



# The Chestnut Grower

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Summer 2013

## 2011-2012 CGA Grower Survey Summary Report

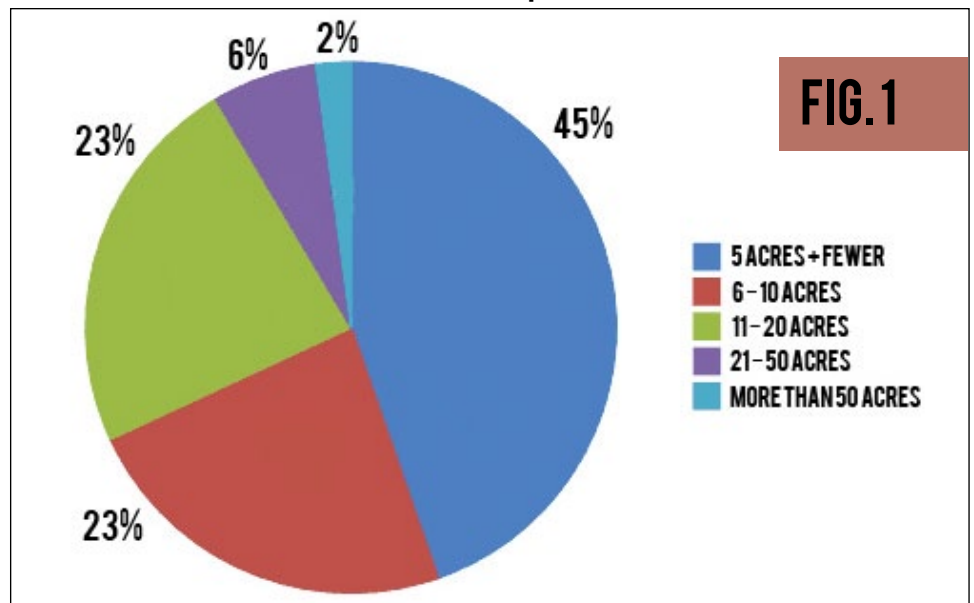
Ina Cernusca and Mike Gold

*Thank you to everyone who filled out this year's chestnut market survey. This year we used a larger database of current and past CGA members to try to get a better picture of the market. One hundred ninety people were invited to fill out the online survey. Here are some highlights of the results based on 64 usable surveys collected and analyzed:*

- 63% of respondents are current CGA members
- 34% of respondents are past members; don't have active membership this year.

Based on previous feedback, this year's survey provided different categories of respondents with different versions of the survey. The shortest version of the survey was for researchers and other non-chestnut growers who were only asked to describe their area of expertise and asked for suggestions for CGA. Four respondents fell in the "researcher" category and 9 in "other" category. Respondents who planted trees that are not yet in production and are not involved in any aspect of marketing chestnuts also received a different version of the survey. Twenty percent of total respondents answered questions regarding their production operation. Fifty eight percent of total respondents were presented with the full survey including questions regarding

Number of acres planted, n=49



their production operation, harvest and marketing. This category included respondents who have young trees not yet in production but are involved in marketing (11%), who grow and sell fresh chestnuts (50%), who produce and sell value added products (11%), who produce and sell nursery stock (11%), and who buy from other growers and resell (12.5%).

### Questions regarding the production operation (49 respondents)

Eight responses came from Missouri, seven from Oregon, six from Michigan, five from Florida and Washington, four from Illinois and Iowa, and one from Oklahoma, Ohio, North Carolina, Kentucky, Idaho, Georgia, California and British Columbia- Canada.

Respondents reported a total of 463 acres planted in chestnuts (45% less than 5 acres, 24% between 6 and 10 acres, 23% between 11 and 20 acres, 6%

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## A Message From Dr. Mike Gold

### Outgoing President, CGA

*This is my final message to CGA members as CGA President. It has been a great pleasure to serve on the CGA Board for the past 7+ years. CGA members are a great group of people and together we all share*

*a passion for chestnuts and the development of the US chestnut industry. It seemed to me that it was about time to have a “fresh face” serving as CGA President. As of the May 2013 CGA annual meeting, Roger Blackwell agreed to serve as President of CGA and was elected as the new CGA President. Roger is the President of the Michigan-based chestnut coop, CGI and he has a “real-world” pulse on the needs of our industry. Welcome Roger!*

*After years of getting four quarterly issues of The Chestnut published on a regular schedule, you probably noticed that things have gotten off the track for the past two years. Due to severe funding cuts to the MU Center for Agroforestry that kicked in back in 2011, we had to let our full time senior information specialist (Michelle Hall at the time) move on to another position at MU. For the past two years we have had a series of information specialist interns (from the MU “J” School) help us handle The Chestnut Grower and this has resulted in many production delays. Beginning with the next issue of The Chestnut Grower, Carolyn Young of Allen Creek Farm will take over the newsletter.*

