

## Nibbling on the chestnut tree may improve health

Dick Ziggers, *AllAboutFeed.net*

Chestnut extract (Table 1) is a feed material from the (edible) sweet chestnut (*Castanea sativa*). This type of chestnut should not be confused with the more common horse chestnut (*Aesculus hippocastanum*) which is inedible. The chestnut extract is derived from the bark and wood of the chestnut tree through a natural process that does not involve the addition of any synthetic or foreign substances or the use of a chemical treatment. The chestnut extract is manufactured and marketed by Silvamicha under the name Silvafeed. This Italian company has a history that goes back to 1854 when it first started tanning hides with the use of bark or wood from trees and other materials that had a high tannin content, such as oak.

Table 1: Properties chestnut extract	
Appearance	Brown powder
Dry substance %	93 +/- 2%
pH 10%	<4.2
Crude fibre	<3%
Hydrolisable tannins	>75%
Carbohydrates	>15%

Chestnut extract is made up only of the water-soluble substances contained in the chestnut wood. These substances are composed of hydrolysable tannins, polyhydric phenols, simple sugars, lignin, cellulose, hemicelluloses, and mineral salts.

Tannins are present to some degree in almost all plant species and fall into two categories, condensed and hydrolysable. Compared to condensed tannins hydrolysable tannins are more astringent, are stronger antioxidants, are more bacteriostatic, and most important, they bind proteins in a different way.



Fruit and leaves of the sweet chestnut (*Castanea sativa*)

Hydrolysable tannins bind with proteins by hydrophobic interactions. Condensed tannins bind proteins through hydrogen bonding. For those reasons condensed tannins are generally recognised as anti-nutritional factors while hydrolysable tannins can favourably affect animal production.

Since tannins are naturally occurring compounds found to some degree in almost all vegetables, it is not surprising that the digestive system of animals has not only evolved to tolerate and assimilate these compounds, but also that to some extent animals rely on tannins for normal functionality. **(cont. on page 8)**

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## A Message from the President

MIKE GOLD  
UNIVERSITY OF MISSOURI  
CENTER FOR AGROFORESTRY

*After a very early Spring (where I was worried about frost damage), the summer has been brutal here in many parts of the Midwest. Our entire region has experienced little rainfall since early May coupled with weeks of temperatures well in excess of 95 degrees. Without adequate irrigation I fear chestnut crop failure throughout the entire region.*

*I want to welcome our new Information Specialist intern, Laura Orozco. Laura joined us in May (see p. 10) and is doing a wonderful job. In order to help your newsletter editors collect enough content for future quarterly issues of The Chestnut Grower, we need all CGA members to provide some content from time to time. Some of you have done a wonderful job and your contributions have been much appreciated (for example, see p. 3).*

*As a follow up to Dennis Fulbright's Spring 2012 article on internal kernel breakdown (IKB) in 'Colossal', Dennis will be speaking on this issue at the upcoming North American Chestnut Farm Workshop.*

*One of our fellow CGA members contacted me a few months ago with the following set of questions (for which I did not have an answer): Where can I find out if I can ship chestnuts to Canada? Rules, regulations, permits? Are chestnuts food or seed? With regard to a USDA exporting license, are chestnuts an agriculture export or seed, or food? I am hoping someone will answer these questions for our collective benefit and the answer will be posted in the Fall issue of The Chestnut Grower (and perhaps discussed at the upcoming Workshop).*

*Finally, CGA was approached with a potential opportunity to be selected in a new reality mini-series, "All Mixed Up", on Lifetime Television. Three up-and coming chefs compete before a panel of judges (one judge from CGA) by taking American food products and turning them into three unique three course meals. I was very excited to have chestnut (and CGA) featured on the show three consecutive weeks in December, one show on appetizers, one on main courses, one on desserts. What fantastic P.R. for CGA. The catch, to participate would have cost CGA \$98,500! Way beyond our current budget. Maybe we can discuss this during the Workshop.*

*Reminder: CGA will have a business meeting on Thursday night prior to the official start of the North American Chestnut Farm Workshop (see page 4, this issue). Please arrive earlier enough to attend our business meeting.*

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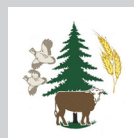
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Center for Agroforestry  
University of Missouri

