The WESTERN CHESTNUT

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New Zealand Couple Looks Long Term

by Peter Williams
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Peter and Jean Williams hope their 25 acres they bought on Kuku East Rd, Ohau, New Zealand, will support them in their retirement. There was not a tree on the property when they purchased it 10 years ago, and there is nothing older than nine years now. They are growing nuts, pip and stone fruit, timber, making wine and hosting small tour parties. It is far from clear where the main retirement income will come from, but it is likely to be a combination of chestnuts, wines, preserves and tour parties.

Farmers Unlimited Inc., a local lifestyle organisation, organised a field day at "Te Kamahi" recently and about 30 people came along. They were surprised at the rapid growth rates in virtually all trees. The orchard has a wide variety of slopes and is warm and well sheltered with only three or four frosts a year. Tree planting has been designed for effect as well as production efficiency and ease of harvesting.

The nut trees are chestnuts, pine, macadamia, walnut and pecan. The chestnuts are in plantations on the flatter ground; the others are in small pockets. One of the big difficulties with chestnuts is grass control. It is not advised to graze any animals under the trees, even when mature, because they like the sweet bark. Geese will gnaw the trees and pukekos, a local bird, will also peck into the nuts. Peter knows one grower who saw pukekos in the trees throwing nuts down to comrades. In a plantation setting it is not practical to protect every tree so carefully timed mowing is the only option.

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In This Issue

Fowler Hosts Outstanding Orchard Tour

Researchers Provide Hands-On Lessons on Phytophthora

Mid-August in the foothills of the Sierra can be miserably hot but Mother Nature surprised everyone by cooperating with a beautiful day for a tour of three orchards in Gridley and Meridian, California, and the Fowler Nursery at Newcastle. The tour was sponsored by Fowler's with Lorin Amsberry acting as the official tour guide. Fowler had been among those responsible for bringing Dr. Anna Maria Vettraino from the University of Tuscia (Italy) to Michigan State University for the summer for post-doctoral studies with Dr. Dennis Fulbright, of the MSU staff, and invited the two of them to California to gather more data for Dr. Vettraino's research on the similarities of Phytophthora in the U.S. and in Europe.

Tree affected with phytophthora shows signs of dying from the top down -- chlorosis of the leaves, dead branches, poor production. Bark revealed telltale signs of the "flame", characteristic of the fungus.

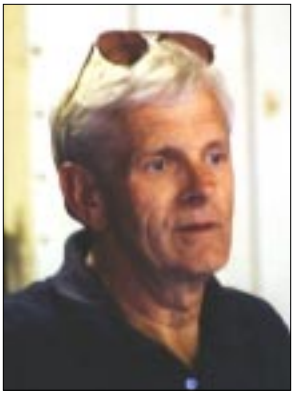
Starting At the Nursery

Nancy Fowler Johnson, General Manager of the nursery and granddaughter of the founder, welcomed about 40 participants from California, Oregon and Washington. She introduced some of their staff including Lorin Amsberry, sales rep for chestnuts, John Ireland, product development and research, and Donald Takauchi, Dennis Mineberg, and Ken Everett. Drs. Fulbright and Vettraino were introduced.

Lorin Amsberry, left, uses an ax to remove bark and tissue from a phytophthora-affected tree for analysis by Dr. Vettraino, right.

The first stop on the tour was the old chestnut block at the nursery. The block contains trees that are 17 years old. At the rear of the block Amsberry pointed out the budwood tree that they use for propagating. Branches are cut December for budding in the spring. This particular block was described as having 18 inches of good soil, then three feet of clay beneath which was gravel. In the block was the first Phytophthora-affected tree that would be seen on the tour. Dr. Vettraino took a bark sample from it at the base of the tree revealing a discoloration in the vascular cambium layer that looked much like a reddish-brown "flame" rising from the roots. According to her and Dr. Fulbright the pathogen is found in the soil as well as the tree and so

*See **Orchard Tour**, p. 7*



Message from the President

By the time that you receive this newsletter the summer field day will be history. I hope that those of you who were able to attend had a pleasant time and learned a little more about the "art" of growing chestnuts. Perhaps the visits to the various orchards provided some possible solutions to some specific problems or the incentive to try something new. It seems that whenever one visits a facility you always learn something, even if it is only to continue what you are doing the way you are doing it. Please let me know if you benefited from this year's tour and if it should be repeated. Suggestions for future sites or subjects will be appreciated.

Thanks to Dan and JoAnn Keeley and to Gary and Judy Pierce for agreeing to make their orchards available for the tour. Thanks also to Randy and Irene Coleman for the tour and for hosting the picnic.

Several growers from Washington and Oregon attended the Chestnut Field Day sponsored by Fowler Nurseries, Newcastle, CA. I felt that it was very worthwhile meeting the growers from California. Even though their problems are not the same as those of us in the Northwest, it is reassuring to know that we are not alone on the learning curve.

