

Canadian Chestnut Council (CCC)

...on the Chestnut Trail

NEWSLETTER # 33

January 2004

<http://www.uoguelph.ca/~chestnut>

In this issue: - Growing from Nuts - Annual Meeting - Donor List - Field Sites - Largest Tree - and more!

The Ashdale Tree

In the September 2003 issue of The Newsletter, there was a front-page photograph of an American chestnut tree with the largest trunk diameter of any living member in Canada. It grows in a rural area on a lawn at the edge of a road allowance near Ashdale, Nova Scotia.

Nova Scotia is a blight-free province. Recent correspondence from Les Corkum, Falmouth, NS reveals that the tree was planted there by Clyde Demock in 1905. This was about the time that the deadly blight fungus, *Cryphonectria parasitica*, was first recognized as deadly chestnut pathogen in New York City. The tree was a seedling brought from the USA.

From this historical account and trunk diameter measurements, it has been determined that this tree shows an average annual increase in trunk diameter of approximately 1.15 cm (0.116 inches).

Near Hamilton in southern Ontario, a 40-year-old chestnut harvested in 1988 had a trunk diameter of 1.7 cm (0.67 inches) per annum over its lifetime. Of interest is that its diameter increased by less than 1 cm a year over its first 15 years.

Three of the largest chestnut trees with diameters in excess of 60 cm (24 inches) now growing blight-free in southern Ontario have shown average annual increases over the past 15 years of approximately 1.8 cm (0.71 inches).

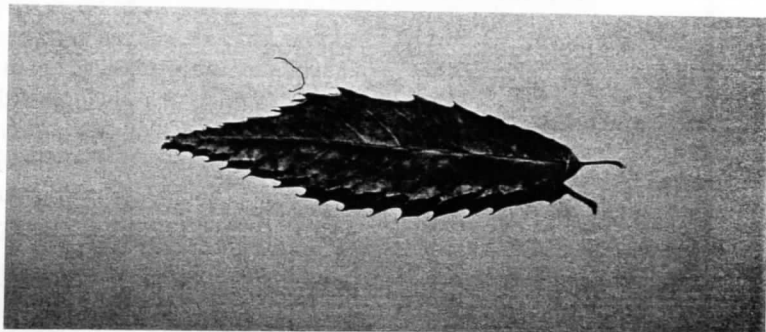
Two factors that most importantly determine the rate of growth in chestnuts are the access of canopy to sunlight and roots to soil moisture. The evidence is that the growth of the American chestnut in southern Canada compares favourably with that reported for the species in the northern areas of the USA. - Colin D. McKeen

Renewals

Please examine your mailing label and see if your membership is out of date. Several members are in arrears.

Your mailing label indicates the year in which your subscription is valid. For example, "2003" shows that your membership expired in December 2003.

California Dreamin'



The leaves in this photo were found under a tree on Long Beach, California and have been identified as American chestnut leaves.

Humans are not alone in liking benign climates. - C Hooker

Trees for Tomorrow

A number of Ontario municipalities have bought the concept of trees for Tomorrow.

In Eastern Ontario, the Rideau Valley Conservation Authority showed strong support for the program by planting 132,000 young native tree seedlings in 2003.

Tree planting is one of the finest conservation measures any landowner can take to improve the local environment. Trees reduce soil erosion, increase rain and snow infiltration into the soil, add annually to the layer of organic matter in woodlands and improve microclimates in both winter and summer. They also help restore a wholesome balance between carbon dioxide and life-giving oxygen. Numerous other benefits of trees are well known.

The Canadian Chestnut Council is in full sympathy with the Trees for Tomorrow program. What is well known is the capacity of the American chestnut to grow well in mixed stands of hardwoods. It is a fully competitive tree. Chestnut enthusiasts can hardly wait for the time in a decade or slightly more when blight resistant seedlings will be available to supplement the mix. - C.D. McKeen

EDITORIALS

The Canadian Chestnut Council

The CCC is a scientific and charitable organization with the mission to restore the American chestnut. All its officers volunteer their services both in the field and at the desk. The CCC annual meeting, the web site and this Newsletter dispense information to generate support for saving and restoring this once-important forest tree.

