Chestnut Growers of America

The Chestnut Grower

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Annual Meeting Coming

It's time to make your reservations for the annual meeting to be held at High Rock Farm in Gibsonville, NC, June 20 through June 22. Hosted by member Richard Teague things will start with a light dinner on Friday evening and hours of socializing with fellow growers will follow.

Saturday will begin with a tour of the 20 acre chestnut orchard and will be followed by a great lineup of speakers.

The farm hosts a chestnut festival each fall and you'll learn what it takes to hold such an event. As a producer of value-added products you'll see how this helps the bottom line.

This issue includes a registration form that is to be returned to the Secretary/Treasurer no later than Friday, June 13.

Chestnut roasting is a major event at the annual chestnut festival held at High Rock Farm.

In This Issue

Chestnuts and Proposed Food Safety Regulations

By: Charlie NovoGradac
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Will small chestnut farmers be affected by the new regulations under the Food Safety Modernization Act (FSMA)? If not amended before finalization, there will indeed be problems for some, but not all, of us.

On January 4, 2013, the Food and Drug Administration (FDA) released for comment proposed rules under the FSMA: Part 112—Standards for the Growing, Harvesting, Packing, and Holding of Produce for Human Consumption. The proposal, including regulations and explanatory materials, consists of 548 pages.[1] The comment period has expired but the regulations have not been adopted yet. The website counts 18,612 comments received.[2] Unofficially the FDA may be reconsidering many, many issues including making them more farmer-friendly.

I looked at the regulations first to determine if they cover chestnuts?[3] Second, if chestnuts are covered, how will the regulations apply to my small farm operation? I could not deal with, and do not summarize, all the myriad jungle of regulations. But I will focus on a couple of regulations which are critical.

Small farm exemption: The question of whether a small farm is covered seems to be the easiest to answer, and the least subject to change by the FDA, so let's start with the second question first.

The small and organic farmers that I most associate with are concerned about the heavy burden of regulation making small and independent operations comparatively unprofitable. The issue of exempting small farms and direct and local sales was addressed by Congress and was apparently resolved (as much as ever will be) by the so-called Tester-Hagan amendments to the FSMA. As restated by these proposed regulations, first, a farm with $25,000 or less of annual value of food sold, is not covered by the FSMA. Second, a small farm with average annual monetary value of food sold during the previous three-year period of no more than $500,000 can be conditionally exempt, in the words of the FDA's summary:

> As required by Congress, farms would be partially exempt from the proposed rule if they meet two requirements. First, they must have food sales averaging less than $500,000 per year during the last three years (adjusted for inflation). Second, their sales to qualified end-users must exceed their sales to others during the same period. A qualified end-user is either a consumer (in any location) or a restaurant or retail food establishment located in the same state as the farm or not more than 275 miles away from the farm. However, FDA may withdraw this partial exemption if the farm is directly linked to an outbreak, or if FDA determines it is necessary to protect the public health and prevent or mitigate an outbreak based on conditions or conduct that create the potential for the farm's produce to cause an outbreak.[4]

Because this is often confusing, let me interpret. Those of us who are modest-sized (over $25,000 and under $500,000 in annual food sales) are conditionally exempt if over 50% of our food sales are to qualified end-users. One kind of qualified end-user is a consumer (not a business) no matter where located. So internet and mail order operations from California to Florida can be exempt from the FSMA. Another kind of qualified end-user would be a restaurant. Also a "retail food establishment." To be qualified, the restaurant or the retail food establishment must be local, that is, in your state or within 275 miles of

A MESSAGE FROM THE PRESIDENT

In Michigan, if we were here 133 years ago the weather would have been similar to this winter of 2013/2014. During that season 86 days of below freezing temperatures and a record snowfall of 93.6 inches occurred in Southeast Michigan. In other parts of Michigan there has been more snow and temperatures have been colder. That being said, there is a good possibility that this winter could be the snowiest and the coldest in the record books of the National Weather Service in many parts of the state of Michigan. Obviously, we will be monitoring how chestnut trees in our orchards will have fared in these unusual winter conditions and the effects on the production of chestnuts in the fall of 2014. How will our cultivars throughout different regions of the United States produce due to the different weather conditions we have experienced this year including the extreme drought conditions in California? I know many of you throughout the United States have experienced a similar long and cold winter.

Another topic to share is the Food Safety Modernization Act (FSMA) and how it is progressing. These rules were first published in January 2013, covering fresh produce safety and preventative controls for eliminating pathogens. From these discussions with farmers and others, the FDA has learned that the new safety standards must be flexible enough to reasonably accommodate the great diversity of the produce sector, and they must be practical to implement. The FDA is going back to the drawing board and is making significant changes in the following areas:

- Water quality standards and testing
- Standards for using raw manure and compost
- Provisions affecting mixed use facilities
- Procedures for withdrawing the qualified exemption for certain farms

The FDA plans to publish the revised proposed rule changes in early summer 2014. Only the portions of the proposed rules that have been revised will receive the opportunity of additional comments from us. The FSMA is to be finalized by 2015 based on a prior required court order. The FDA is striving to get the FSMA rules right for all concerned.

