



2018 LEGISLATIVE REPORT



Michigan Tree Fruit Commission





## Developing a high-density apple variety reference collection

Earlier this year, MSU professor of horticulture Steve van Nocker and assistant professor of horticulture Courtney Hollender were awarded MTFC funding to develop a high-density apple variety reference collection. This planting will be going into the Clarksville Research Center in spring 2019. Replicates of dwarfing rootstocks grafted with scions from a diverse collection of apple germplasm from the U.S. Department of Agriculture Plant Genetic Resources Unit in Geneva, New York, will be planted in a randomized block design for future experiments and evaluations in Michigan. The chosen trees have traits that could potentially benefit Michigan growers. Proposed evaluations, which would begin a few years after planting, include biennial bearing, plant growth regulator responses, fruit quality, disease resistance, architecture, chill requirement, bloom time and fruit storability.

---

## Developing over-the-row harvest systems for tart cherry orchards of the future

The major objective of this study — conducted by MSU researchers Todd Einhorn, Nikki Rothwell, Amy Iezzoni and Ron Perry — is to determine the feasibility of establishing and harvesting tart cherry trees in high-density plantings in Michigan. Over-the-row production systems present a potential to minimize the environmental footprint by managing smaller fruit tree canopies resulting in greater precision for pest management and harvest operations. Compact canopies will reduce fruit damage during harvest, resulting in higher grades and yields at time of processing. The result is increased profitability and a cleaner final product.

---

## Producing a superior nursery apple tree using air-root-pruning containers

Trees account for the majority of expenses when establishing a high-density orchard. The vast proportion of nursery trees are produced in the field, harvested in the fall, overwintered in cold storage and shipped to growers as bare root. These trees are highly prone to transplant shock. Because rapid canopy infill is critical to early cropping, apple producers cannot afford to invest \$15,000 or more per acre in trees that perform poorly and delay the return on investment. Researchers Todd Einhorn, Nikki Rothwell and Phil Schwallier are evaluating the performance of apple trees grown in novel air-root-pruning containers (Ellepot) to determine if they produce a superior nursery tree to traditional bare-root field liners. Air-root-pruning containers have a distinct advantage compared to alternative container systems by encouraging highly branched, fine-root development that is free of circling roots. The result is a tree that may be capable of rapid growth to support earlier and larger crops in the second and third year from planting.

---

## Improving production process with new Compac apple sorting machine

With funding from the Michigan Tree Fruit Commission, the Michigan State University Extension Ridge Apple Lab in Sparta was able to purchase a single-line Compac sorting machine. Funding was primarily from the MTFC, which served to leverage additional support from the Michigan Apple Committee, the Michigan State Horticultural Society, MSU AgBioResearch and MSU Extension. The main objectives of the sorter are to:

- Improve Michigan apple production and quality.
- Improve our apple maturity program.
- Evaluate research, demonstration and grower projects.
- Provide packing line assistance to Michigan apple packing houses.



# Enviroweather

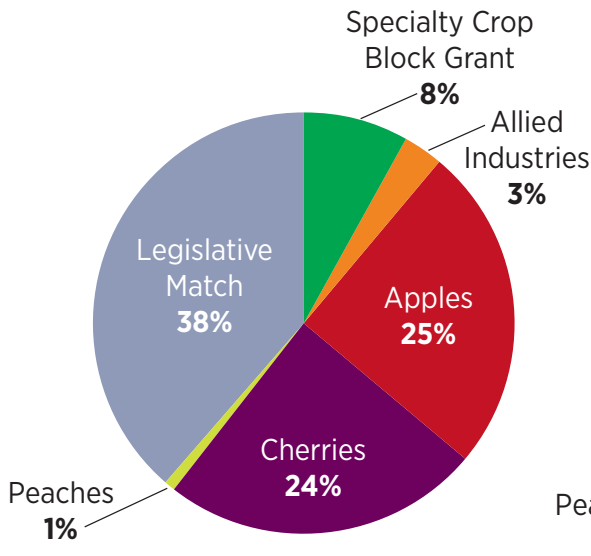
Michigan State University's Enviroweather project is an interactive, web-based information system designed to provide relevant, detailed and accurate weather-based information. Since the inception of Enviroweather, the fruit industry has been a major beneficiary and has played a significant role in the program's growth and development. The Michigan Tree Fruit Commission has provided support in both advisory and financial forms to assist the operation, growth and development of Enviroweather.

The approval of a \$30,000 grant to cover the establishment costs of three new MSU Enviroweather stations in west central Michigan for the 2019 growing season gives farmers access to critical data they can use to make everyday management decisions on their operations. West central Michigan is a region with many microclimates, and several important regions of fruit production were not covered by the existing Enviroweather network. MSU Extension educator Dave Jones worked with the Enviroweather team and area growers in fall 2018 to identify locations for the three new Enviroweather stations that would collect valuable new data on major tree fruit production areas. The stations will be installed in New Era, Southeast Shelby/Northern New Era and Mears, Michigan, by spring 2019.

