



The Chestnut Grower

Vol. 10, No. 3

Published by Chestnut Growers of America (CGA)

Summer 2008

A 'Taste' of What's to Come: Harrison Ranch Tour Preview

by Michelle Hall, MU Center for Agroforestry

A few years back, Paul and Sandy Harrison were looking for a retirement home and rustic spot to use as a getaway from their "day jobs" in the city of Sacramento.



They got what they were looking for and more....a future retirement home; a farming business, which keeps them busy with constant projects; and great friends and colleagues in the chestnut industry.

In just a few days they will open their orchard to visitors from around the country for a tour as part of the Chestnut Growers of America annual meeting, July 25-26.

In 2004 the Harrisons bought a farm with four acres of chestnuts, four acres of peaches, and four acres of kiwi interplanted with chestnuts. They quickly decided kiwi and peaches were not economically viable. Chestnuts made the cut, however, and they soon planted additional trees.

"We bought this not knowing a thing about chestnuts," Paul said. "We answered an ad in the paper. This land was off the highway and had a lot of potential in terms of a home site; chestnuts were an extra."

Their knowledge took off, however, as soon as they met Doug Wilson, Omar Larios and Desta Bechtol of Wilkerson Ranch (they harvest, process and market the Harrisons' chestnuts), and joined the Chestnut Growers of America.

"We got lucky," Paul said. He and Sandy credit Wilson and his staff's patience and guidance, and all of the knowledge CGA colleagues have provided, as "lifesavers."
(cont. pg. 8)

Chestnuts Downunder

"Chestnuts Downunder – Toward 2020" will be held Friday, Jan. 16, through Sunday, Jan. 18, 2009, in NE Victoria, Australia. Registration will open at 1 p.m. Friday; the conference will close at 5 p.m. Sunday.

The conference venue is the Wangaratta Gateway, <http://www.wangarattagateway.com.au/>

Six working sessions and two morning field trips to local farms are planned. The provisional program includes topics such as Industry Overview, Future Perspectives, Pests and Diseases – "Fortress Australia," Current Orchard Management, Value Adding Opportunities and Future Varieties – "What's good for the whole industry?" Full pre-registration (by Oct. 30) is estimated to be about \$200 for the three days, including teas, conference lunches and dinners (for members of chestnut growing associations). The costs for (cont. pg. 11)

In this issue:

A 'Taste' of What's to Come	1
Chestnuts Downunder	1
Resident Weevil	3
Buying Chestnuts in Missouri	4
Chestnuts in Croatia	5
Harvest Help	9
CGA Slate of Officers	10
Beijing: A Cautionary Note	11
Welcome!	11



A Message from the President

MIKE GOLD
UNIVERSITY OF MISSOURI
CENTER FOR AGROFORESTRY

Local is the Word

Here in our little corner of the U.S. heartland, local demand for chestnut continues to grow. Consumer surveys conducted at our annual Missouri Chestnut Roast (see article page 4) tell us that consumers are strongly attracted to purchase locally grown chestnut compared to imported chestnut. In the fall of 2007, we marketed a portion of our chestnut harvest through a local natural food grocer, Clovers (we do not have a Whole Foods grocer locally; our community of 100,000 is still too small to get their attention) and ran out of chestnuts to wholesale to this grocer two weeks prior to Christmas. There was no concern expressed about the fact that our (University farm grown) chestnuts are not organic, the fact that they were local was their selling point. The folks at Clovers loved our chestnuts and so did their customers.

We have also received calls from Whole Foods in St. Louis, Mo., asking where they can locally source chestnuts. As of 2008 in Missouri, Illinois and SE Iowa, we do not yet have enough local chestnut production to respond to this request. We intend to change this in the coming years. The handful of local growers with chestnut currently in the ground will begin producing modest tonnage by 2015.

Compared to some members of CGA, we in Missouri are newcomers to the chestnut world, yet we see changes taking place right before our eyes. Consumers around here are looking for chestnut in the fall, and landowners are asking more detailed questions about getting into production. We were recently contacted by one of our Missouri state senators (who also farms) who has heard rumors about the potential profit per acre that can be achieved through chestnut production. The head of the Missouri Department of Agriculture, Katie Smith, sings the praises of the future of the chestnut industry for Missouri. This is all good news and bodes well as we work hard to recruit new growers into the world of chestnut production.

See you in a couple weeks in Chico!