#### PUBLICATION DEADLINES

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

## “What I wouldn’t do again”

Sally Weed, Weed Farms, Gridley, CA

Dear Fellow Chestnut Growers,

I wanted to share an experience I had last year which was very frustrating, and has everything to do with the “fresh factor” of the fresh chestnuts that we sell. Last summer, I was very excited to be approached by an individual who has a business buying fresh wine grapes and bringing them into New York so that they may be sold to aspiring wine-makers who have graduated to pressing their own product (in the various crushpad-for-hire facilities that have sprung up around the country). He has set himself up as a DIY broker, in effect, but let it be noted that produce is not his profession. He was interested in buying the grapes from my vineyard (I have 4.5 acres of Syrah that I grow in Sonoma County, CA), but even more than that he was interested in buying truly fresh chestnuts. When he visited my vineyard (a different location than my chestnuts), we had a long discussion about my chestnut trees, their age, our production, why Italian chestnuts are so readily available, etc. I explained the differences as I have observed them,

and I emphasized how important it is that the post-harvest processing of the chestnuts is carefully managed (I believe I used the “fresh flowers” analogy). Soon we came to the agreement that I would sell him a couple of pallets of chestnuts on the condition that he would buy my still-unsold wine grapes. Huzzah! After the movie “Sideways” came out and Pinot Noir was on the tip of everyone’s tongue, Syrah has fallen in both price and demand. I was without a buyer and harvest was fast approaching. (Note to chestnut growers: Syrah is an excellent accompaniment to roasted chestnuts!)

The 2011 chestnut harvest was about three weeks behind for us, but by September 20th we were underway. Some of you may have visited my ranch in 2008 with CGA and seen our hulling and packing operation. It’s not fancy, but it gets the job done with a huller designed and built by the Tanimoto Brothers, the original owners of my ranch. (cont. on page 5)



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# Michigan State University to host North American Chestnut Farm Workshop

Michigan State University will host the North American Chestnut Farm Workshop in conjunction with the CGA Annual Meeting this year from August 30 to Sept. 2 in Jackson, Mich. The purpose of this workshop is to provide practical information to growers with established orchards as well as growers thinking about establishing chestnut orchards in North America. A meeting of this magnitude has not been held in the United States since 1992. Speakers from around the globe will include Prof. Andrea Vannini from Italy, Prof. Qing Ling from China and Prof. Umit Sedar from Turkey. Take advantage of all the expertise that will be offered at this workshop, and join us in Jackson this fall!

## Tentative Agenda

Visit [www.wcga.net/annmtg.htm](http://www.wcga.net/annmtg.htm) for updates to the schedule.

### **Thursday night, August 30**

- Dinner on your own in surrounding area
  - » 6:30 pm—Chestnut Growers of America special meeting followed by their business meeting
  - » 7:30 pm—Welcome Reception
  - » 8:30 pm—Travelogue from countries of our guest speakers

### **Friday, August 31**

- Breakfast
  - » 9:00—Welcome and orientation to the meeting
  - » Special presentations and awards
  - » Growing chestnuts in Italy
  - » Growing chestnuts in California
- Lunch
  - » Harvesting chestnuts in North America
  - » Opportunity to interact with chestnut harvesting equipment
  - » View Boema (Italian) Chestnut peeler and scoring machine
  - » Growing chestnuts in Turkey
- Dinner
  - » Special Topic for Discussion: Chestnut nurseries and germplasm

### **Saturday, September 1**

- Breakfast
  - » 8:30—Growing Chestnuts in Florida
  - » Development of chestnut farms in Missouri and marketing research
  - » Growing chestnuts in Oregon and bubbly bark disease
- Lunch
  - » Growing chestnuts in China
  - » Growing chestnuts in Oregon
  - » Growing chestnuts in Michigan and Internal kernel breakdown
- Dinner
  - » Special Topic Discussion: Organizations and Standards

### **Sunday, September 2**

- Breakfast
  - » Bus tour: Box lunch included, tour Michigan State University Clarksville Research Station
  - » Cultivar trial, cooperative receiving and grading equipment, travel to and tour a chestnut farm
  - » Arrive back at the Holiday Inn by 4 p.m. and depart

## Workshop Venue

The venue of the North American Chestnut Farm Workshop will include the Jackson Holiday Inn, the Michigan State University Rogers Reserve, and Camp McGregor (the Rogers Reserve and Camp McGregor are in the countryside). Vans and cars will be standing by to take you to the various locations and return you again to the Holiday Inn, though you are welcome to bring your own vehicle. The meeting will be informal and dress is casual, summer holiday style.

