American Chestnut Cooperators' Foundation

2004 Newsletter

Dear Friends and Cooperating Growers:

STRONG HELP WANTED AT HARVEST to wield 12- and 20-foot extension-pole pruners and cut the burs out of seednut mother trees. We will need help on September 18, 20-24, 27-30 and October 1. Meet at Forest Service Rd708, Newport, VA at 9 a.m; e-mail accf@direcway.com for directions.

ACCF BREEDING

In our quest for all-American chestnuts with high blight resistance, we start from original blight survivors with low levels of blight resistance. By selecting the best blight-resistant individuals through successive generations of breeding, we aim to concentrate their blight resistance, to obtain the high level which is required for long-term survival within the American chestnut's natural range. This is a classic breeding method. It has been widely successful, creating many disease-resistant crops.

With trees, it just takes longer. A generation for American chestnuts is 8 to 10 years from controlled pollination to blight-resistance testing. We have three breeding lines in their second generation; of these only (Ruth x Miles) may begin testing within a year or two. Other 2004 controlled all-American intercrosses include (G4 x Fl), (BigM x G4), (Fl x JEB), (Th x JEB), (RgMt x JEB), (NCC x JEB), (MtL x JEB), (MtL x Am), (Lo x Am) and (Lo x JEB).

But what about the seedlings and seednuts from open pollination which you, our cooperating growers, are raising? Thousands of these, planted within the natural range, are being field-tested by the ever-present blight. Most may have some genes in common with our controlled intercrosses, as well as genes from dozens of other blight-resistant American chestnuts. The best blight-resistant individuals to turn up among them are to be our source of diversity for the blight resistant American chestnut population. Gary and John plan to visit your plantations as they mature to evaluate these American chestnuts. We rely upon your reports to help identify the best American chestnuts from our distributions. Pollen and scions from the very best among them will add the finishing touch to each ACCF breeding line.

COOPERATOR'S AGREEMENT

We request all cooperating growers to sign, date and fill out the enclosed Cooperating Grower's Agreement form, in pledge of your commitment to our breeding program. An additional document (posted on our Web site) will be required for orders of 100 or more seedlings or requests for larger than the usual (15) seednut allotment.

LOWER SEEDLING COST

The 2004 nursery cost for seedlings is $35 per 50 or fewer year-old, bare-root American chestnut seedlings. This includes Priority mailing, where necessary, to most addresses East of the Mississippi. Growers West of the Mississippi need to add $10 per 50 American chestnuts to cover a higher shipping cost. Orders must be received on a Cooperating Grower's Agreement form. We strongly advise those who cannot plant seedlings in winter to request seednuts instead.

The nursery distribution schedule depends upon the weather. American chestnuts must be fully dormant before lifting. Also, the machinery cannot operate on very wet terrain. Thus, the date when seedlings may be mailed is unknown until the last minute, and we are unable to promise delivery for a specific date. In general, the chestnuts are lifted in the second half of November, processed and packed on a Saturday for mailing the following Monday. **All growers should start now to prepare the holes and erect protection cages.** The ability to plant seedlings soon after they arrive correlates strongly with high transplant success.

PROTECTION CAGES are necessary to save your young American chestnuts from deer and rabbit depredations. We prefer to make our cages from 2 x 4 inch grid, 4- and 5-foot tall weldwire (sometimes called dogwire). You can cut 7 cages from a 50-foot roll. When constructing cages, it is best to bend only 3 wires, with the middle wire bent in the opposite direction to the wires at the top and bottom. This way, cages can be easily moved, as needed. We use five-foot cages to protect the leader of shorter seedlings and grafts; we change to 4-foot cages once the leader is 7 feet tall. The strongest stakes for cages are 4-foot rebar, but half-inch conduit is lighter-weight for carrying into plots and also cheaper. Running deer may crash into cages, destroying them, if they are not decorated with bright flagging.

GROWERS' REPORTS

From nuts and seedlings I have planted over the past 20 years, I count 258 surviving American chestnuts. Only 6 of these are big enough to take care of themselves. The rest require regular attention through the growing season to keep them in full sun and free from the competition of other plants, to minimize insect damage, and nip all other problems at the bud. My experience with setbacks, natural and unnatural disasters is the source for most of our recommendations to growers. Thus, I read your reports with sympathy, I appreciate your efforts (often in spite of the evidence), and I always hope to be able to help.

As of 12/12/05, we have received 168 reports of 5,455 surviving ACCF chestnuts. If yours is not among these, please send your report via our Web site or on the reverse side of your Cooperating Grower's Agreement form. Your numbers will be added the tally above. **Last winter, we sent out 2,737 seednuts and 8,595 seedlings to cooperating growers.**

GRAFTING REPORT

I have 36 new grafts, representing 30% success overall for 2004, but as usual, the results varied greatly among the different plots. Many losses at the Airport and Scion Bank were caused by tiny ants colonizing the new grafts inside their shelters and eating the buds. This might be avoided in the future by sprinkling Diazinon on the soil surrounding each graft. Most other losses I attribute to bad luck in timing the graft: on certain dates nearly everything grew, while during one whole week everything failed. Thus, some plots had success higher than 60%, while others obtained less than 20%. I have altogether 117 surviving grafts and Carl Mayfield has 92. We look forward to your grafting reports and observations.

