

Blossom End Rot of Chestnut: A Small Problem Becomes a Big Problem

by Greg Miller, Empire Chestnut Company / Route 9 Cooperative · empirechestnut@gmail.com

All chestnut growers, handlers, and end-users face the problem of chestnuts gone bad. There are lots of ways that chestnuts can go bad; the time it happens can vary, the cause can vary, and the extent of damage can vary. We spend a lot of time and effort to prevent or remove bad chestnuts. Here we consider just one specific cause of bad chestnuts, namely blossom end rot (BER).

How to Identify BER

BER is first recognized as a brown-tinging of the blossom end of chestnut burs in August. But more importantly, it is recognized as a blackening of the stylar end (pointy end) of the chestnut shell and kernel at harvest time (and thereafter). The extent of blackening is variable. It can range from a barely visible black tip of the kernel to the whole nut being black.

Generally, blossom end rotted chestnuts are considered inedible, but the non-rotted part of the kernel can be eaten and seems to taste just fine. On the grading table, BER chestnuts are identified by their blackened end. If the tip of the nut is only slightly blackened, the presence of BER can be confirmed by pressing a finger into the tip. If the tip yields (is soft), discard; if it is firm, the nut is good.

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Peeled chestnut kernels exhibiting blossom end rot. The slightly infected kernel on the right might not have been detectable on the grading table while it was still in the shell.

Causes of BER

BER in chestnuts is caused by a fungus, *Colletotrichum gloeosporioides* (asexual stage) AKA *Glomerella cingulata* (sexual stage). This fungus causes plant disease on a broad array of hosts including bitter rot of apple, leaf anthracnose of magnolia, anthracnose on mango fruits, and anthracnose on numerous, mostly tropical, fruits and vegetables. We know that this is the causal agent of chestnut BER based on scientific literature¹ and the fact that Dennis Fulbright (Michigan State University) isolated this fungus from our BER chestnuts in 2014².

The fungus thrives and spreads in warm, humid conditions. It over-winters on dead

twigs and mummified fruits (non-chestnut hosts). In chestnuts, it is usually seen in older orchards with crowded spacing. The occurrence of naturally shade-killed branches seems to be the key. Young orchards and isolated, small plantings are often free of this malady.

Recent Increases in Frequency

Prior to 2011, in our orchards BER was consistently seen and recognized as one of the types of “bad nuts” to discard. The frequency of BER nuts was generally low, probably never exceeding 2% of the crop, and it accounted for less than half of the nuts discarded. The frequency did vary from year to year as did other causes of bad nuts. Up to that point, BER was not

Continued on page 4...

PRESIDENT'S MESSAGE



David and his daughters, Jennifer and Elizabeth, in Washington, DC

Greetings, everyone! I sincerely hope all was well with you and your families over this past holiday season! It certainly appears, by most accounts, to have been a tremendous harvest this past season. Except for at least one prominent grower affected by cicadas, most growers reported a strong harvest, especially in Michigan (see page 5). The stars and planets aligned and a bumper crop came to be!

With higher than expected production numbers come higher expectations to expand existing markets and find new ones. We know these markets are out there, but the challenge continues to be matching need with availability. Replacing imported chestnuts with what we know to be better, fresher, home-grown chestnuts is easier said than done. Is the retail direct to customer route a better model than bulk sales to distant cities with huge potential? A combination? We will continue to explore this over the next several issues.

I want to thank our committee tasked with expanding our communication system among grower members for their work. Derek Waltchack and Rita Belair have

been working on ideas for connecting growers with questions and answers online. Ultimately, the existing online forum managed daily by Carolyn Young is the standard we will support going forward (see more on page 8). This forum is visited every day by people around the world looking for answers to pressing questions that are coming up in their orchard. If you have not checked into the forum, please go to the Resources page on the CGA website to find a link to the forum and see what people are asking. I think it is never too late to answer a question posed by potential CGA members!

Thanks also to Jack Kirk and Rita Belair for making it possible this year to pay dues and meeting registration fees online (see page 9). Becoming a member of and participating in CGA is now more convenient than ever.

Lastly, we are encouraging you to take advantage of a new addition to the newsletter that allows you to list and sell unused equipment, tools, even your farm itself (see page 8)! There is no charge to members for classified listings. Please note: this is not meant to be a way to advertise products or services, but a place to help growers sell or find that one implement that might be sitting around unused in someone else's orchard facility. If you are looking for something special, submit a listing as "in search of"!

As with Carolyn's forum, I think of this new "For sale/In search of" section as members helping members. As you have heard me say before, I see this same philosophy strengthening our marketing efforts as well. Let's match up known need with known availability and get those chestnuts sold!