There are a lot of nuts on our trees this year but judging from their size it seems that they will not be ready to pick up until mid to late October. This would be two weeks later than 1998, which was a week later than the 1997 harvest. I hope that it doesn't mean that there will be a mountain of small nuts. If the harvest is later it will be interesting to see if this has any impact on the market. I wonder what part of the learning curve we are on.

Those of you who do not receive the publications "Nut Grower" 559/252-7000 and "Pacific Nut Producer" 559/298-6675 might consider a subscription. There is no cost to growers. The current issue of Nut Grower arrived today and it includes articles on gopher and other rodent controls as well as an article on leaf sampling for nutrient analysis in almonds. The nutrient needs may be different but the principles are the same.

EDITOR'S NOTES

This is our second issue and we're beginning to get a feel for what folks would like to see. Thanks to those who've made suggestions and provided articles.

In his comments Ben questions what part of the learning curve we're on. For us that's a no-brainer. We're at the bottom where everything is new and nearly every question unanswered. Some of you are in the same position, while others are beginning to feel pretty comfortable with what they're doing. The problem with being a part of the latter group is that you begin to take things for granted, and all those little techniques and ideas you've garnered over the years are second nature. You see this condition, you do thus-and-such. You see that condition … you get the idea. Well, that's the kind of thing that everyone can benefit from, but they won't if someone doesn't put the pen to paper. I'd like to encourage those of you with experience to consider writing an article about your special techniques or proven practices. If you're uncomfortable with writing, then how about sharing your ideas with me and I'll write it for you? And if you can't contribute a success story, would you be willing to share with us what doesn't work, and perhaps save someone else a crisis down the road. Give it some thought, …please.

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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 **rayoung1@ix.netcom.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
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Spring issue	deadline 3/10	mailed 4/1
Summer issue	deadline 6/10	mailed 7/1

EDITORIAL OPINION

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Summer Field Day Provides Insight for Northwest Growers

An end-of-the-summer visit to the Oregon orchards of four member growers provided those attending with many ideas for managing their own plantings. Open houses were scheduled between noon and 3:00 p.m. at Dan and JoAnn Keeley's 15 acre orchard in St. Paul, Gary Pierce's Pierce and Sons Nursery, also in St. Paul, the Boles' Ladd Hill Orchards in Sherwood, and Randy and Irene Coleman's RC Farms in McMinnville.

(Left) Tour participants relax at the picnic tables set up at the Coleman's orchard. (Below) The Boles' new grading line separates the nuts from the burrs and other orchard debris and sorts the nuts for size.

The Keeleys originally planted Layeroka and Myoka trees in 1990 and still have a few of these original trees in their orchard. They replanted with Colossals in 1991 and interplanted Dunstans three years ago. The orchard is laid out in a diamond pattern and will eventually be on 40 x 40 foot centers.

JoAnn manages the day-to-day operations of the orchard and was helpful in answering questions of the visitors. She talked about their problems with shot hole borers and says they feel the borers are responsible for introducing fungus into the trees. John Keeley mentioned that they have used insecticide in the paint used on the trees with proper protection for those applying it, and have felt that it was helpful. He also mentioned that they felt that the use of white traps for the borers, as opposed to black, was more effective. All production from the orchard is wholesaled to another grower.

The Boles' Ladd Hill Orchard has had some problems with less than normal rainfall during September. Their goal is a drought-tolerant orchard with no irrigation system installed for mature trees. Young trees are watered with buckets from a tank wagon upon need.

The Boles set up a mechanical grading line in 1998 and have done some modifications during the spring of '99 to make processing more efficient.

When asked about marketing techniques Ben answered that they have been successful with advertising in *Fine Cooking* and have other market and restaurant customers. He said that $3.00 per pound, wholesale, was typical.

Gary Pierce opened his nursery to visitors and had on hand a display of Flory orchard equipment. On his land there is a deficiency of boron. Gary uses Solubor, 2-3 pounds per acre to correct the imbalance. He also uses this on his hazelnuts. He sprays for leaf rollers at the same time with a blower. On his young trees he uses a 16-16-16 fertilizer and uses one ton of lime per acre to achieve a proper pH balance.

The last stop on the tour was the orchard of Irene and Randy Coleman in McMinnville. Their orchard is tiled on 60, 80 and 100 foot centers. It is relatively flat and Randy feels more drainage would be helpful. He has trees in an area with little or no slope on clay subsoil that are not doing well. His new plantings are arranged with every eighth row comprised of all pollenizers. Originally his pollenizers were Nevada on Nevada rootstock and he feels they are more resistant to phytophthora than Nevada on Colossal rootstock.

For irrigation, Randy uses 1/2 gallon per hour emitters for 24 hours once every 10 days.