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- Chair - Dr. Colin McKeen
62 Westmoreland Ave., Orangeville, ON
L9W 3B6, 519-941-9513
- Vice Chair - Dr. Terry Anderson
888 Rd. 3 E., Kingsville, ON
N9Y 2E5, 519-733-3796
- Secretary - Mr. Charles Hooker
RR # 2, Orangeville, ON L9W 2Y9
519-942-8085
- Treasurer - Mr. Douglas McKeen
RR # 1 Orangeville, ON L9W 2Y8
519-941-5765

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Riverbend Farms, Box # 3
Port Burwell, ON N0J 1T0
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Elsewhere in this issue you will note that the goals of your CCC were considerably advanced in 2003. We anticipate similar success in 2004.

To ensure good results - at least at Riverbend Farms - a small irrigation system is required. The Board of Directors have agreed to fund half of the estimated \$6,000 cost from CCC resources, and to seek matching funds from external organizations that encourage environmental improvement.

It would be a great boon to field operations if donations offset some of the irrigation system's cost.

Let us remember the \$79,500 Ontario Trillium Foundation grant in support of the work of the CCC. It enabled us to hire professional help and counsel, and to make use of the University of Guelph's greenhouses and shade houses for plant pathology, over the past three years. It also supported hire of some "cherry-picker" trucks to reach the desirable higher blossoms of native American chestnut trees, to bag and pollinate them and to harvest the nuts.

Other sources of funds - notably from the members - and volunteer help made it possible to use the resources purchased through the OTF grant, but without the grant the work of the past three years would not have been achieved. We must therefore acknowledge and appreciate the contribution of the Foundation.

Chestnut Resists Decay



The accompanying photograph shows the influence of prolonged weathering on a fallen chestnut. The photo was taken in 1991 at Sunnyglades farm, near Bothwell, Kent County, Ontario. The tree had existed in this position for more than 50 years. This is testament to the durability of chestnut wood.

- C. McKeen

Growing Trees from Nuts

Recently I was asked how to grow an American chestnut tree from a nut. As more than one person may wish to do so, it may be useful for me to repeat my instructions here.

Not being a biologist, I subjected my advice to scrutiny by an acknowledged expert - Dr McKeen - who pronounced it innocuous. So here it is.

First, place the nut(s) you gathered in the fall in a plastic bag or other waterproof container, along with some sphagnum moss, sawdust, etc. Add some water; then squeeze the bag or drain the container until the contents are damp but not dripping. Place the container in the cool (NOT frozen) part of your refrigerator, in a crisper drawer or other little-used spot, from mid autumn till late February - or as late as April, if it is more convenient. Ideally, the temperature should be about 2°C.

This stage of treatment is called "stratifying" and takes about eight weeks. It chills the nut as it would be chilled in a forest floor. Without stratification, the nut may not sprout.

Check the container occasionally to ensure that the nut has not acquired a grey or green patina, which could be a fungus. If it has, remove the nut and wipe it off; then return the nut to its container and the refrigerator.

In late winter, check the container to see whether the nut has sprouted. If so, remove it to a pot with drain holes containing potting soil about a foot or more deep; plant the nut on its side about an inch beneath the surface; dampen the soil and place the pot in a cool, dark place such as a cellar; cover the pot loosely with a plastic garbage bag, etc to retain moisture but allow the pot to breathe.

Check the pot every week, dampening it if necessary, until a sprout appears above the surface; then move the pot to a sunny window and water it occasionally. Do NOT overwater an American chestnut, as it prefers to be somewhat dry.

When spring arrives and the ground has thawed, place the pot outdoors during the day and take it indoors at night for about a week or until all danger of frost is past; then plant the seedling with its potting soil in a dry, sandy-loam area having lots of rock-free depth. The tree grows a tap root and therefore requires a deep bed. Sun and air are now required, preferably full sun all day.

If you wish, you can keep the seedling in a pot for about a year, in a greenhouse, but the pot must be deep enough for the roots to grow long.