## Conference Registration

To register for the North American Chestnut Farm Workshop and CGA Annual Meeting, go to this website and follow the instructions provided: <http://web2.msue.msu.edu/events/event.cfm?folder=chestnut2012>. (**travel information on page 5**)

## Traveling to Jackson, Mich.

**Driving:** Find I-94 and drive to the Jackson, Mich. exit 137. Take exit 137 for Airport Rd. Turn right onto Airport Rd. Turn Right at Wayland Dr. Continue straight onto Bob McClain Drive. **Do not** go to a road that says Holiday Inn Drive. This is a former location and the Holiday Inn is no longer there.

**Flying:** Arrive in Detroit Metro Airport. At the airport, it would be best to rent a car. It is only a one-hour drive to Jackson from the airport. A car would be handy for the changing venues at the meeting. Simply find I-94 and drive west to the Jackson exit 137. Take exit 137 for Airport Rd. Turn right onto Airport Rd. Turn Right at Wayland Dr. Continue straight onto Bob McClain Drive.

**Train:** Amtrak from Chicago arrives in Jackson twice daily (12:20 p.m. and again at 10:50 p.m.). We can pick you up at the nearby train station if you call ahead or email us to let us know the day and time of your arrival. For reservations go to <http://www.amtrak.com/> or call 1-800-872-7245.

### Going to the International Chestnut Symposium in Shepherdstown, West Virginia after the meeting?

**Driving:** It is about a 9-hour drive from Jackson, Michigan to Shepherdstown, West Virginia.

**Flying:** Fly from Detroit to Dulles International Airport and take the shuttle to the meeting in Shepherdstown.

**Train:** Take the Amtrak bus from Jackson to Toledo, Ohio, and then take the Capital Limited to Martinsburg, which is a 10 minute drive from Shepherdstown. Train schedule:

- 7:35 p.m.: Depart Jackson Amtrak station via Amtrak bus
- 10:30 p.m.: Arrive in Toledo, Ohio
- 11:06 p.m.: Depart Toledo via Capital Limited #30
- 10:30 a.m.: Arrive in Martinsburg, W. Va.

### Prices

- \$75 for each seat (sleep in seat)
- \$75 plus \$182 for a double room (small bedroom called a roomette)
- If two are traveling together, it is  $75 + 75 + 182 = \$332$  (\$116 for each traveler). This includes breakfast.

When you arrive in Martinsburg, you will need to make arrangements to be picked up, or you may take a taxi to Shepherdstown (about 10 miles away).

## “What I wouldn’t do again” (cont. from page 3)

*By Sally Weed, Weed Farms, Gridley, CA*

After hulling, we hand-sort the chestnuts on the conveyer belt before they go into the tumbler to be washed and sized. As the sized nuts emerge into the bins, the bins go to the packing tables and into 25 lb. mesh bags. The scale we use for packing is certified annually. Of course, we over-pack by necessity with chestnuts! We typically load our bags ½ - 1 lb. heavy (after tare) to compensate for anticipated moisture loss. With each shipment we include a tag that has general instructions for the handler explaining that chestnuts are perishable and require high humidity and low temperatures.

At the end of September I began talking to my New York buyer about his order, and sent him some samples. He confirmed that he wanted 1 pallet each of Jumbo and Extra Large sizes. Since he was already shipping grapes back East, his plan was to just gang up the chestnuts on that load. We shipped the chestnuts on October 4th to a facility in the Central Valley that he was using to ship wine grapes (refrigerated) and by October 17th we received payment from him. We would have to wait several weeks before the Syrah was ready to pick, so I didn’t expect to hear anything further from New York until that time.