Marketing for the Coleman's is split three ways with 1/3 being sold from a farm stand at the orchard, 1/3 wholesaled to grocers and 1/3 split between mail order catalogs and their basic customer list. He says that $2.00 per pound is a reasonable price for the smaller nuts with premium nuts selling for $4.00 to $4.50 per pound wholesale. He feels $3.00 per pound on the average is reasonable.

The tour concluded with a picnic supper at the Colemans'. Thanks to all for an informative and productive day.

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Major Conference Celebrates Sustainable Agriculture Coming of Age in the Year 2000

March 7-9, 2000

Speakers from across the nation will lead a millennium event in Portland, Oregon that will encompass innovative agricultural techniques, outcomes of scientific research, networking, visioning for the future and successful examples of sustainable agriculture enterprises.

Logan, UT - "Farming and Ranching for Profit, Stewardship, and Community" is the theme of a major sustainable agriculture conference to be held in Portland, Oregon on March 7-9, 2000. Nationally-known speakers, producers, researchers, agricultural extension agents and others from around the nation (and particularly the Western U.S. and Pacific Islands) will share their sustainable agriculture successes, experiences and research results.

The event is sponsored by the USDA Western Sustainable Agriculture Research and Education (Western SARE) program, with major contributions from several land-grant universities and the federal sustainable agriculture effort.

"I'm convinced that sustainable agriculture can ensure the survival of American family farming, which is the bottom-line reason I'm committed to the effort," said Larry Thompson, a berry and vegetable grower from Boring, Oregon and the chair of Western SARE's governing Administrative Council.

According to Thompson, this event will showcase techniques, experts and successful operations that demonstrate why "sustainable agriculture will continue to grow" in the next century and be adopted by all types of producers and agricultural enterprises - large and small, corporate and owner-operated.

Among diverse sessions, confirmed keynote speakers include Virginia producer and author Joel Salatin who will talk about how to increase farm and ranch profits through innovative livestock and ecological practices. Salatin, author of "Pastured Poultry Profits" and "Salad Bar Beef" will both speak and conduct a workshop at the event. In addition, Karla Chambers, co-owner and marketing director of Stahlbush Farms, will discuss her on-farm role and community involvement in building Oregon-wide support for sustainable agriculture. Stahlbush Farms is a 2,000-acre vegetable and fruit production and processing operation that markets its frozen pureed foods worldwide.

A day-long tour is also being orchestrated to give attendees on-the-ground experience with successful Portland-area farms, direct-marketing approaches, eco-labeling attempts, and youth and community efforts that relate to local agriculture. Issues about farming in the midst of urban sprawl and regulation will also be illustrated.

"Sustainable agriculture has come of age in the year 2000 - as a means of operating a profitable farm or ranch, protecting natural resources, increasing quality of life and producing high quality food and fiber." said John Luna, conference planning committee member and integrated farming systems specialist at Oregon State University.

"We aim to bring about 500 farmers, ranchers, field advisors, scientists, policy-makers, agri-business representatives, educators and sustainable agriculture advocates from around the Western U.S. to Portland to mark the beginning of a new century by recognizing evolving sustainable agricultural practices," said Luna.

The conference will highlight the methods and outcomes of diverse research and education projects funded by the SARE effort -- including university-based, on-farm and producer-directed work. Innovative marketing strategies and examples will be shared, and the role of non-profit organizations and public policy in promoting sustainable agriculture will also be discussed. The benefits of involving farmers and ranchers in agricultural research is another key element of the program.

"Sustainable agriculture focuses on increasing profits for farmers, reducing agriculture's impact on natural resources such as water quality and wildlife habitat, and raising quality of life for farm families and their communities," said national SARE Director Jill Auburn.

"I look forward to this Western event, which will help build momentum for more sustainable agriculture successes in the year 2000 and beyond," said Auburn.

Specific program topics include: irrigated and dryland cropping systems; grazing and livestock operations; innovative marketing strategies, including eco-labeling and direct-marketing; soil quality; biological pest control; vegetable, tree fruit, wine grape and other crops; and more. The program will also offer a number of information-sharing opportunities.

The event venue is the Columbia River Doubletree Hotel in Portland, which is situated on the Columbia riverfront, just 10 minutes north of downtown. For more information about the conference, or to register, contact Gina Hashagen, Oregon State University at e-mail or (541) 737-5477.

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Chestnut Fertilization

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Nitrogen is usually the element most needed by chestnut trees; studies have shown that nitrogen supplements have positive benefits for production and nut quality. The amount of nitrogen required varies according to size and age of the tree as well as soil conditions. Limited growth in the terminal and yellowing leaves indicate nitrogen deficiency. Fertilizer programs should be used in conjunction with periodic soil tests. No standards for leaf analysis have been established.

