The Western Chestnut

Vol. 2 No. 3 | Published by The Western Chestnut Growers Assn., Inc. | Fall 2000

Reservations being taken for Winter Scionwood Collection

by Christopher Foster

The annual collection date for scionwood at the Lewis-Brown chestnut plot is set for Thursday, December 21st. The predominate woods available are Colossal and Silverleaf. There are also specimens of Layeroka and Skookum. Limited quantities of others, consisting of a few French Euro-Japanese hybrids should be available. Some of the European imports were heavily damaged by shothole borers (*Xyleborus Dispar*) this year and lost.

Those wishing to try some grafting next spring should have seedling trees in the ground now and be somewhat familiar with basic grafting techniques, plus some of the peculiarities and difficulties associated with chestnuts. Many of the O.S.U. selections are on Colossal seedlings. We plan to share what is available on an annual basis. Participants should expect to get no more than a few pieces of wood from varieties in short supply. If your desire is to top-work or graft a large quantity of trees at one time, you should probably seek a professional service and other sources of scionwood. Alternatively, all of the varieties in this planting are commercially available in the West as either grafted trees or rooted clones from Burnt Ridge Nursery.

Except for Colossal, most of these varieties are not widely planted and their viability as commercial cultivars have yet to be tested in the West. Using them should be considered experimental. On the production side, its probably going to be a challenge to surpass the Colossal cultivar with any of these varieties, but for certain purposes or circumstance, some of these selections may prove useful. If you have a few healthy seedling trees, you may want to try your hand at grafting using the alternate varieties.

Entry to the Lewis-Brown Farm is by special arrangement only. We may need to postpone the date if the temperatures are below freezing. If you wish to participate, you must make one of the contacts following aware of your interest: Chris Foster 503-621-3564, foster@europa.com or Anthony Boutard 503-241-7345, aboutard@orednet.org .

o o o

FOLIAR ANALYSIS PROJECT PROVIDES BASELINE FOR "NORMAL" IN WESTERN ORCHARDS

by Anthony Boutard

Analyzing the nutrient levels in the foliage of crop plants is a useful tool for determining fertilizing needs and application efficacy, and assessing the general health of the chestnut orchard. In order to make sense of the foliar analysis, we must know the normal state of affairs in a healthy chestnut leaf.

For many crop plants grown in the western U.S., reliable tables of foliar nutrient content ranges have been established. Because chestnuts are a minor crop, the information has not been developed for the species in this region. There might be a temptation to use tables from another nut crop. However, neither walnuts nor hazelnuts are closely related to chestnuts; soil preferences are different, and the foliage of those trees is different in chemical composition. There are some sources addressing foliar nutrient levels in chestnuts, however they were generated in different soils and climates, and we need local analysis to refine that information.

During this summer, a number of chestnut growers volunteered to undertake an analysis of some of their healthiest trees to help generate local nutrient level ranges for the west coast. Leaf samples were collected between the 8th and 24th of August. All of the foliage samples were taken from young orchard grown trees (less than 15 years).

The first of the OSU reports we received did not include any recommendations concerning nutrient levels. Subsequent reports did because it was possible to observe patterns in nutrient levels once the number of samples increased. According to Nancy Kyle at the Central Analytical Laboratory, 11 samples were received in August, and two in September. As of writing this article, only six of the samples analyzed at OSU have been sent to me. I received four more prepared by Agri-Check, and two were prepared by Californian labs.

As an interim measure, the Central Analytical Laboratory has adopted hazelnut recommendations for chestnuts. Approach these preliminary recommendations carefully. For example, under potassium (K), some of the reports noted a deficiency and suggested that adding lime may free up potassium in the soil. It is important to remember that the optimal pH range for chestnuts is between 5.0 and 6.0 (Crawford 1995: Bourgeois 1992, 252), and liming is not desirable if the pH is shifted out of this range. According to Breisch (1995, 155), chlorosis in chestnuts can result from an elevated pH, which blocks the absorption of iron and other nutrients. For both conventional and organic orchards, banding K-Mag at the drip line is an effective method of increasing available potassium without increasing the soil pH.

Breisch (1995, 156 & 159) also stresses the importance of boron and manganese for tree health and nut production. When boron is deficient, young nut bearing flowers of the Japanese chestnut (*Castanea crenata)* have been observed falling from the tree just after flowering. In many cane fruits and nuts, boron deficiencies are also associated with fruiting problems. Boron has a role in the synthesis of the bases that form DNA and RNA, and the movement of sugars in the phloem. (Salisbury and Ross 1978, 92) Breisch notes that chestnuts are heavy consumers of manganese, which tends to be abundant in acidic soils. Shattuck (1991) notes that chestnuts tend to show signs of

*See **Foliar Analysis**, p. 4*

In This Issue

LETTERS TO THE EDITOR

I just got off the phone with a plant pathologist at Mid Valley Chemical in Linden, California, Dr. Allen James.

This company services quite a few commercial growers that have farmed chestnuts for 10-50 years and is highly regarded.

I was asking him if he had any chestnut tissue analysis observations and he spent quite a bit of time with me. He said that his observation is that they are unusual in their requirement for Nitrogen as it can put on quite a bit of additional growth but that it doesn't appear to affect the size or quality of the crop. He notices that they almost always appear (visually) to be deficient of potassium but that the tissue has what appears to be normal levels of the nutrient.