CHESTNUT GROWERS OF AMERICA BOARD OF DIRECTORS

PRESIDENT Mike Gold (573) 884-1448
e-mail goldm@missouri.edu
VICE PRESIDENT Dennis Fulbright (517) 353-4506
e-mail fulbrig1@msu.edu
SECRETARY-TREASURER Ray Young (360) 887-3669
e-mail ray@chestnutsonline.com
DIRECTOR Lucienne Grunder (209) 848-4816
e-mail owlnuts@dishmail.net
DIRECTOR Charlie NovoGradac (785) 841-8505
e-mail nuts2sell@aol.com
DIRECTOR Bill Nash (517) 651-5278
e-mail nashfarm@shianet.org
DIRECTOR Sandy Bole (503) 625-1248
e-mail BenBole@aol.com

Newsletter Editor: Mike Gold
(573) 884-1448; goldm@missouri.edu
Newsletter Coordinator: Michelle Hall
(573) 882-9866; hallmich@missouri.edu

NOTICE

The Chestnut Grower is published quarterly by the Chestnut Growers of America at 203 ABNR, Columbia, MO 65211. Copyright 2008. Original articles may be reprinted with written permission of the author and this publication.

Web site: www.chestnutgrowers.com

Single membership is \$25 per year per person – household membership is \$35. Members receive The Chestnut Grower quarterly. For foreign delivery contact the Editor for pricing. Back issues may be obtained by members. Membership applications may be obtained from the Secretary-Treasurer.

POSTMASTER

Send address changes to CGA, c/o
PO Box 841, Ridgefield, WA 98642.

ADVERTISING RATES

Full page, camera ready (w/1 photo) . \$20.00
Half page, camera ready (w/1 photo) ...15.00
Quarter page10.00
Business card (4 issues)15.00
One classified ad per member per year is free (max. 6 lines, \$2.50 ea. add'l 6 lines). Ad space may be reserved with full payment but must meet established deadlines. For more information and specifications, contact Michelle Hall at (573) 882-9866 or hallmich@missouri.edu.

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



Resident Weevil: Post-Harvest Management

by Greg Miller, Empire Chestnut Company

No one wants wormy chestnuts. But whether it is the greater (*Curculio carayatrypes Boheman*) or the lesser (*Curculio sayi Gyllenhal*) of the two chestnut weevils, there is a solution: kill the larvae while they are still inside the nuts.

Greg Miller, owner and operator of Empire Chestnut Company, offers his step-by-step procedure for killing chestnut weevil larvae and eggs via a hot water bath. He stresses that all chestnuts which have any chance of being infested should be hot water treated (for about 20 minutes in water at exactly 49 degrees C/120 degrees F) before being sold. After soaking, chestnuts should be allowed to cool and surface dry before storage. The treatment kills the larvae but does not damage the kernel.

Here is the list of main components you'll need for the treatment:

100 gallon plastic stock (cattle watering) tank: Rubbermaid's comes with plumbing fitting near bottom, used for outlet. This is an adequate size for a 40 gallon water heater (below). If you want to process more than 150 lbs. in a batch, you'll need a bigger stock tank and a bigger water heater, but all other components can remain the same.

Perforated stainless steel cover for outlet: To keep nuts and other large objects from getting sucked into outlet.

Circulation pump: I use a laundry tray pump from Grainger (1P795, \$185). It works fine, but the pump is made of cast aluminum and disintegrates after eight years or so from exposure to Clorox. Perhaps a better alternative would be a spa pump (Grainger 4RJ85, \$198.50). It is a bigger (more powerful) pump and made of plastic.

Strainer: I have a homemade one made of PVC pipe and a stainless steel screen; perhaps the Grainger swimming pool strainer (1P999, \$50.45) would work if it can tolerate the temp. The strainer catches fuzz and styles from chestnuts; without a strainer, the injection pump gets plugged – disastrous.

Injection pump: Smaller than circulation pump; I'd suggest Grainger 3WY86 (\$89.25).

Water heater: I use a 40 gallon propane water heater, 38,000 BTU/hr. The water heater BTU output is what ultimately limits the capacity of the treatment system. With my heater, I can treat 120-150 lbs. of nuts at a time, changing nuts every 20 minutes. The temp of the nuts going in affects capacity: 120 lbs. per load when it's cold, 150 lbs. when it's warm. When I go to upsize my system, I will put another water heater in series or get a water heater with a bigger burner.

Temperature controller: This is the "brains" of the whole system. Don't skimp on this one. Go to www.omega.com and order CN9210A (3-wire RTD input & relay output, \$199). You'll also need the RTD probe (PR-10-2-100-1/4-6-E, \$63). The Omega site also has tons of engineering information about process control; I learned most of what I know from Omega catalogs and technical bulletins (before Internet).

Plumbing fittings, pipe, hoses: I used 2-inch PVC for the main circulation (but 1.5 inch will work) and 3/4 heater hose for the hot water injection circuit. It's nice to use (at least a short section) of clear hose from the water heater just so you can see at a glance whether or not water is flowing through it.

Electrical connections: Wire, outlet, switches, etc.