Fertilization should begin in the spring.

Care should be taken not to apply fertilizers in the planting hole since this can cause root burn. Fertilization programs should begin as growth begins in the spring. The application of about 100 pounds of actual nitrogen per acre, per year is adequate for a mature chestnut orchard. Young trees should receive a fraction of the mature rate based on estimated fill-in of the orchard (trees shading 40% of the orchard floor should receive 40 pounds of actual nitrogen per acre per year). For trees planted 30' x 30' (48 trees/acre), apply two to three ounces of actual nitrogen to each tree per year. Increase this rate of application by two to three ounces of actual nitrogen to each tree every year until 100 pounds of actual nitrogen are applied per acre. Closer tree spacing with more trees per acre will require lower amounts per tree.

Apply the fertilizer from the drip line to within two feet of the trunk before irrigation. For drip irrigated orchards, small amounts of fertilizer can be placed under emitters periodically; do not exceed one ounce of conventional fertilizer material per application per emitter.

Since most soils in California have an adequate supply of phosphorus, it is usually not needed as an added nutrient. Potassium, however, is a common element that is often missing and when needed, it should be applied in large quantities (500 pounds of potassium sulfate/acre) in a band just inside the drip line of the tree. Large quantities are applied to a concentrated area because small quantities of potassium normally become tied up by the soil and are rendered unavailable to plant roots.

Calculate young tree rates as a percentage of the leaf cover of the orchard

Fertilizer materials such as compost, feather meal, animal by-products, manure, and organically classified mined minerals can also be used to fertilize chestnuts. They typically contain a low concentration of several nutrients that become available for plant uptake as they slowly break down. Their rates should reflect the application of approximately 100 pounds of actual nitrogen per acre in a mature orchard. Young tree rates are calculated as a percentage of the leaf cover of the orchard.

Leguminous cover crops can also be grown to provide nitrogen fixed in their root nodules and to make available other nutrients from the lower soil profile. Cover crops should be seeded in the fall of the year right after harvest when soils are still warm in order to get good seed germination and early growth. Cultivation each year is required to prepare a seed bed prior to planting and in the spring to incorporate the organic material for large seeded legumes such as vetch or bell beans. Another method is to use self-seeding legumes such as subterranean clover, or rose clover and just mow the cover crop in the spring. These cover crop types need to be established in a well prepared seed bed the first year but come back on their own with fall and winter rains. Cover cropped orchards usually require more irrigation water.

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Chestnut Growers Jump on the World Wide Web

If you're one of those types who thinks you don't need a computer, then forget reading this. There's nothing here for you. On the other hand, if you're open minded or if you have a computer and access to the internet then let me give you some ideas how you can benefit from the world wide web as a chestnut grower. The internet can give you exposure as a grower that you'll never get at Saturday Market or from an ad in a local paper. In addition, there's a wealth of information out there and it's free for the taking

Can it really help you as a grower? You bet it can, and in the next few paragraphs I'll try to give you some ideas on how that might happen.

Marketing on the Internet

Selling chestnuts is not like selling bread and milk, or a six-pack of beer. They're not staples. While they're familiar to some of those in their later years who ate them as kids and there's definitely a market for them in the Asian community, the target market, in my opinion, is really the Yuppie crowd — those who have excess disposable income. And where do the Yuppies spend their time? On the internet — where else? So having your own website for marketing your crop makes sense.

Several of our WCGA members market their chestnuts and chestnut products through websites that they have designed or have had

*See **World Wide Web**, p. 6*

World Wide Web, *from p. 5*

designed for them. Web software is so sophisticated today that nearly anyone can develop his own site at minimal cost, but if you don't have an eye for graphic design it may be wise to hire a firm to do it for you. There are lots of them out there today.

Annie and Omroa Bhagwandin, of Onalaska, Washington, have a site at http://landru.i-link-2.net/shadygrove/ in which they tell the story of their orchard, offer their products for sale and have links to information about chestnuts. Annie has graciously agreed to share with us some of her experiences in having a website for their Shady Grove Orchard. Look for her article in the January '00 issue.

Greg Dabel, of Sebastopol, California, has a site at http://www.chestnutranch.com/ which was developed using Microsoft Frontpage, one of the more popular web development tools. Greg markets his nuts and products, gives a summary history of the chestnut and shares a few recipes.

Eric and Arthur Schwartz, of Philomath, Oregon, have a website for their Thomas Paine Farms at http://www.chestnuts.org/index.html. Their site also features the specialty fruits they grow and includes an order form. Eric says that while most of their sales are to wholesale establishments they've made some interesting connections with their web site and they do sell a small amount of retail nuts. He sees the negatives as being the plethora of questions he receives that require a response -- things unrelated to his business including such things as recipe requests, tree care information, etc.