On a final note, I hope to see you all at the Annual CGA Membership Meeting on Friday June 20, 2014 through Sunday June 22, 2014 at The High Rock Farm, Gibsonville, North Carolina. I for one will not complain about the summer heat this year and hope we all will have a normal spring.

Roger R. Blackwell

EDITOR'S NOTES

The Food Safety Modernization Act will impact all of us as growers and could potentially put some of us out of business because of regulations that could increase our cost of production to an unacceptable level. Charlie NovoGradac has done extensive research on the act and makes it available here for all of us.

Another thing that will impact all of us, but over which we have no control, is the weather. California growers have been hit by severe drought and eastern growers by excessively cold weather. How will our trees be affected? Will we discover some cultivars that don't hold up and others that appear to be more tolerant? We've got a lot to learn here and Mother Nature is not necessarily a kind teacher. This issue includes info on both of these challenges.

Harvey Correia offers us his illustrated grafting techniques that have produced an outstanding orchard at his Central Valley location in California.

Another article included is one of observation, and not a criticism. It's all about the total lack of consistency in our marketing approaches and questions about how it impacts our bottom line.

Carolyn

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Business card (4 issues)	15.00

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Publication and Deadlines

Fall issue	deadline 9/10	mailed 10/1
Winter issue	deadline 12/10	mailed 1/1
Spring issue	deadline 3/10	mailed 4/1
Summer issue	deadline 6/10	mailed 7/1

Editorial Opinion

The views, articles and advertising appearing in The Chestnut Grower do not necessarily reflect the attitude nor policy of Chestnut Growers of America, Inc., its members, officers, Board of Directors or Editor. Chestnut Growers of America, Inc., and this publication are not responsible for errors and/or misrepresentations in advertising. The Editor reserves the right to reject or edit all material submitted for publication.

Cost of Production

Erin Lizotte and Roger Betz, Michigan State University Extension Educators
and Dennis Fulbright, Professor, MSU

In 1992, two county extension agents, Jim Bardenhagen and Burt Stanley came to Michigan State University and asked two important questions: How should MSU respond to people establishing chestnut orchards up north? and , What should they tell people who want information about chestnut trees? Those two questions have been the driving force behind chestnut research on campus. Since that time, Michigan State University has worked on the issues of proper cultivars, site location, orchard maintenance including pest control, harvesting and marketing. MSU even helped growers organize into a successful cooperative. The part that was missing was a cost-of-production analysis; something that summarized the total costs from the parts. We could not do that before because we needed to discover, first, the answers to those parts; we needed to be able to fill in the blanks. Now, one of the most valuable contributions of all emerges—a cost of production tool.

With this program Michigan growers can now get help with the big picture by looking at the sum of the parts. Now we truly begin to answer the questions first posed by MSU Extension agents 20 years ago. We know what to plant, where to plant, how to care for it, how to market it, and now, we can finally begin to answer the question, "Can we make money doing this?" If we can, now we can test various ways to to do it.

Why the comparison with cherries? In some locations in Michigan, cherries are number one when it comes to agricultural production and if you are growing something else instead of cherries you may be losing money. What about chestnuts? What would help you decide to grow chestnuts instead of cherries? If a cost of production tool was available we can compare a farm of cherries with a farm of chestnuts. The estimated cost of producing grafted, European X Japanese cultivars at a commercial scale (>10 acres) is $0.81/lbs based on a full production yield of 3,500 lbs/acre and a minimum planting size of 10 acres. The cost of production calculation is based on estimates of operating costs, harvest costs, management, interest and tax costs. It also includes an amortized cost of establishing an orchard and employing the land in production. The tool also compares the cost of production to a defender crop (tart cherry) and can be modified to represent a number of alternative production systems including seedling chestnut orchards or high-density apples.

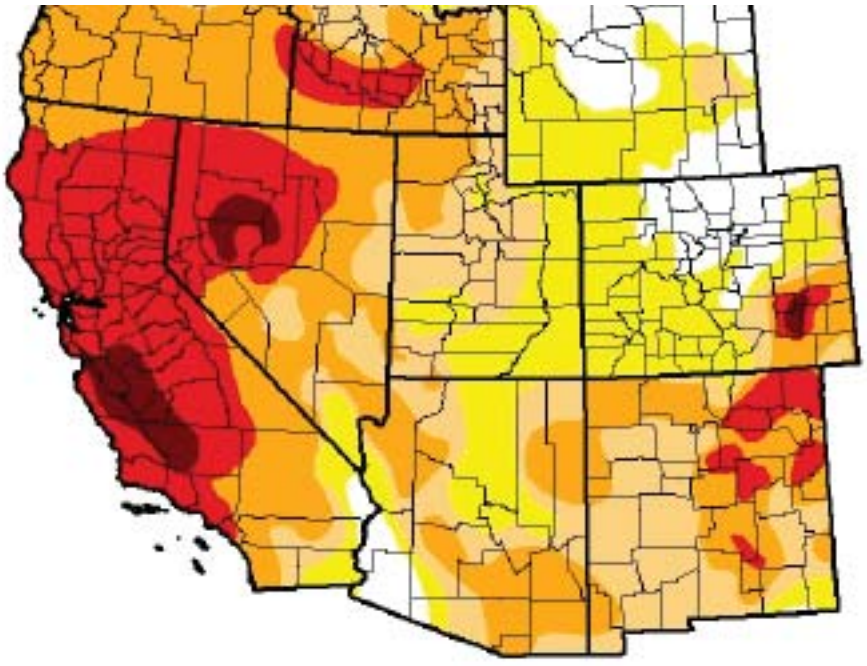
If you are interested, go to the Michigan State University chestnut website:

http://chestnuts.msu.edu/establishing_orchards/cost_of_production and download the cost of production and comparative analysis tool as well as the directions and description of the tool by clicking on the file names.

California Growers Face Record Drought Conditions

The first week of February saw record drought conditions for California and particularly for those areas in its Central Valley. Nearly 20% of our members live in California and have varying opinions about the water situation there. One grower shared that he could get by for a year because, although he has no irrigation he has good ground water. A second year of drought could be quite another problem. Another grower felt that much of problem seen there is man-made by politicians who mismanage water resources, are more responsive to the environmentalists and have essentially turned farmers into an endangered species.

A third grower with senior water rights feels that he's okay for the time being.



January 28, 2014

(Released Thursday, Jan. 30, 2014)

Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0	D1	D2	D3	D4
Current	17.38	19.12	23.62	24.38	13.49	1.60
Last Week 1/21/2014	18.74	20.46	23.82	23.21	13.15	0.63
3 Months Ago 10/29/2013	27.90	18.49	21.37	26.91	4.71	0.63
Start of Calendar Year 12/31/2013	22.20	26.36	20.33	23.37	7.12	0.63
Start of Water Year 10/1/2013	25.25	15.79	24.77	28.61	4.94	0.63
One Year Ago 1/29/2013	23.58	9.90	22.51	27.61	14.24	2.15

Intensity:

D0 Abnormally Dry
D1 Moderate Drought
D2 Severe Drought
D3 Extreme Drought
D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:
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NOAA/NWS/NCEP/CPC

Chestnut Grafting

Time to Do Something With That Scion Wood

by Harvey Correia

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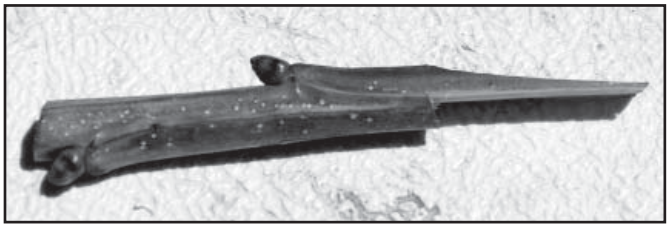
This is the conclusion of a two-part article on chestnut grafting. Please refer to the last newsletter for information on collection and storage of scion wood. We should also discuss the purposes or advantages of grafting. Grafting is usually performed for two reasons. First, it allows us to reproduce desired cultivars genetically in order to allow for a harvest of a particular quality and in a similar harvest time period. Secondly, seedling trees do not immediately possess the properties necessary to fruit reliably before waiting for four to five years or maybe more while collecting scion wood from trees that are already producing can fruit even in the same year as grafted.

Grafting small nursery stock trees as well as top-working existing orchard trees is best performed once the trees have begun pushing new growth in the spring. This aids in the new grafts growing more quickly. Another factor to consider is daytime temperatures. Different plant species have different requirements and chestnuts require a little warmer weather than some other plants such as apples for the graft unions to callus or heal. Since temperatures in the spring often fluctuate quite a bit, it's best to wait until there are several days regularly experiencing temperatures in the 70's Fahrenheit while trying to avoid periods where temperatures will go above the upper 80's. That said, my first chestnut graft was made in February, 2000, with daytime temperatures probably in the 40's and 50's because I didn't know any better. Although the scion just sat there for a couple of months, it eventually grew and flourishes today. Additionally, when I performed a major top-working of my orchard in 2007, I did this in two stages with the top half of the trees grafted in March and April, and then the lower half of the trees around June and July when we often had temperatures in the 90's. My success rate in both stages was about 99% so some flexibility is definitely possible.

The types of grafts used are primarily dependent on the size of the stock (existing orchard tree or seedling tree in a pot or nursery) and the size of scion wood available. Chip budding has been used in some nurseries but that is not something I've personally done so I do will not be covering that method. Also, please note that some graft styles are given different names and I will just use the names I've heard most often or as I know them.