David English

Chestnut Growers of America, Inc.
chestnutgrowers.org

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Single membership, \$35; Household membership, \$45; Associate membership, \$50. Members receive The Chestnut Grower quarterly. Emailed newsletters are included. Mailed newsletters are an additional \$5 per year. A \$5 discount applies if payment is postmarked or submitted through the website by Feb. 15. Foreign mailings may include a surcharge to cover the cost of additional postage.

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Send payment for ads to Jack Kirk, 2300 Bryan Park Av., Richmond, VA 23228. Make checks payable to Chestnut Growers of America, Inc. OR visit www.chestnutgrowers.org/paydues.html to submit payment online via PayPal.

Deadlines

<i>Issue</i>	<i>Deadline</i>	<i>Mailed</i>
Winter	Dec. 10	Jan. 1
Spring	Mar. 10	April 1
Summer	June 10	July 1
Fall	Sept. 10	Oct. 1

Editorial Opinion

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SAVE THE DATE!

Mark your calendars for the 2017 annual meeting at Greg Miller's orchard in Carrollton, Ohio:

June 9-11, 2017

Happy New Year!

Your 2017 membership dues are now due. Please fill out and return the membership renewal form included with this issue.

TWO OPTIONS THIS YEAR:

1. Download a fillable form from the CGA website, www.chestnutgrowers.org/resources.html. If you receive the e-version of the newsletter, the form is also attached to that email. Complete the form and then email it to Jack Kirk, secretary/treasurer, at jkirk@essexbank.com. You can then pay your dues through the website by visiting www.chestnutgrowers.org/paydues.html. Learn more about online payment on page 9.
2. **OR** Send a hard copy of the form with a check made payable to Chestnut Growers of America, Inc. to Jack Kirk, 2300 Bryan Park Ave., Richmond, VA 23228.

Chestnut Growers,

Congratulations on another harvest season in the bag! Time to sit back, relax, and enjoy the holidays.

Winter is a great time for reflection. What bumps in the road did you run into leading up to and during the harvest this year? How did you tackle those challenges? Tell your fellow growers by sending me your thoughts – my contact info is on the opposite page. Remember that learning from each other is the best reason to be a member of the CGA.

Maybe you don't have any pearls of wisdom, but maybe you do have questions, or a topic you'd like to learn more about. Send those to me also – I'll track down folks who have answers or experience. Don't be shy about raising your hand – as you know, others probably have the same questions.

For now, enjoy this issue. All the best,

Rita

You won't want to miss the Chestnut Growers of America 2017 Annual Meeting

Greg Miller has been generous enough to volunteer to host the CGA 2017 annual meeting at his orchard in Carrollton, Ohio. Make plans now to attend...

ON THE AGENDA

Friday, 9 June

5-9 pm

Open-house type reception at Route 9 Cooperative, 4300 Germano Rd SE Carrollton, OH 44615

Enjoy snacks and beverages, including locally brewed chestnut beer from our chestnuts.

Self-guided tour of cleaning, grading, packing, and storage facilities; get up close, have a look, and ask questions.

Saturday, 10 June

8-11:30 am

Tour orchards and nursery of Route 9 Cooperative and Empire Chestnut Company. See orchard trees from newly established to 45 years old, highlighting the progress we've made.

12-1 pm *Catered lunch at FFA Camp Muskingum*

1-5 pm *Presentations at FFA Camp Muskingum*

- Economics of starting an orchard – my experience from me buying land to the chestnuts paying me – Bob Stehli, Wintergreen Tree Farm, Mantua, OH
- Using DNA markers to benefit the chestnut industry, especially chestnut breeding - Jeanne Romero-Severson, Notre Dame University, South Bend, IN
- Implementation of a cooperative chestnut breeding program – Greg Miller, Empire Chestnut Company, Carrollton, OH
- Report from the Center for Agroforestry – Mike Gold, University of Missouri, Columbia, MO
- CGA Business – David English, President

5-8 pm *Catered dinner and social time at FFA Camp Muskingum*

Sunday, 11 June

CGA Board Meeting, Microtel Inn & Suites, Carrollton, OH

Optional Tours - TBA

Registration and lodging information to follow in April.

considered to be much of a problem.

Then in 2011, the frequency of BER increased dramatically. We didn't measure precisely, but the incidence was more than 10%, and BER chestnuts comprised the majority of cull nuts. We took notice, but shrugged it off as probably something to do with that particular year. However, the incidence of BER further increased in 2012 and continued to increase in 2013 to a level of about 30%. At this point it was a serious issue.

