

## WCGA Logo Makes its Debut

After several years in which the need for a logo was seen, the WCGA Board of Directors made the decision to hire a graphic artist to design one. The purpose was to provide something to members that could be used in their advertising and labeling to identify them and their products with a recognized growers' association, and thus to give them more credibility.



The logo was designed by Mary Ruhl, a Portland graphic artist with 28 years of experience. Most of her work is related in some way to food, so our task for her fit well within her experience.

While Mary doesn't grow chestnuts she tells us she enjoys growing vegetables, tree fruits and native plants. She says that actually the plants grow themselves, and she just fools herself into thinking she's had some part in the process.

Mary can be reached at 503-636-6905.

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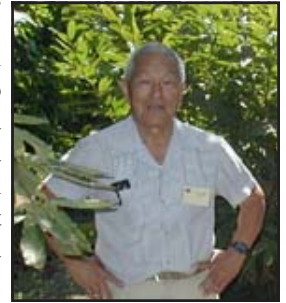
## Big Crowd Turns Out for California Central Valley Orchard Tour

In spite of last minute changes, no one who participated in the tour of Central California orchards, Sept. 7 and 8, went away without a feeling that they learned a great deal and had ample opportunity for exchanging ideas and information with other growers. Thanks go to Harvey Correia, Isleton, CA grower for his superb organization and work in pulling things together.

The Poggio orchard was the first stop Friday and served as a reminder that while some of us look at a mature chestnut orchard as both beautiful and a source of income, others, especially developers, see only visions of one more suburban housing tract. The problems between the two factions were obvious.

trees. He hasn't lost any trees since he began caring for the orchard and feels it's due to his diligent efforts at disinfecting his pruning implements.

Sal Quacinella, who planted Colossals and Nevadas in 1998 was host for the third stop on the tour. He has about 3 acres of trees planted on 20 foot centers.



Kay Ryugo discusses methods of storing chestnuts.

There was discussion about storing nuts and it is apparent that everyone has a method that works best for them, and that all methods are not the same. Dr. Kay Ryugo, retired professor from UC Davis said he favors storing the nuts for 3 to 4 days in cold water before storing. He states this keeps the nuts from molding by keeping sugar from forming on the bottom of the nut where mold would naturally form.



Tour participants stand among the 82 year-old trees at the orchard of Jim Paoletti.

Jim Paoletti's orchard of 82-year-old Italian marrones were beyond description and he described how his father had come from Northern Italy and grafted all the trees as seedlings. Jim says they used to produce more nuts than they do currently and feels that it's due to a lack of pollination -- that there used to be more chestnuts in the area. He also mentioned the importance of disinfecting pruning tools when working on trees. He said that his father didn't disinfect and often lost

Two of the last orchards visited on Friday were those of Cliff Acosta and Joe Machado, just a short distance from each other. Acosta's orchard sustained heavy damage to young trees last year when a container was used for painting the trees that had previously contained Roundup. All of the trees painted were killed and had to be replanted.

The last stop of the day was at the young 85-acre chestnut orchard of

See Orchard Tour, p. 6



A MESSAGE FROM THE PRESIDENT

Dear WCGA Members:

Harvey Correia put together a wonderful tour of California orchards in early September. We saw mature orchards, one planted in 1918, and maturing orchards in various stages of development as well as the test orchard at UC Davis with its collection of numerous chestnut varieties. We were warmly welcomed

by Lucienne Grunder and her family at their Owl Creek Ranch where Angelo Ibleto out did himself once again by preparing a delicious barbecue. The two-day event was on schedule, very informative and entertaining too.

A design for the WCGA logo was completed and accepted by the logo committee. I think it is very attractive and I encourage growers to use it in the promotion of their chestnuts and chestnut products. Some guidelines have been developed for the use of the logo and they will be incorporated in the association bylaws at the next annual meeting. Any grower interested in utilizing the logo should contact Carolyn Young for a copy of these guidelines and the instructions on how to obtain the logo itself. (See page 5.)

Elsewhere in this newsletter you will find a draft of the proposed USDA standards for chestnuts. This is a result of the discussions held at the meeting at Michigan State University this summer and it is very important that all growers read it and become familiar with its content. Individually, we should organize our thoughts on this document so that a response can be forwarded to the USDA. This can be reviewed at the annual meeting. It may be appropriate to offer a response from the WCGA but if there are wide differences in opinion responses from individuals may be necessary.

The annual meeting will be on Saturday, Feb. 23, 2002. The time and place have not been determined as yet but it will be in the Portland, OR, general area. It is the intention of the board of directors to try to alternate the location of the summer field days and the annual meeting between suitable locations in California and the Northwest. The program will attempt to focus on some of the points of interest expressed in the survey. Tentatively, we will have presentations on tree nutrition, marketing, which may cover packaging and distribution, and an in depth presentation on harvesting and processing.

I hope that your harvest is going smoothly. If any growers have shortages of chestnuts or an excess of certain sizes, let some of the other growers know because it may be easier for those closer to some urban markets or with more developed marketing channels to even out the supply.

I look forward to seeing as many of you as possible at the February meeting.

Best Regards,

Ben Bole

EDITOR'S NOTES

Special thanks this month to Jennifer Wilkinson, Editor of the Australian Nutgrower and in whose publication both Mr. Klinac's and Mr. O'Kane's articles appeared. She arranged permission for us to reprint and sent original files as well which saved my retyping each. Each of the articles is exceptional and I think you'll gain much from them.

Kathleen Kelley and Bridget Behe's research paper on how chefs perceive chestnuts should give growers insight to how one of our market segments looks at our product.

