

A Call for Hazelnuts Revisited

Last year, our collaborative hybrid hazelnut consortium, comprised of Rutgers University, Oregon State University, the University of Nebraska, Lincoln, and the National Arbor Day Foundation, put out a request to members of the NNGA and the Arbor Day Foundation, for collections of the wild American hazelnut *Corylus americana*. The response, between 2010 and 2011, has been overwhelming. We have currently received over 95 samples from 68 different locations. We are well on our way to amassing wild hazelnut germplasm from every state in the United States within the native range. We have even received some northern samples from Canada! Attached is a map showing how many different sites we've obtained nuts from in each state, and the remaining states we would still like to get samples from (Fig. 1). If you are in those areas with few or zero collections, please keep your eyes open for any wild hazelnuts that might be available. States of interest include New Hampshire, Indiana, New York, and North Dakota, among others. Your help is integral to our efforts to enlarge our germplasm collection to represent the great genetic diversity present in our wild North American hazelnut.

We have already grown out hundreds of seedlings from the 2010 collection and put thousands of nuts from the 2011 collection into stratification for germination next year. These wild seedlings may be the key to providing long-term, stable, eastern filbert blight (EFB) resistance for hybrid hazelnut trees developed through our program and others. They also have the potential to express a wide range of interesting and useful traits, including cold- and frost-tolerance, high levels of productivity, consistent annual bearing, and adaptation to different soils. The more diverse samples we can get, the greater the potential to discover plants of significant value to our breeding program. Furthermore, enhancing the genetic diversity available for breeding may allow us to better handle future weather extremes, fluctuations, and other anomalies predicted or associated with global climate change. Having access to and utilizing as wide a genetic base as possible in breeding is one important way to prepare for the uncertainties the future climate may hold, especially in a crop that, once planted, can be in production for many decades.

If you would still like to help out, we are requesting

that you send up to 100 nuts from a multitude of wild bushes in your region. This harvest season is over, so please be on the lookout for hazelnuts to collect next fall. Remember that wild hazelnut plants may be spotted more easily in the early spring, when their catkins are bright yellow and shedding pollen, at a time before the forest is full of green leaves. So, bring along some flagging ribbon when you take any late winter or early spring hikes. The nuts you send will be germinated the following spring in our greenhouses at Rutgers and the University of Nebraska, Lincoln. Over subsequent years, these seedlings will be grown in the field and evaluated for EFB resistance and other traits like nut yield, size, and kernel quality. We will also characterize the collection using molecular tools (like SSR markers, developed at Oregon State University) to assess diversity and population structure. For more information on advanced molecular biology work done on earlier wild collections, please read "Characterization of American hazelnut (*Corylus americana*) accessions and *Corylus americana* x *Corylus avellana* hybrids using microsatellite markers" by Shawn Mehlenbacher and Vidyasagar R. Sathuvalli, which was also presented at the NNGA Annual meeting in 2011. Interesting subsets of our collections will also be preserved in the USDA National Clonal Germplasm Repository in Corvallis, Oregon. They currently hold 39 accessions of *C. americana* originating from across the U.S. (NCGR 2011), largely through the help of NNGA members in cooperation with Shawn Mehlenbacher. Shawn also has almost 90 select seedlings in his collection of hazelnuts at Oregon State University. Sixty-seven of these have also been grafted and are growing for evaluation at Rutgers in New Jersey. While our existing U.S. collection is quite diverse, it is still lacking in a number of regions and this is why we are requesting your help to obtain more samples.

The support we have already received for our wild germplasm collection efforts has been amazing. We put together a list (Table 1) to document our progress and to give thanks to everyone who has sent us nuts to aid in these efforts. To all of you, on behalf of our Hybrid Hazelnut Consortium colleagues, our sincerest thanks go out for your help and assistance. This collection could not be completed without the dedication of the members of the NNGA and all those interested in promoting the development of hazelnuts

as a much more widely planted crop. Please continue your collections and send new germplasm to us, where we can put it to good use researching and breeding improved nut trees.

