

Chestnut Industry News

A collaborative communication from the Midwest Chestnut Producers Council in partnership with Chestnut Growers, Inc. and Michigan State University.



MIDWEST CHESTNUT
PRODUCERS COUNCIL

PRESIDENT'S MESSAGE

What a year 2020 has been; I hope you all have been healthy and well. Like many things in 2020, the cancellation of our annual spring membership meeting was disappointing but necessary and I thank my fellow board members, Kellogg Biological Station, and you all for being understanding. I also want to thank Erin Lizotte for organizing the webinar series and furthermore thank all of the participants of the series for sharing their research and ideas.

The Specialty Crop Block Grant funding we received in conjunction with MSU continues to help us further understand challenges and formulate solutions in our chestnut orchards. A huge thanks, to our MSU chestnut research team who continue to help us all learn and determine solutions for challenges we face. Dr. Deb McCullough, Dr. Monique Sakalidis, Dr. Dan Guyer, Erin Lizotte, post-doctoral researchers, graduate and undergraduate students help us understand issues with insect and fungal pests, post-harvest treatments, scouting, etc.

This fall, the MCPC (Midwest Chestnut Producers Council) board voted unanimously to provide Dr. Sakalidis an additional \$2,500 in support of brown rot research. These funds could not have been provided had it not been for all of YOU joining our grower group and paying your annual dues. After all, our group is the non-profit research and education arm of the chestnut industry and research is helped along with your important dollars—thank you.

Looking forward to 2021 we anticipate that there will not be an in person annual spring membership meeting but rather a new, 'podcast-like' series on topics such as irrigation, fertilization, chestnut blight, etc. We hope that by the fall of 2021 we can again plan larger, in-person group events such as a farm visit to Corey Allen's farm (who we had planned to visit in September 2020).

At the end of this year I will be stepping down as president of MCPC. I have served as president since March of 2017 and I believe it's time for someone new to take over the role to gain some leadership experience. I'll be staying on as a regular board member for one additional year while we transition to a new president (TBD). I have been honored to serve since being elected and I thank you all for your confidence in me. I couldn't have done the job without the help of Erin Lizotte and we're all lucky to have her knowledge, expertise, and guidance—thanks Erin! Additionally, the board is looking for volunteers to serve and we welcome new and experienced growers so that we have diverse perspectives on the board. If you'd like to discuss the responsibilities of any position please feel free to contact me via text, phone call, or email. Corey Allen, Steve Creswick, Todd Sluis, Bruce Smith, and Ken Hewitt have been great to work with. Please consider joining this group of growers to help continue moving the industry forward.

Be well and stay safe,
Josh Springer
MCPC President
517.643.2875 cryphonectria@gmail.com

Dear Chestnut Growers,



I hope you and your families are well and safe during the COVID-19 situation. For this newsletter message, I will share information about CGI (Chestnut Growers, Inc.) Co-op chestnut production. CGI and MCPC are working with MSU on the chestnut weevil problem which has been found in several chestnut orchards over the last few years. There will be an update in the future from MSU on how we deal with this problem. CGI has invested in building a heat treatment process into the receiving line to kill the chestnut weevils which seems to be working. Also, I want to share the results of a consumer survey conducted in October 2020 regarding chestnut consumption. It addressed the issue of whether consumers eat chestnuts raw.

Unfortunately, this year will go down in our chestnut chronicles as unique. Many of our growers experienced unusual weather with frost conditions in May after the trees were budding out and then insufficient rain during the summer. Whatever chestnuts we had were sold extremely fast with requests still coming in for our wonderful product. This year Chestnut Growers, Inc. had production of about 75,000 pounds, which was about the same as 2019 harvest season. CGI predicted this year to be much better.

The research on the chestnut weevil is progressing very well (see the article below for details). CGI established protocols and has been sampling chestnuts from the Co-op member orchards to determine which ones have the chestnut weevil. MSU researchers have been out to the orchards this season to identify the chestnut weevils and work to determine the best methods to control and eliminate this problem. So far, by utilizing the chestnut weevil heat treatment process installed on the receiving line, CGI has successfully managed to salvage many chestnuts and kill the weevils.