Clifford England, McKee, Kentucky, is the owner of England's Orchard and Nursery where he grows nearly 20 varieties of chestnuts and a number of other items for sale. Take a look at his website at http://www.nuttrees.net/. Clifford says that 65% of his gross sales come from his website. He says that while it takes quite a bit of time to personally respond to every inquiry it definitely gives a personal touch that is so lacking in many businesses today. He says that if you have limited staff or tight time constraints you might not want to go to the lengths they do to answer questions. Typical questions they receive run the gamut from where and when do we plant, to how many tons of chestnuts can you ship to Saudi Arabia. He feels that people today would rather call or e-mail to purchase trees and have them shipped, rather than driving 100 miles to pick them up.

The Secret to Good Design

The secret to a successful website is its appearance and its use. If it doesn't look professional it won't be taken very seriously. If you're going to design your own spend some time surfing the net and bookmark those sites that are visually appealing for later review. Then think to yourself, how can I adapt these designs to chestnuts? You want a hierarchical structure (a tree structure) — a main page with several pages beneath that are accessed by the main page. Less than three pages looks like you don't have much of interest, and more than seven becomes too busy — or so the psychologists say. If you need more than seven, consider breaking one or more of the pages down into a page with sub-pages.

Graphics are appealing but can be excruciating to load if they have a file size that is too large. Graphics in the JPEG format are smaller and more efficient to use, as opposed to GIF images and can be easily exported from Photoshop. Take a look at sites that are both slow and fast to load. Put your cursor over the graphics and see what the file extension is. It will give you a clue as to what you want to do. If the file name doesn't come up press the right button on your cursor and look for image info.

If you contract with a firm to do a website for you be aware that if they develop the code they will most likely copyright it to themselves, so that if, down the road, you decide to go with another design firm, you don't own the code and it would have to have it developed all over again, at a price you might not be willing to pay. This is typical in the industry and to be expected.

Resources

In addition to being a great way to market your crop, the internet provides a whole host of resources to help you as a grower.

Other nut associations have their own websites. One of the nicest is maintained by the Northern Nut Growers Assn. at http://www.icserv.com/nnga/index.html. Overseen by Tucker Hill, the site is well designed and maintained by webmaster Marsha Henkin. They include links to members' home pages, email links to chestnut experts, information about nuts, articles, a calendar of events and numerous other links. One of the best sites of its kind, you'll gain much from it.

The American Chestnut Foundation's site can be found at http://chestnut.acf.org/. It includes information about the association and its purpose, product information and links of interest. More information about American chestnuts can be found at http://ipm.ppws.vt.edu/griffin/accf.html.

Could you be interested in sustainable agriculture and grants available to implement or enhance it? Then check out the SARE website at http://wsare.usu.edu/.

One of the most inclusive sites out there is from University of California, Davis, at http://fruitsandnuts.ucdavis.edu/. It includes specific information about chestnuts and about weather, pest management, and available publications. It's the best university site I've found for chestnuts. If you've found others let your editor know so we can spread the word.

You'll find all kinds of general chestnut information included at the Woodworking Times site http://www.woodworking.com/magazine/mar96/chestnut/chestnut.html.

Are you looking for weather information? Try the Weather Channel at http://www.weather.com/homepage.html. Just put in your zip code and your weather forecast for the next 5 days will pop up. Another source of weather information for the northwest can be found at http://mac1.pn.usbr.gov/agrimet/links.html.

If you're interested in evapotranspiration information try the WSU site at http://www.tfrec.wsu.edu/Orchard/orchMngmt.html. Irrigation guides can be obtained from Oregon State University at http://biosys.bre.orst.edu/bre/docs/irrigationguide.html.

Now, if you've learned everything there is to learn and your crop is successfully harvested for the year and you're looking for some good recipes try the SOAR system at http://soar.berkeley.edu/recipes/ . A search on chestnuts will bring up some 175 recipes, some of which use water chestnuts, but most for real chestnuts.

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Bits 'n' Pieces

Errors: If you spot errors in your mailing label or in our articles please notify your Editor so corrections can be made.

Free Ads: Don't forget that members are entitled to a free 6-liner classified ad each calendar year.

Membership: If you're not a member and are receiving a copy of this newsletter please consider joining the association. An application is on the back page.

Membership Status: Your status is on your mailing label. R=regular, C=complimentary, H=honorary, N=non-member. Let your Editor know if this is not correct.

Orchard Tour, *from p. 1*

she gathered soil samples for analysis in the lab. The crown of the tree had dead branches and small leaves. This was described as the first symptom of Phytophthora.

According to Dr. Vettraino, Phytophthora is an organism in the soil and can be found anywhere. There are approximately 100 different species, of which at least five are associated with chestnuts. Each of these five can cause damage to the trees and there may be more than one species in a given area. Different species in the same area may show up at different times of the year.