BLIGHT RESISTANCE TESTING begins in May, when blight-free American chestnuts that are 1.5 inches in diameter at breast height can be inoculated with a known killing strain of the blight fungus. Then, the following May we measure the size and depth of the blight canker and compare it against the standard developed by Gary Griffin. About a dozen (Miles x Ruth) F2 grafts were large enough this year; but unfortunately, well before May, none were blight-free. Keen to begin testing something, I chose Ed Greenwell's Nathan Pease nutgraft, although it was only one-inch dbh. We are looking forward to May 2005 results.

NWTF GRANT

Many thanks to the **National Wild Turkey Federation** for very generous support of our project, in cooperation with the **Virginia Department of Forestry**, **USDA-Forest Service** and **Virginia Tech**, to establish and test in forest plots ACCF all-American chestnuts.

Last winter, the Blacksburg Ranger District cleared the area in the **Jefferson National Forest** which they had cut for the Pandapas plot to test a first generation intercross (Th x J). We have marked 10 rows with 10 foot spacing down the mountainside in this east-facing cove. We prepare each hole thus: cut and pull roots, dig 18-inch hole, mix a tablespoon of Diazinon in the fill and replace it, push an 8 to 10 inch cylinder 2 to 3 inches down in the center of the planting place, install a tree mat (Forestry Suppliers, Inc.) and a staked, 5 -foot tall protection cage, hung with pink flagging to keep deer from crashing into cages. Our yield from 2003 controlled pollinations was so disappointing, we only had 12 nuts to plant (in the cylinders) here last winter. Seven have survived, and we planted an additional row of volunteer seedlings, of which 8 survive. These volunteers are from American chestnuts that are not blight resistant; we will use them for grafting stock to include the parent trees in the same plot with their progeny, for test purposes. This past June and July, hoping for enough seed to fill out plantings this winter, we pollinated each flower 3 times at 5-day intervals, instead of the usual two times.

In the **Lesesne State Forest**, Nelson County, in the area newly cleared by the VDF, we planted two and a half long rows by direct-seeding as above, with several different controlled intercrosses, F2 and F1. This new planting has 28(VT2 x G4), 21(NCC x J), 2(F x G4), 5(Ruth x F) and 2 Pacman. Also surviving in the other parts of this plot from past years' planting are 102(Miles x Ruth) and 12 additional F1 intercrosses. From past years' grafts 16 survive, along with 16 new grafts, mostly F2 but also some parent trees. In May, we inoculated blight cankers on seven of the F2 grafts with hypovirulence. In June, Gary applied Subdue fungicide drench in two areas where seedlings or grafts have died from a root rot. We cannot increase the Lesesne plantings until the Phytophthora or other root-rot pathogen is under control.

At **Turkey Run** we have 24 F2 grafts and 3 F2 seedlings. We have inoculated the first blight cankers on six of these grafts. Altogether, we now have 18 (Miles x Ruth) F2 grafts under integrated management: blight-resistant all-Americans on ideal sites managed for American chestnut, with their first blight cankers inoculated with

select hypovirulent strains of the blight fungus. Our largest F2 graft (20 ft) is at the **Airport**; it made 2 female flowers which we pollinated with JEB.

2004 OUTSTANDING COOPERATOR

Wayne Bowman of the Virginia Department of Forestry and **Ed Leonard**, Silviculturist of the George Washington and Jefferson National Forest, for invaluable cooperation and assistance in research plots.

Jenny, Lizzy & Lise Cooper, and V**icky Lewis** for harvesting most of our 2003 seednuts. They held the pruning poles last fall.

John Buschmann, for contributions too numerous to cite toward ACCF progress in the research at the Lesesne State Forest, and Fr**ieda** for pitching in with the dirty work.

Ken James, no relation to Jesse, for his work at Chestnut Hill. In July, Gary and I visited Ken to look over his American chestnut restoration project. He has 38 surviving grafts and 271 seedlings growing on ideal, rich chestnut land in the severe upstate NY climate. This is a great test site. To create his chestnut plots, he cut the big timber himself. In addition to ACCF stock, his collection includes some good-looking native NY chestnuts. Considering the quality and scope of Ken's work at Chestnut Hill, we are amazed.

C**arl Mayfield**, for regular generous support of ACCF research, outstanding grafting and an extensive, well-documented American chestnut restoration project.

Violet Pesinkowski, for regular, very generous support of ACCF research.

D**ouglas Buege**, for volunteer labor in ACCF research plots, carrying bales of weldwire, preparing terrain, cutting trees and weeds.

By taking on the job of restoring American chestnuts in the forests, we accept a huge environmental challenge. This year, we are pleased to welcome many new cooperating growers from the National Wild Turkey Federation. We need as many hands as possible to make the long-term commitment and share the hard work. Cutting trees, weeding, digging planting holes, constructing cages, driving stakes, planting or grafting, you may be tired, dirty and sweating, but nevertheless very

happy to look upon your work and give thanks that you are still able to do this work. The possibility of an American chestnut grove is worth it.

Respectfully submitted,

Lucille Griffin, Executive Director

Other ACCF Directors

Gary Griffin, President, Professor of Forest Pathology, Virginia Tech

Dave McCurdy, Vice-president, Superintendent, Clements State Tree Nursery, WV

John Rush Elkins, Secretary, Research Chemist, Professor Emeritus of Chemistry, Concord College, WV

William Pilkington, Treasurer, Financial Advisor, Ghent, WV

Ed Greenwell, Director of Tennessee chestnut projects, Electrical Engineer, Cookeville, TN

Dedicated to the restoration of American chestnuts