Much to my surprise, on November 4th we received a letter from Westchester County New York stating that as a result of a Weights and Measures inspection conducted on October 19th, we were being fined \$1,500. They took sample bags from the pallets and weighed them, determining that, on average, the bags were about 8/10 of a lb. lighter than the marked weight. I later found out that the reason the investigation had taken place was that a (presumably wine grape) customer had complained of short weights on some almonds and walnuts they had purchased from this warehouse. The inspector was looking around and got curious about the two pallets of chestnuts, and the rest is history. The warehouse is 50,000 square feet and the chestnut pallets were located out in the open in this larger space without specific temperature or humidity controls. The inspector was unaware that chestnuts have special postharvest handling requirements, and when I discussed the situation with the director of the department he was open to receiving more information about moisture loss in chestnuts, but he was skeptical that the 4% weight loss could be attributed solely to moisture. So, I got on the phone and talked to a helpful woman named Katherine DeContreras at the California Dept. of Food and Agriculture. **(cont. on page 6)**

## “What I wouldn’t do again” (cont. from page 5)

By Sally Weed, Weed Farms, Gridley, CA

She understood immediately the nature of the issue, and helped me formulate a response. One point she made was that the inspector had not made any record of the temperature or humidity levels in the warehouse. However, the burden of proof that the bags weighed an appropriate amount when sold was still on us. I contacted Adel Kader, Professor Emeritus of Postharvest Physiology at UC Davis. He was the one responsible for creating the one-pager post-harvest handling document published by the university. In response to my email he concurred that:

“If your chestnuts were packed into mesh bags and exposed to higher temperatures and lower relative humidity than recommended ranges, it is not surprising that they lost 4 % of their weight (1 lb. out of 25 lbs.) in 15 days.”

I also did some online research and found three or four international (Australian, German, Food and Agriculture Organization of the United Nations) research findings which alluded to the very predictable moisture loss we have to deal with, as well as the counter-issue...the fact that if we take measures (such as using plastic wrap) to limit moisture loss we then create conditions for the nuts to mold, particularly field-fresh nuts that are still breathing and creating their own heat when palletized. How can a grower be expected to control for this after the chestnuts leave our care? At the same time, I am strongly committed to ensuring that a consumer buying Weed Farms chestnuts will get the value they are paying for! It is a conundrum. Finally, we have had an underlying assumption that anyone buying chestnuts in 25 lb. bags is probably a professional produce handler and is not going to leave them to desiccate in a warehouse. When it comes time to sell the product to consumers, the nuts have typically been transferred into loose form for consumers to select from and re-weigh at the time of purchase...but if this is not the case if they are re-sold in mesh bags and those bags still say 25 lbs. on the labels.

Meanwhile, I was frustrated and puzzled. I said to my friends that this was like selling a bottle of water to someone and having them take the cap off and leave it for two weeks...the label on the bottle will still say 16 oz. Does that mean that Pellegrino will get a letter from Westchester County, too? No, because people know that water evaporates and it is considered common sense. But when chestnut weight evaporates, the message I received is that no

matter how the product is handled after it leaves my hands, I am responsible for the bag weight being 25 lbs. The volume of email correspondence and phone messages back and forth with Westchester County was significant. I had hoped that there would be a federal-level agency I could appeal to, but apparently the states are all empowered to make their own determinations and the federal oversight is limited to suggesting best practices.

This was a great learning experience for me, but I am not sure it will actually change our practices because I think our current practices are pretty good, given the unique parameters we are dealing with. One creative solution we came up with was printing the weight on the bags in disappearing ink (ha, ha)! But seriously, when we are dealing with moving this volume of chestnuts (120,000 lbs. last year from my ranch and processing/marketing for another ranch as well) we are already giving away up to 1,200 lbs. of chestnuts to cover the anticipated moisture loss. This is the first time this issue has come up. Would it be worth it to over pack by more than 1 lb. per bag? I think not.

In the end, reason prevailed and on December 5th I was issued a “Notice of Violation” the fine was dropped and a simple warning was issued. I still found the allegation (that we had shorted a customer) irritating, but what I have learned is that produce is serious business. The takeaway message for me was (to quote my East coast friends), “Whaddya Gonna Do?”