*Assuming the best (with regard to restoration of our Center’s funding in the coming months) I will remain very active in CGA. In fact, we have a Missouri Specialty Crop Block Grant proposal in the works (no final word on funding yet) that, if funded, will enable our Center to purchase a FACMA Italian chestnut harvester to demonstrate commercial scale harvesting to the folks in Missouri and surrounding states. This kind of harvester is needed as our growers move from the small-acreage hobby size orchards to commercial-scale orchards greater than 10 acres. Stay tuned for news on this grant.*

*We are also maintaining the diverse cultivar collection that Ken Hunt established out at our Horticulture and Agroforestry Research Center as a resource for all CGA members and U.S. chestnut growers.*

Take care all.  
Mike

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### PUBLICATION DEADLINES

Fall issue deadline 9/15 mailed 10/15  
Winter issue deadline 12/15 mailed 1/15  
Spring issue deadline 3/15 mailed 4/15  
Summer issue deadline 6/15 mailed 7/15



**“Chestnut market survey,” continued from page 1**

between 21 and 50 acres and 2% more than 50 acres) (Fig. 1). Sixty-seven percent of respondents don't plan to expand their orchard next year. Those who plan on expansion in 2012 (33%), indicated new plantings ranging from less than one acre to 8 acres.

Twenty-five percent of respondents use organic production methods (25% of them are USDA certified and 75% are not certified). Seventy-three percent of respondents use conventional production methods (80% of them use inorganic fertilizer, 43% use insecticide and 71% use herbicide).

**Harvest questions (37 respondents)**

Harvest start date varied for respondents from Aug. 15 to late-October; earlier in Florida (Aug. 15 – early September), end of August in Illinois, September in North Carolina, Missouri, Iowa, Kentucky and Ohio, early September to early October in Michigan, late September to early October in Washington, late September to late October in Oregon and early October in Idaho and Canada.

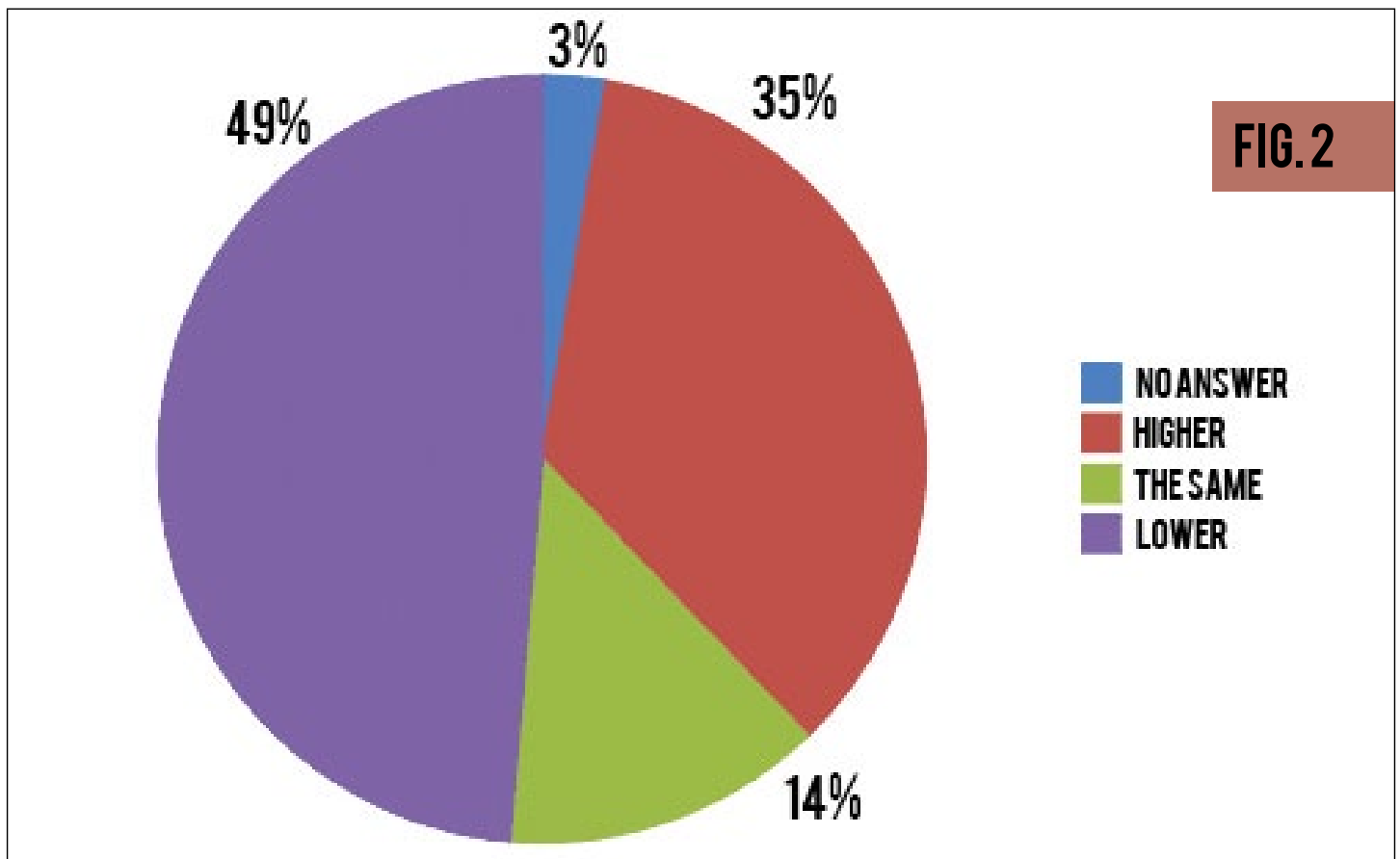
The yield of chestnuts in 2012 compared to 2011 was higher for 35% of respondents, the same for 13% of respondents and lower for 49% (Fig. 2). Higher yield was reported by respondents that have maturing orchards and started to get a larger production as the trees are getting older. Additionally, good irrigation during the drought of 2012, proper pruning and fertilizing, and better grower conditions improved yields. Lower yield was due to frost and freeze damage, dry growing season, root rot and shot borers killing the orchard, gall wasp, pollination issues (very strong winds just prior to peak pollination).