He is familiar with the Australian manual and indicated that he also uses walnut guidelines along with his own observations. He noted that the calcium levels in tissue increased during the growing season as does boron. He said that boron becomes mobile as the weather cools and moves to the fruit buds so that the highest level of boron in leaves would be about now. He says the calcium and boron are important for the development of cell walls and that it appears that the boron makes the calcium pectate deposition in the leaves better. He explained that that the two elements combined appear to allow for cell walls to "slip" better.

This was the first time I've heard someone that appeared to understand the role of boron although it is widely understood to be important in nut crops. He indicated potassium levels in leaves are stable throughout the season while nitrogen drops. He suggested a pH of 6-7 and said that a grower shouldn't be concerned unless the pH was over 7.5. I told him this was considerably different that what I had read numerous times and he indicated that he was aware that literature indicates a pH of 5.5 to 6.5 is desirable, although Anna from Italy did say last August that a different pH might be acceptable in our area due to different factors such as soils. He indicated that in the United States we test for pH differently than in many places of the world.

His background is in soil science and he was always aware that there were different methods used to test for pH but that he first became aware of the different results a number of years ago when he had a foreign apple researcher visiting to discuss apples and he found out that the methods being used by others provides a pH reading of about 1.0 lower than our testing methods. I told him that I was amazed to be hearing this

See ***Letters,*** *p. 9*

EDITOR'S NOTES

If the measure of an organization's success is directly related to the contributions of its members, then WCGA is definitely successful. We are indebted to a number of members for this issue's articles. Anthony Boutard, in particular, is to be thanked for the magnificent job he's done in pulling all the raw data together for the Foliar Analysis project. This is the first step in establishing what's "normal" for our trees in the western U.S. If you look at his data you will see that normal for us isn't too far off from normal in the midwest, France and Australia.

Chris Foster give us some ideas about the scionwood collection that will be done in December. Make sure you contact him if you're interested.

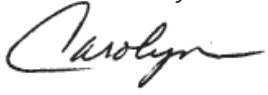
If you've adopted the laissez faire approach to weed control Paul Vossen will bring you back to reality about the importance in keeping up on this ugly job.

Ric Bessin, of the University of Kentucky provides us with information about chestnut weevils, and John Schroeder obtained an article for us written by Tom Wessels of the Washington State Dept. of Agriculture on the regulations for importing chestnuts and chestnut material into that state.

We received information from France about the chestnut trials conducted there during 1999. Special thanks to Chris Foster for summarizing the information. He worked with an English-French dictionary in hand as the information was all in French.

We received information about the SARE Grant program that has a deadline very shortly. If you have a project in mind for which you'd like funding, you're encouraged to apply. Nothing ventured, nothing gained.

And last, but not least, don't forget, if you have something to share with members but really don't care to write an article, you can alway send it as a Letter to the Editor. This is YOUR publication and it should serve your needs.



WESTERN CHESTNUT GROWERS ASSN., INC.

BOARD OF DIRECTORS

PRESIDENT	Steve Jones
	(506) 697-4160
	Email: colossal@nwinfo.net
VICE PRESIDENT	Chris Foster
SECRETARY-TREASURER	John Schroeder
DIRECTOR	Joe Avila
DIRECTOR	Ben Bole
DIRECTOR	Bob Schilpzand
DIRECTOR	Ray Young

COMMITTEES

Editor Carolyn Young
Phone: (360) 887-4520 FAX: (360) 887-3669
email: rayoung1@ix.netcom.com

NOTICE

The Western Chestnut is published quarterly by the Western Chestnut Growers Assn., Inc. at PO Box 841, Ridgefield, WA 98642.

Regular membership is $20 per year per person. Members receive The Western Chestnut quarterly. For foreign delivery contact Editor for pricing. Back issues may be obtained by members. Membership applications may be obtained from the Secretary-Treasurer.

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 **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
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.

There is No Substitute for Good Weed Control

Experiments Prove Benefits of No Weeds Within Three Feet

by Paul Vossen
U.C. Cooperative Extension
pmvossen@ucdavis.edu

As I travel around and visit new chestnut orchards I see that many of them do not have adequate weed control to a point where the weeds have hindered the growth of the young trees. We have piles of good data that shows how weed competition reduces the growth of fruit trees especially in the first few years of growth up until the trees have reached maturity (almost touching). Remember in the first few years of the tree's growth you are just growing branches and leaves. The faster the trees fill their allotted space the quicker the full return on investment occurs. Tree growth rate depends on climate, irrigation, fertility, and weed control.

The most growth occurred with the mulched trees

In one study comparing different weed control and different cover crops on tree growth the trees with the best weed control grew more, a lot more. The trial compared mulched trees (wood chips), herbicide treated area below trees (bare ground), cultivation below trees, annual clover growing right up to the base of the trees, and annual grasses growing up to the base of the trees. The most growth occurred with the mulched trees followed by the herbicide treated trees and thirdly by the cultivated trees, but they had similar growth rates. The trees with clover "weed - cover crop" grew about one-half the rate of the mulched trees and the trees with the grass "weed-cover crop" grew about one-fourth the rate of the trees with good weed control.

Tree growth in this experiment was measured in both shoot length and trunk diameters and the moisture content of the soils was maintained evenly. Translating the growth rates of this experiment over to a poorly weeded chestnut orchard means that it may take 16 to 32 years to get full sized trees instead of the normal 8 years. In other words weed control is very important.

Weeds compete with trees in several ways - primarily through competition for moisture, but also for nutrients, and for physical space in the soil. One of the best ways to stunt young chestnut trees is to allow a grass cover crop to dry the soil out around the trees in the spring of the year.

No weed competition be allowed within three feet of the tree trunks - ever!

