipment and infrastructure available to to researchers

addressing real-world problems. The infrastructure investment by the MTFC in MSU research facilities will yield the quality outcomes needed to inform new farmers in the 21st century.

Without the MTFC, the TNRC would continue to strive to address pest management needs of the Michigan fruit industry. However, outdated equipment and facilities would certainly limit and detract from the capacity and quality of research.

New MSU faculty focusing on tree fruit

By Todd Einhorn

Prior to recently joining Michigan State University (MSU), I led an innovative research and outreach program in tree fruit biology and whole-plant physiology, primarily on European pear and sweet cherry horticulture, in the Pacific Northwest.

Though my principal objective of optimizing production efficiency remains unchanged my work at MSU will focus on apple and tart cherry systems. Ultimately, I want to improve the competitive stance of the Michigan tree fruit industry. To accomplish that, I will be working to identify the limiting factors on efficiently producing high-quality fruit.

I will develop strategies to provide growers with tools such as predictive models to optimize management and novel strategies to increase the efficacy of plant growth regulators and optimization of existing systems. I will also be exploring the creation of novel training systems, evaluation of new rootstocks and cultivars that generate consumer excitement, and advancements in mechanization and automation to improve efficiency and sustainable management of orchards.

In the field of tree fruit physiology, MSU is regarded as a

world leader. I have always been amazed at MSU's global footprint in my travels throughout the major tree fruit regions of the world. There are few institutions in this category, and this prestige was a major factor in my decision to leave my former institution. At the same time, I was attracted by the engaged and invested stakeholder presence in research and its long-term success.



Todd Einhorn

The role of the Michigan Tree Fruit Commission in supporting MSU facilities and infrastructure is unprecedented and was the final catalyst for my decision to accept the offer. The industry's investment to help purchase equipment vital to cutting-edge tree fruit physiology research was additional evidence of a dynamic and positive relationship between the two entities. Collectively, these activities reflect an exciting and engaging community that facilitates success. I am honored and thrilled to develop a teaching, research and outreach program at MSU that will improve the sustainability of Michigan's tree fruit industry.

By Courtney Hollender

My overarching research goal is to achieve high-impact advancements in tree fruit agriculture through a combination of basic research, biotechnology and genetics. To accomplish this, one of my projects will focus on understanding the biology behind tree size and shape (also referred to as architecture). My lab will use this knowledge to help breed fruit trees that require less labor management and are amenable to high-density plantings and mechanized harvesting. I will also study the biology behind apple, cherry and peach flower development in an effort to minimize crop loss from frost damage.



Courtney Hollender

I've joined the Michigan State University (MSU) Horticulture Department as an assistant professor after nearly four years of postdoctoral research at the USDA Appalachian Fruit Research Station in Kearneysville, West Virginia. My work at the USDA was my first exposure to fruit

tree research and horticulture in general. I grew up in New York City without any farm experience. I am, however, passionate about combining basic research with agriculture to prevent food insecurity and promote the availability of sustainable and nutritious foods. Prior to working for the USDA, I earned my doctorate at the University of Maryland, College Park, where I studied the molecular biology and genetics associated with flower development. I am thrilled to join the MSU community and am blown away by the support of local growers and members of the Michigan Tree Fruit Commission. It's evident that this industry is invested in ensuring long-term success. Their enthusiasm, combined with unparalleled financial support, is extremely motivating and humbling. It's also what drew me to MSU. I doubt anything like this exists elsewhere, and because of it, I'm taking every chance to meet the growers.

Getting to know the industry and the needs of its farmers will keep me motivated and on track to make a difference. I don't want to do research for research's sake — I want what I do for the next 30-plus years to have a positive impact on agriculture. I can already tell that MSU is a place where that can happen.

MSU Extension tree fruit educator hired



The Michigan Tree Fruit Commission is excited to welcome David Jones as the new MSU Extension Fruit Educator based in Hart. He will cover the west central region of Michigan.

Jones comes to MSU Extension from the University of Wisconsin where he is completing his M.S. degree in plant pathology. He has a solid background in both horticulture and entomology and is looking forward to working with tree fruit growers in west Michigan.

While a start date has not been finalized, Jones is expected to join MSU Extension in early to mid-February 2017.

Enviro-weather update

Many of the operational decisions in Michigan's fruit production systems are strongly linked to environmental conditions.

The overarching mission of the Michigan State University (MSU) Enviro-weather project is the provision of relevant, dependable and sustainable weather-based information to support agricultural pest, production and natural resource management decision making in Michigan.

Enviro-weather collects, processes and archives detailed weather data from a network of 78 automated stations across the state. It provides a web-based framework for its use in a variety of applications and products.

Thanks to recent grants from the Michigan Tree Fruit Commission (MTFC), Enviro-weather is modernizing existing system infrastructure and developing new monitoring capabilities and products.

Growth and expansion of the Enviro-weather station network has been generally dependent on available funding and donations from interested commodity or industry groups and/or growers.

As a result, some areas of the state are relatively less well provided with



Enviro-weather co-director Jeff Andresen at one of the Enviro-weather stations across the state.

required input weather data. One such area was a section of western Lower Michigan where the influence of lake-effect climate modification and topography result in a number of microclimates and challenges for growers.

With support from the MTFC, Enviro-weather was able to develop two new station sites in west central Michigan, at Elbridge and Benona, during the spring of 2016.

These sites will greatly strengthen the applicability and effectiveness of system information in fruit production

areas in this part of the state. The MTFC has also helped support the development of new technologies with the establishment of two new instrumented 70-foot towers that can be used for real-time monitoring of surface temperature inversions and assisting with wind-machine-based frost control.

Data observations will be collected and made available to users on a continuous basis through the MSU Enviro-weather information system. The towers are expected to be operational by late 2016.