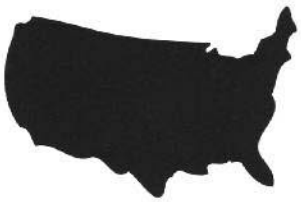

Plant Breeder Fights to Save Elm Stock

By Judith Bradshaw-Rouse

Editor's Note: This edition of FROM ACROSS THE COUNTRY should, for me, be titled FROM OVER THE HILL since it features UW-Madison Plant Pathologist, Dr. Eugene Smalley. It interests me because I lived through the disaster of losing hundreds and hundreds of American Elms from my golf course two decades ago (we only have a few left today) and will interest other golf course superintendents of my generation. I also have a number of hybrid elms mentioned in the article, and have visited the Elm Research Institute in Harrisville, New Hampshire. The article appeared in the Monday, July 10, 1995 edition of The Capital Times and is reproduced here with permission gained through the kindness of Rob Schultz, sports reporter from TCT and GRASS ROOTS contributor. Enjoy.

Thanks to University of Wisconsin-Madison Emeritus professor Eugene Smalley, elm trees are making a comeback after the most devastating shade tree disease in the United States—Dutch elm disease—nearly wiped them out 30 years ago. Today, tree lovers from around the world can purchase and plant improved elms that are the product of UW research.

But far from resting on their laurels, plant breeders Smalley, emeritus professor of plant pathology, and Ray Guries, professor of forestry, are trying to construct the Super Elm, a tree that can survive temperatures down to 30 degrees below zero.

The Super Elm and previously released elms were created using elm stock taken from a collection of trees at the UW Arlington Experimental Research Station, located 35 miles north of Madison.

The only snag is that the extensive collection of elm trees might face an ax—this time from budget-cutters.

The collection, which is the largest in the United States, contains winter hardy elms from China and the Soviet Union; Dutch-elm-disease resistant elms from Korea and Japan; and tall, arching elms from Europe and North America.

Smalley began the elm collection in 1957 when he was hired by the university to find the miracle cure for Dutch elm disease. Using a letter-writing campaign, he contacted arboretum heads and professional foresters in North America, Europe and Asia requesting elm seed. In one case, a friendly foreign attache from the Soviet Union connected Smalley with a scientist at the Seed Institute in Russia, who mailed him seeds.

Elm seeds take 10 to 15 years to develop into flowering trees before you pollinate them and harvest progeny, said Smalley. While he waited for the seeds to grow, he inoculated American elm trees, which came from previous research programs, with the DED fungus. From these early inoculations, Smalley produced in 1973 his first disease-resistant American elm, named Saporro Autumn Gold.

Because the elms were painted close together to save space, the gardeners must fertilize and weed them frequently, Smalley said.

Dr. Eugene Smalley

In European countries where Dutch elm disease also denuded the city landscapes, English royalty and the public alike received Saporro Autumn Gold with open arms. In 1983, Smalley was invited to plant elms at Hyde Park, and at Windsor Castle with Prince Phillip.

In the United States, nursery owners were slow to accept Saporro Autumn Gold.

"Most companies in this country were not interested in producing and selling Saporro Gold," recalls Smalley. "It's a big investment of time and money."

Still, Smalley continued to collect elms for his breeding program. Ultimately, he wanted an elm that had both the tall, graceful, arching shape of the American elm and the winter hardiness and pest-resistance of the Chinese elm.

One of the best ways to build a working collection, according to Smalley, is to harvest elm seeds in person.

In 1983, Smalley went to China for six months to collect elm seeds. His trip was supported by a fellowship from the National Academy of Sciences.

In the late 1970s and early 1980s China was just opening its doors to the West. Smalley was the first American to enter the Shandong province. Chinese people crowded around to see him everywhere he went.

Weidong Wu, assistant professor of poultry science at the UW, was living in China at the time of Smalley's visit.

"That was the first time I had such a close, face to face, encounter with an American," he recalls. "I expected him to be very tall, like John Wayne in the movies; instead, he was smiling and small, a grandfather type of person."

Since then, Smalley has made several trips to China to collect hardier elms sources for his breeding program.

However, because it takes the trees so long to grow and flower, elm breeding takes a long-term commitment.

"This collection is a valuable resource for future elm research. It is available to anyone who wants to use it for research or practical purposes," says Craig Grau, head of the department of plant pathology. "We have a strong commitment to preserve it."

However, preserving Smalley's elms is difficult because of down-sizing at the UW, says Grau.

After Smalley's current contract with the UW runs out in the summer of 1996, it is uncertain what will happen to the collection.

In an attempt to protect his collection, Smalley transferred its custody to Guries in the forestry department. According to Guries, he can collect useful hybrid elms for at least 10 more years even if he does not receive any additional funds.

Maintaining the elms is expensive, admits Smalley. Currently, it takes a full-time gardener and several part-time summer helpers to maintain the collection. Because the trees were planted so close together to save space, the gardeners must fertilizer and weed them frequently.

Smalley would like to see the collection preserved for future generations of elm breeders and tree lovers, but there is little more he can do.

"That is the way it is," says Smalley. "I can't take them to heaven with me."

One possibility is to create an Elm Research Institute.

"It would be a simple matter of doing a little paperwork at the dean's office," Smalley says.

The institute would be supported by royalties from his patents on elms—Saporro Autumn Gold, Regal, New Horizon, American Liberty and Independence—which generate about $5,000 each year.

But $5,000 isn't enough to support the staff required to mow the lanes and fertilize the trees.

If and when Smalley decided to create the institute, says Guries, it will need the support of a generous benefactor.