Many orchard managers have good intentions of removing the winter weeds in the spring but get to it too late. New growth in chestnut trees can begin as early as April, but root growth probably starts sooner. I therefore recommend that no weed competition be allowed within three feet of the tree trunks - ever.

There are really 5 ways to accomplish this:

1. Herbicides: Preemergent herbicides can be applied right after planting right over the top of the trees. Registered preemergent herbicides will hot harm chestnut trees, even young trees. They must be applied to bare ground (recently tilled) and incorporated with a light sprinkler irrigation or rain. They will control the weeds for about 6-8 months. Other herbicides can also be used on older trees to maintain the area weed free including several contact materials, which can be mixed with the preemergents to provide residual weed control. The only problem is that this is not classified as an organic control.
2. Organic Mulches: This is the best option for small plantings and ornamental trees. I recommend using at least 3 to 4 inches of fresh wood chips. In many cases chips can be purchased locally from counties and municipalities trying to reduce landfill inputs. Organic mulch is really the ultimate in weed control because as it breaks down slowly it creates a loose tilth to the soil and releases nutrients. Water absorption and retention is also aided. It may be difficult to separate fallen nuts from wood chips during harvest and another big problem is cost, not only for the material but also for hauling and application. One acre of trees with rows planted 20 feet apart would use 150 to 160 yards^3 of material costing about $3,000 for the material and delivery alone (based on 4'' deep and a 6 ft. wide strip).
3. Fabric Mulches: One product that I have tested, called Lumite 994G6, is a black weed control fabric that allows water to pass through but no weeds grow through it. You probably have seen it at container nurseries where they use it in their growing grounds to control weeds. In my trials it has lasted ten years, the manufacturer guarantees it for five. The cost per acre for an orchard with a row spacing of 20 ft. and that would apply a 3' wide strip down each side of the trees would cost $533 per acre plus the wire staples to pin it down and labor to apply it. This method effectively controls the weed headache for ten years at a minimal cost. Some people, however, don't like how it looks.
4. Cultivation: There are several cultivation devices that move in and out of tree rows to remove the weeds right around the trees. These include triggered rototillers and weed blades, the French plow, and various hydraulic rotating heads attached to tractors. They vary in cost from about $2,000 to $10,000. They must be manipulated by a skilled tractor driver and be used in orchards with early spring access. Two to three cultivations are needed every year to keep the area under the trees completely weed free during the growing season.
5. Flamers: Propane powered weed burning torches have been used in orchards for weed control. Tractor mounted torches along with a propane tank move through the orchard to "cook" the young weeds in the tree row. The heat can injure young trees and only very small weeds are easily controlled. Many grasses with their low growing point are much harder to kill with the flamer system. Because of the cost of propane this weed control method is usually reserved for very high value crops.

One thing for sure is that you will always have weeds, so be prepared to deal with them right from the start.

o o o

Foliar Analysis, *cont'd. from p. 1*

manganese deficiency in soils where the pH exceeds 6.5. Leaf tissue concentrations below 41 ppm were identified as clearly deficient. However Shattuck also observed deficiency symptoms at higher levels (55 to 100 ppm), though other deficiencies, nitrogen and iron, made it difficult to clearly interpret the results. All of the reports we received showed manganese levels in good shape.

Table 1 above provides the raw results of the individual tests in percent or parts per million dry weight. Table 2 reports various published dry weight composition ranges from other regions. Table 3 is a statistical summary of the data in Table 1. I have confined the summary in Table 3 to the Washington and Oregon results. We have only two reports from California, and those orchards are growing in unique situations. Those samples were collected and tested in 1999.

At this point, we can ponder the range of values collected, and evaluate them against published levels reported in Table 2. The next formal step in this project falls to Jeff Olsen, OSU Extension for nuts, who will take the results of the effort and create a range from deficient to excess for the various nutrients, and then formulate chestnut specific recommendations for addressing deficiencies.

I want to thank those who took the time to sample their trees and send me the analysis results. I am very also grateful to Sandra Anagnostakis for her quick offer of the Shattuck and Miller papers, which are helpful.

References:

Bourgeois, C. 1992. *Le Chataignier: Un Arbre, Une Bois*. Paris: Institute Pour Le Developpement Forestier. 367 p.

Breisch, H. 1995. *Châtaignes et Marrons.* Paris: Center technique interprofessionnel des fruites et légumes (Ctifl). 239 p.

Crawford, M. 1995. *Chestnuts: Production and Culture*. Darlington, UK: Agroforstry Research Trust. 52 p.

Miller, G. undated. *Chestnut Information Sheet.* Empire Chestnut Company, Carrollton, Ohio.

Ridley, D. and J Beaumont. 1999. *The Australian Chestnut Growers' Resource Manual*. Myrtleford, Australia: Department of Natural Resources and Environment. Page 5.2.

Salisbury, F.B. and C.W. Ross. 1978 *Plant Physiology, 2nd edition*. Belmont, California: Wadsworth. 422 p.

Shattuck, V. I. 1991. Manganese levels in Ontario-grown chestnuts. *Annual Report Northern Nut Growers Association* 82: 99-102

o o o

Table 1. Foliar nutrient content for western chestnut trees in terms of percent (%) or parts per million (ppm) of dry weight.