A chance meeting with Charlie NovoGradac at the recent NNGA meeting led to the article on his homemade chestnut sorter. It's practical, it's useful and best of all he did it for only \$100.

Of importance to all members is a draft copy of the USDA's proposed standards for chestnuts. Your comments and questions are encouraged to the USDA.

Carolyn

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NOTICE

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POSTMASTER

Send Address changes to WCGA, c/o PO Box 841, Ridgefield, WA 98642.

ADVERTISING RATES

- Full page, camera ready (w/1 photo) .. \$15.00
Half page, camera ready (w/1 photo) ... 10.00
Quarter page ..... 7.50
Business card (4 issues) ..... 10.00

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. If ad is cancelled, money may be refunded if space is resold. Make checks payable to Western Chestnut Growers Assn., Inc.

All ads and other copy preferred in PC format on disk or e-mail to Carolyn@ChestnutsOnLine.com. Ads must adhere to published ad sizes for space purchased. Call for specifics. Otherwise for best results, submit original photographs. Layout of ads will not be done until payment is received. Send materials to P.O. Box 841, Ridgefield, WA 98642, or Fedex/Express Mail to 29112 NW 41st Ave., Ridgefield, WA 98642. Call for further info.

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 Western Chestnut Quarterly do not necessarily reflect the attitude nor policy of the Western Chestnut Growers Assn., its members, officers, Board of Directors or Editor. The Western Chestnut Growers Assn. 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.



# Does anyone out there want a mechanical chestnut sheller/peeler?

by Dr. David Klinac

Executive Director of the New Zealand Chestnut Council and HortResearch Scientist

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There are three models (of chestnut sheller/peelers) currently in existence, all working on basically the same principle as that of the original 'Little Ripper', the basic model capable of shelling about 50kg of whole chestnuts per hour.

Whole fresh chestnuts are fed in through a hole in the top. An electric motor beneath drives a cutting disk which mechanically removes the shell and some pellicle. A second electric motor controls rate of feed and throughput. On the smaller 15-20 kg/hr 'Baby Ripper', this second motor is replaced by a hand-operated mechanism, suitable for smaller volume domestic use. On the larger 300 kg/hr 'Big Ripper' version (for packhouses), additional refinements of variable speed, automatic feed (via hopper and conveyor belt) and extraction fan-assisted separation of shelled nuts from wastes are added. The system of operation is purely mechanical (and patent-protected since 1997). No heat, flame or steam is used. The nuts emerge still fresh and whole. On easy-to-peel US, Chinese, European and some Australian chestnut cultivars, the machines can remove both shell and pellicle together. On harder-to-peel Japanese and New Zealand hybrid cultivars, pellicle removal is patchy. Usually only the shell and part of the pellicle is removed requiring a second, separate, follow-on treatment if totally clean nuts are required. A standard mechanical potato-peeler (a rotating abrasive-lined drum with water flowing through) removes the pellicle by grinding it off producing a smooth Easter-egg type appearance (minus all surface detail). Controlled drying, freezing, cooking or microwaving can also be used to render the pellicle dry, loose and brittle, for easier removal. Pressure or steam-exploding, or freeze-drying, are more exotic possible alternatives. We also have an experimental chemical removal process which reduces the pellicle to a wet tissue paper-like consistency and breaks its bonds to the kernel below. (We've also experimented with enzymes). Currently though, there hasn't been the de-

mand or the funding to pursue these approaches further.

## Some history

It all started in the early 1990's with a New Zealand Chestnut Council (NZCC)/Chestnuts Exports NZ Ltd. (CENZ). (1993) requirement for some way of peeling NZ chestnuts.



Samples had been sent overseas to put through European machines, but the results had been inconclusive. Early HortResearch experiments involved the engineers of the then 'Engineering Development Group' trying a range of different approaches from flame through freezing, pressure, decomposition and explosion. None produced an acceptable peeled product, so they switched to a 2-part process, focusing first on shell removal, to be followed by a second separate pellicle removal stage. An early

mechanical prototype to do this was built (and patented) in 1993, but apart from some limited use in processing nuts prior to chestnut soup production at the odd Mystery Creek field day, no further use was made of it. This was the time when fresh exports were still doing well and either freeze drying, crumbled/stuffing products or a secret new Hungarian process, were seen as fulfilling all NZ's requirements.

Further development work over the years has therefore been sporadic, depending on availability of funding: initially from NZCC and CENZ, and later by the Chestnut Company of NZ Ltd. - the Kiwi Chestnut Co-operative Company and Bill Walker of E-Type Engineering Ltd.: all supported in turn by Technology NZ.

It's been a low priority project for HortResearch (and one they've lost a lot of money on). Many thanks to Barry Stevenson, the designer, for keeping it alive (under the table, quite literally at times).

There's still room for improvement and we'd like to do some more R & D work on it this coming season (funding allowing). Where to go next though, largely depends on whether there's any interest or demand out there for such a machine, from you the growers and most likely end-users....

- What sort of throughput do you need?
- Just shelled nuts or shelled and peeled as well? (i.e. both shell and pellicle removal)
- Do you need the surface kernel detail left intact?
- How much wastage and breakage is acceptable?
- How much would you be prepared to pay for such a machine?
- How many machines would be likely to sell? (i.e. is it worth doing a production run?)

Some feedback on this would be much appreciated and would greatly help decide the future of this project.