With bark removed from the base of the tree the damage caused by shot hole borer superimposed over the characteristic flame discoloration is easy to discern.

Dr. Fulbright felt that phytopthora could have come to this country originally on rhododendron plants imported from Europe.

The Orchards

Each of the orchards visited had some incidence of Phytophthora despite generally acceptable management practices. Affected trees were examined and discussed.

The first orchard to be visited in Gridley was originally established by the Tanimoto brothers and is now managed by Doug Wilson. Amsberry stated that the soil there is the finest orchard soil in the world. The oldest trees in the orchard were thinned back to 40-foot centers last year. The second group of trees in the orchard is about 8 to 9 years old. They are on 20-foot centers and irrigated with microjets once a week. Younger trees are watered every 2 days. Calcium nitrate is used for fertilizing. The nuts are swept into windrows and then harvested. Nuts are picked up every other day.

Amrick Phagura owns the second orchard visited in Gridley.

The final orchard on the tour was Hirai Farms in Meridian. A young orchard, the oldest trees are 7 years old. This was originally tomato ground. It was interesting to note that while it is not necessarily recommended to plant chestnuts in clay soil, and it is widely believed that standing water is the avowed enemy of the chestnut, this orchard was under 6 feet of water for 6-8 days during a major flood four years ago, yet production appeared to be prolific and may be greater given the age of the trees than was seen in the other orchards.

The Role of pH in Controlling Phytophthora

Dr. Fulbright talked about the importance of knowing and controlling pH in order to minimize the occurrence of Phytophthora — not only pH of the soil but of the water used for irrigation as well. For those who have forgotten, pH is the measure of the acidity of a solution in terms of its hydronium ion concentration. The scale ranges from 0 to 14 with a pH of 7 being neutral, below 7 acidic, and above 7, basic. As examples, orange juice has a pH of 3.5 and household ammonia, 11.1. Fulbright would like to see the soil in which chestnuts are planted below 6.5, preferably about 5.7, and feels that the water should not be above 7. Dr. Vettraino commented that in Italy they would like a pH of 5.5 on their clay soil. Growers were encouraged to do soil testing and to test their irrigation water. The importance of testing soil from multiple places in the orchard was emphasized since pH can vary greatly in the same orchard.

If the soil is not acidic enough sulfur can be used around the trees to lower the pH. It is said to work for a year.

Other Preventive Measures

Dr. Vettraino said that in Italy they have a big problem with blight and haven't had too many problems with Phytophthora in the past but are now seeing it. She said it spreads very quickly and they are seeing 300-year-old trees dying. She recommended planting the trees with plenty of room for the roots in soil with the proper pH, and talked of the importance of proper nutrition for the trees.

She said that in some cases it may be necessary to use channels or trenches to get water away from the roots, and cautioned growers not to move soil from one place to another if Phytophthora is present because of the likelihood of spreading it to other trees. Grooming the alleys mechanically may be a way of keeping the orchard clean and minimizing weed production but can result in spreading Phytophthora in the process.

When trees die they should be removed from the soil with all the roots. She recommended leaving the hole open and treating it with Ridomil or Alliete, both active to control phytohthora but, at least in Italy, not registered for use on chestnut trees. The hole should remain open for one winter and should not be replanted with another tree for three years.

She said that if a grower suspects Phytophthora in a tree they should treat it with Ridomil in a 6-foot diameter around the tree. It cannot be used on producing chestnuts but can be used on new trees. Dr. Fulbright suggested following the recommendations for walnuts.

Roots of phytophthora-affected trees lack fibrous appearance of the normal tree.

The Symptoms

Some or all of the following symptoms will be present if Phytophthora is present depending on the seriousness of the problem:
1. Leaves will be smaller and lighter in color (chlorosis), usually starting at the crown of the tree.

*See **Orchard Tour**, p. 8*

Orchard Tour, *from p. 7*

2. Branches may be dead at the crown.
3. Bark removed at the base of the tree will show a “flame”.
4. Tree will look basically unthrifty.
5. The roots will lack the normal fibrous appearance.
6. The branches have a “rubbery” feeling — a bit spongy, and not hard.

Water Requirements and Practices

Watering was discussed and opinions were varied. Paul Vossen, UC Coop Extension agent felt that 25 gallons was an acceptable quantity of water for a mature tree. Lorin Amsberry suggested that mature trees could be watered every two weeks. He felt that the soil should be allowed to dry out between waterings, but stated that if the stem of the leaf begins to bend over the tree is stressed from lack of water. The curving of the stem is not related to the normal curve of the leaf. There was a general consensus that too much watering could be as much a problem as not enough, and may in fact, promote Phytophthora.