	N	S	P	K	Ca	Mg	B	Zn	Mn	Cu	Fe	Soil pH	Soil Type
Portland, OR[1]	2.57%	0.20%	0.20%	0.92%	0.79%	0.25%	73	29	462	9	105	5.6	silt loam
Gaston, OR[1]	2.72%	0.23%	0.23%	1.02%	1.00%	0.22%	63	70	675	10	228	5.7	silt loam
Gaston, OR[1]	2.68%	0.19%	0.30%	1.01%	1.20%	0.28%	108	70	1010	9	186	5.7	silt loam
Moses Lake, WA	2.52%		0.23%	0.57%	1.75%	0.62%	45	28	316	6			
Moses Lake, WA	2.52%		0.31%	0.70%	1.46%	0.62%	41	36	260	6			
Monroe, OR	2.71%		0.16%	0.75%	1.29%	0.52%	69	33	382	4			
Ridgefield, WA	2.74%		0.34%	0.63%	1.65%	0.43%	109	51	220	10			silt loam
Lebanon, OR	2.15%		0.20%	0.67%	1.19%	0.37%	126	33	144	7			
Lebanon, OR	2.06%		0.17%	0.60%	1.22%	0.40%	137	28	137	7			
Mossyrock, WA	2.27%	0.14%	0.15%	0.95%	0.88%	0.18%	31	29	111	8	91		volcanic loam
Visalia, CA	2.47%		0.21%	0.42%	2.16%	0.32%	38	280	120	6	777		
IIselton, CA	3.55%		0.25%	0.77%	1.88%	0.52%	299	50	253	10	91		silty clay loam

Notes:

1. The first three samples are from certified organic farms.
2. The Central Analytical Laboratory at OSU does not include sulfur or iron in its analysis, hence the blank spaces.

Table 2. Published descriptions of foliar nutrient levels in terms of percent (%) or parts per million (ppm) of dry weight.

	N	S	P	K	Ca	Mg	B	Zn	Mn	Cu	Fe	Region
Breisch 1995	1.80		0.30	0.6	0.8	0.20	40	25	800	10	60	France
Table VI-1	-		-	-	-	-	-	-	-	-	-	
	2.50		0.40	1.0	1.20	0.40	50	35	1000	15	100	
Miller-	2.00	0.14	0.12	0.50	0.70	0.25	30	20	170	4	45	Eastern
Sample of	-	-	-	-	-	-	-	-	-	-	-	US
Field Trees	3.00	0.16	0.20	0.80	1.00	0.35	80	50	300	8	100	
Shattuck 1991									126			Ontario
									-			Canada
									700			
Ridley and	2.40	0.15	0.14	0.80	0.60	0.25	33	9	50	4	9	Australia
Beaumont	-	-	-	-	-	-	-	-	-	-	-	
1999	2.90	0.25	0.30	1.60	1.40	0.70	90	68	700	20	68	

Table 3. Statistical summary of the Oregon and Washington results

	N	S	P	K	Ca	Mg	B	Zn	Mn	Cu	Fe
	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm
Median	2.55		0.22	0.73	1.21	0.39	71	33	288	8	
Mean	2.49		0.23	0.78	1.24	0.39	80	41	372	8	
Min	2.06	.14	0.15	0.57	0.79	0.20	31	28	111	4	91
Max	2.74	.23	0.34	1.02	1.75	0.62	137	70	1010	10	777
Std. Deviation	0.25	0.02	0.05	0.20	0.38	0.20	37	17	283	2	63

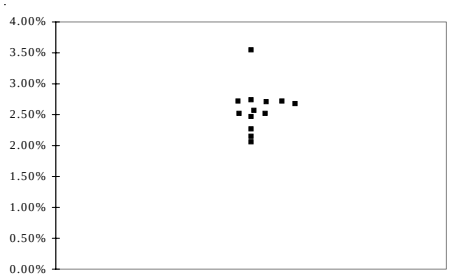


Figure 1. Plot of Nitrogen Content (% dry weight)

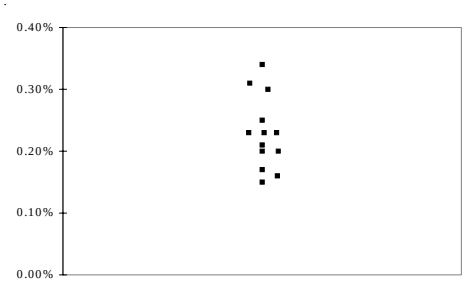


Figure 2. Plot of Phosphorus Content Distribution (% dry weight)

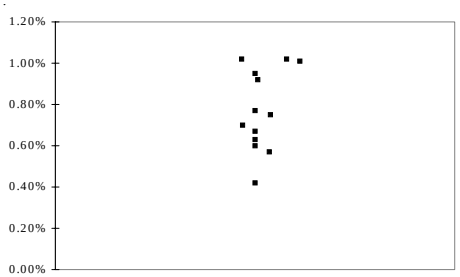


Figure 3. Plot of Potassium Content Distribution (% dry weight)

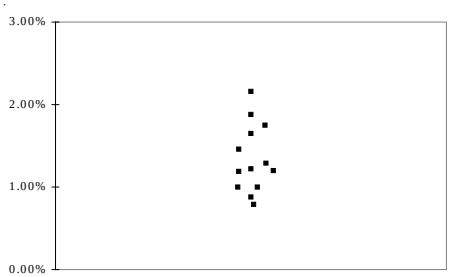


Figure 4. Plot of Calcium Content Distribution (% dry weight)

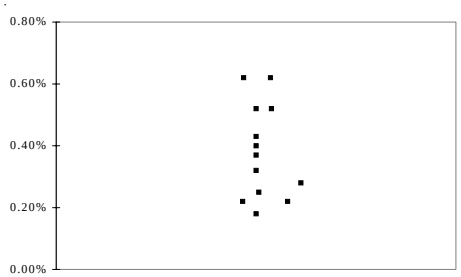


Figure 5. Plot of Magnesium Content Distribution (% dry weight)