Over those same years, BER became a serious problem in Bob Stehli's orchard 60 miles north of us in Mantua, OH and in Jim Kohr's orchard 300 miles east of us in Pine Grove, PA. Kohr's orchard was planted in the 1960's and he had never seen BER to the extent that it was in 2012 and 2013. Why did this minor disease suddenly become a major disease simultaneously over a fairly large geographic area? The three of us puzzled over this question, along with a more important question, namely, was there something we could do about it?

Attempting to Mitigate BER

There is not much scientific literature regarding BER on chestnuts, but I did find a book³ that offered the following recommendation: "Thinning of trees and nuts in overcrowded orchard is recommended. At nut developing stage, spraying the trees with captan (0.3%) or zineb (0.25%) is effective."

So, Stehli, Kohr, and I all decided to spray with Captan in 2014. We used application rates recommended for bitter rot of apple. Kohr and I applied the Captan as a tank mix with the insecticide that we use to control chestnut weevils, reasoning that BER appears at about the same nut development stage as weevils do. Thus, I made two applications, one in mid-August and a second one in early September. Stehli

made a summer application at bloom time. We all left some trees untreated as controls.

The good news was that the frequency of BER chestnuts was about 7-8% that fall in our orchards; slightly higher in Bob's orchards. The bad news was that the untreated controls had a BER frequency about the same as the sprayed trees. We all concluded that the Captan spraying had little or no effect on the incidence of BER, and it was not worth the substantial cost to apply it.

We applied no fungicide in 2015, and the incidence of BER again was about 7-8% in our orchards, somewhat higher in Bob's orchards. This incidence rate is much better than 30%, but still much higher than the rates of pre-2011, and high enough to be of economic concern. The question remains as to why BER has suddenly become such a big problem. I now think we have an answer.

Possible Explanations

In 2011, Bob Stehli and I were in the midst of an Asian chestnut gall wasp outbreak. For us, the gall wasp populations rapidly increased over a period of a few years, reached a peak in 2011-12, and then rapidly declined as biological controls kicked in. Jim Kohr never had a large, spectacular outbreak of gall wasp, but did have a low-level outbreak that apparently came under bio-control shortly after it arrived.

The bio-controls of gall wasp consist of several species of parasitic wasps plus a fungus that causes a necrotic, brown lesion on the gall that kills the gall wasp larvae inside. In 2015, Lynne Rieske-Kinney reported that the fungus that causes the gall lesions was molecularly identified as belonging to the genus *Colletotrichum*, the same genus as the fungus that causes BER⁴. It thus appears possible that the

BER fungus thrives on chestnut galls and subsequently persists on dead galls, from which it then spreads to chestnut burs and nuts. This scenario remains to be proven, but the circumstantial evidence is strong.

In the meantime, BER was minimal in Stehli's and Kohr's orchards 2016, something on the order of 3%. This may be partially due to the dry summer. Our 2016 chestnut crop was devastated by periodical cicadas, so I don't have good data for BER incidence.

Recommendations

There is considerable genetic variation in the incidence of BER among different chestnut trees. Since Bob Stehli, Jim Kohr, and I all have seedling orchards that include a broad array of material, we have seen trees that produce nuts that are essentially free of BER, including some high-quality pure Chinese individuals. Stehli and I have seedling orchards that are closely spaced enough that we have to remove trees. High BER incidence has become a major criterion for tree culling. Thus, part of the recent improvement in BER incidence for Stehli and me has resulted from selection.

Interestingly, Allegheny chinkapins (*Castanea pumila*) seem to be completely free of BER. It also appears that Japanese hybrids (including 'Colossal' and 'Sleeping Giant') have low incidences of BER. I am keeping an eye on the BER-free trees. It's noteworthy that nuts from the BER-free trees also appear to exhibit lower incidence of postharvest molding. Thus, over the long term, it appears that we can control BER and postharvest molding by selection and breeding.

But in the meantime, for existing orchards BER is a malady that we probably will have to tolerate, especially in the presence of Asian chestnut gall wasp. Good chemical control measures remain to be found. 🍓

¹Berry, F. H., 1958. Blossom-end rot of Chinese chestnuts. *Plant Dis Reporter*: 91-96

²Personal communication

³*Diseases of Horticultural Crops - Fruits*. L. R. Verma and R. C. Sharma. 1999. pp 228-229

⁴Graziosi, I. and Rieske, L. K. 2015. A plant pathogen causes extensive mortality on an invasive insect herbivore. *Agr Forest Entomol*, 17:366-374 doi:10.1111/afe.12116



Bulk chestnuts showing a high incidence of blossom end rot.