*Ed. Note: Dr. Klinac can be contacted at [dklinac@hortresearch.co.nz](mailto:dklinac@hortresearch.co.nz)*

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# A Plastic Barrel Chestnut Sorter

## Build It Yourself and Save

Article and Photos by Charles NovoGradac  
Chestnut Charlie's Organic Produce  
nuts2sell@aol.com

I modeled my chestnut sizer after those I have seen in Italy and Australia. Those are made from sheet metal screens having round holes in ascending sizes, formed into a cylinder. The cylinder rotates on a horizontal

The three plastic screens were then fitted over the wheels, trimmed, and fastened with pop rivets to the metal. The axle was 3/4" electrical conduit. The axle slipped through center holes drilled in the spokes and was fastened



The finished sorter is shown complete juice barrels, wallpaper brushes to keep the nuts moving, hardware cloth and other easily obtained materials. Cost to build was about \$100.

axle, powered by an electric motor. Chestnuts are fed into one end of the cylinder and roll like pinballs until they drop through the first hole they fit. If the cylinder axis is inclined, gravity pulls the nuts down the length of the tumbler, over increasing size holes, until the nuts fall into collection bins of uniform sizes.

Unable to find someone who could fabricate a chestnut sorter for me locally, I determined to build one myself out of materials and tools readily at hand. The result may not be pretty but it works pretty well.

### Construction of the Cylinder

For the screens I used plastic sawed from used juice barrels I bought for about \$5 each. I drilled the hundreds of holes with hole saws, 7/8", 1" and 1-1/8" successively. It was tedious but done in a couple of afternoons. The cylinder is framed of four wheels, of about 15" in diameter, with 1" x 2" wood for spokes. The wheel rims were 3" wide sheet metal, cut and rolled round for me by a local furnace shop.

with flanges (probably unnecessary). The bearings were simply scrap blocks of wood drilled to a snug fit with the conduit axle and greased. I used conduit connector fittings as collars inside the blocks, to keep the cylinder from sliding back and forth.

### The Sorter Stand and Collection System

The tumbler rests across a trestle made of scraps of lumber and plywood. It fits snugly to the plywood at the left, the in-feed end, so nuts do not escape before the gauntlet. The right, or large hole end, is gapped about three inches, to allow any surviving nuts to drop onto a chute leading to the "extra-large" bucket. In the middle the nuts fall to hardware cloth from which they roll into buckets. An array of wallpaper brushes screwed to a plank pushes stuck nuts back inside the cylinder. The trestle was framed square and level for simplicity—I merely shim up the in-feed legs two inches to urge the nuts to drift down the length of the sorter.

### The Drive System

A friend gave me a salvaged gear-reduction electric motor. By lucky happenstance, merely looping an automotive fan belt around the outside of the cylinder to the motor achieved a satisfactory rate of rotation, about 20 turns a minute. The hanging weight of the motor—the mounting



The view from beneath the sorter reveals the scrap gear-reduction electric motor which drives the unit using an automotive fan belt surrounding the barrels.



plank is secured to the trestle with strap hinges—tensions the belt and allows play for an out-of-round wobble. The belt is taut enough to drive the cylinder, there is no gap to catch your fingers within the operator's reach, and it is slippery enough that you can stop the tumbler with your hand without shutting off the motor and without injury.

### Modifications to be Considered

As it is, the sorter does a fine job of sorting chestnuts in order that I can sell the larger nuts for higher prices. I have nonetheless considered improvements. For instance, the sorter cylinder, now comprising three 18" long screens, could be lengthened to accommodate one more larger nut size. If standard sizes are ever adopted in the chestnut industry it would be a simple matter to drill and attach a new screen. If the sorter is to be lengthened, I would consider a stiffer or bigger axle. A nice accessory would be a preliminary cleaning and culling table, with a chute leading to the sorter. Leveling legs might be a useful way to fix or vary the incline of the cylinder for maximum efficiency.



*An end view of the sorter reveals the 1"x2" wooden spokes mounted on a 3" sheet metal rim. The axle is electrical conduit.*

### Time and Money

Since I used scraps and recycled materials for the most part, I am necessarily guessing when I say that the whole sorter was produced for under \$100. This does not include the electric motor. Time allotted to design, construction, and assembly amounted to no more than four or five days, not counting the trip to Italy, the weeks of pondering and doodling, and assembling materials. In terms of utility and satisfaction, it has been a very rewarding project.

# WCGA ANNUAL MEETING

to be held

Saturday  
Feb. 23, 2002

in the  
Greater Portland  
area

Tentative topics include

Marketing  
(including Packaging)  
Distribution  
Harvesting  
Processing  
Tree Nutrition



### Guidelines for the Use of the WCGA Logo

The logo is owned by Western Chestnut Growers Association and it is protected by United States copyright law. It can only be used by members of the WCGA and users do not have the right to grant use of the logo to another person. Users agree to cease all use of the logo upon cessation of their membership. The user agrees to use the logo as it is provided and not to modify it beyond the following:

- a) The logo may be enlarged or reduced to meet individual needs.
- b) The logo may only be duplicated in the colors provided in the original copy or in black and white.
- c) The logo may be used to promote any members chestnuts or chestnut products on labels, banners, stationery, clothing, etc.
- d) Use of the logo does not imply that the user is an official representative of the WCGA.
- e) The logo should always be reproduced in the highest possible resolution regardless of the application.

### How to Obtain the Logo

*All members of WCGA are entitled to use the association's logo. The easiest way to obtain it is to email your request to the Editor and it will be returned via email. Please specify the file type you want, e.g., TIFF, BMP, etc., and whether you need it in PC or Mac format.*

*If you prefer receiving it on disk send a blank disk (floppy or Zip) with appropriate protective, stamped, self-addressed envelope to the Editor at PO Box 841, Ridgefield, WA 98642. Make sure your disk will accommodate the file. The TIFF file is 948K. The BMP file is 55K. For the best resolution we would advise using a TIFF file. Send your email request to Carolyn@ChestnutsOnLine.com. It will be sent as soon as the request is received.*



## Orchard Tour, continued from p. 1



*Worker demonstrates the propane-powered gopher-blaster at the Owl Creek Ranch of Lucienne Grunder.*

Lucienne Grunder. With her manager, Polo Ramos, and her son, Lucienne has planted/grafted 17 different varieties of trees. An interesting demonstration of a “gopher blaster” was done and participants were impressed with its effectiveness.