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Sincerely,
John Capik and Tom Molnar

Citations

Mehlenbacher, S.A., Sathuvalli, V.R. 2011. Characterization of American hazelnut (*Corylus americana*) accessions and *Corylus americana* x *Corylus avellana* hybrids using microsatellite markers. *Genet. Resour. Crop. Evol.* DOI: 10.1007/s10722-011-9743-0. <http://www.springerlink.com/content/y184050674185773/>

NCGR. 2011. USDA-ARS GRIN Database summary statistics of *Corylus* holdings. <http://www.ars-grin.gov/cgi-bin/npgs/html/stats/genus.pl?Corylus>. Accessed November 18, 2011.

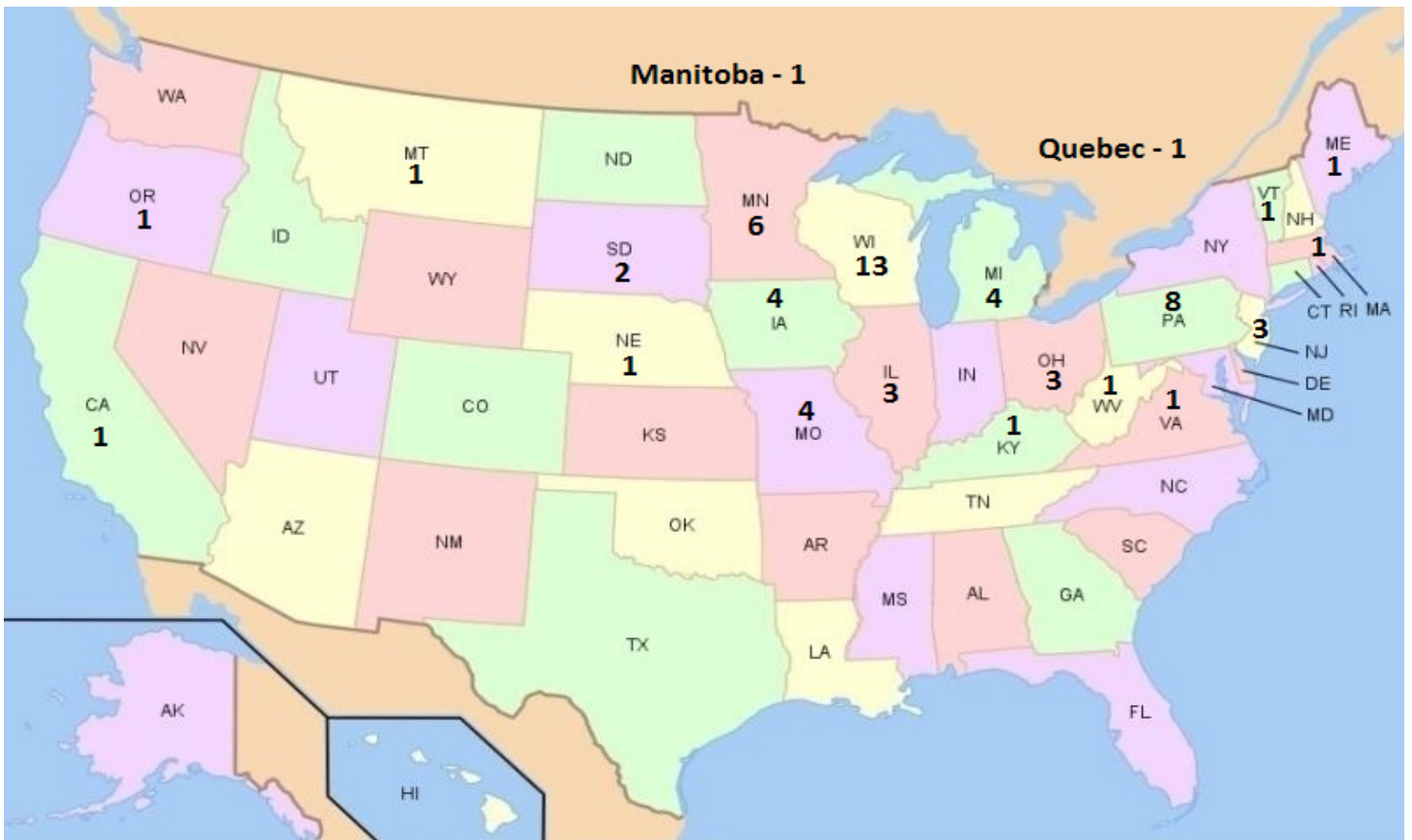


Figure 1. Map of United States and southern Canada showing number of wild hazelnut collections made per state, each consisting of multiple seeds (generally over 50), which were obtained through the generous help of Northern Nut Growers Association and National Arbor Day Foundation's members, as well as other individuals and organizations interested in hazelnuts.

