DEDICATED TO RESTORING THE AMERICAN

Chestnut Tree

The Pennsylvania Chapter of The American Chestnut Foundation

Pennsylvania Chapter
The American Chestnut Foundation
PA-TACF
800 East King Street
York, PA 17403-1772
(717) 852-0035
E-mail: operations@patacf.org
Web Site: www.patacf.org

Volume 7 Number 1 Printing of the ***Chestnut Tree Newsletter*** is courtesy of **The News Printing Company** of Claysburg, PA **March 2002**
Mailing cost of this newsletter is courtesy of **The National Tree Trust,** Washington, DC

Spring Grower's and Member's Meeting or SPRING TRAINING BEGINS APRIL 6

Get in shape! Get ready to plant, to weed, to fertilize; to herbicide; to learn to inoculate and select chestnut trees. You can do it all at our spring chapter meeting!

The Spring meeting will be at Bob and Ann Leffel's Farm near Brogue, PA (south of York) on April 6th.

Dr. Kim Steiner and **Dr. John Carlson** from Penn State University School of Forest Resources will be our featured speakers at the morning session of the **Saturday, April 6** meeting. Kim will explain the importance of regional breeding in developing chestnut trees that will thrive in Pennsylvania. John will speak about applying molecular biology to develop a keener selection process for both the percent of American genotype and degree of resistance transferred from the Chinese to the American trees in our breeding program. Such a system could save hours if not years of work for volunteers if such selections could be made when the trees were quite young instead of having to wait until they are five years old. It could also result in a more accurate selection of trees for high-quality traits.

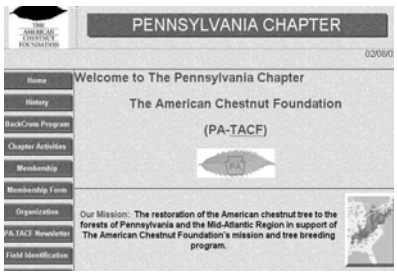
The afternoon tours will focus on the TACF regional breeding program. You will see some of the first BC3 trees planted in PA orchards. The 1996 Brogue orchard was inoculated in spring 2000 and selections were made in spring 2001. The 1997 Brogue orchard, inoculated in spring 2001, was evaluated in fall of 2001 and will be selected this coming spring.

This is a great opportunity for all backcross orchard growers to see this sequence of the breeding program protocol. Each of your BC orchards will go through the same process. After this spring very few of the 428 trees planted in these two orchards will remain. Growers! This is your chance! Bring your questions, your experiences, anything you wish to display.

Chris Ditlow will continue to amaze us with his innovative creations using chestnut wood for auction and sale items. Those who bake are welcome to add your delicacies to the auction table. Bring your contributions, whatever they be, for the silent auction table. And bring a fat wallet! We must do our bit to spur a flagging economy! **The agenda and directions are on page 8.**

Our new internet web site will be ready for your review this month. The site can be accessed at:

www.patacf.org Please check it out!

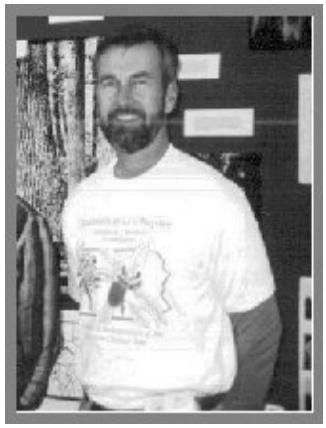


Calendar of Events:

April 6	**Chapter Spring Grower's and Member's Meeting**
August 20-22	**AG Progress Days at PSU**
October 12	**Chapter Fall Meeting at PSU**
October 18-20	**Annual TACF Meeting at La Cross, Wisconsin**

This Issue:

PA-TACF President Phil Gruszka's Remarks



HISTORICAL MARKERS

Dates and events represent the preponderance of historical markers. Many of us can produce a list of events that occurred on a particular day that changed our lives forever. I am sure that list contains both good and bad events. I am going to discuss a good event that occurred this last February 9th.