Harvey Correia welcomed people to his orchard on Saturday morning. He states it is the only one below sea level in the state. Trees in the orchard are planted on 28.4 foot centers and each is on a mound.

Harvey talked about his use of N-pHuric to lower the pH of his soil. He injects the product into his irrigation system.

Neal Van Alfen, Dean of the School of Agriculture and Environmental Science at UC Davis, and retired professor, Kay Ryugo acted as guides at the UC Davis research farm, where participants saw a number of varieties of chestnuts grown there. Dr. Ryugo pointed out the Fowler and Okei trees



*Participants walk beneath irrigation tubing suspended from the trees. The technique is intended to prevent damage to the irrigation system.*



*Harvey Correia demonstrates how he checks the moisture of his soil to determine when to irrigate.*

and mentioned that he felt the Okei was a good pollinizer. He also liked the Fowler variety and mentioned that there was no invagination in the nuts.

The Tokunago orchard in Yuba City had 12 year-old trees on 20 x 20 foot centers. The trees looked very healthy and it was obvious there was good production.

The final visitation was to the 15 year-old Weed Orchard (formerly Tanimoto) in Gridley where there was much interest in the suspended drip watering system. Drip tubing was suspended from the trees at a height of about 8 feet. While it prevented the system from being damaged by the equipment on the ground, the orchard manager said that they still had occasional damage by high equipment moving through.

Highlight of the weekend was the Friday evening dinner prepared by WCGA’s official chef, Angelo Ibleto. Lucienne Grunder graciously offered her hilltop home. Special thanks to both for this very special occasion.



*Chef, Angelo Ibleto, takes a break with Sandy and Ben Bole.*



*Thirty-five people enjoyed the gourmet feast of tri-tip steaks, pasta, wine and all the trimmings. Raffle-master, Ben Bole auctioned off a shirt and a hat with the new WCGA logo to two lucky ticket-holders.*

# U.S Standards for Grades of Chestnuts in the Shell

## *A Draft Copy*

The following proposed USDA standards for chestnuts have been provided to WCGA by Gerald E. Berney, Agricultural Engineer with USDA-AMS-Transportation and Marketing. He would like your questions and/or comments as soon as possible. Mr. Berney can be contacted at USDA-AMS-Transportation and

Marketing, 1222 South Agricultural Bldg., Washington, DC 20090-6456. His phone number is 202-720-8050. He can be reached via email at Gerald.Berney@usda.gov.

The proposed standards are being presented here *exactly* as they were provided to the association.

### Grades

U.S. Fancy.

U.S. No. 1.

U.S. Commercial.

### Size Classification

Size classification.

### Tolerances

Tolerances.

### Application of Tolerances

Application of tolerances.

### Sample for Grade or Size Determination

Sample for grade or size determination.

### Definitions

Fairly uniform in color.

Fairly uniform in color.

Mixed in color.

Clean.

Fairly clean.

Slightly dirty.

Loose extraneous or foreign material.

Shriveling.

Blank

Well developed.

Fairly well developed.

Poorly developed.

Well cured.

Diameter.

Rancid.

Freezing or freezing injury.

Decay.

Injury.

Damage.

Serious damage.

### Grades

#### U.S. Fancy.

"U.S. Fancy" consists of chestnuts in the shell which meet the following requirements:

(a) Shells are: Free from injury by any cause.

(b) Kernels are: Free from injury by any cause.

(c) For tolerances see Tolerance section.

#### U.S. No. 1.

"U.S. No 1" consists of chestnuts in the shell which meet the following requirements:

(a) Shells are: (1) Free from damage by any cause.

(b) Kernels are: (1) Free from damage by any cause.

(c) For tolerances see tolerance section.

#### U. S. Commercial

"U.S. Commercial" consists of chestnuts in the shell which meet the following requirements:

(a) Shells are: (1) Free from serious damage from any cause.

(b) Kernels are: (1) Free from serious damage from any cause

(c) For tolerances see tolerance section

### Sizes

#### Size classification.

Size of chestnuts shall be specified in connection with the grade in accordance

with one of the following classifications.

Size Classification	Minimum Diameter	Maximum Diameter
Mammoth	1 3/8 inches	No Maximum
Jumbo	1 1/4 inches	1 1/2 inches
Giant	1 1/8 inches	1 3/8 inches
Large	1 inch	1 1/4 inches

### Tolerances

The following tolerances are determined by count, except for extraneous or foreign material, which is determined by weight, and all are provided as specified:

#### (a) Defects.

##### (1) U.S. No. Fancy.

##### (i) For shell defects.

10 percent, for chestnuts with injury to the shells, including not more than 5 percent damage.

##### (ii) For kernel defects.

10 percent for chestnuts with injury to the kernels, including not more than 5 percent damage: **Provided**, that included in the 5 percent tolerance no more than 2 percent shall be allowed serious damage for rancid, mold, decay or live insects.

##### (iii) For loose extraneous or foreign material.

0.50 percent (one-half of 1 percent) of net contents in container.

##### (2) U.S. No. 1.

##### (I) For shell defects.

12 percent for chestnuts with damage to shells, including no more than 6 percent serious damage.