This fall, the industry also came together to respond to an open Food and Drug Administration comment period regarding the inclusion of chestnuts in the Produce Safety Rule (part of the Food Safety and Modernization Act). The goal was to illustrate that chestnuts are rarely consumed raw by consumers and therefore should be exempt from regulation under the Produce Safety Rule. Associate Professor Dr. Trey Malone and Erin Lizotte (MSU) developed and disseminated a consumer-focused survey. It quickly became clear with some simple data evaluation that we would not be able to meet the FDA standards (the commodity is consumed uncooked by less than 0.1 percent of the U.S. population and the commodity is not cooked by the consumer on less than 0.1 percent of eating occasions). The survey received 1,005 representative respondents. Respondents were asked, 'Have you ever eaten a chestnut?' 494 (49%) responded yes, and 511 (51%) responded no. Of those 494 respondents who indicated they had eaten a chestnut, 231 were able to correctly identify an edible chestnut from three photo choices that included an edible chestnut, a water chestnut, and a walnut. Of the respondents who could identify chestnuts and had eaten a chestnut (n=231), 33% (n=76) indicated they had consumed raw chestnuts on at least one eating occasion. These results do not meet the FDA standard for rarely consumer raw. The consensus is that we have a lot of work to do when it comes to consumer education concerning chestnuts. Erin Lizotte will be reaching out to the MSU Ag Literacy Team to see what they recommend. Additionally, CGI and most of our members in MCPC are interested in better understanding our options, particularly the 'not to be consumed raw' labeling option that allows exemption from the Produce Safety Rule. We will need help from chestnut growers across the country as we navigate this issue over the coming years.

This newsletter you are receiving is the continuation of a regular communication effort from MCPC. Erin Lizotte (MSU Extension) coordinates this effort to improve industry communication. MSU, MCPC and CGI continue to work together to support all Michigan chestnut growers in their efforts to grow and market the best quality chestnuts. As growers, we need to support each other and share all the information we can to make the chestnut industry strong.

From our family to your families, our most sincere wish for a healthy and happy holiday season.

Best Regards,

Roger Blackwell

President, Chestnut Growers, Inc.

Chestnut Weevils in Michigan Chestnut Orchards 🐛

Max Ferguson, M.S. Graduate Student, Dept. of Entomology. Dr. Deborah G. McCullough, Professor, Dept. of Entomology & Dept. of Forestry

During the summer, we constructed and tested several trap types for capturing adult chestnut weevils. Traps were placed in 3 chestnut orchards to evaluate which trap designs might be most effective for monitoring weevil populations. Limb tapping, i.e., rapping foliage-bearing shoots over a canvas tarp laid on the ground, was also employed to capture weevil adults for identification to species. Traps and limb tapping were repeated every 1 to 2 weeks from mid-June through late September.



Male (top) and female (bottom) lesser chestnut weevils. Photo by Max Ferguson.

We suspected the lesser chestnut weevil, *Curculio sayi*, was probably the pest infesting

nuts in Michigan orchards. This is a native species and is the most common pest of chestnuts in other states. However, adult specimens are required for species identification because weevil larvae lack any distinguishing features. A second native species, the greater chestnut weevil (*Curculio caryatrypes*), may occur in Michigan and there is always a tiny bit of concern that a non-native species such as the European chestnut weevil (*Curculio elephas*) might have somehow arrived in Michigan.

Our first adult weevils were captured in early July. Dr. Anthony Coganto, a systematist and Professor in the MSU Dept. of Entomology, extracted DNA and identified the weevils we collected as *Curculio sayi*, the lesser chestnut weevil. The DNA from our adult weevils matched DNA extracted from larval weevils submitted to MSU Extension in 2018. Thus, it seems likely that the weevil problem challenging many Michigan growers is caused by the lesser chestnut weevil. Other adult weevils were recently captured from burrs this fall and all are *C. sayi*, the lesser chestnut weevil. No adults or larvae of any other species have been captured or observed.