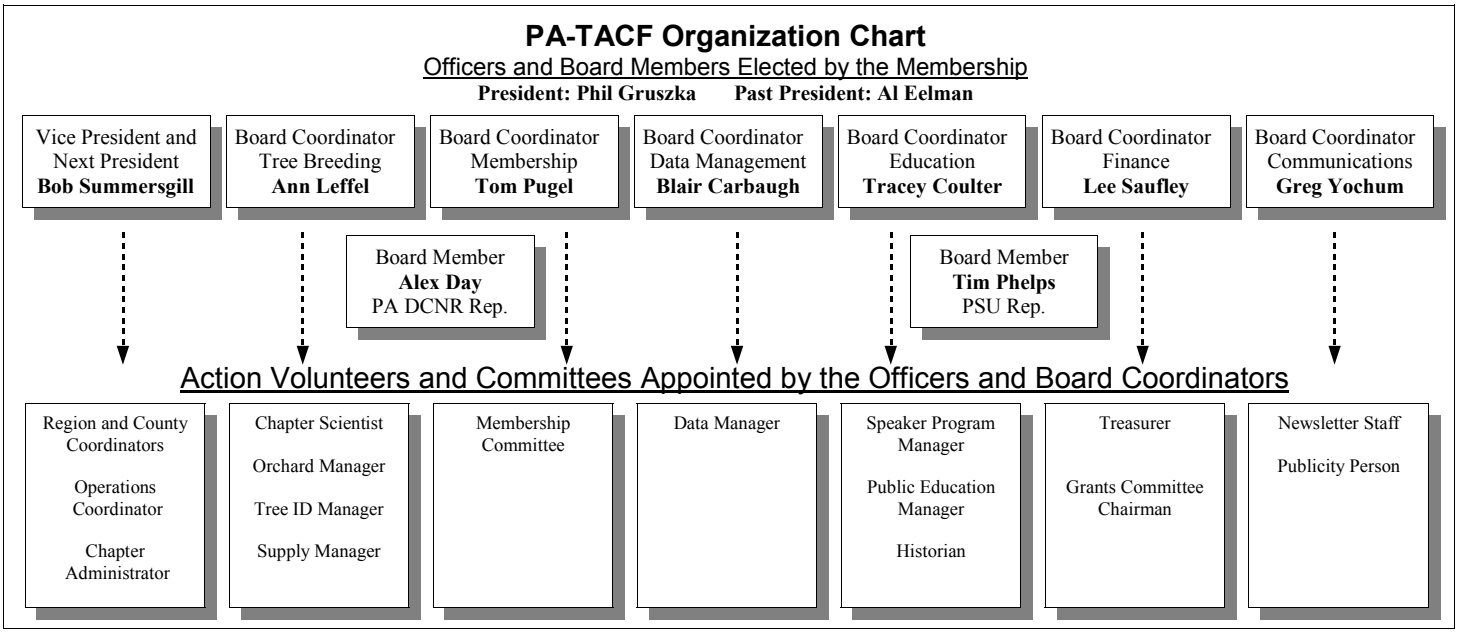
As you may know, our chapter has objected to the germplasm agreements that TACF has had us sign in the past so we may participate in the back-cross breeding program. The original agreement and subsequent agreements *were* overly restrictive, unwieldy and severe to many of our volunteer growers. The key word in the last sentence is "were". The process of negotiating an equitable germplasm agreement spanned nearly six years, with the last year almost debilitating our chapter and the Foundation. **Herb Darling**, newly elected president of TACF, was able to pull together eighteen of the board of directors and lead this special board meeting to a successful resolution to the germplasm issue.

You, my constituents, may be very proud of the board members of the Pennsylvania Chapter and those of the National organization as well. The PA-TACF board was able to clearly define the problem, obtain legal council, determine an equitable course of action, and exercised the resolve in the final stages of negotiation to bring this to the national board. All of those involved realized that this issue exists for other chapters as well. The national board was opened minded, astute, compassionate and willing to negotiate. The vote on the germplasm agreement was unanimous, 18-0 in favor. Many thanks are in order to the board members as well as other key players in this chapter and in TACF. Besides President Herb Darling**,** Executive Director **Marshal Case,** Secretary **Don Willeke** and Maine Member **Judy Dorsey** were the key players in putting together the final documents that were presented to the board for a vote. In our chapter, **Bob and Ann Leffel**, **Dave Armstrong**, **Bill Lord**, new Operations Coordinator, **Timothy McKechnie** and legal council, **G. Hopkins Guy III** advised the board on this issue. Believe me, there are numerous others who have participated in this effort and thanks go to them as well.