##### (ii) For kernel defects.

12 percent for chestnuts with damage to kernels, including not more than 6 percent, shall be allowed for serious damage: **Provided**, that included in the 6 percent tolerance not more than 3 percent shall be allowed for rancid, mold, decay or live insects.

##### (iii) For loose extraneous or foreign material, by weight.

0.75 percent (three-fourths of 1 percent) of net contents in container.

##### (3) U.S. Commercial.

##### (I) For shell defects.

20 percent for chestnuts with serious damage to shells.

##### (ii) For kernels defects.

20 percent for chestnuts with serious damage to kernel: **Provided**, that included in the 20 percent tolerance not more than 8 percent shall be allowed for rancid, mold, decay, and not more than 3 percent for live insects.

##### (iii) For loose extraneous or foreign material.

1.00 percent of net contents in container.

##### (b) Size.

5 percent for chestnuts under the minimum diameter, 8 percent for chestnuts over the maximum: **Provided**, that not more than a total of 10 percent are off size (undersize and oversize).

### Application of Tolerances

#### Application of tolerances.

Individual samples shall have not more than one and one-half times a specified



tolerance of 5 percent or more, and not more than double a specified tolerance of less than 5 percent, except that at least two defective chestnuts permitted in a sample: **Provided**, That the averages for the entire lot are within the tolerances specified for the grade.

**Sample for Grade or Size Determination**

**Sample for grade or size determination.**

Each sample shall consist of 50 chestnuts. The individual sample shall be drawn at random from a sufficient number of packages to form a 50 count composite sample. The number of such individual 50 count samples drawn for grade or size determination shall be proportional to the size of the lot (see below).

Pounds in Lot	Number of 50 Count Samples
Up to 5,000	4
5,001 to 15,000	8
15,001 to 30,000	12
30,001 to 45,000	16

**Definitions**

**Uniform in color.**

“Uniform in color” means that an individual shell only shows a minimal variation in color from the general color of the lot and does not detract from the appearance of the lot.

**Fairly uniform in color.**

“Fairly uniform in color” means that an individual shell only shows a slight variation in the general color of the lot and does not materially detract from the appearance of the lot.

**Mixed in color.**

“Mixed in color” means that an individual shell shows a substantial variation in general color that seriously detracts from the appearance of the lot.

**Clean.**

“Clean” means that the individual chestnut is practically free of adhering dust, dirt, or other foreign material.

**Fairly clean.**

“Fairly clean” means that the individual chestnut has a slight amount of adhering dust, dirt, or other foreign material

**Slightly dirty.**

“Slightly dirty” that the individual chestnut has a moderate amount of adhering dust, dirt, or other foreign material.

**Loose extraneous or foreign material.**

“Loose extraneous or foreign material” means loose hulls or shell pieces, or any substance other than chestnuts in the shell in the container.

**Shriveling.**

“Shriveling” means a wrinkled appearance that shows a decreased volume of the kernel. This disorder will be described with the development terms below.

**Blank.**

“Blank” means there is no kernel or a kernel filling less than one-fourth of the volume of the shell.

**Well developed.**

“Well developed” means that the shell has a large amount of meat in proportion to its width and length and virtually fills the volume of the shell.

**Fairly well developed.**

“Fairly well developed” means that the shell has a good amount of meat in proportion to its width and length and fills at least three-fourths of the volume of the shell.

**Poorly developed.**

“Poorly developed” means that the kernel has a small amount of meat in proportion to its width and length and fills less than one-half of the volume of the shell.

**Well cured.**

“Well cured” means that the kernel separates freely from the shell, and the kernel appears to be in good shipping or storage condition as to moisture content.

**Diameter.**

“Diameter” means the dimension measured by passing the chestnut through a round hole sizer in any position.

**Rancid.**

“Rancid” means the stage of deterioration in which the kernel develops a distinct bitter off-taste.

**Freezing or freezing injury.**

“Freezing or Freezing injury” means the moisture in the kernel is frozen or the

kernel has been frozen and the meat is flabby and/or discolored.

**Decay.**

“Decay” means the pathogenic discoloration and deterioration of the kernel.

**Injury.**

“Injury” means any specific defect described in this section; or an equally objectionable variation of any one of these defects, or any other defect, or any combination of defects, which slightly detracts from the appearance or the edible or marketing quality of the chestnut. The following defects shall be considered as injury.

- (a) Decay;
- (b) Freezing or freezing injury;
- (c) Not clean;
- (d) An insect, insect hole, feeding, web or frass;
- (d) Surface mold on shell or kernel;
- (e) A sprout;
- (f) A blank;
- (g) Adhering hull material or light color stains affecting an aggregate of more than 5 percent of the surface of the individual shell;
- (f) A split or crack when the shell is spread apart or will spread upon application of slight pressure;
- (g) A slight mechanical defect or when any portion of the shell is missing;
- (h) A kernel which is not well cured;
- (i) Not well developed;
- (j) Any off-color of the meat of the kernel;
- (k) Kernel surface spots, when more than one light spot is present, or any medium color spot is more than one-eighth inch (3.2 mm) in diameter;
- (l) Not uniform shell color.

**Damage.**

“Damage” means any specific defect described in this section; or an equally objectionable variation of any one of these defects, or any other defect, or any combination of defects, which materially detract from the appearance or the edible or marketing quality of the individual chestnut. The following defects shall be considered as damage:

- (a) Decay;
- (b) Freezing or freezing injury;
- (c) Not fairly clean;
- (d) An insect, insect hole, feeding, web or frass;
- (e) Surface mold affecting more than 5% of or shell or kernel;
- (f) A sprout over one-eighth inch (3.2 mm) in length;
- (g) A blank;
- (h) Adhering hull material or light color stains affecting an aggregate of 10% or more of the surface of Individual shell;
- (i) An off-color affecting 5% or more of the meat of the kernel;
- (j) Kernel surface spots, when more than two surface spots are present, or when a medium spot is more than one-fourth inch (6.35 mm) in diameter;
- (k) Not well cured;
- (l) Not fairly uniform in color.