This fall, we cooperated with Dr. Dan Guyer to evaluate heat treatments for harvested nuts. Ideally, we want to identify an effective and efficient treatment that will cause mortality of weevil eggs and larvae without damaging nut quality. In addition, we collected lots of live larvae from infested nuts for our research. Understanding more about larval overwintering behavior, weevil development and the timing of adult emergence will help us develop effective tactics to minimize damage from this pest.

We thank Mario Mandujano, Erin Lizotte and cooperating growers for their assistance this year. We look forward to learning more about chestnut production and continuing our

research on weevil management in commercial orchards.

This project was funded in part by the Michigan Department of Agriculture and Rural Development.

MSU Chestnut Micropropagation Project Underway 🐿

Dr. Dan Guyer, Professor in the MSU Dept. of Biosystems and Agricultural Engineering and Mario Mandujano, Research Technician at Michigan State University



Tissue culture tree on grower farm. Note corn planted in the tractor row early in orchard rotation. Photo by Erin Lizotte, MSU

An exciting new chestnut tissue culture micropropagation research and development project hit some important milestones this year. Micropropagation is the practice of rapidly

producing plants in a lab using tissue culture. Tissue culture results in genetically identical or clonal chestnut plantlets that are self-rooted and do not require rootstocks. Currently only seedling rootstock is available and introduces undesirable genetic variability into orchards. If self-rooted trees are found to be practical in Michigan, tissue culture propagation could solve issues related to tree supply and orchard variability.

The chestnut tissue culture project is funded by the MSU Rogers Reserve Endowment and supported by Dr. Guo-Qing Song (Associate Director of the MSU Plant Biotechnology Resource and Outreach Center) and MSU Research Technicians Mario Mandujano and Pete Callow. The project has led to the development of successful tissue culture propagation protocol for multiple chestnut cultivars, which were planted in diverse orchard locations around Michigan this year.

The primary objectives of this research are to: a) develop the protocol(s) which can lead toward a system of consistent and commercially available trees and b) establish plant material as a lead-in to potential genetic manipulation toward disease resistance and desirable market characteristics. The most recent progress has been to move from the laboratory to the field, evaluating five successfully propagated cultivars on fifteen commercial farms and MSU orchard sites throughout the state. Locations range from southern Michigan counties to Escanaba; and from western to eastern climates and soil variations. These sites were selected to represent a variety of environments. Each location boasts a 20-tree, mini orchard with replicates of each of the five micropropagated cultivars ('Precoce migoule, Marsol, Maraval, Marigoule and a new potential phytophthora resistant cultivar). Two or three-year-old trees were planted this past spring and fall. Collaborating growers are monitoring the trees

and recording major events and observations. Collaborators will also provide their individual management information with the goal of observing the ability of the cultivars to survive on their own rootstock in Michigan.

The next phase of the project includes tracking the ongoing fitness of grafted micropropagated trees as well as evaluating micropropagation techniques to optimize efficiency in commercial tree propagation. So far sites have been indicating good success in growing, with a major test being how they come through the winter!

Chestnut Brown Rot Study Underway 🐿

Allie Watson, Dr. Carmen M. Medina-Mora, and Dr. Monique L. Sakalidis, Michigan State University

Gnomoniopsis smithogilvyi (*G. smithogilvyi*) is the causal agent of brown rot, a kernel disease affecting the quality of chestnut fruit. Brown rot causes brown lesions to appear in chestnut kernels rendering them unmarketable. Brown rot has been reported in nut production areas in Europe and Australia and can devastate production with infection rates above 90%. Brown rot was first detected in Michigan in 2017. The disease is present in mature chestnuts at harvest and symptoms develop over time during cold storage. Brown rot symptoms are only visible when nuts are cut open and inspected, a practice that is incompatible with the preferred, fresh-market chestnuts produced in Michigan.