Along with the germplasm agreement, issues such as protocols for selection and back-cross breeding, deployment, public domain and the future of TACF were discussed. TACF Scientist **Dr. Al Ellingboe** presented what he perceived to be real and necessary goals for TACF, many of which revolve around you, the volunteer, of this organization. We have so much work ahead of us that there is something to do for everyone. I know that we have approximately 200 out of our 800 members that are currently active. Please, for those who have not participated, contact Timothy or me, we need your help.

We stand on the precipice of an entirely new and exciting frontier.

See you at the spring meeting.



New PA-TACF Operations Coordinator


Timothy McKechnie

Timothy McKechnie was hired last December to be our Operations Coordinator at the York office. Timothy is a native of Lebanon County and is completing his Masters Degree at the University of Massachusetts in plant soil sciences. He will be at the operations center 20 hours per week. Timothy will assume the duties previously held by **Dave Armstrong**. Dave is currently the Chapter Treasurer and will assist Ann Leffel this year in developing an American tree program which includes locating, mapping, identifying and recording American chestnuts around the Mid-Atlantic Region. See Dave's article on page 6 with some details of the American tree program.

New Chestnut Research at Penn State

By: Timothy McKechnie

The name of one of our members, **Dr. John Carlson** may be new to some of our readers. His work promises to play a central role in the Pennsylvania chestnut restoration. Along with **Dr. Kim Steiner**, Dr. Carlson will be a featured speaker at the PA-TACF spring meeting.

Dr. Carlson is relatively new to Penn State as well, having arrived in 1997 after nine years at the University of British Columbia, Vancouver. His varied interests include genetic mapping, gene expression, genetic diversity, and genetic engineering of trees. His laboratory is well equipped for research in molecular biology, and includes an automated robotic system that can set up and analyze thousands of DNA reactions per day.

Dr. Carlson began his first project on American chestnut last spring with funding from TACF. The project is an attempt to adapt a difficult technique called FISH (Fluorescent In Situ Hybridization) for use on chestnut. If successful, the project will for the first time allow chestnut chromosomes to be seen and distinguished one from another based on the DNA sequences they contain. This technique, and a related one called GISH (Genomic In Situ Hybridization) should, among other things:

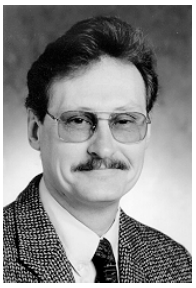
-Provide much-needed information on the location of resistance genes in Chinese chestnut

-Help the backcross-breeding program identify undesirable hybrids in nature

-Help select trees in the breeding program with the highest level of genes from their American parents, and therefore the highest amount of American character.

Dr. Carlson hopes to initiate another chestnut project this year. If funded, it will allow construction of a more accurate genetic map than has been possible so far. As presently planned, a large American chestnut in Clinton County will be pollinated by a Chinese chestnut named Mahogany (parent of the Graves source of resistance) and an American chestnut in the Deep South. The assistance of PA volunteers will be needed for pollination, harvest, planting and care of the resulting trees, most likely in an orchard near Penn State.

Genetic mapping may play a key role in TACF's chestnut breeding program. With a sufficiently detailed genetic map, it may eventually be possible to select the best trees (with the most resistance and the most American character) when they are seedlings. The technique is often called marker-aided selection. With respect to the determination of American character, marker-aided selection is almost certain to allow higher-quality selections, since it allows observation of more genetic characters than are visible to the unaided eye. If this procedure works with respect to resistance, it would save a great deal of labor and expense, since at present it is necessary to care for chestnuts in the breeding program until they are five to six years old before they are big enough to inoculate and determine resistance.


Dr. John Carlson

Given sufficient funding, Dr. Carlson would like to explore the possibility of bringing Chinese resistance genes into American chestnut using the techniques of molecular biology. This approach has only recently become possible. It is different from that taken by Drs. Maynard and Powell who work with the New York chapter of TACF at CESF-Syracuse, and who are attempting to insert synthetic resistance genes, i.e., genes based on DNA sequences not found in chestnut or related species.