**Serious Damage.**

“Serious Damage” means any specific defect described in this section; or an equally objectionable variation of any one of these defects, or any other defect, or any combination of defects, which materially detracts from the appearance or the edible or marketing quality of the individual chestnut. The following defects shall be considered as damage:

- (a) Decay;
- (b) Freezing or freezing injury;
- (c) Fairly clean;
- (e) An insect, insect hole, feeding, web or frass;
- (f) Surface mold affecting more than 10% of or shell or kernel;
- (g) A sprout over three-eighths inch (9.5 mm) in length;
- (h) A blank;
- (i) Adhering hull material or light color stains affecting an aggregate of 20% or more of the surface of Individual shell;
- (j) An off-color affecting 10% or more of the meat of the kernel;
- (k) Kernel surface spots, when more than three surface spots are present, or when a medium spot is more than three-eighths inch (9.5 mm) in diameter;
- (l) Not well cured.

r r r



# Looking at chestnuts from a chef's point of view

20 chefs + 400 pounds of chestnuts = insight and understanding

*The following report was done for the  
Midwestern Nut Producers Council*

*by*

*Kathleen M. Kelley*

*Postdoctoral Research Associate  
and*

*Bridget K. Behe*

*Associate Professor*

*Department of Horticulture*

*Michigan State University*

## **Chefs' Perceptions and Uses of 'Colossal' Chestnuts**

Chestnuts (*Castanea sativa*) are a traditional, but currently a seasonal nut, used by several Michigan chefs who work at upscale restaurants. In an initial study conducted with funding from the U.S.D.A. Federal State Market Improvement Program (FSMIP) provided to the Midwestern Nut Producers Council (MNPC), 21 Michigan chefs were given 20 lbs. of 'Colossal' chestnuts to prepare dishes of their choice. Information gathered during the follow-up survey showed that many chefs had positive experiences using the nuts, however, others needed additional information pertaining to either preparation or use. Not all chefs were properly informed about chestnuts or had not had an opportunity to create dishes using whole, fresh chestnuts because there was no supply. Results from MNPC marketing studies can be used to develop future experiments that will quantify actionable market segments. We may identify chefs who prefer 'Colossal' chestnuts and those who do not, or chefs who have no preference for chestnut variety; and Chefs who prefer to purchase peeled (removed from the shell) chestnuts and those who do not or have no preference for either peeled or unpeeled chestnuts.

### **Materials and Methods**

We conducted the study to determine chefs' acceptance and uses of 'Colossal' chestnuts. During the month of August 2000, 25 restaurants in the state of Michigan were contacted to participate in research conducted on behalf of MNPC by researchers in the Departments of Horticulture and Botany & Plant Pathology at Michigan State University (MSU). Restaurants were primarily chosen from the Metro Detroit area, the Greater Lan-

sing area and Northern Lower Michigan. Upon initial contact chefs were told that researchers at MSU would like to send them between 25 and 50 lbs of 'Colossal' chestnuts (a larger chestnut than traditional Asian or European chestnuts, the size for this experiment would focus on nuts between 2 ¼ and 2 ½ inches in diameter), for them to use in a dish(es) of their choice. The follow-up survey was conducted after chefs prepared and served their chestnut dinner. Some of the questions the chefs were asked included: Whether they had used chestnuts before, whether they preferred the size of 'Colossal', where they had purchased chestnuts before, and whether they had problems preparing the chestnuts.

In mid-October, 20 lbs of chestnuts were delivered to five chefs in the Greater Lansing Area, with the first chestnut dinner taking place on 25 October. Dinners were completed by 1 November, with at least two representatives (MSU researchers and growers) attending each event. Conversations and follow-up surveys with chefs revealed that few chefs know how to properly prepare chestnuts and were having difficulty removing the shells and pellicle.

### **Results**

Twenty of 21 chefs completed the follow-up survey. All 20 chefs were asked about their past experience with chestnuts during the follow-up telephone survey. Every chef had used at least some chestnut product in the past whether it was a whole chestnut, canned chestnut, or pureed chestnut product. Four chefs purchased nuts from their local grocery stores. One of these chefs stated that he purchased 'Colossal' chestnuts; others believed they used European nuts. Six other chefs purchase European chestnuts from local produce buyers. These nuts were either whole, halves, pieces, peeled and canned in brine, pureed, or candied. Five other purchased these products from similar sources, but did not know the origin of the nuts. One chef used a partially dried product but noted that it was used for soups, but for very few other applications. Four other chefs used chestnuts infrequently. One stated that chestnuts were roasted occasionally, but that they had not been purchased in the last 7-8 years. Two really hadn't used chestnuts in

the past, only in culinary school and the fourth never liked to use chestnuts, only using them in season because of customer demand.

Twelve of the 20 chefs indicated that they had some problems removing the shells from the chestnuts. Comments ranged from not being able to remove the shell, to stating that the pellicle would stick to the nut meat, and indicating that it was a very labor intensive job. Some chefs mentioned that they either had a small staff or had to pay their unionized staff members \$14 per hour to perform this duty. Chefs commented that they made the extra effort to remove the shell since the nuts were free, but in the future seven of these chefs would prefer to purchase peeled chestnuts. An additional two chefs who did not have a problem removing the shells would like to purchase peeled in the future also. Five of the chefs who had trouble removing the shells would prefer to purchase unpeeled chestnuts or did not have a preference for either product. Comments from all chefs who would purchase unpeeled chestnuts included: a.) They believed the shell protects the nut from the time of harvest to the time when it arrives at the restaurant and that they are fresher; b.) They like to roast food and like the taste and texture of the nut after roasting, it removes some of the moisture; c.) They prefer the shells on because when roasting the shells trap the steam and the nut is still moist; or d.) They would like to pay the lowest price possible and believe that unpeeled chestnuts are less expensive than peeled chestnuts.