Chestnut Growers, Inc. Growing a Commercial Chestnut Industry in the State of Michigan

Submitted by Roger Blackwell, rblackwel@comcast.net

Chestnut Growers, Inc. a Michigan Cooperative of 32 chestnut growers, has a new record crop for the 2016 chestnut harvest season. Our cooperative has for the first time in our 15 years of existence produced a fresh chestnut crop exceeding 200,000 pounds. A crop of 90,000 pounds was our previous record. The European variety, Colossal, is responsible for 75% of this 2016 banner crop. This particular variety seems to grow well here in Michigan.

Individually this year one grower attained 7,000 pounds per acre. A second grower had 6,000 per acre and many others had chestnuts in the range of 3,000 to 4,000 pounds per acre. Many of these chestnut trees producing are 14 to 16 years old and thriving well in our Michigan climate. The year 2016 will go down as what I call a perfect growing year for chestnut trees to bear fruit.

Chestnut Growers, Inc. is a producer-

owned and operated marketing cooperative based in Clarksville, Michigan, with members spread across the state's Lower Peninsula. The cooperative grades, cleans, packages, markets and delivers its members' fresh chestnuts. Producers typically send approximately 80,000 to 100,000 pounds of chestnuts to the co-op annually. Each year CGI is adding new growers and more trees, and yields are expected to increase.

CGI formally incorporated as a cooperative in 2002 in the State of Michigan. Under co-op agreements, growers receive a base price for chestnuts, with premiums for larger nuts and lower prices for smaller nuts.

Co-op members enjoy a number of benefits. They have a market for their crop and a demand for their product that far exceeds supply. In addition, the co-op helps maintain and service key customers. Yields for chestnuts can fluctuate an-

nually, but in a cooperative arrangement, a bad year for one grower is balanced by a good year for another thereby allowing the co-op to maintain a steady supply of fresh chestnuts.

In expanding the commercial chestnut industry, CGI recognizes that chestnut trees are still unfamiliar to most potential growers. A long-term investment is needed to produce a marketable and sustainable crop. With the help from Michigan State University and its research, much of the uncertainty in growing chestnuts has been alleviated. In addition, CGI is proving that the potential market is expanding and a carefully managed business can be profitable. Good chestnut cultivars propagated in the right locations can be an excellent sustainable crop for decades. In building and maintaining a co-op for Michigan chestnut growers, our corporation makes for a sustainable business model for the future. 🍂



Chestnut Orchard Solutions harvests chestnuts at a northern Michigan farm, October 2016.

Michigan's chestnut producers harvested a bumper crop this season. With commercial cultivars coming into bearing and the weather cooperating, chestnut harvest in Michigan is estimated to have doubled in 2016.

Photo by Erin Lizotte, MSU Extension

Chestnuts Roasting on a...CT Scanner?

Text adapted from an article that originally appeared in the Michigan Agricultural Experiment Station 2009 Annual Report and an article by Tom Oswald in MSU Today in December 2012, with updates from this year.

One bad chestnut may not spoil the whole bunch, but it can do a lot of damage to the industry's reputation, to say nothing of its business.

For centuries, chestnuts have been discarded if they float, because healthy chestnuts tend to sink. But studies have shown this post-harvest sorting method to be unreliable, with some healthy floating chestnuts being discarded and some decayed, empty or damaged chestnuts ultimately making their way to consumers. Michigan State University researchers have found problems with the age-old selection practice and are working toward a high-tech solution.

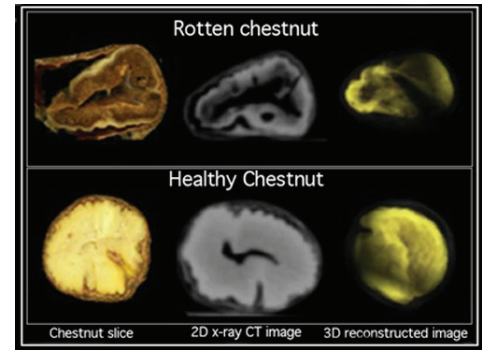
In an effort to make sure chestnuts make it to market in good condition, Daniel Guyer, professor of biosystems and agricultural engineering, teamed up with doctoral student Irwin Donis González to determine the best non-invasive technique to detect internal decay in fresh,

unpeeled chestnuts and study its commercial viability for the industry.

"We have to take what the human mind does in interpreting images and translate it into an algorithm to develop a reliable computer-based model," Guyer said. "We can determine a really good or a really rotten chestnut, but the gray area is the problem. The product that may or may not be sorted out will determine whether a grower is profitable."

Guyer and his team worked with researchers across several disciplines to determine a method that can be used for not only chestnuts, but a host of other food items.