Other Things Learned

Pruning and Propagating: At the newer chestnut block, one to three years old, Amsberry described what he feels is the best method of pruning, using a central leader, and pruned one tree as an example. His goal is to have branches about a foot apart beginning at a height of about 5.5 - 6 feet, allowing room to maneuver beneath the canopy when the tree is mature. He cautioned participants to make sure they didn’t allow multiple branching at the same point because of the possibility of creating a weakened crotch in the tree. He said that the maximum tree height is 75-80% of the row width for maximum light interception, so that a 30' tree height would be ideal on 40' row spacing for maximum light.

John Ireland described the budding process used by the nursery staff and said that there are two windows of opportunity for doing the job. Initially it is done in March. Then later in April there may be another good time. The seeds are planted one year and then the following year they are budded. The next year the tree is sold.

Chef Angelo Ibleto, Petaluma grower, prepares the feast for 40 participants and the Fowler staff.

The OKAE Pollenizer: John Ireland talked about the new pollenizer and said it is a better nut than the Nevada, but he doesn’t know how well it will pollenize Colossals.

Marketing: Paul Vossen encouraged growers to not plant seedlings, stating that they produce nuts that are not uniform in size and are therefore not wanted by buyers. He mentioned that last year there was competition with imports from Korea and Italy because of the late harvest and lower prices were the result. He said that retail prices last year were in the $4.50-$6.00/lb range and wholesale $2.50-$3.50.

The End of the Tour

Fowler’s hosted a 5-star barbecue for participants back at the nursery following the tour. Chef for the evening was member-grower, Angelo Ibleto, of Petaluma who has a catering business and came equipped with his mobile barbecue. Kudos and thanks were expressed to the hosts and cooks for an outstanding meal and an opportunity to provide a wrap-up of the day’s activities. Anyone who missed the tour missed a great learning opportunity and chance to talk with other growers about common concerns.

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Mark Your Calendar Now

WCGA Annual Meeting

Wednesday

January 26, 2000

details in the next issue of The Western Chestnut

New Zealand, from p. 1

The Williams apply organic fertiliser out to the drip line, twice a year - at leaf bud and when the nuts start to form. Chestnuts are planted at a 7m by 7m spacing, which is about 200 trees per hectare. [*Ed. Note: 7m x 7 m is approximately 23' x 23'. One hectare is approximately 2.5 acres]* The most pessimistic production expectation by year 10 is 30kg per tree at a return of about $3 per kg.

Chestnuts are not really labour intensive. The trees must however be pruned for shape, height and ease of harvesting in the early years. Now the Williams merely remove damaged branches or those that attacked the driver of the grass cutter. Harvesting is hard work. "When the nuts start falling you're supposed to pick them up every other day and it takes two of us about 20 minutes per tree, but we've found they don't deteriorate if left a few days on the ground.

Next year we'll have two or three times as many nuts to harvest and we'll have to look at harvesting equipment. Currently this ranges from a small vacuum cleaner type of device to an $80,000 Italian-built machine. There is an Australian product costing $15,000 towed behind a farm bike, but we're confident there will be a cheaper NZ made machine on the market in 3-4 years."

Peter and Jean formed a company called Kernel Chestnut Ltd. with seven other local growers. First step was to research recipes from around the world and they found that nearly 90% called for chestnuts to be boiled or roasted, chopped or pureed and so they looked at producing a chestnut product to fit the bill.

After considerable research with knives, spoons, garlic presses and hammers, the Williams with the help and support of their shareholders evolved a design for a very unique chestnut-processing machine.

This machine removed 90% of the chestnut out of its shell and pellicle in the form of chestnut crumbs, and so they call it "Crumbed Chestnuts".

Originally the machine was to be used by the small group to add value to their crop, but word soon got around and now they have got together with growers Nationally and have built a very large plant in Cambridge.

They have formed a company called Kiwi Chestnut Co-operative (KCCL). This has been set up by a group of large growers from the central North Island, who have worked incredibly hard to put the research done by Kernel Chestnut into a commercial reality.

Organised growing of chestnut trees started with the formation of the Waikato Chestnut Marketing Association (WCMA) Inc. in 1988. WCMA promoted the planting of chestnut trees through field days, meetings, conferences and publications. WCMA also exported the first fresh chestnuts from NZ into overseas markets in the late 1980's and early 1990's.

During the 1990's it became obvious that the future of the chestnut industry in NZ would not lie with selling fresh nuts. The major overseas market was in Australia, which has a similar harvesting season to our own. An increase in the Australian crop (estimated to reach 1200 tonnes in the year 2000) meant that NZ nuts had to reach Australia very early in the season, or wait until all the local nuts had been sold over there, in order to obtain reasonable returns. Problems with storage and transport conditions lead to problems with disease and reduced quality of the nuts in the overseas markets.

The closure of the sole chestnut packhouse at the end of 1997 also meant that options for growers were limited.