When the seedling grows leaves it begins to require

an acidic soil, with a pH of 4.6-6.5. Sprinkle an acidifying matter such as MirAcid, Aluminum Sulphate or sulfur lightly over the soil surface around the plant, and water it in or apply the acidic matter as a spray all over the foliage, according to the maker's instructions. The leaves should remain dark green; if they yellow, the soil is not acidic enough and must be augmented, and/or a high-nitrogen fertilizer is needed.

Murray Alward, a director and Manager of Riverbend Farms, has been growing tree seedlings for many years and has had considerable success with the American chestnut. The tree in his pot was grown from a nut planted in February, 2003; the photo was taken in September, 2003. If you have followed these instructions and treated your nut attentively, you too can grow such a seedling!

- C. Hooker



Annual General Meeting

The 16th CCC annual public meeting of the CCC membership was held at the Plant Agriculture Research Station, University of Guelph, at Simcoe, Ontario on Saturday October 4, 2003. An attendance of 40 people was recorded.

A brief business session at 11:30 am gave a good report of the financial health of the Council, with a balance of \$14,843 in the treasury.

Hybrid Chestnut Plantings

Some of the highlights of Dragan Galic's presentation follow.

Notable among the 2003 achievements was the establishment of two field sites for growing the Backcross 3 (BC3) hybrid chestnut seedlings. 92 of the 97 seedlings planted at Riverbend Farms* and 116 of the 124 planted at the Onondaga Farm* (* See the separate report on the Field Sites elsewhere in this issue) survived, and at the end of September many had emerged above the 52 cm (21") protection tubes. These two plantings resulted from direct nut seeding.

For a comparison with direct seeding, a third of the nuts from the 2002 harvest were seeded in the greenhouse in February and later in the summer were hardened off in an unheated plastic-covered house. By the end of the season, the greenhouse-seeded nuts had produced seedlings showing 80-100% more growth than the field-seeded nuts. A further evaluation of these two methods will be continued in 2004.

We were duly impressed with the height (150 cm, 52") of some of the hybrid seedlings grown in pots in seven months.

OSCIA Partnership Efforts

Andy Graham, Stewardship Programs Coordinator, Ontario Soils and Crops Improvement Association (OSCIA), gave an illustrated presentation on the work of OSCIA to partner with interested farmers in the chestnut recovery program. OSCIA worked with landowners, the Grand River Conservation Authority (GRCA), the CCC and others in establishing 24 demonstration planting sites for American chestnut trees, in 1998-9, in southern Ontario. Fifty chestnut seedlings, and other hardwood and coniferous seedlings, were planted at each site. Most of the chestnut (*Castanea dentata*) seedlings were provided by the GRCA nursery at Burford, Ontario; a much smaller percentage of the chestnuts was of US origin. This action was designed to give the farm

community, among other environmental groups, a role to play in the Chestnut Recovery process.

Two years after planting, a follow-up survey was undertaken. Mr. Graham showed slides taken at a few of the sites, showing successes and failures. The disastrous effects of lack of supplemental moisture and competition from weeds and grass were brought to light.

The upshot of Mr. Graham's presentation reveals that chestnut plantings, like those of other deciduous species, require a lot of silviculture attention, like that given to orchard horticulture crops. Continued oversight of these planting sites will be required to glean the benefits of such a program.

Orchard Demonstration

In the early afternoon, attendees were directed through an orchard planting established by a joint effort of the Society of Ontario Nutgrowers (SONG) and the Research Station. This planting is about ten years of age, and consists of commercially acceptable nut varieties and selections.

Due to the unfavourable weather at pollination time and the unusually low temperatures of the past winter, the 2003 nut crop was lighter than usual. Trunk and crotch cankers were evident on several of the trees. A year or so earlier, a few of the trees had to be removed because of the lethal effect of the girdling cankers.