"Seeing inside a chestnut is like looking at your toes through a leather boot," Guyer said. "We can't destroy the product or rely on a process that has been proven to have a high error rate, so we are testing some of the same technologies that the



A computerized tomography, or CT, scan of a chestnut. Photo courtesy of the MSU Department of the Biosystems and Agricultural Engineering.

medical industry and other industries use to non-invasively detect internal decay in chestnuts."

To see beyond "the boot" — chestnuts' tough outer shell — Guyer and Donis González evaluated technologies such as ultrasound, X-rays and CT scanning to get an inside look. Research indicates that CT scanning appears to give the most reliable information about internal chestnut structure.

"X-rays look all the way through something, so you get a composite blurring effect," Guyer said. "An MRI is more expensive and is much slower in providing images. CT scans provide a more detailed, 3-D image quicker."

A CT – computerized tomography – combines a series of X-rays taken from different angles and computer processing to create cross-sectional images.

"The goal is to develop a system that will automatically sort the internal quality of things that we can't use current technology for," said Irwin Donis González.

In a perfect world, chestnuts and other foods are imaged at harvest time. Chestnuts in particular are important to get to early in the process, as they are perishable, similar to apples.



MSU researchers are trying to determine the best noninvasive methods of detecting quality and safety issues such as mold in chestnuts. Photo by G.L. Kohuth.

“The goal is to develop a system that will automatically sort the internal quality of things that we can’t use current technology for.”

“If I sell you a pound of nuts and it’s got one or two really bad ones in it, you’re not going to be a return customer,” Guyer said. “That’s what we’re trying to avoid.”

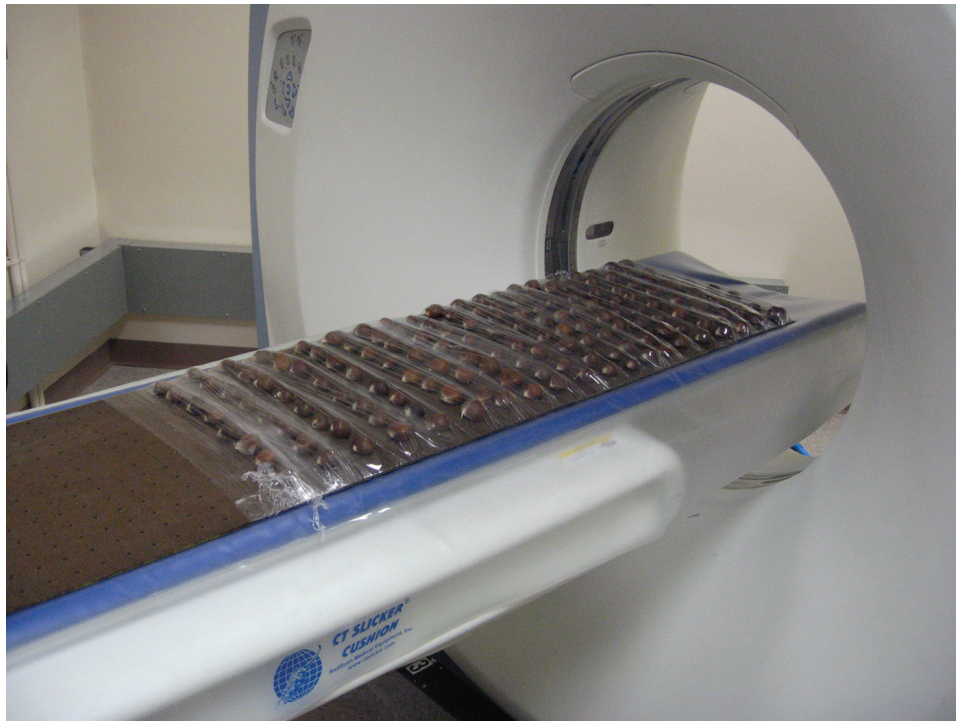
Updates for 2016

Since these articles were published, Guyer and his team have continued to look at other needs in the raw product industry where the CT scanning concept might have some application. The hope is to increase the potential market for the technology and thus make it more attractive to further development.

“We took chestnuts about as far as we could with excellent success in proving the concept and developing the imaging parameters and the imaging processing techniques to accurately classify good and defective chestnuts,” says Guyer. “The next challenge or step comes in the hardware technology to be able to rapidly produce CT images at a feasible cost.”

Guyer is continuing to look for research or commercial entities to partner with to move the concept to the next level. Many have expressed interest in the method but are hesitant to invest in large-scale research and development. “There is new technology being developed to capture images and process images in real time and would be much lower in cost, but it is not at a commercial stage that we are aware of,” he said.