PA Farm Show 2002

Great weather, large crowds and lots of Chapter Volunteers made a great farm show this year. Our expanded booth size allowed the visitors and volunteers more access to the display, raffle and brochures. The raffle, an American chestnut corner cupboard was won by **Mike Waldron**, Adams County Coordinator. Our other volunteers were **Chris Ditlow, Phil Gruszka, Gene Witmeyer**, **Dan Heacock, Tracey Coulter, Don Franks, Tom Pugel, Chandis and Violet Klinger, Lloyd Lupfer, Fred Priebe, Les McCurdy and Bob and Ann Leffel.**

Thanks for your support.


Chris Ditlow stands beside the American chestnut cabinet he made for the Farm Show raffle. We added $527 to the treasury thanks to Chris, his raffle and the sales items.

The State of the Chapter's Finances

By: Dave Armstrong

Your Executive Board asked me to report to you, our PA-TACF members, on the state of our money, where we get it; how we spend it; what we have in the bank; as well as our budget for 2002.

Last year's income and expenses:

Income for 2001- $39,314	
Grants	48%
Membership Dues	29%
Events	8%
Supply Reimbursements	6%
Donations	5%
Interest	3%

Expenses for 2001- $23,860	
Tree Breeding Program	43%
Education	20%
Office Expenses	18%
Meetings	5%
TACF Merchandise	4%
Employment	4%
Internet Services	2%
Newsletter	2%
TACF Membership	1%
President's Contingency	1%

The difference in the annual income and expenses of $15,454 is retained in a money market account which will fund the costs of future employees and provide Chapter money when grants are light. We currently have a total of $52,170 in checking and savings.

At one time I was asked by PA Representative **John Barley** how we can operate such a large breeding program, education activety, office and personnel costs, etc. on such a low budget. I told him it is easy when we have generous members who not only spend their time but also their money, land and equipment to this great mission. We also have generous orchard growers who get their planting supplies from the Chapter and then donate money back to us to cover the costs. As a comparison, the American Chestnut Foundation has an annual budget of over $1 Million and have a breeding program of about the same size.

Each year, our members contribute about $150,000 worth of "free" hours to support the chestnut tree breeding program with planting, pollinating, harvesting, maintaining and meeting participation.

This is our budget for 2002 which was approved by the PA-TACF Executive Board in January:

		Jan - Dec '02	
Income			
	Donations	1,500	
	Events	3,000	
	Total Grants	12,750	
	Total Interest	1,000	
	Membership	12,000	
	Supply Reimbursement	2,500	
	Total Income		32,750
Expense			
	Total Breeding Program	10,000	
	Total Education	2,000	
	Total Employment	12,500	
	Internet Service	500	
	Meetings	1,000	
	Newsletter	450	
	Total Office Expenses	5,100	
	President's Contingency	1,000	
	TACF Membership	300	
	TACF Merchandise	500	
	Total Expense		33,350
	Net Income		**-(600)**

Breeding Program Update

By**:** Ann Leffel

The spring plantings did well, especially considering the droughts of this summer and fall. How they survive this dry winter remains to be seen.

BC3 Orchards - **Tim Phelps** had over 90% germination and survival at the large 'Graves' BC3 planting at Penn State University. **Jack Laws** had excellent germination and spent much time hauling water to the Bedford County planting. **Joe Kuzo** reports good germination at the Silver Ridge Hunt Club site as well. F-1 Orchards - Growers were somewhat disappointed in the germination rates of the F-1 orchards which involve introducing new Chinese sources of resistance into the breeding program. When crossing species, non-viable F-1 seed are encountered because of genetic imbalances etc. Other American x Chinese crosses this year can replace the seed which did not germinate.

PA's breeding program for the next several years will concentrate on doing the best possible job of maintaining and growing the established 'Clapper' and 'Graves' BC3 orchards, inoculating those trees (as they reach the age and required size) with two strains of chestnut blight, and selecting the best trees to advance the breeding program. Selection was completed on the trees planted in 1996 in spring 2001, two of the 1997 orchards were inoculated in spring 2001, and selections will be made this spring. Of the 160 BC3 seed planted in the '96 Brogue orchard, on the basis of resistance scores alone, eight trees were selected. When scoring for American characteristics among those eight, the top three trees for advancement were selected. The other five will go through another generation of backcrossing to improve on American characteristics. The job of producing and planting 12,800 seed for each source of resistance for the BC3 intercrosses looms large, but not impossible over the next 5-6 years. Expanding our American orchards and the search for new sources of resistance will continue.