Although the planting is not typical of timber-like chestnut trees, some of the problems in establishing chestnut stands were readily observable and were pointed out. - C McKeen



Canadian Chestnut Council Donors

(Donations in excess of annual subscription)

The many financial gifts received from members make it possible to guarantee continuation of the work of the Canadian Chestnut Council beyond the immediate year. As the program expands from crossbreeding and harvestgrowing and testing, we anticipate that costs for professional advice, growing materials and unforeseen additional expenses will recur. These contributions will enable the Council to override undue delay. Many thanks!

2002

Gold leaf

Harley Hotchkiss
Dr. Colin McKeen

Bronze Leaf

Kurt and Krystin Schroeder

Green Leaf

Thomas E. Atkinson
Peter Bergen
Frank Chanda
Michael R. Margets
Dr. James E. Shaw

White Leaf

Harry B. Barrett
Edwin Bartmann
Annita Bergen
Dr. B. Bowyer
Ron Bridge
Lloyd Busch
Leslie A. Corkum
Dr. Patrick Crowley
G. Alan Fisher
Penny Gartshore
Brett Hodgson
Richard and Catherine Julian
David A. Kraus
Leslie Laking
Lionel S. Lustgarten
Doug and Mary McKeen
Cora K. Munn
Roderick D. Taylor
Tom Welacky (Mauser Harmony with Nature
Foundation)
Dolf Wynia
F. Joyce and William H. Young

2003

Gold Leaf

Dr. Colin McKeen

Silver Leaf

Frank Chanda

Bronze Leaf

William Barnett

Green Leaf

Barbara Smith

White Leaf

George Amaolo
David and Deborah Baker
Harry Barrett
Annita Bergen
Peter Bergen
Dr. B. Bowyer
Lloyd Busch
Robin Cunningham
G. Alan Fisher
Penny Gartshore
Dr. Wilfred S. Goodman
Brian Hepburn
John Hill
Erik Jorgensen
Richard Julian
Stephen Kapusta
Jim and Lynn Karegeannes
Leslie Laking
Alex Landon
Lionel Lustgarten
Doug and Mary McKeen
Gord and Susan Miller
Cora K. Munn
Mike Nemerowski
Tom Pellar
Brad Reive

The CCC Field Sites

The CCC is most grateful to two benefactors who generously offered land and facilities for growing chestnuts for the blight-resistance breeding program.

On the Riverbend Farms at Calton, in Elgin County, owner Harley Hotchkiss of Calgary provided a fenced-in area to meet the CCC program needs. The chain link fence prevents the local deer population from browsing our precious chestnuts and rubbing the fur off their new antlers on our tree trunks.

Riverbend Farms is a tree farm, specializing in nursery stock propagation of many kinds. It is equipped with many greenhouses. During a tour, your directors were shown how the Manager, Murray Alward, grows cedar seedlings from leaf cuttings. Murray has demonstrated his extensive knowledge of trees by growing several hybrid chestnuts to a height of 2-3 feet in one spring and summer.

The Riverbend Farms site requires an irrigation system to ensure the adequate watering of our plantings. Elsewhere in this issue the cost of the irrigation system, and the sources of funds, is presented.



Riverbend Farms Chestnut Planting

A similar acreage was provided at the Onondaga Farms near St. George, Ontario in Brant County. Onondaga Farms was formerly owned by Mr. and Mrs. Gil Henderson, and is now owned and operated by the Tim Horton Children's Foundation as a summer camp for disadvantaged children. At this site, student campers - under the direction of their staff - assist in maintaining (tree planting, grass clearing, watering and fertilizing) the plots. Education-wise, untold benefits accrue to the campers; substantial financial savings accrue to the CCC.

Onondaga Farm is only one of six such children's camps. Camp Director Jason Evanson has established a 400-acre wonderland of environmental learning for the children. A 1:4 counsellor-camper ratio ensures that the needs of all attendees are well met, and that specialized teachers guide the children in their programs. Notable installations are the stellar observatory, complete with rotating roof dome and telescope, and the dormitory buildings. Nestled in this sylvan setting is a 20-acre site within which our hybrid trees are carefully tended.

These two co-operative agreements are the foundations on which environmental programs like that of the Chestnut Restoration are being built. - C McKeen, C. Hooker.