To assemble these components, refer to diagram on page 6, provided by Miller. The diagram is schematic, not to scale and the components will not be literally placed as pictured. Basically you have two circulation circuits: one circulates water in and out of the stock tank (20 gallon/min. or more); and one circulates water in and out of the water heater (4 gallon/min). To distinguish these two I call one the "circulation" loop and the other the "injection" loop since it injects heat into the system. Both the circulation pump and the injection pump must be positioned below the water level of the stock tank; otherwise they suffer priming problems. On the other hand, the strainer must be positioned above the water level of the stock tank and the water heater so that the strainer screen can be cleaned (pumps turned off) without getting water all over the place.

I put the RTD probe in a "T" close to the outlet from the stock tank; you'll need some bushings and a tubing adapter to seal the probe. Also, I ran the lead wires (**cont. pg. 6**)

Buying Chestnuts in Missouri

by Ina Cernusca, MU Center for Agroforestry

We would like to share with you our experience selling chestnuts in Columbia, Mo. When we talk to people at our events, we often get the remark: “I have never had a chestnut. How does it taste; what can I do with it?” We have surveyed people that come to the annual Missouri Chestnut Roast for five years now and we found that they have become more and more familiar with chestnuts but would they buy them in the store? Would they roast them themselves; would they incorporate them in their favorite recipes?

Last fall we sold chestnuts grown at the Horticulture and Agroforestry Research Center (HARC) in New Franklin, Mo., one day at the Farmers’ Market and also offered them to a local natural food store in Columbia who accepted the chestnuts with great enthusiasm. We only wanted to do a marketing experiment in their store but they offered to buy all the chestnuts available. We supplied some, thinking this supply will last until Thanksgiving but to our surprise, they were out in a couple of days. This happened every time we made a new delivery. Their regular customers were very eager to buy chestnuts.

Besides chestnuts, we supplied the store with lots of information: a nutritional guide named Why Chestnuts?, Frequently Asked Questions, and many recipes. We hosted a cooking demonstration in the store and customers were able to taste delicious braised chestnuts and learn how to cook them. We also specially designed a four-fold brochure with basic nutritional information; how to score, boil and roast chestnuts; and some illustrated recipes. The brochure was the ideal place to hide a one-page survey and a postage-paid return envelope. We were curious to find out what people who purchased the chestnuts thought about them and what they did with them. We received back 40 completed surveys; here are some highlights of the results.

Who are the buyers?

- *Thirty-five percent of respondents purchase chestnuts regularly (a few times every year). Twenty-five percent purchase them once a year, 18% purchase them occasionally, and for 22% of respondents, this was the first-ever purchase of chestnuts.*
- *Twenty-two percent of respondents were younger than 35 years, 15% between 36 and 45, 40% between 46 and 55 years old, and 23% were over 55.*

- *Seven percent of respondents have a household income less than \$35,000 per year, 15% between \$35,000 and \$50,000, 26% between \$50,000 and \$75,000, 26% between \$75,000 and \$100,000, and 26% more than \$100,000 per year.*

How did they cook the chestnuts?

- *The majority of respondents (80%) roasted the chestnuts. Besides roasting, 55% boiled them, 33% cooked them using the provided recipes, and 23% used their own recipes to cook them.*

Respondents preferred chestnuts that are:

- *Locally grown (85% prefer chestnuts grown in Missouri, 22.5% prefer chestnuts grown in the U.S.; none prefer imported chestnuts – respondents could choose more than one option)*
- *Organic (55% prefer organic, 35% pesticide free, 7.5% conventional, and 2.5% didn’t answer)*
- *Fresh in shell (98% prefer fresh in shell, 25% prefer to buy peeled chestnuts and 15% prefer to buy them cooked). But don’t forget this is the opinion of people who like to buy from farmers’ markets and natural food stores.*

First buying preference for chestnuts was farmers markets (58%) with second choice being health food store (43%).

(cont. pg. 5)

Respondents’ opinions about the chestnuts they purchased (Fig. 1)



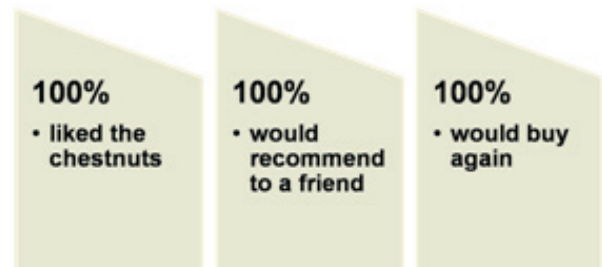
Buying Chestnuts in Missouri (cont. from page 4)

Respondents were very satisfied with the chestnuts they purchased in terms of quality (appearance and taste) and price (Fig. 1).

The more familiar with chestnuts (purchase chestnuts more often), the more respondents considered that chestnuts were of high quality (appearance and taste) and that chestnuts' price was as expected.