When top-working large orchard trees I have almost always used a modified rind bark graft which was first explained to me by another CGA member but which is also in The GRAFTER'S HANDBOOK by R. J. Garner. In these cases I am usually working with scions that are 3/16" to 7/16" in diameter and grafting to branches that are 1" to 3" in diameter. In grafting smaller trees, I will typically use a whip-and-tongue graft if my stock is approximately the same diameter (or slightly larger) as my scion, or a cleft graft if the stock is 3/8"- 3/4" in diameter and my scion is about half or less in diameter. With all graft methods, it is a good idea to sanitize tools and scions with a spray of isopropyl alcohol to reduce the spread of pathogens which can adversely affect the health of the graft union and/or resulting tree.



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In performing the modified rind bark graft it is necessary that the tree is actively growing sufficiently that the bark "slips". If you make a test vertical cut into the stock you must be able to peel back the bark fairly easily. I will cut the stock at a 30° angle with the high point of the angle either away from the center of the tree or, if prevailing winds pose a significant risk to damage, the high point will be towards the direction of the prevailing winds. Many times branch direction or spacing lead me to grafting in different positions than I prefer but they usually still work out okay. I will perform my graft at the high point of the cut on the stock. The purpose of using the 30° angle is to help reduce the risk of the growing graft of breaking away from the stock either because of wind or weight. I make my cuts of the stock using either a cordless circular saw or a circular saw powered by a generator. Using a circular saw always gives me a very smooth cut. Ideally, I should be sanitizing the saw blade between cuts but I don't bother and have not found this to be a problem.

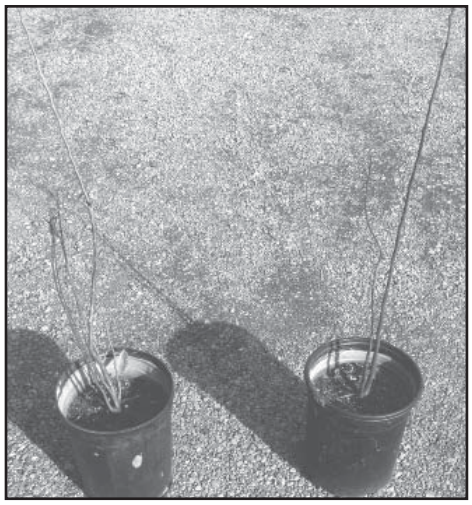
Photo 1, left, shows a scion prepared for grafting. Approximately half of the lower inch of the scion is removed completely and then the backside of the scion is tapered. The horizontal cut made into the scion is cut at an angle to match the angle of the stock into which it will be placed.

I usually prepare scions to have two buds but will range from one to three buds depending on the quality of scion wood and its scarcity (a scion with one bud will usually work but has an increased chance of failure). I make note of

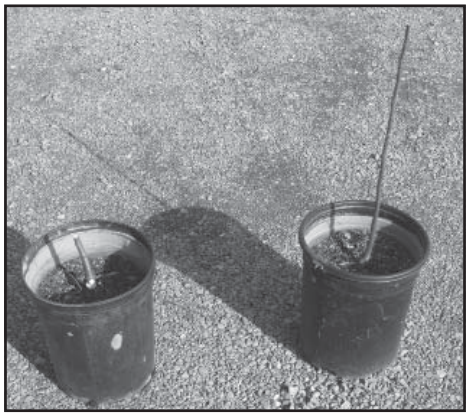
the position of the top bud on the scion and make my cuts when preparing the scion so that the bud will face the direction in which I want the new branch to grow (i.e., outward, towards wind, etc.).

A vertical incision is made slightly more than 1" into the stock and the bark is pulled away slightly on one side of the incision. The scion is then inserted until it is flush with the stock and one side firmly against the bark of the stock that was left intact (see Photo 2, lower left).

There are different methods of securing and sealing the scion at this point. I usually use masking tape and Doc Farwell's latex grafting sealer (see Photos 3 and 4). The masking tape degrades over the next several months which allows for expansion of the new branch as it grows (see Photo 5). In warm weather, I will often see my scions begin growing in 4-10 days and in a few months the new branches will often be 3-6' long. Since the bark has been accustomed to being shaded for many years, one needs to consider white-washing the tree after removal of branches and grafting as sunburn may cause significant damage to the trees in areas such as mine with intense sunlight.



Photos 6 and 7 show two potted



trees which have not quite yet started pushing out new growth but are close and were grafted a little early to coordinate with the timing of this article. I kept the most vigorous shoot of each tree for grafting and removed the remaining growth so that the root system will focus resources into growth of the new graft. The tree on the left is being grafted lower where the trunk is about 5/8" in diameter and a smaller diameter scion was used for a whip-and-tongue graft. The tree on the right is being grafted higher, using a location that is approximately the same diameter as a larger diameter scion and these were used for a cleft graft.

Photo 8 shows supplies used for the grafting: spray bottle of isopropyl alcohol for sanitizing tools and scions, Tina grafting knife (sharpened only on one edge), budding and grafting strips to secure scions in place, and Buddy Tape, a form of Parafilm material to prevent desiccation of the scion until it begins to grow. This is not essential, but does help improve success rates especially if weather becomes arid. There are other methods of sealing grafts as well such as wax, vinyl tape, etc. I avoid using vinyl tape because it must be removed later on to avoid girdling of the growing scion.