(hazelnuts, continued on page 18)

(hazelnuts, continued from page 17)

Year	Accession ID #	City/County	State/Province	Donor	Year	Accession ID #	City/County	State/Province	Donor
2009	09606	Winnipeg	Manitoba	S. Van Dresser	2011	11602	Calhoun County	MI	J. Laskey
2010	10547	St-Charles-Borromée	Quebec	B. Contré	2011	11563	Aiken County	MN	G. Gustafson
2010	10543	Pike County	IL	M. Widrlechner	2011	11571	Aiken County	MN	B. and M.A. Baver
2010	10539	Bloomington	IN	S. Hockett	2011	11579	Stacy	MN	J. Hutchinson
2010	10532-10534	Nantucket	MA	J. Corkish	2011	11599	Fillmore County	MN	---
2010	10541	Winnipeg	Manitoba	S. Van Dresser	2011	11601	Livonia Township	MN	K. Brennan
2010	10520	Jefferson	ME	A. Pollack	2011	11608	Crosslake	MN	A. Messal
2010	10523	NRCS Plant Mat. Ctr.	MO	J. Kaiser	2011	11583	Ethel	MO	S. Hein
2010	10521	Stevensville	MT	P. Antrim	2011	11592	Rogersville	MO	T. Gearing
2010	10556-10579	Univ. of Neb., Linc.	NE	T. Pabst	2011	11613	Kansas City	MO	D. Fermanian
2010	10540	Glenford	OH	T. Stephens	2011	11600	Raymond	NE	B. Cohoon
2010	10519	Clarion	PA	C. Leadbetter	2011	11553-11554	Cream Ridge	NJ	J. Capik
2010	10525-10529	Mingoville	PA	T. Strickler	2011	11570	Mercer County	NJ	B. Schmidt
2010	10535-10536	Biglerville	PA	M. Lustig	2011	11578A/B/C	Mountain Lakes	NJ	Bill Sachs
2010	10537	Willow Hill	PA	A. Martin	2011	11569	Belmont County	OH	D. Amaral
2010	10538	Rapid City	SD	M. Sekalla	2011	11610	Mansfield	OH	J. Arnholt
2010	10522	Mukwonago	WI	D. Pawlak	2011	11589	Eugene	OR	T. Molnar
2010	10524	Wrightstown	WI	B. Fisher	2011	11564	Butler	PA	D. Heineman
2010	10530	Grantsburg	WI	S. Cundy	2011	11574	Hughesville	PA	W. Barto
2010	10531	Wisconsin Rapids	WI	C. Stelzer-Johnson	2011	11575	Titusville	PA	R. Crisman
2010	10542	Adams County	WI	M. Widrlechner	2011	11593	West Sunberg	PA	J. Bachman
2010	10555	---	---	T. Stecklein	2011	11611	Spearfish	SD	D. McLean
2011	11572-11573	Georgetown	CA	B. Freeman	2011	11604	Prince William County	VA	T. Venturini
2011	11582	Iowa Falls	IA	S. Welden	2011	11614	Johnson	VT	R. Carruth
2011	11594	Union County	IA	R. Carlisle	2011	11576	Oneida County	WI	G. Wassell
2011	11607	Clarke County	IA	G. Sadoris	2011	11577	Price County	WI	J. L. Gehrig
2011	11609	Oskalossa	IA	M. de Bruin	2011	11580	Wisconsin Rapids	WI	J. Broder
2011	11567	Menard County	IL	G. Sternberg	2011	11581	Blair	WI	R. DeBaun
2011	11612	Mercer County	IL	J. Gallagher	2011	11585-11586	Oneida County	WI	A. Sheridan
2011	11568	Casey County	KY	M. Williams	2011	11591	Madison	WI	J. L. Gehrig
2011	11605-11606	Nantucket	MA	J. Corkish	2011	11595	Park Falls	WI	J. Schuppel
2011	11565-11566	Blackberry Township	MN	A. David	2011	11597	Mukwonago	WI	D. Pawlak
2011	11587	Washtenaw County	MI	R. Ramsler	2011	11603	Arpin	WI	---
2011	11588	Ontonagon	MI	A. and N. Warren	2011	11584	Red House	WV	T. Criner