The pollinating season will concentrate on locating ideal Chinese or Japanese trees, which are blight resistant, healthy, and at least 30 (preferably 50 or more) years old in each of the eight regions, West, Southwest, South Central, South East, Pocono, North East, North Central, and Allegheny. Members can help by locating and sending samples for classification and information about those trees to PA-TACF office. **(A Locator Form on page 7 may be copied and sent to us)** The search for flowering Americans in each region continues. To incorporate the greatest diversity possible into the breeding program, different trees are needed for each hybridization. Teams of pollinators are needed in the North East and Allegheny Regions. If you have an interest or know of someone who might, be sure to contact us.

The Grower's Corner

Tips on and Experiences of Planting, Pollinating, Harvesting and Nut Storage from around Pennsylvania

How to plant a chestnut tree -

(with the least amount of work!)
By: Bob Summersgill

There are some of us who go to a lot of work starting their chestnut trees by planting nuts in pots indoors then replanting outside after the last frost. It requires a larger hole and is double work. Our chestnuts have been refrigerated over the winter so are hardy and will withstand some pretty cold weather. So don't be concerned about the nuts freezing in the ground but do worry about frost on the young shoot.

Starting from a nut. With all things being right such as soil, sun and moisture the American chestnut grows like a weed and will achieve an average 2 to 3 feet in height with the tallest up at an amazing 5 ½ feet or more in a year. In that one year there will be very little difference in height between the potted trees and those grown in the field from a nut. Don't feel bad if out of every hundred you get a couple runts 2 to 3 inches in height. Even after several years they are obviously slow growers and deserve the blade. If anyone can tell us why there are runts please tell us.

Planting the nut is simple. I use a planting tool that takes out a plug about the width of a Chinese nut – about 1 1/4 inches and then put the nut in with THE FLAT SIDE DOWN at a DEPTH OF ONE KNUCKLE of your finger. I prefer the little finger. Don't do what we did the first time and plant them too deep. Chances are they will never see the light of day.

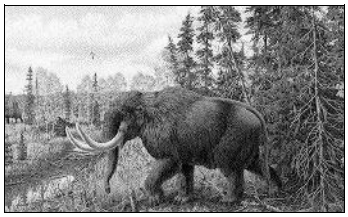
Bob Summersgill planting and maintaining chestnut seeds at the PSU planting in 2001.

If you lay nuts on top of the ground they will grow so don't bother with your tractor and a twelve inch augur. That's too much work.

I put a flag in where I want the nut, spray Round Up herbicide to kill the grass, put in my stake and when the grass is dry, come back and make the hole, plant the nut close to the stake covering it with a bit of dirt and peat moss. I then tie the tube on the stake and slip it over the nut. Working with a four-person team we actually planted six nuts the first minute, four nuts the second minute but by the end of the row those old retired people (like me) were crawling the distance from one stake to the next. Now let me tell you crawling takes a lot of effort too. If there is anyone planting an orchard the chapter will help lay it out, supply nuts, stakes, tubes and yes even help plant - (as long as we don't have to crawl too far!)

Bob Summersgill is the current Vise President of PA-TACF and our President –Elect. He will move to the Presidency in January 2003. As we can see, Bob is also an expert grower and chestnut tree breeder.

Mastodons and Chestnut Trees



Fossil evidence indicates that the American chestnut tree occupied Eastern North America for over 60,000 years. Recently, at an archeological dig in Western New York State, the bones of a Mastodon were being excavated. The archeological team calculated that they were excavating at the 9,000 year level. While removing mastodon bones, they came upon a tree trunk and their analysis showed it to be American chestnut and around 9,000 years old too. A wood collector, Don Eyler, who lives in the vicinity of the dig, sent the PA Chapter a piece of the chestnut log measuring 14 x 9 inches. The block of chestnut was soaked with water since it was in the fresh water bog for many years. We sent it to PSU to be dried and preserved so we may display it throughout the state for all to see.

Chestnut History

By: Paul Sisco

Yesterday, at a meeting of forest entomologists and pathologists from the South East, I had an interesting conversation with Jim Lowe, a retired US Forester who now lives in South West North Carolina. He's been interviewing older folks to write a Graham County, NC, history. 85% of Graham County is now National Forest land.