The average size of chestnuts was larger for 41% of respondents, the same for 32% and smaller for 22%. Larger size nuts as compared to 2011 were reported by some respondents due to orchard maturity and weather, smaller crop, and rain before nut ripening. Smaller size was due to drought conditions.

More than half of respondents (57%) reported same quality (appearance) of nuts compared to 2011, 21% higher quality and 11% lower quality. Higher quality was represented by larger chestnuts and less mold. Lower quality was due to

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**Overall yield in 2012 compared to 2011, n=37**





**“Chestnut market survey,” continued from page 3**

weevil, internal defects, splits, and small size nuts reported by some of the respondents.

**Marketing questions (37 respondents)**

Fifty-four percent of respondents market the chestnuts themselves, 16% market their crop exclusively through a co-op, and 14% market a portion of the chestnuts through a co-op and a portion by themselves.

A total of 290,600 pounds of chestnuts were reported to be harvested by respondents in 2012.

In 2012, 43% of respondents earned less than \$5,000 from chestnut sales (excluding shipping and delivery), 22% earned between \$5,000 and \$25,000, 16% between \$25,000 and \$50,000 and 8% more than \$50,000 (Fig. 3). The range of prices received in retail outlets varied between \$2 and \$6.75 for an average of \$4.55 per pound. Wholesale, the price per pound ranged from \$1.60 to \$4.90 for an average of \$3 per

pound.