What I am going to do is more thinking about this as we approach the 2012 harvest. I am thinking about the point at which we weigh our nuts and fill our bags. I am thinking about how to control for that first big wave of moisture loss the day of harvest...what if we waited a day before bagging? Would that ensure that ½ lb. overage would be sufficient for 99% of the conditions the nuts will encounter? What about science? Is it worth our time to measure the moisture content in the field on the day of harvest to determine what the bag weight should be that day? In the end, I believe taking the hit and seriously over-filling to avoid any whiff of possible shortage may be the most cost-effective response, though it seems counterintuitive to me. I would love to hear about the experiences of other growers in this regard, especially when working an even larger commercial scale.



## How to make chestnut liqueur

*Adapted from John Wright's article in The Guardian's Word of Mouth Blog*

Sweet chestnuts, either native or imported, are scandalously under-appreciated by the British. As the 17th century writer and gardener Evelyn laments: "But we give that fruit to our swine in England, which is amongst the delicacies of princes in other countries." Take chestnut flour; it's useful for making chestnut macarons, florentines and, since it adds flavour instead of taking it away as flour tends to do, I use it in a roux when making sauces and soups.



Sweet chestnuts. Photo: John Wright

Chestnut trees grow very well - and very large - in Britain but their crop of nuts is almost invariably disappointing. Most of the husks contain tiny wafers of empty skins and even the occasional decent sized nut is a third the size of its south European sisters. In mid to late October I can still be distracted from my many fungus forays by the sight of chestnuts on the forest floor. On a good day I can fill a couple of pockets, but mostly it will take a week to find enough to do anything with.

And what to do with it? You can make a chestnut beer – a boon to those unfortunate enough to be intolerant of gluten. Like all beers, however, it takes time and effort. Much simpler and quicker is a chestnut liqueur – in this instance I used large imported ones – 30 of which are easier to peel than 100 tiny native specimens.

**500g chestnuts (when peeled)**  
**150g sugar**  
**200ml water**  
**500ml brandy**

Peeling chestnuts is one of those things that are good for your karma if you can get through the process without throwing things at the wall. The minimum requirement is a long radio play to keep you sane while you are doing it.

Boil the chestnuts in plenty of water in two equal batches for 20 minutes. Take the first batch off the heat and leave them in the water to keep them hot. Don a rubber glove and remove one chestnut. Make a cut two thirds of the way around the flat face of the skin and peel it away then ease the rest of the nut out of the skin. If the chestnuts are fresh both the outer and the more troublesome inner skin will come away at the same time. Boil and peel the second batch.

Place the nuts in a wide saucepan and cook very gently in 200ml of water for another 10 minutes with the lid on and without stirring. Carefully remove the nuts and stir in the sugar until dissolved. Return the nuts to the pan and cook gently with the lid off for another five. Place the nuts in a Kilner jar, add the liquor via a fine sieve then add the brandy.

Mine has been left for two weeks now and the flavour of the chestnuts is coming through nicely. The liqueur itself is a bit on the murky side but I can live with this, especially as it is used mostly in mixes. The chestnuts themselves taste rather splendid and you can take them out and eat them after a few weeks.

There is one fitting but (very) optional extra which I added to my liqueur - truffle. I recently tried chocolate truffles with real white truffle (not to be confused with ganache-centred chocolates) and a truffle honey concoction and the experience has prompted me to add a couple of slices to my jar.



Sweet chestnuts, a truffle and a jar of chestnut liqueur. Photo: John Wright

To read the original story, visit <http://www.guardian.co.uk/lifeandstyle/wordofmouth/2011/oct/26/how-to-make-chestnut-liqueur?newsfeed=true>.

# Nibbling on the chestnut tree may improve health (cont. from front page)

Dick Ziggers, AllAboutFeed.net

## Effects in poultry

The effect of chestnut extract is linked to the chemical properties of hydrolysable tannins (HT). Chestnut extracts have a double effect:

- The animals can better absorb feed nutrients due to HT natural astringent properties that slow the feed passage in gastrointestinal tract.
- Due to HT properties in controlling the multiplication of unwanted pathogenic bacteria and micro organisms the animal gut flora has a positive regulation effect.

All these chemical properties have a series of beneficial effects on broiler production. It appears to decrease gastrointestinal parasites and diseases. This has beneficial effects on litter quality; reduction in dropping's moisture and weight, which is linked to the astringent property of HT. Drier litter reduces footpad lesions and thus increases animal welfare. This can result in better growth in broilers and a better feed conversion. Slaughter quality also improves.