Some of the old folks Mr. Lowe interviewed talked about gathering "acid wood". The most valuable part of the chestnut tree in those old days was its bark for extracting tannic acid for the tanning industry. People could cut the trees down for the bark and leave the rest of the tree lying where it was. Train carloads of bark would
be shipped out from the area.

This agreed with a conversation I had last week with Andrew Gennett, Jr., of Gennett Lumber Co. Mr. Gennett, who is 82, told about the history of his lumber company, which sold the land where the Joyce Kilmer Park now stands to the US Government. Joyce Kilmer is one of the last old growth stands of timber in the East and is where the photo on the cover of our old brochure came from. The photo was taken by Andrew Gennett, Sr., Mr. Gennett's father, who started the lumber company in 1903.

The present Mr. Gennett said that chestnut lumber was not considered valuable when it was plentiful. He said it was hard to even give away in the old days. After the blight, however, its value changed. He harvested a big plot of chestnut by digging it up -- the machinery dug up fallen chestnut logs from the ground. Even though only 20% of the lumber was sound, he made a good profit.

Andrew Gennett, Sr., wrote an autobiography in 1938 that is going to be published by the Univ. of Georgia Press this fall. It has a neat title, "Sound Wormy". It will include his large collection of B/W photos from the early lumbering days.

Dr. Paul Sisco is a staff Geneticist for the American Chestnut Foundation and resides in North Carolina.

American Chestnut Tree Program

By: Dave Armstrong

One of the major challenges of PA-TACF's Tree Breeding Program is the process of finding, identifying, mapping, documenting and evaluating native American trees across Pennsylvania and the Mid –Atlantic Region. (**See the Locator Form on the next page**.)

Finding fresh American trees to cross with our hybrids is continually important for backcross breeding and our new Cytoplasmic Male Sterility (CMS)* program. In the future, the Chapter will require even more Americans survivors to cross with each other to develop and test their natural blight resistance.

We also have a continual need to harvest nuts and plant American orchards around the region for several reasons: **1.** To maintain the American chestnut germplasm pool for future pollen and seed. **2.** To plant American chestnut trees in orchards where we can control growth, production, pollination and blight for a few years. **3.** Provide our newer growers with an opportunity to establish an orchard without risking the loss of valuable hybrid trees. **4.** To study and observe the growth of American trees including silviculture, maintenance management, chestnut identification as well as predator control information.

Locating new American trees and groups of American trees continues to be a vital part of the Chapter's restoration program. Our plans are to improve our American Chestnut Tree Program by taking the following steps: **Collect** all the records, tree locator forms, identification records, and orchard and tree breeding records from around the Chapter. We have done a lot of work over the years in these areas and it's only a matter of pulling this data together and consolidating it into a database for analysis.

Document and map the American trees or American tree groups as well as the American orchards already established. Where information is lacking, we will rely on our County Coordinators for help. Those trees that have not previously been identified as acceptable Americans, will be analyzed for American traits and categorized - A. Pure American; B. American hybrid, acceptable for the program; C. American hybrid, unacceptable; and D. Non-American chestnut.

Find, analyze and document new Americans for our programs. Again this will take a lot of action and assistance by our Region and County Coordinators as well as PA Department of Conservation and Natural Resources.

The Chapter recently acquired a Global Positioning System (GPS) to map trees and orchards in our region.

* CMS is a technique developed by Dr. Bob Leffel and other TACF scientists. Certain crosses can be made to produce male sterile trees. The progeny can then be open pollinated which may increase nut production and reduce the backcross breeding time.

Tree Locator Form
Pennsylvania Chapter
The American Chestnut Foundation
PA-TACF
800 East King Street
York, PA 17403-1772
(717) 852-0035
E-mail: operations@patacf.org

Purpose. This form is to help PA-TACF record , map, and analyze Chestnut trees across Pennsylvania and the Mid-Atlantic Region. This form should be printed and filled out with as much information as available and submitted with a leaf and twig sample to the York, PA office shown.. An analysis of the characteristics and microscopics will be completed by PA-TACF and the results will be sent to the submitter.