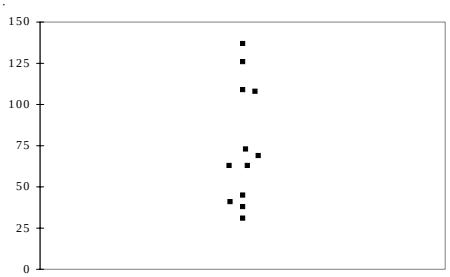


Figure 6. Plot of Boron Content Distribution (ppm)

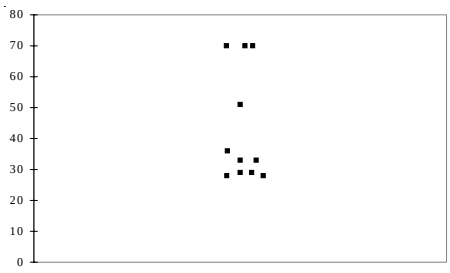


Figure 7. Plot of Zinc Content Distribution (ppm)

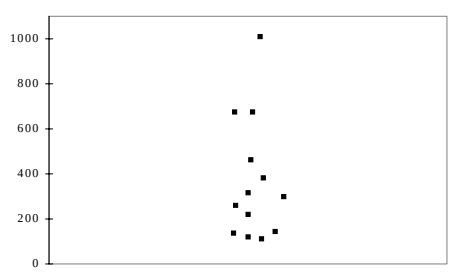


Figure 8. Plot of Manganese Content Distribution (ppm)

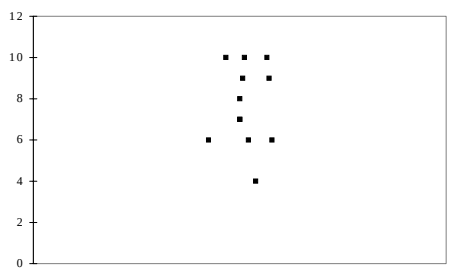


Figure 9. Plot of Copper Content Distribution (ppm)

Information about the Foliar Analysis Project and other WCGA items of interest can be found on the WCGA website at:
http://www.ChestnutsOnLine.com/wcga.

UNDERSTANDING THE THREAT OF THE CHESTNUT WEEVIL

by Ric Bessin

Extension Entomologist

University of Kentucky, College of Agriculture

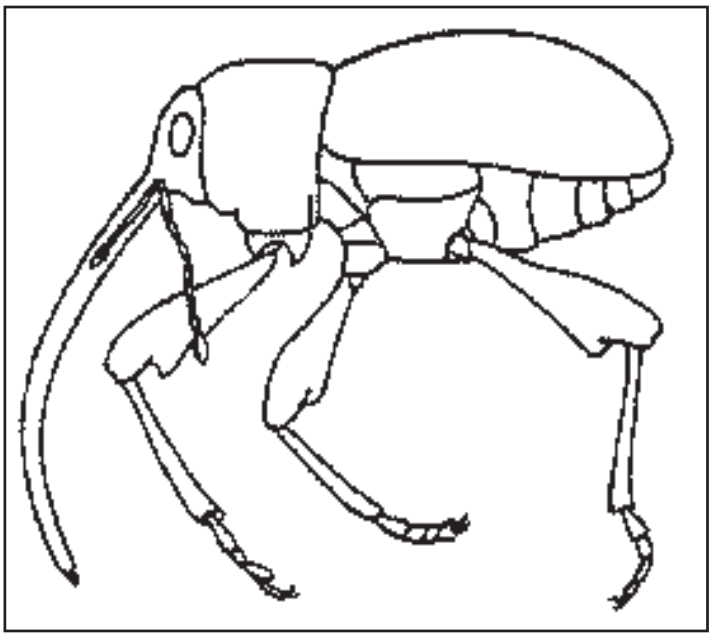
rbessin@ca.uky.edu

(*Reprinted with permission of the author)*

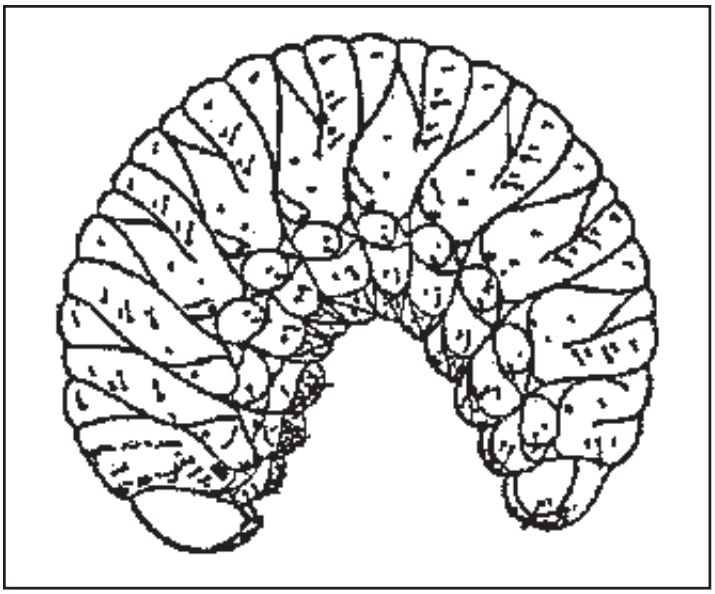
Nut weevils can be very serious pests of native and non-native nut trees. These damaging insects begin to attack the kernels in the developing nuts while the nuts are still on the tree. However, problems often are not noticed until the nuts are harvested and opened. Occasionally, these weevil grubs are found in homes or other places nuts are stored.