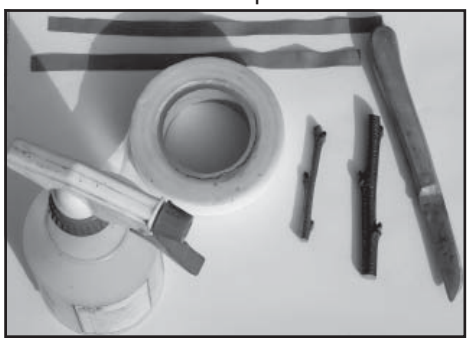


Photo 9 shows preparation of the two scions with the smaller scion on the left being used for the cleft graft and evenly tapered on each side. The larger scion on the right is used for the whip-and-tongue graft and is tapered on one

Consistent, We're Not

Small, mini, medium, standard, large, extra large, huge, gigantic, jumbo, colossal. How would you describe your house? How would you describe the size shoe you wear? What about the size of your property or the size of your graduating class in high school? It takes more than words to adequately describe these just like it takes more than words to describe the size of the nuts we're all selling. An informal survey of 25 websites selling chestnuts retail conducted in November, 2013 – most of them members of CGA – shows that we're all over the map with our ideas about nut size and price. No grower I know of is advocating size standards because we all recognize that different cultivars have different size ranges. It's more important to look at the attributes of the nuts. But it's interesting to see how we present our fresh nuts to our customers:

Description	Size	Price/lb
Small	¾" – 1"	$4.00
	< 1 1/8"	$1.25
	7/8" – 1"	$4.50
	¾" – 7/8"	$2.00
Mini	0.6" – 1"	$4.25
Medium	1" – 1 1/8"	$6.70*
	1 1/8" – 1 ¼"	
	1" – 1 ¼"	$6.25
	1 1/8" – 1 ¼"	$3.00
	7/8" – 1 1/16"	$4.00
	1 1/8" – 1 ¼"	
	1 1/8" – 1 ¼"	$5.50
	No size given	$2.75
	No size given	$4.50
Standard		$6.00
Large	>1"	$5.50
	>1 1/8"	$7.42*
	>1 ¼"	$6.75
	>1 ¼"	$6.25
	>1 ¼"	$7.00
	1 ¼" – 1 3/8"	$3.75
	1 1/8" – 1 ¼"	$5.00
	1 1/16" – 1 ¼"	$5.00
	>1 ¼"	
	1 ¼" – 1 ½"	$6.50
	No size given	$3.00
	No size given	$3.00
Extra Large	>1 1/8" – 1 ¼"	$6.00
	>1 ¼"	$6.00
	No size given	$6.50
Jumbo	1" – 1.5"	$6.50
	> 1 3/8"	$5.00
	> 1 ½"	$8.00
	> 1 ½"	$7.50
	No size given	$5.00
No size or description given		$24.75*
		$12.50
		$8.99
		$6.50
		$6.00
		$5.50
		$6.95
		$2.00
		$7.00
		$5.50

* may include shipping

Seeing the wide variation in descriptions, sizes and prices is not surprising for a group of very independent growers but when you look at the prices you wonder how much profit, if any, is being made. Are chestnuts being treated like the business they are, or are some merely considering them a low-cost hobby and undermining the attempts to create a significant chestnut industry in this country? Are all the costs of production being considered before prices are set? If not, why not?

In 2010 the Almond Industry Conference had a presentation on the Economics of Growing Almonds. See http://www.almondboard.com/Growers/Documents/The Economics of Growing Almonds.pdf

Karen Klonsky, PhD, from UC Davis, showed a $3897 per acre cost for growing almonds in California, with a breakdown of each of the costs involved. A break-even cost of $1.90 per lb, with production of 2000 lbs per acre was determined.

Unlike the production of almonds in California, chestnut production costs vary widely across the country. Minimum wage in most of the eastern and mid-west states growing chestnuts is $7.25, while the Pacific Northwest is much higher, with Washington having a $9.32/hr minimum and Oregon just behind with $9.10. Insurance cost varies, fuel costs vary, power costs vary. Trying to account for the differences is time consuming and may result in growers ignoring actual costs.

Articles have been written that describe what needs to be considered and what needs to be done (see MSU or the University of Missouri's publications from the department of agricultural economics) but they accumulate costs for specific functions and don't address the way a grower works. For example, the cost of mowing the orchard doesn't just include fuel and labor. It includes those and also insurance, maintenance costs, parts, repair/replacement, small tools, depreciation, etc.

Any good accounting software package is easier to use but from the prices for chestnuts we see advertised by growers the assumption is that growers aren't using one or they would realize they're not getting a fair return on their investment.

The two packages used most are Quickbooks and Peachtree, but there are others out there as well and growers are well-advised to check them out if they're not using one.

Profit and Loss reports are easy to generate and quickly show the net income for the business assuming all the data are entered. The grower is encouraged to enter himself/herself as an employee and track labor hours at the rate they feel they're worth. Even if no payroll check is cashed it will reveal the actual net.