With the Chinese chestnuts grown at HARC, we obtained 100 percent customer satisfaction. The store also was very pleased with the chestnuts and with the business.

We are looking forward to a new chestnut season. We'll keep you updated with what we find out from people who purchase chestnuts. *CGA*



Chestnuts in Croatia

by Carolyn Young, Allen Creek Farms

Ray and I were privileged to attend the first annual meeting of the Chestnut Growers' Society of Croatia. Attending was every grower in the country, all the researchers in the country and foreigners as well. Before you're too impressed I would tell you that Davor and Mirjana Juretic are the only growers in the country; Dr. Sanja Novak-Agbaba and her three colleagues from the Forest Research Institute Jastrebarsko are the only researchers; and we were the foreigners.

If you participate in the Chestnut Forum at <http://www.chestnutsonline.com/>, you may recognize Davor by his pseudonym, Natura Vergine. I became acquainted with him online when he was trying to get grafted Qing trees, which he eventually obtained from Ken Hunt at the University of Missouri, who, with the help of Sandy Anagnostakis, arranged a university-to-university transfer, the justification being that Croatia didn't have Qing.

Croatia, a part of the former Yugoslavia, is a beautiful country lying just east of Italy across the Adriatic Sea, and its forests are filled with native chestnut trees. While the forests are not exclusively chestnuts they're about 40 percent chestnut in the Juretic's area, about 40 miles southwest of Zagreb, the capital city. Other trees include beech, oak, hornbeam, lime (probably not the citrus you're thinking of), birch, acacia and box elder. And yes, his orchard is surrounded by native chestnuts on all sides. It lies at about 45 degrees north latitude and at an elevation of 180-250 meters



Above: Davor Juretic stands in his young orchard with native chestnut forest beyond. Left: Sanja Novak-Agbaba, behind the post, and her three colleagues, left, at lunch with Carolyn, Davor and Mirjana, right, in the Juretic's picnic shelter, a traditional Croatian structure.

— about 590 to 820 feet. It's definitely a continental climate in this area, being separated from the coast by a chain of mountains. If you're trying to place it, Croatia lies south of Slovenia (which is south of Austria), west of Hungary and Serbia, and north of Bosnia and Herzegovina.

The Juretics have 7 hectares currently (17.3 acres) and are negotiating for the purchase of a contiguous property. The land is quite steep and for that reason weeds are not sprayed next to the trees to prevent soil erosion. The pH of the soil is 6.5 on the surface, but 4.5 below 0.5 m. The first trees were planted in 2005, but that was only four Euro-Asian hybrids to see if they would grow. A half hectare (1.25 acres) of Bouche de Betizac were planted in the spring of '06 and an additional 1.5 hectares (**cont. pg. 7**)

Resident Weevil (cont. from page 3)

of the probe through a ¼ in. rubber tube to protect them. The lead wires go to the temperature controller which switches the injection pump on and off to maintain temperature in the stock tank.

As you can see in the diagram, the injection loop has an inlet and outlet into and out of the circulation loop. It is important that the inlet and outlet be placed very close to each other. If the inlet and outlet are too far apart there will be a slight pressure difference between them in the circulation loop. If there is even a slight difference in pressure, it will cause water to circulate through the water heater even when the injection pump is not running. This will cause the temperature in the stock tank to drift upward, uncontrolled, above the limit (I found this out the hard way).

Place the inlet to the stock tank just over the top edge and pointed parallel to the edge of the tank so that the water swirls around in the stock tank like a flushing toilet bowl. Keep the inlet as close to the edge as possible because it will get bumped by nuts going in and out of the tank.

The temperature controller is an electronic device that is as complicated as a digital camera and has all sorts of settings and options. You want simple on-off control and your choice of C or F, choose 0.1 degree precision. Target temperature is 49

degrees C or 120 F.

Mount the controller in some easily visible place but out of the splash zone. It gives a constant, real-time, digital readout of the water temperature. You need to watch the temperature like a hawk until you are confident everything is working as it should. In operation, the water heater thermostat should be set as hot as possible. This will result in fast recovery and maximum throughput. Don't try to control