The tannins in the wood of the sweet chestnut have nutritional properties that can improve animal performance

A study was carried out at the University of Turin with broilers that were fed with 0.15% chestnut extract and a negative control. The main results are shown in Table 2. From this trial it could be concluded that the chestnut extract increased the appetite of the broilers, but this larger feed intake was offset by an improved growth. Litter condi-

tions were also better for the chestnut extract fed broilers (2% less moisture and 2 kg less per m<sup>2</sup>). Additionally there were cost savings due to lower mortality and lower antibiotic use, which are not calculated in the table.

**Table 2: Effect of 0.15% chestnut extract on broiler performance**

Parameter	Period (days)	Treatment	(Chestnut extract in %)
		<b>Control</b>	<b>0.15</b>
Weight gain (g./bird)	0-14	263.7	266.6
	15-21	532.8	559.2
	22-28	905.2	939.8
	29-35	1326.2	1397.8
	36-42	1913.8	1985.4
	43-49	2569.5	2613.0
Conversion Index	50-56	2957.1	3024.7
	15-21	1.73	1.68
	22-28	2.02	1.85
	29-35	1.83	2.00
	36-42	2.18	2.33
	43-49	1.81	1.93
Litter production Kg	50-56	3.07	3.07
	56	31.69	29.61
DM % litter	56	50.57	52.53

Source: University of Turin, Animal Science Dept.

## Effects in ruminants

Hydrolysable tannins have the biological propriety to bind proteins and other molecules, with reactivity depending on concentration, structure and molecular weight. In ruminants, where they act as protein bypass, HT can strongly reduce the protein attack from the ruminal micro flora, without impairing cellulose degradation. As it passes through the intestine, the rise of pH causes the progressive release of tannins from the tannin-protein complex (pH dependent), permitting the progressive, controlled degradation and assimilation of such substances by the intestine.

(cont. on page 9)



# Nibbling on the chestnut tree may improve health (cont. from page 8)

Dick Ziggers, AllAboutFeed.net

Natural hydrolysed chestnut wood has good characteristics to bind the proteins contained in fodder. Bibliographic results showed that hydrolysable tannins from chestnut are more efficient in protecting soybean meal from *in vitro* degradation by rumen bacteria with the lowest negative effect on *in vitro* rumen bacteria plus pepsin degradation as compared to acacia or quebracho tannins (condensed tannins). Although *in vitro* results can not be extrapolated to the whole animal, it suggests that chestnut tannins could have a beneficial effect *in vivo* by increasing rumen escape protein.

## More meat and milk

The by-pass effects of chestnut extract permits savings in consumption of fine raw-materials with elevated protein content, better weight gain and consequently shorter rearing period in ruminants. Better protein absorption permits a much faster body weight gain. The improvement of the performance is particularly visible during the finishing period with beef cattle of 350-400 kg and more.

In dairy cattle from the second week of treatment, it is possible to notice an increase in milk production together with an increase of protein and fats content plus a longer persistence of lactation peak period. This effect is followed by an ammoniac emission reduction, which occurs on the first part of the digestive process, reducing the risk of bloat.

Environmental benefits will derive from changing the form of excreted nitrogen: Less urinary nitrogen which is easily volatilised and more faecal and therefore, organic nitrogen. This will benefit the build-up of soil organic matter. Table 3 shows the effects of chestnut extract on the fermentability of soybean meal nitrogen. The data shows that addition of HT reduces the fermentability of protein nitrogen in the rumen. These effects also have a positive influence on milk production. On average a 0.6% addition of chestnut extract

improved milk volume by 1.2% (3 trials).