Without an understanding of our actual costs and well-struc-

Extreme Cold Hits Michigan Growers

The photos below were taken on Christmas Eve, 2013, at the farm of Pete and Joyce Ivory near Lapeer, Michigan following a significant ice storm. The ice storm not only hurt trees but caused power outages for up to 10 days in some locations in Michigan.

The Ivorys found that most of the damage occurred on Chinese chestnut cultivars. Some members may have toured this 7-year-old chestnut orchard during the Northern Nut Growers Annual meeting in August, 2013. Actual temperatures hovered between -21 and 20 F (not count-

Your orchard can be listed on the CGA Online Growers' Directory

Get your application on the website at www.ChestnutGrowers.com or Contact the webmaster at Carolyn@ChestnutsOnLine.com

Nominating Committee Presents Slate for 2014-2015

Nominating Committe chair, Dennis Fulbright and members David English, Florida, and Sandy Harrison, California, have nominated the following for officers and board members of CGA:

- President: Roger Blackwell
- Vice President: To be announced
- Secretary/Treasurer: Ray Young
- Director: Linda Black
- Director: Sandy Bole
- Director: Lee Williams
- Director: Bob Wallace

Roger Blackwell of Milford, Michigan, has been a member of CGA since 2011, and has served as an president since 2013.

Ray Young, of Ridgefield, Washington, a member since 1999, has served as Secretary/Treasurer since 2001.

Linda Black, of Rockport, Illinois, has been a member since 2005 and has served as director since 2012.

Sandy Bole, of Sherwood, Oregon, has been a CGA member since 1996 and has served as a director since 2005.

Lee Williams, of Moses Lake, Washington, has been a member since 2000 and served as director since 2009.

Bob Wallace, of Alachua, Florida, has been a member since 2000 and served as a director since 2009.

Nominations cannot be made at the annual meeting, and no petitions have been received for additional candidates so according to the bylaws the committee's slate shall be considered to have been elected unanimously and no balloting shall be necessary at the annual meeting.

side only and then a verticle cut is made into the bottom of the scion to form a "tongue" or barb-like section. A simplified drawing of the cuts is shown on p. 9. I wrap the upper half

See Grafting, p. 8

Grafting, cont'd from p. 5

of the scions with BuddyTape by stretching it tightly over the entire scion. This is a wax and plastic-like material that stretches several times its original length and adheres to itself fairly well. This is a form of Parafilm developed specifically

for use by nurseries and is perforated to allow fast and efficient work by budding/grafting crews.

Photo 10 shows the flatly-cut trunk of the left tree being already split with a straight vertical cut with the grafting knife with the scion inserted so that the cambium layer of the scion matches with the cambium layer of the stock on one side. The cambium layer is a very thin layer invisible to the human eye that is between the bark and the hard wood and it is this layer that must be matched with whatever grafting method is being used. If the scion happens to be the same diameter as the stock, the cambium layer can (and should) match with the cambium layer on both sides, but this is usually not the case when I am using cleft grafts (if it were, I would usually use a whip-and-tongue graft since a cleft graft with these proportions has a greater chance of excessive splitting of the stock.

Photo 11 then shows the grafting rubber installed to keep the scion firmly in place. Photo 12 then shows the graft union area wrapped in BuddyTape.

Photo 13 shows that one side of the stock's trunk has been tapered and the scion for the whip-and-tongue graft has been put into place. A simplified drawing of the graft appears on the page right. I cut this trunk a little too low so the trunk was wider in diameter than the scion so I only tapered enough of the stock so that the cambium layer of both the scion and the trunk would match. A "tongue" was also cut into the trunk and the two tongues lock into one another as shown in this photo. Photo 14 shows another view of the stock and scion with the grafting rubber in place, but taken at this angle to show that the cambium layer on both the scion and the stock match. Photo 15 shows the BuddyTape placed over the graft union.

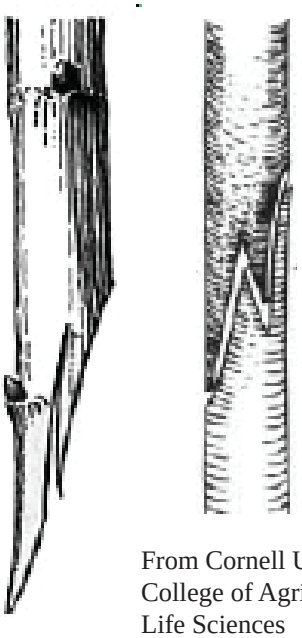
Depending on weather/temperatures, both the whip-and-tongue and cleft grafts typically begin growing in two weeks or so. Since plants in pots are portable, I keep them in a small greenhouse I have if I have the room.