The team has most recently studied detection of hazardous fiber in processing carrots with good success and has done some studies on the detection of undesirable fibrous tissue in asparagus. During the chestnut work, they also looked at applications in cherries for pit detection. Expanding the use of the technology to other agricultural products may increase its chances of commercial viability for the chestnut industry. 🍂



Chestnuts ready to be imaged on a computerized tomography scanner. Photo courtesy of the MSU Department of Biosystems and Agricultural Engineering.



Irwin Donis González was a doctoral student in the MSU Department of Biosystems and Agricultural Engineering. He used CT imaging to determine the quality of foods such as chestnuts and cherries. Photo courtesy of the MSU Department of Biosystems and Agricultural Engineering.

Use *The Chestnut Forum* to ask and answer chestnut questions online

By Derek Waltchack

At last year's annual meeting, the need for an online knowledge resource or a web user forum was raised. Little did some of us know, but a resource for that already existed. Carolyn Young has maintained *The Chestnut Forum* for over 15 years. You'll find almost 2,000 posts!

Instead of reinventing the wheel, your Board decided to simply utilize and promote *The Chestnut Forum*. The CGA website now features a link to this resource on the "Resources" page.

If you've ever wondered how to choose a cultivar for your orchard or how to deal with chestnut weevils or even what nut processing systems are best, you'll find answers and discussions among growers in the forum.

For newbie chestnut growers, there are many of those moments where you say, "Oh no, what's this??" I know I've had a few. Being able to ask a question or find the topic being discussed among other growers can be a great security blanket. We encourage all CGA members to start using and checking the site. You never know when your unique knowledge might be the key for someone else's problems.

To participate in the Forum, go to www.chestnutsonline.com/forum/ubbthreads.php, select "Register User", and provide your information. Then log in to start posting.

For Sale / Seeking

CGA members can post equipment or other items they want to buy or have for sale, free. Send your submissions to chestnutgrowersofamerica@gmail.com.

FOR SALE: Chestnut Orchard, 71 Dunstan hybrid trees on 1.1 acres located in Dyer County Tennessee, planted in 1994. For additional information, call Joe Welborn (901) 828-7957.

FOR SALE: Tifone Orchard/vineyard sprayer. 400 liter, PTO driven sprayer with adjustable new spray heads, adjustable fan, new gear oil, and new uncut drive shaft for exact PTO requirements. Call/email for details/photos/questions: David English (850) 566-7092, chestnutsrus@yahoo.com.

YOUR AD HERE



The Chestnut Forum

Chestnuts On Line.com » Forums		You are not logged in. [Log In]	
Register User	Forum List	Calendar	Active Topics ▼ FAQ
FORUM INFO			
Forums	Threads	Posts	Last Post
Using the Chestnut Forum	4	4	Purpose of The Forum (Carolyn Young) - 07/22/15 09:25 PM
Food Safety Issues regarding food safety including legislation	3	3	FSMA Presentation by Dr. L... (Carolyn Young) - 07/06/15 01:15 PM
GROWERS' FORUM			
Forums	Threads	Posts	Last Post
Orchard Establishment and Maintenance All the issues about planning, planting and maintaining a chestnut orchard.	104	464	Re: Problem with trees in ... (Sherwood) - 11/28/16 11:38 AM
Harvesting and Processing Discuss equipment, sorting, grading, storage, and any related issues.	36	137	Re: Storage testing (Sherwood) - 11/28/16 11:20 AM
Cultivars including the American Chestnut Everything about the many cultivars out there -- taste, adaptability to an area, attributes, etc.	46	214	Recommended nut cultivars... (Sherwood) - 11/28/16 10:42 AM
Pests and Diseases Get help or offer help on pests and diseases and means of controlling them.	44	147	Re: Underground Pest (Sondares) - 09/30/16 03:51 AM
Marketing Comments and questions about how to market, where to market, legal requirements, packaging, etc.	29	87	Ideas Please!! (crazyyme) - 08/19/16 05:04 AM
Quality Standards Express your ideas, questions and concerns about USDA and other standards and how they affect the growers.	1	12	Re: Proposed USDA standard... (Joe Kersey) - 11/24/11 12:56 PM
Organic/Sustainable Agriculture The pros and cons of organic agriculture. What's different about sustainable agriculture?	3	7	Re: How to integrate mushr... (zelko) - 01/26/12 03:07 PM
EVENTS			
Forums	Threads	Posts	Last Post
Meetings/Conferences/Orchard Tours (1 viewing) Let us know about your association's next meeting or orchard tour anywhere in the world.	37	67	Chestnut Growers of Americ... (Carolyn Young) - 05/29/15 11:03 AM

A paid CGA Grower Directory listing could give your marketing a boost

The CGA website offers a great marketing opportunity for your orchard that you may not be aware of. The online Grower Directory (www.chestnutgrowers.org/growers.html) provides a way for potential customers to look up local chestnut growers in their area. An option to post a paid listing in the grower directory helps your orchard stand out with a photo and more detailed information.