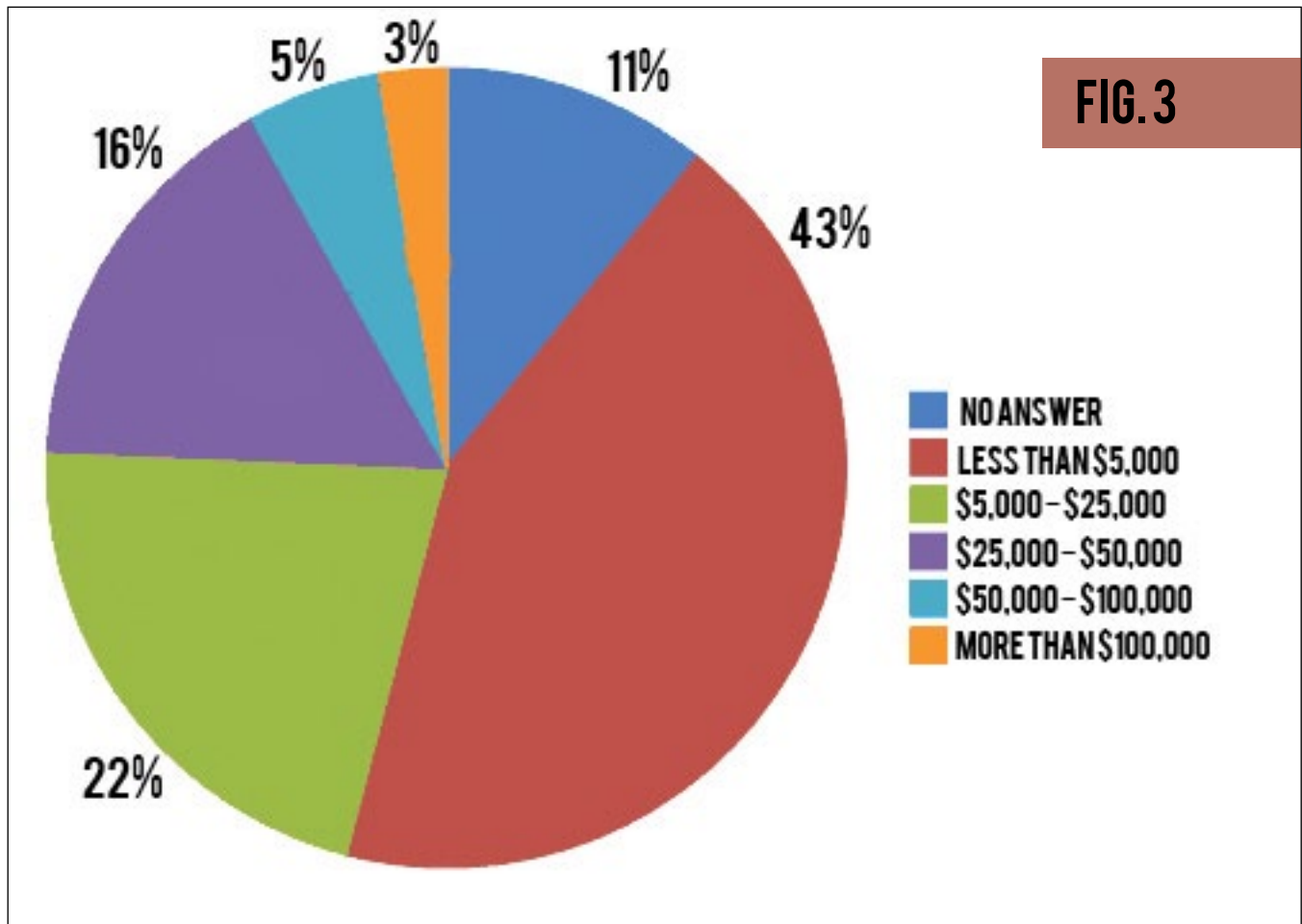
Forty-one percent of respondents sold their chestnuts on farm, 34% online, 18% to restaurants, 28% through a marketing cooperative, 25% through distributors/brokers, 16% through wholesalers, 13% in grocery stores, 13% to restaurants and 9% in farmers markets. Other ways respondents sold their chestnuts were for chestnut events and as food for wildlife.

Prices ranged from \$1 to \$3.60 to the co-op, \$6 to farmers markets, \$3.75 to \$7.25 online, \$1 to \$8 on farm, \$2 to \$4.50 through a distributor and \$1.25 to \$3.25 to grocery stores.

Seventy percent of respondents reported increased demand for their fresh chestnuts in 2012 and 19% unchanged demand. Forty-nine percent of respondents considered that demand of fresh chestnuts is in excess of supply, 13% equal to supply and 16% below supply.

This was just a snapshot of the results. A more detailed report will be made available to all survey participants upon request.

**Gross annual sales from fresh chestnuts, n=37**



**FIG. 3**





Photo courtesy of Zel Allen

A bowl of chestnut chips and samples on display at the 2013 Natural Products Expo West in Anaheim, Calif.

## NUTTY SIDE OF THE NATURAL PRODUCTS EXPO WEST

**Zel Allen**  
**Zel's Vegan Nut Gourmet**

One step into the Natural Products EXPO West vendor floors at the Anaheim Convention Center and you'll have no doubt this annual event is *the* premier trade show for manufacturers of natural products like food, supplements, body care products, pet foods and supplies, and eco-friendly items for the home.

With 2428 exhibitors and a whopping 63,000 attendees, you can bet the aisles were crazy busy, making it all the more exciting for those attending to discover emerging trends, new products, and indulgent flavors of old favorites.

With wildly colorful displays and costume-festooned participants, there was never a dull moment for both attendees and vendors. I walked my feet off and loved every moment! It was such an exciting learning experience asking how some of

our foods are made, where they come from, and how they're creatively formed and assembled.

Over the next few days, I'll be blogging about some of the nicest, nuttiest niche num nums I found. I know some terrific items will be left out because the 3-floor, 393,000 square-foot show-floor event is so large it would be impossible to see it all, in spite of spending two very full days traversing the aisles 'til our feet ached. (It was worth it, of course!)