Chefs not only used the methods described in the handout given to them during the peeling process, but also experimented additional ideas or combinations of the ones provided. One chef boiled the nuts for 1 ½ hours and then roasted them. Another used a heated fryolator at 375°F, adding one cup of nuts to the oil for 25 seconds. This chef noticed that some shells came off easier than others and that the ones that came off easy had more space between the nut and the shell, though the meat was still good. He attributed this difference to the age of the nut and noted that the yellow-green color of the nuts provided to him was a pleasant color to work with. Only one chef failed to score the chestnuts prior to roasting them, with the rest of chestnuts "popping" in the oven. The chef was one of the Greater Lansing area chefs and was not give the chestnut knife or the other information until after the chestnut dinner.

All chefs reported that they stored the chestnuts in a "walk in" type of refrigeration unit. Chefs noted that the nuts needed to be removed from either the plastic zip lock bags

*See Chefs, next page*

# Unique Marketing Gimmick Goes Over Big at MSU Autumnfest

## Where Else Could You See a 12-Inch Chestnut?

One wouldn't expect to find an artist working with a chestnut researcher, but such is the case with Virginia Rinkel, an illustrator, who works with Dennis Fulbright, MSU researcher.



It was Virginia who came up with the idea of having giant-sized chestnuts on display at the Midwest Nut Produc-

ers Council booth at the fall MSU Autumn fest.

According to Fulbright, people swarmed to the booth and it was an instant success. With Virginia's chestnuts flying high with a little helium assist, and assistants just outside the back door roasting chestnuts, over 200 pounds of roasted chestnuts were given out as samples.

Fire regulations prevented the group from roasting the nuts indoors, so they managed to locate their booth near an exit door and

made do with the situation at hand.

Virginia's flying chestnuts are really just a unique kind of balloon. Specifically,

they're a 16 inch latex balloon that are hand painted to resemble chestnuts. They have both an undercoat and outer coat of acrylic paint on them. The weight of the paint affects the amount of time they'll stay aloft and temperature and atmospheric pressure also play a roll.



She suggests filling the balloons with helium just before you plan to use them to maximize their flight. At Autumnfest they were filled in the morning and lasted until early evening.

The balloons are \$8.00 each including shipping and handling. You can purchase them directly by sending a check to Virginia Rinkel, 4869 Wilcox, Holt, MI 48842. Her phone number is 517-694-5513.

□□□

### Chefs, from p. 9

(resulted in condensation) or nylon netting (resulted in moisture loss) they were transported in to the restaurant. One chef would prefer them to be placed in perforated bags to allow for air movement. Another stored the nuts in cooler in a bucket of water to keep them void of air movement. One chef with an extensive facility stored them in a 32-24°F meat aging box with low air movement and low humidity. Nuts were stored for a period of a couple of days to a little over a month. A chef from the Northern Lower Michigan group stated that chestnuts could be stored for two weeks if stored properly. A few chefs processed the nuts and froze them for use later. Overall, chefs still need to be educated about storing chestnuts and be provided with the proper storing materials when chestnuts are delivered.

Most chefs used all of the chestnuts provided with a few exceptions. Five chefs stated that they could use less than the 20 lbs. they were given, three could use more in the fu-

ture with one chef saying he could use up to 100 lbs. in a season. All chefs were pleased with the quality of the nuts, but there was some spoilage. Four chefs experienced a loss of 5% or less of the nuts provided due to molding or rotting. One chef could not use 16-19 of the nuts in the 15lbs. that he had used prior to the follow-up survey. Another stated that he observed that 20% were "germinating". Lastly, a chef found that only one in six to eight nuts were usable, primarily due to difficulty peeling them. In general, chefs were pleased with the size of the nuts. Two chefs found that the size was average, one chef found that the size varied greatly in the shipment he received. Eleven chefs would prefer a larger nut if quality, flavor, or sweetness is not sacrificed and if the price is not much higher than smaller nuts. One chef would prefer smaller nuts for petite presentations such as ragu. The majority of chefs would prefer both whole, half pieces, and chestnut crumbles, while one chef would not have much use for pieces and crumbles. Four

chefs would strictly use halves and crumbles in their presentations.

Future research efforts will continue to focus on expanding the base of chestnut marketing research with Michigan chefs. Chefs will be provided with several variety of chestnuts, both peeled and unpeeled, stored in different types of packaging materials. Chefs will be asked to compare these chestnuts based on characteristics such as flavor, quality, and freshness and to compare the longevity and quality of the nuts while stored in the packages. Chefs in the Metro-Detroit area will also be asked to participate in focus group sessions and web-based surveys to further increase the understand of chefs needs and desires. Lastly, we will conduct consumer related marketing experiments using a telephone-based survey. Consumers will be asked about their use and preference of chestnuts and their potential use of chestnuts and chestnut products in the future.