CCC Site at Onondaga Farm

Early Attempts at Crossbreeding American Chestnut Trees

The late Dr. Charles Burnham reported in the summer/fall 1991 issue of the Journal of the American Chestnut Foundation (TACF) his work in restoring the American chestnut tree.

In 1959 Dr. Burnham discovered that the US approach in developing a blight-resistant American chestnut began rightly and continued wrongly.

The first, most blight-resistant crossings were between American and Chinese trees, the result being trees less resistant to the blight than the parent trees. Resistance is not completely dominant in the crosses. Dr. Burnham realized that crossing the more resistant hybrids with native American chestnuts would result in increasingly resistant generations.

That was not the approach taken by previous researchers. In the US Department of Agriculture program, nearly all of the

hybrids were bred back to the Chinese parents. Consequently, blight resistance was not being reinforced by hybrid selection and the resulting seedlings were mostly Chinese with incomplete resistance.

The US goal up to that time was a single blight-resistant chestnut tree from which other trees could be reproduced. They were not after a blight-resistant American chestnut tree, but rather a single blight-resistant tree that could be cloned.

To revitalize the program, Dr. Burnham and others formed The American Chestnut Foundation (TACF), which has crossed hybrid Chinese-American chestnut trees to native trees. The objective now is to grow American chestnut trees with high blight resistance.

TACF will succeed. So will the CCC. - C. Hooker

AMERICAN CHESTNUT SITE RECORD

Castanea dentata

Tree Name		Tree #	
Twp and County		Lot:	Con:
Nearest Road (Name/Number)			
Property Ownership (name/public)			
Owner/Contact Address and telephone number			
Site Description (Check all that apply)			
Soil: Wet <input type="checkbox"/> Dry <input type="checkbox"/> Sand <input type="checkbox"/> Sandy loam <input type="checkbox"/> Silt mix <input type="checkbox"/> Clay <input type="checkbox"/> Clay loam <input type="checkbox"/>			
Exposure: N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W <input type="checkbox"/> Open <input type="checkbox"/> Elevation:			
Slope: Approximate degrees [] Tree on: N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W <input type="checkbox"/> side			
3 dominate tree species:			
Chestnut(s): In woodlot <input type="checkbox"/> At edge of woodlot <input type="checkbox"/> Stand alone <input type="checkbox"/>			
Tree Identification			
Single stem <input type="checkbox"/> Double stem <input type="checkbox"/> Coppice <input type="checkbox"/> Diameter (largest stem) [-] (cm): Height (m) []			

Largest Chestnut in Ontario

This photo was taken in 2003. This is the largest blight-free, healthy American chestnut now growing in southern Ontario.

The tree is in the Ancaster Conservation Area, just west of the city of Hamilton. It has a trunk diameter at breast height (DBH) of 70 cm (28 inches) and a height of about 27 meters (80 feet). The lowest limb leaves the trunk nearly 20 meters above the ground. The tree is totally unblemished and has been estimated to contain 1,500 board feet of sawn lumber.

Another chestnut about 3/4 of the size of this tree, nearly one kilometer distant, died from blight in 1995. - C.D. McKeen



Membership

Membership fees and donations are tax deductible.

Membership Renewal:

Annual subscription = \$15.00 \$ _____

Donations in excess of the annual subscription will be recognized in the Newsletter in the following categories (Requests for anonymity will be honoured):

Gold Leaf:	\$1,000 or more
Silver Leaf:	\$500-\$999
Bronze Leaf:	\$250-\$499
Green Leaf:	\$100-\$249
White Leaf:	Less than \$100

Donation: \$ _____

Total enclosed: \$ _____

Comments:

Volunteers

We need your help! As our program grows and our activities expand, we very much need the talents and skills of our members. If you would like to contribute your skills, please tell us. We start pollinating in early summer!

I'm interested in (check all that apply):

- Membership
- Publicity
- Fundraising
- Library research
- Field work
- Other: _____

Return your completed form to the Secretary:

Charles Hooker, 431068 19th Line, RR # 2
Orangeville, Ontario L9W 2Y9
chuckh@sympatico.ca