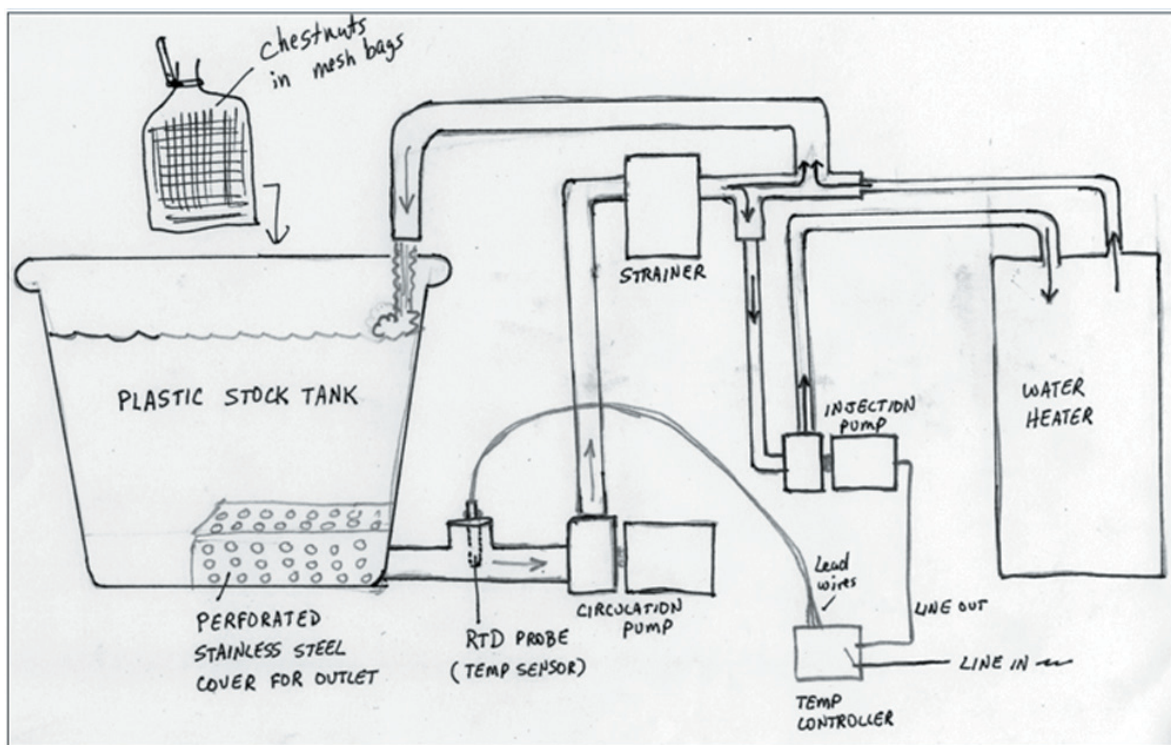
the stock tank temperature by adjusting the water heater thermostat. Stock tank temperature is regulated by the temperature controller and injection pump. Depending on ambient temperature, it takes at least two hours for system to get up to operating temperature from a cold start; it's quicker if the water heater remains on.

You should have an on-off switch that controls both pumps but I like to have power to the temperature controller all the time. Most electronic devices last longer and perform better if they run all the time. Mine has been running continuously for more than 15 years. During the "off season" I do dial the set point down so that the relay remains "off." The relay is the part that will eventually fail.

The nice thing about PVC pipe is that it is relatively cheap and easy to cut and re-glue. You may have to re-do the plumbing a few times to get it working as you like.

The above information just saved you about \$1,000 of trial-and-error or professional engineering! CGA

For information on weevil life cycle and controls, check out a past CG article provided by Greg Miller. Go to <http://www.centerforagroforestry.org/pubs/chestnut/v6n4/v6n4.pdf> and see pages 5-7.



Croatian Chestnuts (cont. from page 5)

(3.7 acres) in '08 with Precoc Migoule, Maraval and Mar-sol planted as pollenizers. Also included in the orchard are 0.5 hectares (1.24 acres) of Marrone buono di Marradi and pollenizers including mostly seedlings of Viterbo and a few Turkish seedlings from Ulldag Mountain.

The majority of the trees were purchased in Italy. When potted they sell for about 5-6 Euros (\$7.75 - \$9.25) each, though bare root trees are less expensive.

The most recent trees planted were three Qing, thanks to the help of Ken Hunt. They had been in about 6 weeks when we visited and looked like they were doing very well. An irrigation system is not needed here because the rain is spread throughout all seasons. In addition to the chestnuts, the Juretics have planted all kinds of fruit trees. Davor said that if there were a tree not included in this group it was because they hadn't thought of it.

It was interesting to learn that the Croatian government provides a subsidy to farmers of 20,000 kuna per hectare (\$1,711/per acre) for planting an orchard and 2,000 kuna per hectare (\$171 per acre) annually for maintaining it.

They can also buy a limited quantity of subsidized diesel related to the area farmed.

Asked about blight, we were told that there is blight in the area but the trees survive because of the type of blight. Unlike many of our areas in the U.S., insects are not a problem. The Juretics own a business in Zagreb that keeps them very busy and they look forward to the day when they can retire and move to the orchard permanently. They are building a lovely home there that is about 50 percent complete. Meanwhile, they have an efficiency apartment built as a part of their storage building where they stay while working there. Davor told us that he had a surprise luncheon planned for us on the Saturday of our visit. Little did we know the surprise was Sanja and her colleagues. He had met her at the chestnut symposium in Bursa, Turkey, last year. Mirjana prepared a feast for kings and we ate and talked for hours. Davor is fluent in multiple languages and really did his homework in planning his orchard. If it's been written about chestnuts he's probably read it.