Those of you who sell retail know that your customers want to know that they are dealing with “real” people, people who take pride in their orchards, and people

they can trust. That means you should let them know who you really are.

Using a photo and telling a little bit about your orchard gives you an opportunity to share something about your background, your philosophy, and a bit about how you work. These are all the things customers enjoy learning. From the listing, they can link directly to your website or contact you via email.

The paid directory listings are still \$25.00/year and can be paid for at the time you renew your membership. You can submit your photo and

text by email to the webmaster at chestnutgrowersofamerica@gmail.com. The photo (ideally one of you in your orchard) should be high-quality, and text may be up to 200 words. If you need help, contact the webmaster. Your renewal form is included with this issue or available to download on the website (www.chestnutgrowers.org/resources.html) and includes the option for you to select a paid listing. This is a marketing opportunity you can't afford to miss!

Free listings are still available and appear as shown beside the paid listing sample.

Chestnut Charlie's Organic Nuts

PO Box 1166, Lawrence, KS 66044
(Website) (Email) Phone: 785-841-8505



As a trial project, Charlie NovoGradac started planting chestnut trees in 1995 on old farm ground north of Lawrence, Kansas. Inspired by J. Russell Smith's *Tree Crops, a Permanent Agriculture*, Charlie believes that tree crops can help heal the planet, reduce erosion and capture atmospheric carbon while sustainably producing healthy food. . In 20 years we have learned that the Chinese chestnut species and Chinese-American hybrid trees do better in our soil and climate.

Charlie is always taking notes, rating cultivars for quality and production, removing inferior trees and grafting or top-working others with named cultivars and our own superior selections. The orchard now has about 1500 chestnut trees on 20 acres. We hire local people to gather chestnuts by hand daily through September and October. Chestnuts are float-tested, inspected, sorted for size, and refrigerated promptly as they fall in order to maintain the highest quality. Our area remains chestnut weevil free, helped by our clean-harvest practices. In season, Chestnut Charlie's sells fresh chestnuts by mail and also thru local and regional health food stores. We are certified organic. Our customers, including people from the “old country” who grew up eating chestnuts, praise our easy-peeling, high-quality, sweet chestnuts.

7087 189th St.
Albia, IA 52531
641-777-9861

Tobin Acres
2056 Forest Ave.
New Market, IA 51646
712-585-3369

Red Fern Farm
13882 N. Ave., Wapello, IA 52653
319-729-5905

Crowcreek Farm
2147 185th St., Fairfield, IA 52556
641-919-6853

Prairie Grove Chestnut Growers
19417 120th St.
Columbus Jct., IA 52738

New for 2017: Pay dues, registration fees, and other charges to CGA through the website

The option to pay membership dues and make other payments to CGA online makes participation in our organization more convenient than ever.

Thanks to Jack Kirk for setting up PayPal capabilities for CGA and to Rita Belair for configuring the website to accept payments.

Checkout through PayPal is quick and easy. You do not need a PayPal account to make payments - you can check out using only your credit card information. PayPal is a longstanding and trusted option for transferring funds online, and checkout is completely secure.

As usual, you still have the option to submit payments with a check. If you have any questions, contact the treasurer, Jack Kirk, at jkirk@essexbank.com.

To make payments, visit www.chestnutgrowers.org/paydues.html.

Membership Dues - Annual

Membership Type

Household Membership \$45.00 ▾

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Print Format Newsletters (\$5.00/year)

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Paid Grower Listing on Website (\$25.00/year)

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Carolina Chestnut Pulled Pork

Recipe by Eric Cartwright, Executive Chef of Campus Dining Services at the University of Missouri, courtesy of the University of Missouri Center for Agroforestry

Sauce

- 1 c. apple cider vinegar
- 6 Tbsp. ketchup
- 6 Tbsp. water
- ½ c. roasted and shelled chestnut meat, shells reserved for smoking
- 2 ½ tsp. sugar
- ¾ tsp. salt
- ¼ tsp. crushed red pepper

Pulled Pork

- 1 bone-in Boston pork butt (about 8 lbs.)
- 3 Tbsp. kosher salt
- 3 Tbsp. freshly ground black pepper
- Wood chips for smoking or grilling the pork

In a blender, combine all sauce ingredients and blend until smooth. Refrigerate for 24 hours to allow flavors to develop.