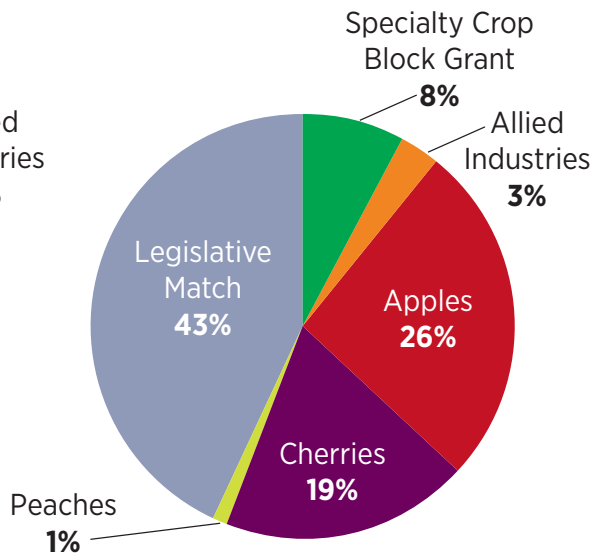
## FINANCIAL SUMMARIES

### REVENUE

#### 4-YEAR TOTAL

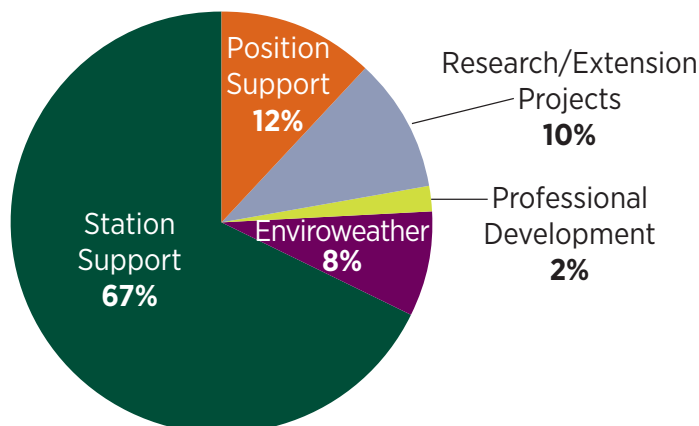


#### 5-YEAR ESTIMATED



### EXPENSE

#### 4-YEAR TOTAL







## Clarksville Research Center

Michigan Tree Fruit Commission funding allowed the Clarksville Research Center to implement much-needed improvements in 2018, including fertigation pumps, a pesticide induction system for loading chemicals into sprayers and installation of the final phase of modernizing irrigation controls. Researchers at Clarksville also started using the new narrow orchard tractor and herbicide sprayer funded by the MTFC in 2017. Additionally, the MTFC and MSU AgBioResearch shared the cost for servicing two irrigation wells, restoring full irrigation capacity. The MTFC and ABR partnered to make a significant upgrade to the Produce Evaluation Building refrigeration system. This upgrade provides reliable cold storage facilities for research projects to conduct experiments, as well as sample storage and preservation. MSU ABR funded new energy-efficient LED lighting throughout the building and financed the replacement of the unit heaters with more energy-efficient radiant tube heaters, creating a versatile work environment for researchers.



## Northwest Michigan Horticulture Research Center

The Michigan Tree Fruit Commission contributed substantially in the Northwest Michigan Horticulture Research Center's infrastructure for a new 37-acre property. This fall, the center worked with Cherry Bay Orchards to put up deer fencing in the property and over 40 acres of its acreage. The MTFC funded this fence in collaboration with the Grand Traverse Fruit Growers' Council. In addition to the deer fence, the MTFC funded the roads on the new property. The infrastructure on this property was a critical part of the spotted wing drosophila research in 2018. The MTFC also allowed the center to purchase a sprayer that will be in use for the 2019 season. Support was also provided for three new tree fruit plantings that were completed during the spring. Funds will also allow old plantings to be removed.



## Southwest Michigan Research and Extension Center

Support from the Michigan Tree Fruit Commission was used to extend irrigation to the northwest corner of the station. This is approximately 8.4 acres of good tree fruit land that now can be used for high-density fruit plantings for research. The MTFC and Michigan State University AgBioResearch jointly funded the repaving of the conference center south parking lot in 2018. This parking lot gets heavy use from the many meetings at SWMREC. Storage of plant specimens and bacterial cultures for research projects at SWMREC is now possible with the purchase of an ultra-low chest freezer. Ultra-low storage conditions help to maintain live bacterial cultures for studies on plant diseases and preserve plant specimens for laboratory tests. Support from the MTFC was used to purchase a compact tractor, and a sprayer and tiller for using in high-tunnel, high-density narrow spacing research plots for peaches, apples and close-spaced nursery work. The equipment will allow more rapid, timely and safer tilling and spraying work. Additionally, the MTFC and MSU jointly funded the construction of a new 9,000-square-foot storage building that became operational in May 2018.



## Trevor Nichols Research Center

The 2018 Michigan Tree Fruit Commission funding targeted three primary areas: infrastructure upgrades, equipment and professional services for preparing land for orchard establishment, and maintenance of established research orchards. The purchase of a new generator was an important infrastructure upgrade to provide power backup to the research refrigeration and freezer units. Maintaining uninterrupted power to these units is critical for the integrity of the research samples related to the IR-4 residue trials and MRL studies. The center avoided significant damage from a power outage in September 2018 because of the new generator. This assured that thousands of dollars' worth of research samples were saved. The new tiller and professional services supported the active land preparation, including tilling and ground work, at the center in 2018. The land will be ready to plant trees in 2019. The maintenance chemicals and pruning services allowed for the upkeep of research orchards for a wide range of research projects in 2018.