Chestnut Chips made their world premiere debut at the Chestnut Growers, Inc. booth on the 3rd floor of the convention center. These delicious, crunchy snacks were probably the most unique product I encountered. While fresh chestnuts are only available from October through December, these neat little chips are a year-round, totally natural, and very tasty snack

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## “Natural Products Expo West,” continued from page 5

food. Also neat is that chestnuts are a really low-fat, gluten-free food. Here’s the process that turns fresh chestnuts into chestnut chips: Once the shells are removed, the chestnuts are thinly sliced by machine and oven dried at Michigan State University Rogers Reserve in Jackson, Michigan where the chips were developed. That’s it—nothing added and nothing removed except moisture.

At the website (<http://www.chestnut-growersinc.com/>) visitors can order fresh, dried, and frozen chestnuts as well as pure chestnut flour that contains no pellicle, the dark brown inner skin that’s sometimes a bitch to peel. They also have nutritional information and a ton of recipes.

**This article and photos have been reprinted with permission from Zel’s Vegan Nut Gourmet at <http://nutgourmet.wordpress.com/>.**



*Photo courtesy of Zel Allen*

Some of the 2,428 exhibitors at the Natural Products Expo West.



### **Quality Chestnut Trees from a Reliable Source**

#### **Available Cultivars**

COLOSSAL, OKIE, BELLE EPINE, PRECOCE MIGOULE, MARAVAL MARIGOULE, MARSOL BISALTA #3, BOUCHE DE BETIZAC, MARON DI VAL DI SUSA, YOOMA MARRONE DI CHUSE PESIO, MARRONE DI MARRADI, EATON MARRISARD, BISALTA #2, SZEGO, QING, LUVALL’S MONSTER. AMERICAN, AND MANY MORE

The experts all agree, “Grafted chestnut trees outproduce, and deliver a more consistent quality chestnut, compared to seedling chestnut trees”. This is why we have gone through all the efforts to offer chestnut producers one of the largest selection of grafted chestnut trees in North America. Selecting the right chestnut trees for your location is made easier with the extensive cultivar information on our web site.

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# WHAT I WOULDN'T DO AGAIN

**Dennis Fulbright**  
**Professor, Michigan State University**

**A**s a researcher, you are always being asked questions via email, telephone or at meetings. Sometimes you answer the questions with confidence (rarely), sometimes you answer with specifics (if you have them), but most of the time you answer questions with speculation and extrapolation (often). A grower I know told me the thing she likes about me the most is that I say “I don’t know.” She’s right, I do say that, often, and I should have said it at least one more time. I love the way some of my European friends answer questions. If the question is “Should I do this?” They will answer, “Why not?” Answer a question with a question—it’s perfect.

After Michigan’s horrible two-years of frost and cold during the 2002-2003 growing seasons, many of our newly established ‘Colossal’ and ‘Nevada’ cultivar orchards were tattered and torn. The young trees, which had been planted from 1997 to 2002, had gone through exceptionally cold winters and severe spring frosts.

The European/Japanese hybrid cultivar ‘Colossal’ was recovering in 2004 with good growth, while self-repairing damaged stems and trunks with callus and wound tissue. Unfortunately, the ‘Colossal’ pollinizer, another European/Japanese hybrid ‘Nevada’, was not fairing so well. Not healing and instead suckering from the roots, the “cultivar” aspects of the trees, that is, the known genetic attributes were gone. One attribute of ‘Nevada’ was its bountiful and synchronous pollen production for ‘Colossal’ to use on its female flowers. Some ‘Colossal’/‘Nevada’ orchards were left without much or any pollen production. In some orchards, ‘Colossal’ became dependent on any chestnut available that might produce pollen including Chinese chestnut seedling trees. These trees had been in the orchards prior to finding that the ‘Colossal’ trees could easily out produce the Chinese chestnut trees. But why would you take these Chinese chestnut trees out of the orchard, especially the best pollen producing trees. Leave them in, I thought; the more pollen the better. This became my school of thought. Growers would ask, what they should plant as pollinizers to replace the ‘Nevada’, as ‘Nevada’ was now considered to be too winter sensitive to grow in Michigan. Often times I would say ‘Okei’, is a good cultivar, and is well synchronized for ‘Colossal’, but if you have any Chinese chestnut trees producing pollen, don’t take them out, leave them up.