Great folks, beautiful country, chestnut lovers – what more can you ask? CGA



Chestnut Trees, bare rooted stock
Colossal, Italian and French cultivars
Available February/March 2009
Order soon so we can graft/bud to your choices
For more information
Call Polo Ramos, cell: (209) 543-4545;
home: (209) 847-7699, or
Lucienne Grunder (209) 852-9426
Email: owlnuts@dishmail.net

A 'Taste' of What's to Come (cont. from front page)

That's why they agreed to open their farm, Harrison Ranch, to the Chestnut Growers July 26.

"It has been interesting seeing other people's orchards," Paul said of past CGA tours. "People have been so hospitable to us showing us their ventures in agriculture. We wanted to be able to participate in the sharing of knowledge of the industry."

Visiting the Harrisons' farm means seeing different chestnut cultivars at different ages. They have majestic trees approaching 30 years of age, in addition to trees that are about 20 and then some less than 5 years old. Their orchard includes Colossal, Nevada and Silverleaf cultivars.

"The orchard tour will show different varieties at different ages, all doing rather well," Paul said.

"The thing that surprises people is how many nuts we have," Sandy said. "This is a high producing orchard. You have to have a crew to work this." She said they have to watch the younger trees to make sure their limbs don't break with the weight of their many nuts.

"Our trees produce very large Colossals; beautiful nuts," she said. "The percentage of extra-large nuts has gone up with the fertilizing we do." Their orchards produced 25,600 lbs. of chestnuts last year; production has gone up each year except for one (when they pruned extensively) as the newer trees come into production.

For now Bechtol markets their nuts through a broker and transports them East in bulk. Sandy said this works for them, although they may market differently in the future. She loves hearing about other CGA members' value-added chestnut products, but knows that would take a full-time commitment.

"We have all the water we need and all the good soil we could ever want," Paul said of their location, yards from an irrigation canal and with a good well. "We could grow anything here."

The Harrisons' farm is in an agricultural community, near Sacramento. They are surrounded by walnut orchards. Sandy said growing chestnuts distinguishes them.

"They are a beautiful tree with such a sweet fragrance in the spring," she said. "They create beautiful shade. There's

a part of us that likes to have conversations with people who don't know what chestnuts are."



And if their farm seems vaguely familiar to long-time CGA members, you are not mistaken – Sandy said their orchard was part of a tour many years ago as well, long before they owned it.

The Harrisons have made many improvements to their farm since taking it over. They have transformed an old outbuilding into an office/guest house, where they stay on weekends. The Hewitt-Peterson family lives in the home on the property and enjoys gardening and country living.

"We always have a project going," Paul said. "It's been under construction since we got it." They have thinned some of the larger trees (which they now say they wouldn't do again!); worked on weed control to facilitate harvest; and have created an underground irrigation system so the squirrels can't chew through it easily. They plan to move to the ranch full time in the next few years.

But for now the chestnut ranch is the Harrisons' "other job." During the week, Sandy is director of health services for Aerojet, an aerospace company, taking care of employees' health and safety. Paul is a self-described semi-retired businessman from the sheet metal industry. He said he has worked on many different projects, including remodeling homes, and different agricultural endeavors. He thinks of the chestnut orchard as another project.

"I love the whole process of planting a tree and seeing it grow," Paul said. "It's nice to have a farming business that you get some revenue out of." CGA

Have you registered for the CGA Annual Meeting? Go to <http://www.wcga.net/> or contact Ray Young at Ray@ChestnutsOnLine.com today to make sure you're not left out of the fun! You're welcome to register at the door but it would be appreciated if you'd let Ray know you're coming.

A NOTE ABOUT THE WEATHER

Paul advised those attending the upcoming meeting and orchard tour to wear light-colored clothing to stay cool, as temperatures will likely be above 100 degrees in northern California. "It's hot, but not humid," he said.

Sucking it Up: MSU Researchers Design Prototype Machine to Simplify Chestnut Harvest

Reprinted with permission by Michigan State University Project GREEN Communications

EAST LANSING, Mich. – Michigan's young chestnut industry continues to grow by leaps and bounds – 2007's crop was the largest in the industry's short history. Growers may soon have another reason to celebrate, thanks to efforts by Michigan State University (MSU) researchers from the Department of Biosystems and Agricultural Engineering, who are evaluating various approaches for a semiautomated harvesting machine.

Edible chestnuts may be a profitable commodity, but harvesting the sweet nut by hand is backbreaking work. Dan Guyer, MSU professor of biosystems and agricultural

engineering, is collaborating with Whoa Seug Kang, a South Korean professor of agricultural engineering on sabbatical from Kangwon National University, to design a prototype of a harvesting unit to simplify and expedite the harvesting process.