Prepare a smoker or charcoal grill for low-temperature cooking (220-245° F). Season pork on all sides with salt and pepper. Place seasoned pork on smoker or grill, and add wood chips and chestnut shells to coals. Slow cook for 8-10 hours or until meat has reached an internal temperature of 195° F and has begun pulling away from the bone.

Remove pork from grill, wrap in foil and let rest for 30 minutes. Pull meat from bone into coarse pieces, removing any large pieces of fat. (Leave some fat to retain moisture.) Roughly chop pork, and mix in half of prepared sauce. Serve additional sauce on the side.

This recipe can be found in the November 2016 issue of Feast Magazine with an article by Eric Reuter featuring the history and growing popularity of chestnuts.

CGA End-of-Year Financial Summary, 2015-2016

Prepared by Jack Kirk

		2016	2015
INCOME	Annual meeting registrations	\$3,290.00	\$1,815.00
	Annual meeting silent auction	\$1,039.00	
	Dues	\$3,475.00	\$2,945.00
	Online grower directory	\$0.00	\$325.00
	Interest income	\$54.72	\$6.42
	Newsletter advertising	\$25.00	\$80.00
	TOTAL INCOME	\$7,883.72	\$5,171.42
EXPENSES	Annual meeting	\$1,117.97	\$885.67
	Directory	\$196.54	\$177.31
	Insurance	\$1,032.25	\$1,032.25
	Newsletter	\$424.98	\$587.34
	Communications Director	\$2,626.92	\$0.00
	Organizational expenses	\$100.87	\$114.97
	Website	\$236.92	\$412.32
	Dues collection expenses	\$0.00	\$109.98
	Bank charges	\$12.78	\$10.70
	TOTAL EXPENSES	\$5,749.23	\$3,330.54
NET INCOME	\$2,134.49	\$1,840.88	
CASH, BEGINNING OF YEAR	\$31,367.89	\$29,527.01	
CASH, END OF YEAR	\$33,344.38	\$31,367.89	

Washington Chestnut Company

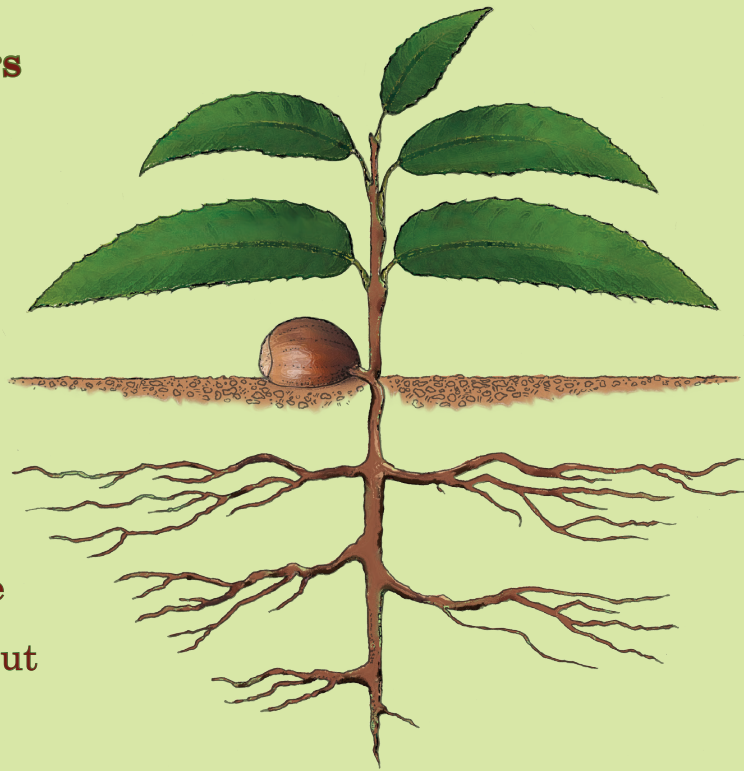


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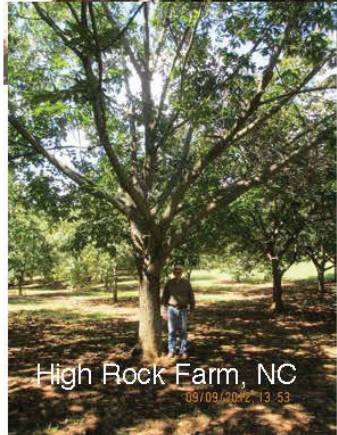
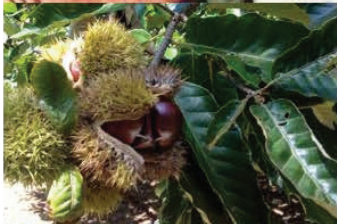
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