That is the part I will never knowingly do again. I remember thinking to myself, what could go wrong, right? Pollen is pollen. Breeders, professional and amateur alike, have been crossing these chestnut species for years, right? I was concerned more with synchronous pollen production from Chinese chestnut trees in relation to flower development on ‘Colossal’ than about anything going wrong with the nut that developed from the pollination event. I remember thinking to myself, does this need research? Growers were saying they had Chinese chestnut trees that made large amounts of pollen and they were going to leave them in their ‘Colossal’ orchards instead of cutting them down. Why not? Go, ahead I would say, the more pollen the better, but make sure you get some ‘Okei’ trees when you can.

I did not know there could be anything wrong with a Chinese chestnut tree pollinizing a European/Japanese hybrid cultivar. I don’t think anyone did. If you don’t know what happened, then keep reading. Once the ‘Colossal’ trees recovered from the 2002-2003 growing seasons and began to produce large yields of chestnuts we began to see what was wrong with pollinizing European/Japanese hybrids with Chinese chestnut pollen. About 30 percent of the kernels of ‘Colossal’ chestnuts showed a physiological decay in the kernel. Nothing showed on the outside of the nut, but inside, the kernel was bitter, turning a rotten-brown color and contaminating the 70 percent otherwise excellent nuts. It’s true that many of these nuts showing the internal kernel breakdown (now called IKB) floated and could be separated from good nuts by floating, but some of the bad nuts sunk and many of the good nuts floated. What a waste. There was no fungal infection associated with IKB. But some of these nuts with IKB would ultimately rot. Some could actually germinate, but others would not and were dead.

The power of scientific research is in finding accurate answers to unknown questions. When you skip the research for the sake of making a decision based on speeding up a process, you can actually slow the process down. Today we know that ‘Okei’, ‘Nevada’, ‘Precoce Migoule’, and ‘Labor Day’ can pollinate ‘Colossal’ without causing significant amounts, or any, IKB in the nuts. Keep your chestnuts apart. Plant and grow Chinese chestnut trees or European/Japanese hybrids—not both in the same orchard. We also know that the trees must be at least 1 mile apart as pollen on large mature chestnuts can fly that far.

So, ask me another question. See how I do this time.





# Attention Chestnut Growers: FSMA Proposed Rule

Concerning the FSMA Proposed Rule on Preventive Controls for Human Food: All chestnut growers can still make comments by November 15, 2013. The link below will take you to the Docket Item and will allow anyone to make electronic comments on the website. <http://www.regulations.gov/#!docketDetail;D=FDA-2011-N-0920>

Submit written submissions in the following ways:

**Mail/Hand delivery/Courier (for paper or CD-ROM submissions)**

Division of Dockets Management (HFA-305)  
Food and Drug Administration  
5630 Fishers Lane, Rm. 1061  
Rockville, MD 20852.

All submissions received must include the Agency name and Docket No. FDA-2011-N-0920, and RIN 0910-AG36 for this rulemaking.

At right you will find the letter that “Chestnut Charlie” sent to the Congressional Register back in January to serve as a model for those who may wish to comment.

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## “Growing Chestnuts in the North-East” slideshow now available online

The Connecticut Agricultural Experiment Station has posted a slideshow by Sandra Anagnostakis online. It is a 48-slide primer on growing, harvesting and marketing chestnuts, and it can be accessed at [http://www.ct.gov/caes/lib/caes/pdio/documents/presentations/growing\\_chestnuts.pdf](http://www.ct.gov/caes/lib/caes/pdio/documents/presentations/growing_chestnuts.pdf).

January 7, 2013

Re: Comments on: Standards for the Growing, Harvesting, Packing, and Holding of Produce for Human Consumption,

Docket No. FDA-20 11-N-0921

Regulatory Information Number RIN 0910-AG35.

Dear FDA Rule Makers:

I respectfully suggest that “chestnuts” be included in the list of foods that are rarely consumed raw, § 112.2(a)(l).

Chestnuts are perhaps under your radar. Chestnuts are a very significant crop in the larger world but are very small in America due to the chestnut blight of the early 20th Century. Many Americans have simply forgotten chestnuts. According to the Agriculture Marketing Resource Center, less than 1% of the world chestnut production is in the U.S. Most chestnuts in the US are sold fresh and in-shell. See: [http://www.agmrc.org/commodities\\_products/nuts/chestnuts/](http://www.agmrc.org/commodities_products/nuts/chestnuts/)

We have been growing chestnuts for 20 years. We have traveled widely abroad to learn the culture and business of chestnuts. By people who know them, chestnuts are universally eaten cooked, whether by roasting or boiling. “Chestnuts roasting on an open fire” is still a very popular traditional method.

Fresh chestnuts are typically gathered in September and October and kept under refrigeration and are sold fresh into December. Chestnuts are a starchy seed. Quite unlike any other tree nut, chestnuts have virtually no fat, are nutritionally like a cereal grain, and are stored like fruit. The edible kernel is enclosed in a skin. Chestnuts are extremely difficult to peel without cooking. Typically chestnuts are roasted; sometimes they are boiled or microwaved; the skin can be peeled from the edible kernel while still warm.