The design concept for the harvesting machine came from Kang. He concluded that, for the burgeoning fresh chestnut industry to thrive and prosper, growers needed an affordable small- to medium-sized harvesting machine that could easily maneuver around and between trees. The prototype designed by Kang and his **(cont. pg. 10)**

Harvesting Chestnuts in the Show-Me State: MU's Method

by Ken Hunt, MU Center for Agroforestry

Because of our research requirements of data collection on a tree-by-tree basis, most all of our nuts are picked up by hand usually on a daily basis. We do have pecan harvesting equipment that does work more or less on chestnuts. We have a Savage Model 8042 harvester that has a 48-inch wide pickup. It basically works with 17.5-inch rubber fingers that spin in a forward fashion on a drum. The nuts are swept up and then carted up a chain belt that allows dirt and small debris to fall through and is facilitated by a blower fan. The nuts fall through the chain belt as well but are not blown out, and then are fed up an auger into sacks (which also can be modified to drop into trash cans). Larger objects such as sticks and unopened burs don't fall through the chain belt and exit the back of the machine.

We haven't used the machine much but have found that the orchard floor needs to be rather level and smooth to allow the rubber fingers to get at the nuts. Our efficiency is about 60 percent due mainly to rough ground, that the machine can't get close to the tree trunk and that we have a drip line along the tree row. I assume one would need a blower to move the nuts away from the tree row, but I don't know if a blower can move chestnuts efficiently. The drip line probably would need to be removed during harvest. Another concern would be running the machine numerous times over the same ground and the effect that would have on the grassed alleyway. Probably not good.

The harvester is only 48 inches tall and has a gas engine to run the blower, so a small garden tractor is capable of pulling the machine. So, in concept, the machine should work with fairly low branches.

We have a Savage pecan cleaner, Model 4124, that works rather well at cleaning up the nuts and trash picked up by the harvester. In fact the cleaner may work on chestnuts even better than it does on pecans in that the air separation blower works well on the dense chestnuts. The cleaner has an inspection table to allow removal of bad nuts, rocks and clods. The observation I have is that with machine harvest, you end up with scuffed and scratched up nuts and dusty dirty nuts that need another level of clean up. *CGA*

Harvest Help (cont. from page 9)

colleagues is partially modeled after larger, more expensive machines found in Europe.

“Prior to the recent resurgence of the fresh chestnut market here in the Midwest, not enough chestnuts were grown here to worry about having access to less labor-intensive harvesting systems,” Guyer said. “With the hope that the edible chestnut market will become increasingly profitable, a number of people are interested in starting their own orchards. As trees continue maturing and reach full production capacity, there will be a greater need for modern harvesting equipment, but purchasing the larger European system is cost-prohibitive, at least for now. Having an efficient and affordable device to simplify and expedite the harvesting process is critical as the state’s chestnut industry continues to grow.”

The MSU-designed machine sucks up the nuts and spiky burs off of the ground and deposits them into crates. The machine measures 5 to 6 feet long, 4 feet wide and 5 feet tall – up to one-third the size of its European counterpart – and it can be moved from place to place either carried on a trailer or pulled behind a small utility vehicle, Guyer said.

“Once chestnuts fall to the ground, they need to be collected every day or every other day or they’ll get eaten by wild animals,” he said. “Chestnuts in Michigan are still harvested by hand, so our goal was to research a few design concepts and arrive at a small, cost-effective machine to make the harvesting process less labor-intensive,” Guyer said.

The next step for researchers is to devise a way for the harvester to separate the nuts from everything else that the machine picks up. The machine works just like a vacuum – it will pick up everything, including soil, leaves, sticks and the spiky bur casing of the chestnuts. Guyer and Kang are working on separation techniques using the density of the nuts.

Guyer notes that improvements to and optimization of the machine design will occur over time.

“The design was far enough along this year that we were able to use it at harvest time and document ideas for improving it. By next year we would like to see it used as a tool for research plots and/or possibly testing with some commercial growers,” Guyer said.

Work on the chestnut harvester evolved from an integrated research and outreach effort initiated several years ago by MSU plant pathologist Dennis Fulbright to reintroduce the edible chestnut crop to and develop a market in Michigan. His initial project received funding support from Project GREEN (Generating Research and Extension to meet Economic and Environmental Needs), the state’s plant agriculture initiative at MSU, as have several other projects stemming from the initial feasibility work, including postharvest storage and shelf life and packaging studies.