In 2019, MSU and the Midwest Chestnut Producers Council secured state funding to address brown rot and other postharvest issues. Using nuts sampled in fall 2019 and 2020 the Sakalidis lab evaluated the diversity of nut rotting organisms, particularly *Gnomoniopsis* species, and evaluated the

effect of cold storage and host cultivar on disease incidence and severity. Nuts were collected from three *Castanea* spp. cultivars - Labor Day (Korean x Japanese), Colossal (European x Japanese) and Benton Harbor (Chinese).

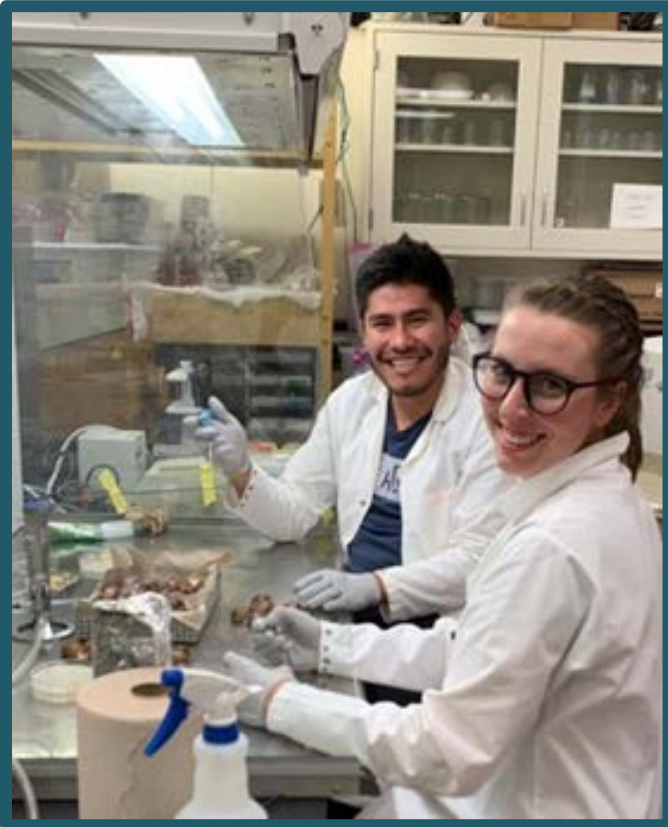


A nut exhibiting symptoms of brown lesions due to infection of *G. smithogilvyi*.

To determine if cold storage affects disease development of brown rot, nuts were harvested from the chestnut orchard at the MSU Clarksville Research Station. Treatments included two inoculation treatments with different strains *G. smithogilvyi*, a negative control inoculation, and lastly an intact nut treatment to measure natural infection rates. Two hundred of the naturally infected nuts were cut open and rated immediately after harvest for symptom presence and severity. A subset of inoculated and naturally infected nuts from each cultivar was rated after 2 weeks at room temperature or stored for 1 or 2 months at 4°C and then incubated for 2 weeks at room temperature prior to being cut open and rated for symptoms. The results indicate that cold storage resulted in decreased disease severity and incidence and that Colossal is the most susceptible cultivar to natural and artificial infection of *G. smithogilvyi*.

Future research will continue to evaluate the diversity of nut rotting organisms and determine the seasonal timing and environmental

conditions related to spore production in the field. The infection pathway will also be explored.



Graduate student Allie Watson and Julian Bello inoculating chestnuts in the Sakalidis lab.

The Sakalidis Lab would like to thank the Midwest Chestnut Producers Council, Chestnut Growers, Inc., and all the participating growers who have helped with this project. This work was funded in part by the Michigan Department of Agriculture and Rural Development and Project GREEN.

Clickable Events and Resources

[Great Lakes EXPO, December 8-10](#)

[Virtual Tour of Horticulture Research Center](#)

[Michigan pesticide applicator credits available online](#)

[MCPC Website and Registration](#)

[Chestnut Growers, Inc. Website](#)

[MSU Chestnut Website](#)

 [Michigan State University Chestnut News](#)

[MSUE Fruit and Nut Report](#)

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