Lesser Chestnut Weevil and Larger Chestnut Weevil
Curculio sayi and Curculio caryatrypes

Of the larger and lesser chestnut weevils, the lesser chestnut weevil is the more common of the two species of weevil infesting chestnuts in Kentucky. These weevils breed exclusively in chinquapin, American and Chinese chestnuts. At one time these weevils were common, but since the passing of the American chestnut they have become much less common.



A typical nut weevil. The lesser chestnuts weevil emerges from May through July, while the larger weevil emerges from late July through August..



The grubs chew a circular hole in the side of the nut to enter the soil.

The 1/4 inch lesser chestnut weevils emerge from the ground beginning in late May until July, about when the chestnuts bloom, but do not lay eggs until the fall. Egg laying begins when the nuts are nearly mature and most eggs are laid after the burr begins to open. Eggs are usually laid in the downy inner lining of the brown

shell covering the nut. Eggs hatch in about 10 days and larval development is completed 2 to 3 weeks later. Soon after the nut falls to the ground, the grubs chew a circular hole in the side of the nut to enter the soil. Most of the lesser chestnut weevil grubs overwinter the first year as grubs, pupate the following fall, and overwinter the following winter as adults. Some pass two winters in the grub stage and a third winter as adults before emerging from the ground. The life cycle is completed in 2 to 3 years.

The biology of the larger chestnut weevil differs from that of the lesser chestnut weevil. Adults begin to emerge in late July and August. The adult is 3/8 inch long exclusive of the snout. The female has a 5/8 inch beak and the male's is 1/4 inch. Larger chestnut weevils begin egg laying soon after emerging, before egg laying begins with the lesser chestnut weevil. Eggs hatch in 5 to 7 days and the larvae feed for 2 to 3 weeks before leaving the nut. Larger chestnut weevil grubs chew an exit hole in the side of the nut and drop to the ground usually before the nuts fall. Grubs overwinter in earthen cells in the ground. Pupation and adult emergence takes place the following summer. A few grubs will overwinter a second year before pupating. The life cycle is completed in 1 to 2 years.

Chestnuts shown with telltale holes of the chestnut weevil. Grubs are shown in the foreground.

Management

Weevil infestations can be reduced by picking up chestnuts daily and after curing, heat them to 140° F for 30 minutes to kill the larvae in the nuts. A cold treatment of holding the nuts at 0° F for four days may also be effective, but it may also affect the nuts' flavor. Sanitation is important, always collect and destroy fallen nuts before the larvae have a chance to escape and enter the soil. Only one insecticide, carbaryl (Sevin) is registered for use against chestnut weevils on chestnuts. Trees can be jarred similar to monitoring for pecan weevils to determine the presence of adult weevils.

CAUTION!

Pesticide recommendations in this publication are registered for use in Kentucky, USA ***ONLY****! The use of some products may not be legal in your state or country. Please check with your local county agent or regulatory official before using any pesticide mentioned in this publication.*

Of course, ***ALWAYS READ AND FOLLOW LABEL DIRECTIONS FOR SAFE USE OF ANY PESTICIDE!***

Chestnut Import Regulations for the State of Washington

by Thomas L. Wessels
WSDA, Laboratory Services Division, Plant Services Program Manager
twessels@agr.wa.gov

The Washington State Department of Agriculture (WSDA) is in the process of reviewing Chapter 16-470, Quarantine - Agricultural Pests. This includes the chestnut quarantine (WAC 16-470-400, -410, -420, -430, and -440. This rule limits the entry of chestnut and chinquapin plants and plant products into the State. Regulated materials include nursery stock, nuts, firewood or any other part of the plant genera Castanea and Castanopsis capable of carrying the regulated pests.

The regulated pests include: Cryphonectria parasitica, the causal agent of chestnut bark disease; the large chestnut weevil, Curculio caryatrypes; the small chestnut weevil, Curculio sayi; the nut curculio, Conotrachelus carinifer; and the oriental chestnut gall wasp, Dryocomus kuriphus. These pests would be detrimental to the chestnut industry if they were to become established in Washington. This quarantine covers regulated materials from all areas of the United States outside of Washington State.

Regulated material frown in Arizona, California, Idaho, Nevada, Oregon and Utah may be shipped into Washington State if accompanied by an official certificate stating that the shipment originated in that state.

Regulated material from the other quarantine areas may be shipped to Washington only when accompanied by a certificate issued by the department of agriculture in the state of origin meeting one of the following requirements.

1) The shipment was produced in an area free of the regulated pests, or

2) the shipment was treated for the regulated pests by a method recommended by the regulatory agency or the university extension service of the state of origin.

The Plant Services Program of WSDA enforces the chestnut quarantine along with most other plant-related quarantines. The program is funded entirely by nursery license fees and fees for requested services. There is no specific funding for quarantine enforcement so we rely on routine nursery inspections, cooperation from agriculture agencies in other states and calls from concerned parties to enforce the quarantine.

If we determine that the affected industries support the rule as it exists we will rewrite the rule in a clear a readable format without changing the content. Likewise, we would consider modifying or completely the rule if we determine there is little or no support for the quarantine. At least one public hearing will be help before any changes are made to the rule.