Stimulated by work done on processing chestnuts in the Horowhenua area (by Kernel Chestnut Ltd, KCL), a group of growers from the Waikato, South Auckland and Te Puke formed Waikato Chestnut Processors Ltd. Their stated aim of developing machinery and setting up a factory to produce "Crumbed Chestnuts", was based on the research done by KCL. A further aim was to maximise returns to chestnut growers, and for this reason, membership in the group has been limited to active chestnut growers only.

A number of meetings over the next 18 months lead to the restructuring as a co-operative company and a name change to Kiwi Chestnut Co-operative Ltd. (KCCL). There are now about 20 shareholders, including some from Horowhenua and the South Island.

In August 99 this plant faces the challenge of processing 64 tonnes of chestnut into crumbed chestnut product. This freezes well (Peter and Jean have had the product tested by two independent laboratories, which found no deterioration from 14 months in the freezer).

The nuts have virtually no oil, no cholesterol, no sodium, are high in carbohydrate and energy. They don't keep well when fresh, and have to be treated like vegetables.

Growers get a fixed price per kg supplied, a bonus payment at the end of the year, plus a dividend on their shares.

The product looks like bread crumbs and is suitable for freezing in ziplock bags. Peter says this crumb is very flavoursome and

*See **New Zealand**, p. 10*

The Cook's Corner

by Sandy Bole

The Italian influence in the production and consumption of chestnuts was very obvious during our recent trip to the Fowler Nursery's Field Day in California. About half of the group attending were Italian or of Italian descent and conversations included tales from Italy and its wonderful food. Chestnuts were, and still are in many regions, a staple food. It was said that they enabled the Italians to survive World War II through foraging in the woods. They ate the nuts, and ground them to flour for polenta and pasta, and bartered their bounty for other staples. Many a supper consisted of roasted or boiled chestnuts, accompanied by red wine.

Other countries, such as France, Germany and Greece and, in the Far East, Japan, Korea and China relied on chestnuts. This was particularly true for the rural residents, where the chestnut has been called the "food of the poor". A Korean friend boils chestnuts for an afternoon snack when her children come home from school, as her family did when she was growing up.

As usual, there are always simple ways to vary these traditional methods. In Japan, the par-boiled and peeled chestnuts are cooked in green tea and sugar syrup for an after dinner sweet. Cooking chestnuts in simple syrup and adding a splash of kirsch or other liqueur to the dish on serving is a favorite in France. Try making a slit in the unpeeled chestnuts and soaking them in cognac for 2-3 hours. Roast and peel them for a delicious treat.

However you decide to prepare the chestnuts, take a break during the harvest time. Roast some nuts and sit back and relax with your bounty.

Classified Section

Got a service or product to sell to chestnut growers? Consider placing your ad here. This got ***your*** attention didn't it? ... and don't forget members get a free 6-liner once a year. See p. 2 for pricing information.

FOR SALE: 24" Bag-a-Nut Flip-up nut harvester set up for chestnuts. Never used. New cost over $300. It can be yours for $200. Ben Bole 503-625-1248

New Zealand, *from p. 9*

extremely versatile. You can use this as an ingredient in many different prepared foods, for example:

- To crumb fish, poultry and meat before frying or roasting
- To make up stuffings for fish, poultry and meat
- Added to vegetables and stir-fries
- As a thickener for gravys, soups and casseroles
- To make pestos, pastas and baby foods
- As an ingredient in Cereals and mueslis
- Made into sweet and savoury spreads and purées
- Made into puddings and sweets and ice cream

Peter says they hope the product will be sold to catering outlets during the Sydney 2000 Olympic Games and that there is a vast unsatisfied market in the United States. America is currently importing $42 million worth of chestnuts annually. In NZ they are making strong technological advances. "Rather than compete with our American colleagues, we'd like to work with them, and develop even more interesting bye-products, through joint ventures. There are significant benefits in having opposite seasons." Says Peter. This will not be for a year or two, as they have to make absolutely sure all the snags have been ironed out, before sharing their unique process. But thus far things have gone very well and it looks like being a very exciting and unique product for the food industry.

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Membership Application
Western Chestnut Growers Assn., Inc.

❑ New Member ❑ Renewal

Please print clearly:

Name(s) ..... Date of application .....
Business Name .....
Address .....
City ..... State/Province .....
Zip/Postal Code .....
Phone ( ) ..... Fax ( ) .....
Email: ..... Website URL .....

Variety	# of Acres	# of Trees	Yr Planted	Current Production
				_____ lbs
				_____ lbs
				_____ lbs
				_____ lbs
				_____ lbs

Photocopy this form.

Send this form with your check for $20.00 per person made payable to Western Chestnut Growers Assn., Inc. to John Schroeder, Secretary/Treasurer WCGA, 39002 NE 124th Ave., Amboy, WA 98601.