Any recipe on using chestnuts invariably begins with instructions on how to roast and peel them. We provide such instructions accompanying most of our sales. My family’s farm is one of a growing number of small commercial domestic chestnut orchards in the Midwest, bringing back this once traditional food. We sell and ship fresh, certified organic chestnuts broadly across the US by direct sales. We also wholesale to local and regional natural food chain stores. The proposed regulations will apply to us and may be some burden but we will comply with any applicable rules. However, because chestnuts are “rarely consumed raw,” chestnuts should properly be added to the list of foods exempt under proposed § 112.2(a)(l). Thank you for this opportunity to comment.

Yours truly,  
Charles K. NovoGradac





# Chestnut Seedlings Made into Superstars

*The important lesson is to try a different cultivar if the first graft fails.*

**Bernie Hilgart**  
**Washington Chestnut Company**

Remember those days when we were kids, we would say things like, “I want to be a movie star”, “I want to be a fireman”, “I want to be a model”, “I want to be anything as long it is something special”. Most chestnut trees are born from a seed resulting in what we call a seedling. Being called a “seedling” doesn’t sound like something special, especially when we call some of the super stars like ‘Qing’, Marrone, ‘Colossal’, ‘Eaton’, and ‘Precoce Migoule’ by name. Seedlings can be made into super stars by clonal grafting the tree with a compatible name cultivar.

Sometimes a grafted tree will fail at the graft and returns to being a mere seedling. These trees, with their intact root system, can grow very fast. But to graft the tree to what was the original clonal cultivar is likely going to result in another graft failure. Without knowing the genetics of the seedling, we could only guess at what cultivar the seedling will be compatible with, if anything. Our experience in our nursery found retrying a failed graft with the same cultivar almost always results in another failed graft. Disposing of the seedling appeared to be our only option.

Two years ago we started playing the numbers game with some of the seedlings in our orchard that had graft failures. We graft thousands of chestnuts

trees each year, so our results, when statistics are applied, provide fairly accurate extrapolations. Here is what we found:

- Percent chance to take first graft of compatible named cultivar: 70%
- Percent chance to take second graft of same named cultivar: 20%

Starting with 100 trees we get 70 good grafted trees with 30 trees rejecting the graft and remaining seedlings. Applying the graft with the same cultivar on the 30 trees results in 6 grafted trees and 24 seedlings. These numbers are not so good when you really need 90%+ success rate to stay in business. What can be done with the 30 trees that failed the first graft and trees in the orchard where the tree had graft failure? Is there any way to get these trees to the super star status?

Let’s do a little more work with the numbers. If applying the same cultivar results in only 20% success then what happens if we try a different cultivar. Depending on the adaptability of the cultivar, with some cultivars taking on just about any seedling along the same genetic lines (European matched with European, Chinese matched with Chinese), the results might be better than the 20% using the same cultivar again. Here is what we found:

**Seedlings can be made into super stars by clonal grafting the tree with a compatible name cultivar.**

**Continued on page 11**



# IS BIGGER BETTER?

*The selection of large sized chestnuts is over-rated and perhaps even counter-productive for the long-term.*

**Greg Miller**  
**Route 9 Cooperative, Carrollton, Ohio**

Essentially all chestnut growers in the USA want to produce big chestnuts, and there is little argument among producers that “the bigger the better”. Of course, the main underlying reason for this preference is that larger chestnuts command a higher price – at least up to the present time in USA markets. This higher price for larger chestnuts is probably derived from the pricing structure of imported Italian chestnuts. However, there must be some consumer preference for larger chestnuts, or the price difference would not persist. Other than price, there are other reasons to produce or consume larger chestnuts: if chestnuts are hand-harvested, manually graded, or hand-peeled, big chestnuts make the jobs faster/cheaper. Also, Americans tend to prefer anything called “large” over an alternative called “small”.

Because of the preference for large chestnuts, those of us who are evaluating cultivars or seedlings tend to downgrade or eliminate trees that produce small chestnuts. At the moment, I find myself in a position where I have 70 acres of 15 to 20-year-old seedling Chinese chestnuts (and a few hybrids) that have to be thinned. Due to too close spacing (20 ft X 25 ft), I’ve got to remove thousands of trees. Because the trees are seedlings, and consequently are variable in characteristics, I don’t want to just remove every other tree or row. I want to keep the best producers (quality and quantity).

Of course, many factors contribute to the decision on whether to keep or remove a particular tree; just one of these factors is nut size. Nevertheless, conventional wisdom says to cut down trees with small nuts.