Please send any questions or comments to me before September 30, 2000. *Mailing address: Thomas L. Wessels; WSDA, Laboratory Services Division; POBox 42560; Olympia, WA 98504-2560, Telephone: 360-902-1908.*

A Look at the 1999 Chestnut Trials in France

Collaboration Over the Years Yields Continual Benefits to Growers

by Christopher Foster
foster@europa.com

While chestnut research in virtually non-existent in the Western United States, a variety of French agricultural organizations have been collaborating on a number of experiments for many years. The research is clearly targeted on more efficient and productive orcharding. Earlier this year, French reseachers, under the direction of Henri Breisch *(Ctifl),* graciously sent the WCGA a status report on their ongoing trials, most of which are experiments of five or more years. Many of the tests are varietal trials or varietal dependant and, as the varieties have no significant presence in the West, these results are not currently of much use to us. However, a few of the projects are more generic and may be of interest to Western growers. Some of the more relevant trials have begun recently on multi-year timetables. The more generic of the of the trials include experiments with fertilization, irrigation, pruning, and harvesting systems.

Past fertilization tests (1997) varied N, P, K inputs, finding that certain varieties respond differently to these elements. Some varieties preformed better at higher levels of application while others were better with relatively lower applications. Ongoing tests are looking at response to Calcium and Potassium in three different varieties.

The irrigation test was an attempt to determine the optimal level of soil moisture for tree survival and productivity. An automated sprinkling system driven by tensioelectric soil probes provided three levels of irrigation in different plots. A standard setting was measured against relative settings of 150% and 200%. The results of this test were inconclusive and it will be abandoned, starting anew.

The pruning experiment is new this year. The endeavor is to find the most effective system for early production. The four methods, include two axle or central leader variations, a multi-leader method, and no pruning at all. Four varieties are included in a test plot of 96 trees.

The harvesting system tests have looked at two net collection models, one suspended and one spread on the ground. While the ground net proved more efficient, the suspended net yielded a very clean product. Three different mechanized harvesters are also being tested. One of the problems with the machinery, including those using a vacuum system, has been scratching or damage of the fruit.

Most of the trials are conducted at east of Bordeaux, at Station de Douville (about 45 degrees north latitude), where some 8 hectares are dedicated to chestnuts. The coming years will no doubt produce some interesting results.

(*Note: Many thanks to the French for keeping us informed. My apologies if the translation is not quite right, I had to rely on a dictionary throughout (no French spoken here). If there are any WCGA members fluent in French interested in helping with translating such information, please contact me at foster@europa.com.)*

o o o

PESTICIDE NOTIFICATION NETWORK UPDATE

by John Schroeder

This article is intended to provide the membership with a summary of the PNN's issued since our last News Letter. A description of WSU's PNN can be found in previous issues of the News Letter.

The following table summarizes the PNN's issued since the last update that apply to chestnuts. There are several ways growers can obtain the complete label; contact your local supplier of agricultural chemicals or county extension agent. In addition, most of the manufacturers have labels available via their web sites.

The following caveat appears on each PNN: "The information contained in this notification is not be used as a substitute for obtaining and reading pesticide labels. Information provided by the PNN is neither a recommendation nor an endorsement by either Washington State University or the Washington State Commission on Pesticide Registration".

RECENT PNN's FOR CHESTNUTS

Number	Date	Type*	Ingredients	Manufacturer	Comments
2000-65	03/15	F	azoxystrobin	Zeneca	4-hr REI for Abound Flowable Fungicide
2000-79	03/29	F	trichoderma...	Bioworks	Topshield foliar spray
2000-81	03/30	I,F	neem oil	Olympic Hort. Prod. Co.	
2000-82	03/30	H	glyphosate	Nufarm Ltd.	Credit Herbicide
2000-131	05/19	H	glyphosate	Dow	Glyphomax and Glyphomax Plus
2000-132	05/19	H	pendimethalin	Dow AgroSci.	Pendimax 3.3
		H	oryzalin	Dow	Surflan AS
2000-140	05/26	H	2,4-D	Dintec Agrich.	Formula 40 Herbicide
2000-154	06/07	F	r-metalaxyl	Agtrol	Ultra Flourish Fungicide added non-bearing chestnuts
2000-172	06/21	H	glyphosate	Griffin Corp.	Glyphosate Orginial Herbicide
2000-177	06/23	H		Helena Chem.	Weed Rhap A-4D changed signal word from Caution to Danger; added chestnut
2000-191	07/17	H	2,4-D	Nufarm	Weedar 64 Broadleaf Herbicide
2000-193	07/18	H	oxyfluorfen	Makhteshim-Agan	Galigan 2E

I = insecticide; F = fungicide; H = herbicide; P = pesticide

All Western SARE Grant Programs Now Open for Application

Logan, UT -- The U.S. Department of Agriculture's Western Region Sustainable Agriculture Research and Education (Western SARE) program has released calls for proposals for all of its competitive grants programs simultaneously. Sustainable agriculture research and education, professional development and producer-directed projects will be due in Fall 2000 and reviewed and awarded in Spring 2001.

The program continues to look for educational or research projects that consider sustainable farming and ranching systems, or how elements of a system affect the whole. There is also continuing emphasis on potential outcomes of project work.

"We are pleased to release all of our calls for proposals in tandem this year," said Phil Rasmussen, regional coordinator for Western SARE and a soil scientist at Utah State University. "This schedule should improve the contracting process, particularly with producers who are selected for grant awards," he said.

There may be increased funding in FY 2001 to support work that emphasizes organic agriculture or producer-led marketing innovations. These areas of interest are welcomed in the currently open calls for proposals. Additional funding would be added to the standing grant programs; no new calls for proposals would be necessary.