Maintenance of grafts is a critical

step for the first growing season. Chestnut scions will often grow very vigorously and the weight of the new branch or winds may snap the new branches or pull them out of the stock. Staking and tying

potted trees is a fairly easy way to avoid these problems. On my larger trees that have been top-worked using the modified rind bark graft I have successfully managed problems by tying large bamboo sections to the branch of the stock and they tying the new growth to the bamboo stake. In all cases, suckers will often emerge from the trunk and these should be removed frequently so that all resources (including sunlight) are being focused towards the graft. During the first season I am largely concerned with the strengthening of the union and I may prune back and shorten new branches if their growth is too fast to be adequately supported by bamboo stakes, etc. If a graft fails to begin growing after a month or two, I will cut it off and graft it again. For various reasons, grafting seems to be an activity that some people are afraid to try but it can be fun to experiment with different methods and good grafting skills can be developed easily. The only graft that is certain to fail is the one that is not attempted! If I run out of scionwood I have occasionally cut live growing branches, removed the leaves, and used these successfully. Last year I was grafting some pollinators and saw a Valley Oak seedling growing on the adjacent levee and grafted it to chestnut and it has grown very well so far (long term compatibility is uncertain). Experiment yourself with different techniques and use what works best for you.

Good luck and good growing!



From Cornell University College of Agriculture & Life Sciences Department of Hor-

Whip and tongue graft

your farm.

See **FSMA**, *p. 10*

FSMA, *from p. 1*

It is unclear in my mind whether sales to local food hubs, consolidators, or producer coops would be qualified or not. The answer in any particular case would probably depend upon whether your buyer is considered a "retail food establishment." That term is defined elsewhere as an establishment that sells food products directly to consumers as its primary function.[5]

The exemption for small farms is conditional and qualified. There are still labeling requirements. Essentially, you must put your name and address on your product or a sign at your market table. And if you have a food safety issue arise, the FDA can then identify the source, jump in and regulate you.

In addition, the qualified exempt small farm may still wholesale to other unqualified buyers so long as its qualified sales exceed its unqualified sales. As a practical matter, though, larger and affiliated grocery chains have been moving toward a universal (GAP) certification requirement for all produce. This is true even for those stores we know that do a locally-grown promotion, such as the "Buy Fresh Buy Local" programs. The FSMA applicability will probably solidify this trend towards requiring certification. But if fresh chestnuts are exempted from "covered produce" under the FSMA regulations, that could be a good argument that fresh chestnuts pose less food safety risk and therefore need not be GAP certified.

Are chestnuts covered? Are chestnuts exempt? Assuming your farm is not exempt, the next question is: are chestnuts regulated by the FSMA?

Food safety is a huge issue, as big as all agriculture. Chestnuts are a small crop in America, too small to have an industry lobby in Washington. Nowhere in the FDA's 548 pages does "chestnut" appear, except a couple references to "water chestnuts".

Nonetheless, it is very clear from the definitional sections and comments that chestnuts <u>are</u> in the category of foods that are intended to be covered. The FSMA covers produce, produce includes vegetables and fruits, and tree nuts and seeds are considered fruits. Ergo, fresh chestnuts are "covered produce."

Consequently, chestnut growers are likely to be swept in by the broad broom of regulation for other kinds of produce with inappropriate results. Under the current proposal, chestnuts are the same, for food safety purposes, as spinach or apples! However, there are very good reasons that chestnuts should be exempt under another provision.

Chestnuts and the "rarely consumed raw" exception: Is there exemption possible for chestnuts? There should be. Food safety primarily concerns raw produce because cooking kills pathogenic microbes. Logically, fruit or vegetable types that are rarely eaten raw should be exempted from unnecessary regulation.

Section 112.2 (a) of the proposed regulation states:

> (a) The following produce is not covered by this part:
>
> (1) Produce that is rarely consumed raw, specifically the produce on the following exhaustive list – arrowhead, arrowroot, artichokes, asparagus, beets, black-eyed peas, bok choy, brussels sprouts, chick-peas, collard greens, crabapples, cranberries, eggplant, figs, ginger root, kale, kidney beans, lentils, lima beans, okra, parsnips, peanuts, pinto beans, plantains, potatoes, pumpkin, rhubarb, rutabaga, sugarbeet, sweet corn, sweet potatoes, taro, turnips, water chestnuts, winter squash (acorn and butternut squash), and yams;

Because the foregoing list of foods "rarely consumed raw" is an "exhaustive list," chestnuts would have to be specifically mentioned to be exempted. Individual growers won't be able to argue with an inspector or a judge that chestnuts should be regarded as rarely eaten raw—the FDA must in fact put chestnuts on the list.

In the explanation the FDA specifically invited comments and criticism as to what foods should and should not be added to the "rarely consumed raw" list. During the comment period some chestnut farmers did write letters pointing out that chestnuts are almost always eaten cooked.

If chestnuts were added to the list of foods rarely consumed raw, then chestnuts would be wholly exempt from these regulation under the FSMA. However, some chestnut farmers with whom I have spoken maintain, notwithstanding the tradition of roasting or boiling chestnuts, and the difficulties in peeling raw chestnuts, that they recommend that chestnuts may be eaten raw. It has been asserted that there is no authoritative evidence how frequently chestnuts are eaten raw. I know customers sometimes taste raw chestnuts and some customers in particular like to eat them raw.