**Table 3: Effect of tannins on nitrogen fermentability and on end-products of rumen fermentations. (Chestnut extract in % DM soybean meal)**

	Control	0.2	1.1	5.3
<b>Fermentability of soybean meal nitrogen %</b>	36.8 <sup>a</sup>	14.7 <sup>b</sup>	5.7 <sup>c</sup>	6.8 <sup>c</sup>
<b>VFA mMoles/ferm/6h</b>	69.9 <sup>a</sup>	67 <sup>a</sup>	64.7 <sup>a</sup>	37.4 <sup>b</sup>
<b>Gases ml/ferm/6h</b>	2405 <sup>a</sup>	2360 <sup>a</sup>	2201 <sup>a</sup>	2033 <sup>b</sup>
<b>N-NH3 uptake by bacteria mg/ferm/6h</b>	168.9 <sup>a</sup>	157.5 <sup>a</sup>	147.7 <sup>a</sup>	94 <sup>b</sup>

Editor's note: Treatments within a row with different superscript letters (a,b,c) are statistically different from one another. This information was not provided in the original article.

## Effects in pigs

Chestnut extract balances the natural rate of polyphenols that frequently lack in industrial feeds. It has a double effect, slowing the proteins passage in the gastrointestinal tract, and the effect on the gastrointestinal micro flora. In pigs this could lead to diarrhea reduction, enteric disease reduction, better growth, odour reduction, and a general improvement in the pig's welfare.

Table 4 reflects the results from a pig trial (96 pigs, 12 replicates) with different levels of chestnut extract added. The results assume a positive effect on the zootechnical parameters: final weight +2%, better daily growth index, better meat quality at slaughtering: a higher pH reduces the problems related to PSE (Pale Soft Exudative) meat. (cont. on page 10)

**Table 4: Effect of chestnut extract on pig performance.**

		Control	Chestnut Extract 1.5%	Chestnut Extract 6%
<b>Performance</b>	Initial Weight	29.3	29.2	29.2
	Final Weight	105.2	107.1	106.2
	Growth Index (gg/d)	714	724	720
<b>Slaughter</b>	adducent pH	5.87	5.98	5.93
	semi-membranous pH	5.65	5.78	5.78

Source: Association Générale des Producteurs de Mais

## Nibbling on the chestnut tree may improve health

(cont. from page 9)

Dick Ziggers, *AllAboutFeed.net*

The positive effect on the zootechnical parameters is probably related to the micro flora selection.

### Bactericide properties

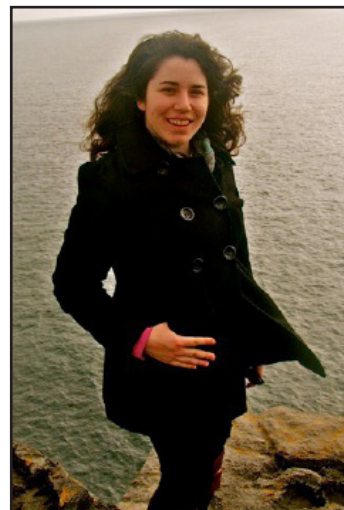
Chestnut extract can protect animals against pathogenic infections, promoting the development of a well balanced bacteria population. The product was tested at different doses *in vitro* for antibacterial activity against the most common pathogens causing infections in breeding. A bacteria population equivalent to a pathogen infection in poultry was inoculated in Petri dishes with a chestnut extract solution between 0.1 % and 0.25 %. Bacterial dosages were high enough to be able to kill animals ( $1 \times 10^9$ ).

The outcome showed a strong activity against the most important pathogenic bacteria strains, specifically at the 0.25% dosage. Bacteria such as *Salmonella gallinarum*, *S. enteritidis*, *S. virchow*, *E. coli* and *Pasteurella multocida* were inhibited within 6 hours and were still inhibited after 24 hours.

Some studies have demonstrated the activity of tannins against nematode infection in ruminants. The results demonstrate that dietary tannins can reduce faecal egg output of sheep infected with *Haemonchus contortus*. The results obtained in this trial confirm the reduction of the number of pathogens usually found in litter, especially when animals are held on soil.

To read the original story, visit <http://www.allaboutfeed.net/background/nibbling-on-the-chestnut-tree-may-improve-health-10365.html>.

## Welcoming a new UMCA information specialist intern



With the start of a new summer season, we would like to welcome Laura Orozco (left) to the team as the new UMCA information specialist intern. Laura is a senior strategic communication student at the University of Missouri School of Journalism and hopes to work in advertising after her graduation in December 2012. This means we will be saying goodbye to Paige Pritchard (right), our intern of the past year. Paige just graduated with her B.J. in magazine journalism and will be working this summer as the social media coordinator for The Root Cellar in downtown Columbia. She hopes to eventually find a job in the environmental or science journalism industry. She would like to thank the Center for Agroforestry for an exhilarating and educational year, and she looks forward to keeping in touch with faculty and staff after her departure.