Research and Education grants support projects that have a whole-systems approach and increase the understanding and adoption of sustainable agriculture. Viable SARE projects will address the interactions of whole systems, consider weak links in a whole system, or assess the effects of different components of agricultural systems. The program has a strong Congressional mandate to depart from "business as usual." It requires that farmers and ranchers be significantly involved in the design and implementation of projects. SARE proposals are due on October 16, 2000 (at the Western SARE headquarters, Utah State University, by 5:00 p.m. MST).

Professional Development Program (PDP) grants provide funding for efforts to help Cooperative Extension, Natural Resources Conservation Service and other agricultural professionals expand their knowledge of sustainable agriculture. Project subjects can deal with any sustainable agricultural endeavor, and may consider the effects of such systems and practices on the quality of life for producers and rural communities. Projects that include case studies, demonstrations, and cooperative learning opportunities involving producers and agricultural personnel are encouraged. PDP proposals are due on October 15, 2000 (at the PDP office, University of Wyoming, by 4:00 p.m. MST).

Farmer/Rancher grants allow producers and producer groups residing in the Western U.S. to compete for support to identify, evaluate and test their "in-the-field" sustainable agriculture practices and challenges. Individuals can apply for grants of up to $7,500; producer groups (three or more farm/ranch operations working cooperatively) can apply for up to $15,000. Farmer/Rancher applications are due on October 31, 2000 (at the Western SARE headquarters, Utah State University, by 5:00 p.m. MST).

To request application materials contact Western SARE, Room 305, Agricultural Science Building, Utah State University, 4865 Old Main Hill, Logan, UT, 84322-4865, or (435) 797-2257, or wsare@mendel.usu.edu. Calls for proposals are also available on-line at http://wsare.usu.edu/.

About Western SARE

The National SARE effort, which was mandated by Congress in the 1990 and 1996 Farm Bills, is implemented by four regional councils in cooperation with the USDA Cooperative State Research, Education and Extension Service. Western SARE is led by an Administrative Council that represents diverse agricultural and public interests, and coordinated by Utah State University soil scientist V. Philip Rasmussen. The professional development program is directed by Jim Freeburn, University of Wyoming.

The Western Region includes Alaska, American Samoa, Arizona, California, Colorado, Guam, Hawaii, Idaho, Micronesia, Montana, Nevada, New Mexico, N. Mariana Islands, Oregon, Utah, Washington and Wyoming.

o o o

Letters, *cont'd from p. 2*

and that this difference was not discussed in anything I've read. He indicated that many pathologists don't have a soil science background and are probably not aware that different testing methods are used.

I asked if he was aware of Phytophthora strains in our area that affected chestnuts and he was aware of the two I've read about before (cinnamomi and I believe the second one was citricola) had been problems. He said that citricola was the more virulent and that that had a case where someone had planted some citrus stock brought in from a commercial nursery and that they eventually traced the problem in some neighboring chestnut trees to these citrus trees. He strongly advised against bringing citrus into an area with chestnuts and said that if you did, that you should immediately treat the citrus with Ridomil to eliminate the risk.

He said that he believed that he had worked with retired U.C. Davis professor John Merchitch on this case and that he could still be reached by contacting the pathology department at UC Davis. I asked him if he thought he might be able to write any sort of an article for our newsletter and he indicated that he didn't really feel that he knew that much since he still has quite a few questions. I think he was aware of the existence of the Western Chestnut Growers Association but he wasn't aware of there being a newsletter. You might want to send him a courtesy copy. I hope that you find this information as interesting as I did. I'm sending a copy to Sandy, Dennis, and Dan since they might have some input on these comments.

Harvey Correia
Isleton, CA

FYI - Following is a response that Harvey Correia received from Dan Ridley in Australia in regards to interpretation of soil pH levels.

I just wanted to mention a little more on soil pH tests. My wife is a soil scientist and is very good on this subject so I called her just then to clarify some points.

Yes soil pH results vary depending on a number of things; In Australia we either use a water based test or a $CaCl_2$ test (more common I think). Now the results from these two tests can vary by 0.7 to 1 unit depending on the pH level. At pH neutral there is a small difference, pH(water) a little higher than pH ($CaCl_2$), however, at say a pH

*See **Letters**, p. 10*

Letters, *cont'd from p. 9*

($CaCl_2$) of around 4 then a test using water would be in the order of 4.7 to 5. Anna also tells me that there are also seasonal differences with pH results. $CaCl_2$ tests give a more reliable figure apparently.

Now overseas there is also a KCl test for pH (we do not use it over here).

Another thing that varies with pH testing is the soil to solution ratio. In Australia we use 1 part soil to 5 parts solution (whether that be water or $CaCl_2$). Overseas these ratios can be 1:5, 1:2 or 1:10. So here too there is variation and you need to be quite sure which testing method you are using when comparing results with other sources.

Now I am not a soil scientist so here is a simple summary as I understand it. If you are at all confused or would like some further information Anna would be very happy to hear from you.

Hope this helps. Let me know how you go.

Regards,
Dan

Visit the WCGA Website

www.ChestnutsOnLine.com/wcga

Classified Section

Got your attention, did I?

Your ad could be right here attracting buyers for whatever it is you have to offer. Only $10 for your business card appearing in 4 issues. How can you go wrong?

...and don't forget that all members are entitled to a free "6-liner" each calendar year. Additional lines are only $2.50 for 6 more.

Want something a little larger -- more room to elaborate on your product or service -- then try a full page ad for only $15 including a graphic, a half page at $10, or quarter page at $7.50. Contact the Editor today.

Membership Application
Western Chestnut Growers Assn., Inc.
o New Member o 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
				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.