However, recent market trends and other reasoning are causing me to question the conventional wisdom. For one, it used to be that we always sold out of the largest size chestnuts first and ended up the season with an excess of small-sized chestnuts. But over the past few

years, this buyer preference has reversed; i.e., we’ve been selling out of small chestnuts first and the large chestnuts last. (At this point, I should digress to define what I’m calling “small” and “large”. Our “small” chestnuts are between 0.875 and 1 inch in caliber, “medium” are

between 1 and 1.125 inch, and “large” are >1.125 inch.) When I visited China a decade ago, I found that the highest priced chestnuts were not the largest. Specifically, the highest priced chestnuts were a size that corresponds to our small to medium size. This size is the optimum size for roasting and offers a nice “bite-size” kernel. It is noteworthy that our customer base is becoming increasingly ethnic Chinese, and this may explain the shift in preference for smaller chestnuts. There is a belief, especially among Asians, that small chestnuts are sweeter than large ones. Whether it’s true or not, people buy things based on perception.

Looking to the future we can project where chestnut

If we shift from hand harvest to machine harvest, the advantage of large chestnuts diminishes. Likewise, if we increase the proportion of chestnuts that are machine-peeled, size doesn’t matter much.

**Continued on page 11**



# Seedlings to superstars

Continued from page 9

- Percent chance to take second graft of a different compatible cultivar: 70%

Now we have 21 rising stars and 9 seedlings. This is great progress. So this being great progress we went forward with seeing if it is possible to increase this even more. Applying statistics again we find that attempting two different grafts with two different cultivars different than the first attempted cultivar we get:

- Percent chance to take first graft of compatible named cultivar: 70%
- Percent chance to take second graft of compatible named cultivar: 70%
- Percent chance to take third graft of yet a different compatible named cultivar: 70%

Total is 210%, right? Well statistics says this is not right. But what do we care about statistics when we are over our 90% success rate. Here are the numbers once again:

First graft 70 out of 100 trees take the graft, putting two grafts on the same tree using different compatible cultivars with each having a 70% success rate,  $70 + 70 = 140\%$  chance one of these grafts will result in a super star. Wrong math again, probability math has it like this  $70\% + 70\% + 70\% = 97\%$ . Does our experience in the field show the same results? Not exactly, some cultivars are very picky about their understock (rootstock), some cultivars seem to take on just about any genetically similar understock. The important lesson is to try a different cultivar if the first graft fails.

# Is bigger better?

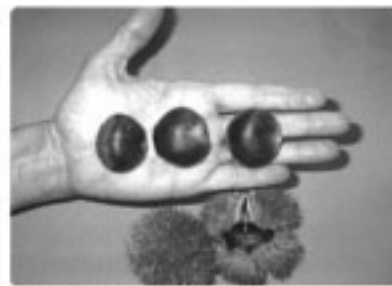
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production and marketing are headed. If we shift from hand harvest to machine harvest, the advantage of large chestnuts diminishes. Likewise, if we increase the proportion of chestnuts that are machine-peeled, size doesn't matter much. In fact, consumers may prefer "bite-size" kernels over larger kernels that have to be cut. If chestnuts are to be dried (either for whole kernels or flour), small chestnuts dry faster. Drying time is a big cost in the production of dried products. Other than for some specialized products like marron glacé (not hugely popular in the USA), there is little advantage to large chestnuts once the chores of hand harvest and hand peeling are removed from the picture. Furthermore, kernel quality characteristics like ease-of-peeling, color, shape, flavor, texture, resistance to fungal decay, and drying rate may become more important as consumers and markets become more sophisticated. In short, nearly all foreseeable trends in chestnut production and marketing point toward a diminishing value of the largest sized chestnuts and a preference for "just-the-right-size" which may include different sizes for different end uses, but almost certainly not all "large" size.

Back to the immediate problem of selecting cultivars or seedlings, I believe that we should be more accommodating to smaller-sized chestnuts and concomitantly pay more attention to kernel quality characteristics. Specifically, I am setting a minimum size threshold of about 10 g per nut (45 per lb; 100 per kg); i.e., accepting any chestnut that is 10 g or larger. The problem this creates is that nearly all chestnuts that I run into will meet this standard. So, in order to effectively rogue my seedling orchards, I have to rely on other characteristics such as kernel quality, tree growth, yield, and disease/insect resistance. These characteristics are inherently more complicated to evaluate and need more attention, discussion, and thought. My conclusion here, though, is that the selection of large sized chestnuts is over-rated and perhaps even counter-productive for the long-term. Consequently, I am changing the way I rate chestnut cultivars and seedlings.



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