### CGA Slate of Officers 2012-13

The Nominating Committee will present the following slate of officers for next year at the annual meeting (Aug. 30-Sept. 2):

**President:** Mike Gold

**Vice President:** Dennis Fulbright

**Secretary/Treasurer:** Ray Young

**Directors:** Linda Black, Sandy Bole, Bob Wallace, Lee Williams

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

– Sandy Bole, Harvey Correia and Carolyn Young CGA

## Proposed bylaws amendments for 2012-13

The board agreed to the following changes subject to a membership vote:

Note: Bold face type represents the wording to be added to the bylaws and the strikethrough letters show the wording that is to be eliminated.

### 1. Article IV – Meetings

#3. ANNUAL MEETING OF THE MEMBERSHIP – The annual meeting of the members of the Association shall be held ~~at such place and time upon such day and hour in June or July~~ of each year as set by the Board of Directors. **The Board of Directors may authorize the president to set the time, date, or location of the annual meeting.** Ten (10) members of the Association shall constitute a quorum.

*Reason for change: The Oregon corporation code requires an annual meeting to be held in Oregon unless the organization's bylaws provide for an alternative location.*

### 2. Article VI – Duties of Officers

# 1. PRESIDENT – The president shall call and conduct meetings of the members and of the Board of Directors and shall serve as an ex-officio member of all committees except the nominating committee. The incoming president and treasurer ~~will~~ **are authorized to** develop a proposed budget for the upcoming year for Board approval within thirty days of taking office. The approved budget will be available to any member upon written request. The president shall appoint members of committees as they are established and guide their progress.

*Reason for change: Most new presidents do not propose a new budget for the upcoming year and this will allow one if they so desire but not require one.*

# 3. SECRETARY/TREASURER – The Secretary/Treasurer shall be responsible for the following:

(c) To collect and deposit all monies due the Association and to deposit the same in a bank ~~designated by,~~ **credit union or money market fund approved** by the Board.

**(h) To update the corporation's records with the applicable Secretary of State and pay the annual fee(s).**

**(i) To maintain a database of the membership and provide a current mailing list to the newsletter editor and other data as requested by board member(s).**

*Reason for change: This provides more flexibility for the deposit of association funds and identifies two additional secretary/treasurer duties.*

### 3. Article XIII – Amendments

These Bylaws may be amended or repealed by a two-thirds vote ~~of the membership~~ at any regular or special **membership** meeting thereof, if notice of such purpose has been given in the notice of the meeting.

*Reason for change: This is a clarification of exactly how the bylaws may be changed and defines the class of members who will make the decision.*

### 4. Standing Rules of the Chestnut Growers of America, Inc.

#8. The current standing committees are ~~Clothing,~~ **Financial Oversight,** Newsletter, Program **and** Nominations.

*Reason for change: The organization no longer stocks and sells CGA clothing articles but it does need a Financial Oversight committee to function each year. The board of directors has the power to establish any new committee it desires and the standing rules allow any member to propose a standing rule addition/change at any membership meeting. The president appoints the members of each committee.*

## Fifth International Chestnut Symposium in West Virginia

The National Conservation Training Center (NCTC) ([nctc.fws.gov](http://nctc.fws.gov)) will be the site of the 2012 Fifth International Chestnut Symposium. This world-class conference facility is located in Shepherdstown, WV, about 60 miles west of Washington, D.C. at the foothills of the Appalachian Mountains and in the heart of the American chestnut range. NCTC is designed as a campus with lodging, meals and meeting rooms that are conveniently located within walking distance of each other and ideal for scientific exchange and social interaction at a reasonable cost. The meeting will begin with dinner on Tuesday evening, September 4 and finish on Saturday, September 8 with a noon luncheon. Oral and poster presentations are planned as are field trips to local tree fruit sites and historical venues. Activities are planned for spouses including a day trip to Washington, D.C. For more information, visit <http://chestnutsymposium.wvu.edu/>.





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



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