Leaf and Twig Sample. Please cut a mature leaf that has been growing in the full sun and a twig with some leaf buds and place them in an envelope. Do not use plastic due to the molding effect. Wrap the samples in a single paper towel to cushion in the mail. **We appreciate your participation!**

Submitted by:

Name: _____Telephone: _____

Address: _____E mail:_____

City: _____State: _____ Zip: _____

Tree Information:

☐ Single Tree or ☐ Group of Trees (#): _____

Size: Diameter at Breast Height (4 1/2 Feet from Ground): _____

Producing: ☐ Flowers or ☐ Nuts Estimated number of nuts _____

☐ Blight is Present on the tree(s) Size of largest Cankers: _____

PA-TACF may use the tree for: ☐ Pollinating ☐ Harvesting

Location:
Nearest Town/State: _____ County: _____
GPS Location:_____
If no GPS Location is available, describe location or attach a map:

Owner Information: Name of Owner if other than Submitter:_____
Address_____Telephone_____
City_____ State: _____Zip:_____
Permission to harvest granted by : _____

PA-TACF Analysis and Information:
Tree Name:_____ Checker:_____ Date: _____

Classification: ☐ A—Classic American ☐ B—Am. Hybrid (Acceptable)

☐ C—Am. Hybrid (Unacceptable) ☐ D—Non-Am. _____

Comments:

Nonprofit Organization
U.S. Postage Paid
York, PA
Permit No. 238

Pennsylvania Chapter
The American Chestnut Foundation
800 East King Street
York, PA 17403-1772

The Chestnut Tree Newsletter **Address Service Requested**

Spring Grower's and Member's Meeting
St. James Lutheran Church and adjoining **Backcross Chestnut Farm Brogue, PA, York County**
Hosted by Ann and Bob Leffel
Agenda

8:30 am to 9:15 am - **Reception**, Coffee and Donuts; Silent Auction & Sales Open

9:15 am - **Introductions** and President's Opening Remarks

9:30 am - **Dr. Kim Steiner** - The Importance of Regional Breeding

10:15 am - **Dr. John Carlson** - Using Bio-Technology to Assist the Breeding Program

11:00 am - Break

11:10 am - **Dr. Bob Leffel** - Scoring Inoculations and Selecting Inoculated BC Trees

11:45 - Noon **Tim Phelps** - Update on PSU Silviculture Studies

Noon **Catered Lunch** ($5.00 donation requested)

12:30 pm Silent Auction Closes

12:30 pm **Grower's Exchange** - An opportunity for member sharing (3 - 8 min.each)

1:00-3:00 pm - **Workshops** and **Tour of Orchards** - Four rotating concurrent sessions ½ hour each.
A. American Orchards: Why Plant Them, Progeny Testing, Care, etc.
B. Field identification of American, Chinese, & Hybrid trees
C. Inoculation of BC Breeding Trees - Training & Field Practice
D. Scoring and Selection of Inoculated Trees

1:00 & 2:00 - **Optional Tour** - For those who are interested in native trees, there will be an optional tour, the Chestnut Trail, through the five acre woodlot where you will see the current status of the native American chestnut trees typical of York County woodlands.

3:00 pm - **Distribution** of chestnut seed and supplies for spring planting.

5 or 5:30 pm - **Dutch treat Dinner** at a Local Restaurant

Directions

From I-83 in York, Pennsylvania
Take New Exit #18 (Old Exit #7) and turn east at the traffic light at the end of the exit ramp onto Mount Rose Avenue (Route 124).
Travel 1.3 miles and turn right on Route 24 at the traffic light.
Travel 0.8 miles to top of hill and go left at the fork onto Windsor Road. (Note: Route 24 curves right toward Red Lion.)
Travel about 6 miles and turn left on Route 74. (Note: You will come to 4-way stop with two churches and a playground at the Freyville Rd. intersection, proceed to a sharp curve to the right into town of Windsor where you will cross Rt 624 at a traffic light, proceed up a steep hill past a radio station and on to a Rutters convenience store at Rt. 74. Windsor Rd. changes names. Do not make any turns until you get to Route 74, a T junction.**)**
Travel about 4 miles and turn right on Laurel Road. (There is a small sign for St. James Lutheran Church and a sign for York County Fiddlers Association at this intersection).
Travel 1.8 miles and turn left onto Cramer Road. Go up the hill to the St. James Lutheran
Church parking lot. Meet in the educational building in back of the church. Telephone number at church is 717-927-9497.