But experience in the marketplace convinces me that the vast majority of chestnuts are consumed after cooking. I am at least as confident of this as I am about the other foods the FDA places in this "rarely eaten raw" category.

Chestnuts and the dropped produce rule—is it an industry killer? One of the incongruities of the proposed rules, as far as fresh chestnuts are concerned, is the "dropped" produce rule. Sec. 112.114 of the Proposed Regulation states:

> You must not distribute covered produce that drops to the ground before harvest (dropped covered produce) unless it is exempt under § 112.2(b) [refers to commercial processing]. Dropped covered produce does not include root crops (such as carrots) that grow underground or crops (such as cantaloupe) that grow on the ground.

The "dropped produce" restriction might be appropriate for apples, arguably, because apples are usually picked from the tree, they are often eaten raw and unpeeled, and contamination with pathogens is possible. But the draftsmen did not contemplate fresh chestnuts. The draftsmen did exempt other foods that, as a matter of necessity, touch the earth. I am convinced that if they knew chestnuts, they would exempt chestnuts from this requirement. Chestnuts are of necessity dropped and harvested from the ground. Of course, chestnuts could come into contact with coliform or listeria, for instance. But the edible parts of chestnuts are protected by its skin or shell. And chestnuts are usually eaten cooked. These two facts surely reduce the food safety risk to minimal levels.

Many of our farmers already use a chemical "kill step", such as chlorine, peracetic acid, or ozone wash, which is wise, especially where wild or domestic animals are allowed within the orchard. However, such a sanitizing wash does not result in an exception from the "dropped produce" rule of Sec. 112.114. Exemption from Sec. 112.114 is only for processed chestnuts. If this section is not amended, and if it is applied literally, where will consumers buy fresh chestnuts?

Conclusion: Where does that leave the chestnut farmer and fresh chestnuts in the marketplace?

If the "dropped covered produce" provision (Sec. 112.114) remains unaltered,

the only fresh raw chestnuts may come solely from persons that are exempt from the FSMA, and that would be by direct sales from small farms.

If the dropped chestnut rule alone is amended, then the commercial grower that sells wholesale to the larger grocery chains and distributors will have to comply with a myriad of regulations and record-keeping that are more appropriate to spinach (which is a high-risk food) than to chestnuts (which is a low risk food). Compliance may be burdensome but not impossible.

But if chestnuts are added to the "rarely consumed raw" list, as I believe is appropriate, then chestnuts may be grown and marketed like potatoes, beets, asparagus, kale, peanuts, and water chestnuts (to name just a few examples from that list), that is, wholly exempt from the FSMA.

It is my hope and expectation that the FDA will be looking at these matters along with all the other issues raised by the thousands of comments. It would not be out of the question that substantial changes will be made requiring another proposal and another comment period. If that occurs, the chestnut growers should be active in reviewing and united in commenting. But for the moment, the ball is with the FDA.

[1] FDA Docket No. 2011-N-0921, or see: http://www.fda.gov/downloads/Food/GuidanceRegulation/FSMA/UCM360734.pdf. A more succinct FDA summary appears at: http://www.fda.gov/Food/GuidanceRegulation/FSMA/ucm334114.htm

[2] As of this writing. See: http://www.regulations.gov/#!docketDetail;D=FDA-2011-N-0921

[3] My reading was limited to fresh produce/fresh chestnuts. A companion and parallel regulation proposal under the FSMA will affect food facilities and processed chestnut foods. See FDA Docket No. 2011-N-0920, or see: http://www.regulations.gov/#!docketDetail;D=FDA-2011-N-0920. Regulation of peeled, chipped, dried, milled chestnuts, chestnut flour, etc., is beyond the scope of this article.

[4] http://www.fda.gov/Food/GuidanceRegulation/FSMA/ucm334114.htm, based on proposed regulation Secs. 112.4, 112.5, and 112.3(c).

[5] 1 CFR Sec. 1.227 (b) (11).

Have a recipe you'd like to share? Send it to the Editor, Carolyn@ChestnutsOnLine.com or mail it to PO Box 841, Ridgefield, WA 98642.

CHESTNUT TABOULLEH

1/2 C	fine bulgur
1/2 C	dried chestnut chips
1 1/2 C	parsley, chopped
1 bunch	green onions, white & light green parts, minced
1	large tomato, diced
2 tbsp	fresh peppermint
3 tbsp	olive oil
3 tbsp	lemon juice
1/2 tsp	cumin

salt and pepper to taste

Put chestnut chips in 1 C water and bring to boil. Cook 5 minutes. Remove pan from heat to cool. Be careful not to let them burn. Place bulgur in cold water for about 15 minutes, and then drain in a strainer.

Transfer chestnut chips and bulgur to a bowl and stir in the parsley, green onions, tomato, peppermint, olive oil, lemon juice and cumin. Season with salt and pepper. Cover and refrigerate for at least 2 hours to allow flavors to develop. Bring to room temperature before serving.

Chef image courtesy of Grant Cochrane / FreeDigitalPhotos.net".