Founded in 1997, Project GREEN is a cooperative effort between plant-based commodities and businesses together with the Michigan Agricultural Experiment Station, MSU Extension and the Michigan Department of Agriculture to advance Michigan’s economy through its plant-based agriculture. Its mission is to develop research and educational programs in response to industry needs, ensure and improve food safety, and protect and preserve the quality of the environment. CGA

To learn more about Michigan’s plant agriculture initiative at MSU, visit <http://www.green.msu.edu>

CGA Slate of Officers 2008-2009

The Nominating Committee will present the following slate of officers for next year at the Annual Meeting in July:

President: Mike Gold
Vice President: Bill Nash
Secretary/Treasurer: Ray Young
Directors: Lucienne Grunder
Dennis Fulbright
Lee Williams
Sandy Bole

Any member in good standing of the CGA is eligible to serve on the Board. Please contact the Secretary, according to the By-Laws, if you would like to nominate another member for any of the positions. Thank you.

Sandy Bole, Harvey Correia, Ken Hunt CGA

Downunder (cont. from front page)

non-participating partners will be about \$160, including lunches, dinners and field trips.

More information will be provided as soon as program and costs are finalized. Full details will be available on Chestnut Australia Inc.'s Web site, <http://www.chestnutsaustralia.com.au/>

Wangaratta is central to the main chestnut growing region in Australia. It is about three hours north of Melbourne, on the main northbound freeway and also is served by a direct train service from Melbourne. As the conference will be in the middle of the Australian summer holiday season, Chestnut Australia Inc.'s Heather Kane suggests attendees try to make reservations as early as possible. The conference venue is a member of the Quality Hotel network and is a 4 1/2 star hotel. There also are a range of alternative accommodation options both in Wangaratta and in the local area (the Web site will soon list other options).

Conference attendees should book rooms directly with hotels; anyone staying at the Gateway should mention the conference for "special attention."

Questions? Contact Kane at Heather.Kane@anu.edu.au CGA

Welcome!

Please update your directory with the following new or renewed CGA members:

Weylin and Roselyn Eng
Miekos Properties, Inc.
PO Box 129
Orinda, CA 94563
Phone: 946-1373
Fax: 925-886-8886
Email: miekosproperties@yahoo.com

Dennis Fulbright
Dept. of Plant Pathology
107 CIPS Building
East Lansing, MI 48824
Phone: 517-353-9704
Email: fulbrig1@msu.edu

Jonathan Hamilton
J.J. & J. Chestnut Farm
9315 NW 238 St.
Alachua, FL 32615
Phone: 386-454-4335

Robert Skinner
1253 W. Lydia Hwy
Heartsville, SC 29550
Phone: 843-332-0166
E-mail: robin.skinner@sonoco.com

GET READY!
National Chestnut
Week 2008 is
Sunday, Oct. 12 -
Saturday, Oct. 18

Beijing: A Cautionary Note

The 4th International Chestnut Symposium of the International Society for Horticultural Sciences (ISHS), is scheduled to be in China this September. Due to the Olympics taking place there this summer however, the symposium has been postponed and dates have changed.

Although ISHS's Web site lists the new dates as Sept. 25-28, 2008, the conference Web site, www.chestnut.org.cn, was still not back online as of press time.

While we would never discourage anyone from registering for or attending a conference, we thought a cautionary note was appropriate to let CGA members know the date has fluctuated and we have not yet gotten a confirmation from the convener on the new dates. (CGA will not have another newsletter before the conference is scheduled to occur, as the fall issue arrives in October.)

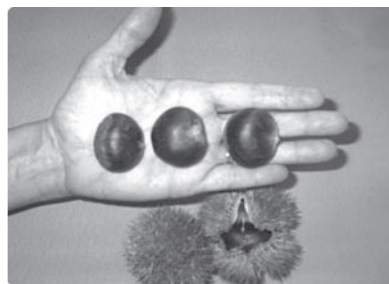
If you are interested in the conference, and would like more information and/or would like to stay up-to-date on conference information, the contact person for the 4th International Chestnut Symposium is Prof. Dr. Ling Qin, Beijing Agricultural College, No 7 Beinong Road, Changpin District, Beijing 102206, China. Phone: (86)1080799136 or 1080799126, Fax: (86)1080799004, E-mail: qinlingbac@126.com, Symposium e-mail: chestnut2008@126.com, Web: <http://www.chestnut.org.cn>

Before the conference Web site was taken offline in months past, presentations were said to cover all aspects of chestnuts, including basic and applied research in the areas of: genetics and germplasm, physiology, production systems, plant and soil nutrition, pests and diseases, post-harvest, nut quality, health benefits and marketing.



CGA
c/o Center for Agroforestry
203 ABNR
Columbia, MO 65211

California or Bust!
See you in Chico
July 25-26!



Dunstan American X Chinese hybrid Chestnuts

Larger nuts than almost all
Chinese chestnut varieties;
Blight resistant and better tasting
than European Hybrids!

15105 NW 94th Ave. • Alachua, FL 32615 • 800-669-2067 • 386-462-2820 • www.chestnuthilltreefarm.com