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# Top-working chestnut trees

## Perfecting the technique one year at a time

by Bill O’Kane

Ardern & O’Kane Chestnuts, Myrtleford, Victoria, Australia

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The advantage of top-working chestnut trees is that you can change to a better variety and get back into full production in about four years. And by using the bark graft method one has the advantage of grafting onto mature rootstocks. At Ardern & O’Kane Chestnuts, we have successfully top-worked around 3000 trees. We collect pencil-sized scion sticks in winter and store them in a coolroom until required. We cut the branches off the trees to be top-worked, and then we bark graft making one slit in the bark down from the cut-off point of the tree, we slice off the bottom of the scion stick at an angle and insert it in the bark slit (cut face to the wood) and then seal and tape the graft.

Our first top-working attempt was six years ago. Don, Peter and myself decided to change a row of ten-year-old Sword trees to Colossal. It was budburst in late spring and we climbed the trees and cut the branches off with a hand saw. This was a slow and laborious task. We then grafted an average of fifteen branches per tree - another slow and laborious task. However we had an excellent result, probably due to the fact that we didn’t have a lot of bleeding from the branches because we had used so many. We only used grafting tape and ‘Emastik’ (a black bituminous solution which sealed the top of the branch). Also we only cut one side of the scion wood.

The downside to this method was that when we came to clean the trunks and branches of sucker growth, we had to climb every tree which was also a slow and laborious task. We also noticed after several cleanings that the bark was peeling off the tops of the branches and we put that down to the fact that we were killing the bark by standing on the branches to clean the suckers. We didn’t experience any noticeable sunburn on the trunks that year so it didn’t occur to us that the branches were suffering sunburn.

The following year at our second attempt, we cut the trees shorter, short enough in fact to graft from the ground. This ensured we could also clean the suckers quickly without having to climb the tree.

The year was a very dry year and even though we cut the trees back short, we didn’t experience any bleeding of the sap. We grafted from bud burst right through until the trees were in full leaf. The result was excellent and we thought we had found the perfect formula. Unfortunately that year was particularly hot and dry and we experienced very bad sunburn on the trunks. The bark has since grown back around the trees, but it does hold the trees back somewhat. We also found that where a couple of trees were severely sunburnt, the wood inside the bark died and white ants attacked the trees. The lesson learnt from this experience was to coat the trees with white paint to prevent sunburn.

On our third year of top-working we were sure we had perfected the technique. We even painted the trees up to where we were going to graft before we cut them down. But we had good winter and spring rain that year and because we cut the trees back so hard and grafted after bud burst, we had profuse bleeding of the sap. This prevented the ‘emastik’ from drying and it ran down the graft union and prevented the graft adhering. We had a terrible result! We decided that the following year we would top-work the trees earlier before the sap flow was strong.

On our fourth year of top-working we started earlier, at the end of August. We tried bark grafting a tree every week until the bark was sappy enough for the scion wood to go in. We didn’t have a problem with bleeding, but on several days we were caught with rain and the rain washed the ‘Emastik’ down into the graft union, preventing it from adhering. We decided then that we had to use grafting wax (beeswax based) around the scion wood to prevent the ‘Emastik’ washing down and around the graft union. Four years and we still hadn’t worked out the perfect formula! The words of friend Jim Beattie rang in our ears, “you have to get your formula right!” On our fifth year of top-working, armed with the knowledge we had acquired, we enthusiastically set to the task. We painted the trees, grafted early, used wax and ‘Emastik’

and the results looked fantastic - at least until the frost burnt the new graft growth. Where the growth was about six inches in length (15 cm) it was all right, but where it was about half an inch to an inch (1-3 cm), it was killed outright.

This year we decided to graft up about five hundred trees to Purton’s Pride. We cut the trees back during the winter to try and retard some sap flow and started grafting in early October. We still suffered a frost at the crucial time when the grafts were just coming out. So we set about and re-grafted them again. The second time we were quite confident. But this time the weather was quite hot and the grafting wax melted and ran down and prevented the graft union from adhering. And we had no more scion wood left! We were devastated. Luckily while talking to Tom Powell on the phone, I mentioned our predicament and he very kindly offered us some more wood. By this time it was early January and we began the third top-working for the year. We didn’t use grafting wax, only tape and ‘Emastik’ and the results were excellent!

Our formula for next year is:

- to cut the trees back in the winter,
- don’t graft too early,
- don’t use grafting wax,
- paint the trees and
- keep plenty of grafting wood and
- any that bleed too much re-do them after Christmas.

After talking around, we discovered that some people had success by only putting the grafting wax in the front of the bark cut and making a cut on the back of the scion cut so that the scion wood could adhere to the bark at the back where there was no wax.

I have written this article hoping that for others contemplating top-working, it will short circuit the failures. If there is anybody out there who has arrived at a fool-proof formula, please write an article for the Australian Nutgrower! It would be much appreciated by a lot of chestnut growers.

### *Greg Miller’s Words of Wisdom*

*“The probability of deer browsing is proportional to the cost of the tree.”*

*“The bigger your trees are the more people believe you, so show pictures of your biggest trees.”*

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## LETTERS TO THE EDITOR

Hi Carolyn

I am having an "adventure" again this year with the so-called "Tent/Bag Worms" invading my trees. They are aggressive in the surrounding forests particularly in the hardwoods, Madrone, etc. I have been reacting by excising them with surgical precision, a labor intensive and invasive procedure. Some local folklore holds that they can be "burned out" with a propane torch and also possibly controlled with a commercial product called "Bug-Be-Gone". Does anyone in our chestnut community have any insights or experience to relate/share?

Very best regards,  
Denis and Bobbi Henn

## NOTICE

Mark your calendar for the next  
International Chestnut Symposium to  
be held Oct. 18-22, 2003 in Tras-os-  
Montes, Portugal.

Visit the WCGA Website

[www.ChestnutsOnLine.com/wcga](http://www.ChestnutsOnLine.com/wcga)

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