It's unlikely those roasting chestnuts are home-grown

By SUSAN LOTH
National Geographic News Service

Any chestnuts roasting on open American fires this winter are probably European imports.

That's the way it's been since a killer fungus introduced in this country about the turn of the century virtually wiped out the American chestnut tree.

Yet many old chestnut roots keep sending up new sprouts — only to be knocked back down by fungus. And although the chestnut enemies are multiplying, researchers keep looking for ways to bring back the tree.

The American chestnut, *Castanea dentata*, was once a 100-foot monarch of the Eastern hardwood forests. Its straight and rot-resistant timber was good for furniture, fences, and posts. From its bark came tannin for leathermaking, and its nuts were relished by animals and people.

But the American chestnut was no match for *Endothia parasitica*, a stowaway fungus that arrived in New York on a shipment of Oriental chestnut trees. Entering the tree through a break in the bark, the fungus gradually encircles and strangles it. The blight spread quickly and by 1950 had devastated most of the country's American chestnuts, an estimated 9 million acres.

Some researchers are trying to develop a more blight-resistant chestnut, one with the fungus tolerance of Oriental chestnuts yet the form of the taller American species.

Such work takes time, said Sandra Anagnostakis of the Connecticut Agricultural Experiment Station (CAES) in New Haven.

"You cross two trees and wait 15 years for the progeny to produce seed of their own," she said. "Then you make another cross and wait another 15 . . ."

WORK ON HYBRIDS has another drawback, she said: "You're not going to reforest the woods with hybrids because they do not propagate well.

"At CAES, it has seemed to us that since there are all those roots out there sprouting, the chestnut would come back all by itself if there was some way to bring the fungus a little bit under control."

In Italy's chestnut orchards, scientists found a natural cure: weaker strains of the fungus, called hypovirulent or H strains, which are infected with viral type agents. The H strains moved into blight-stricken European chestnuts and debilitated the killer fungus.

The H strains will also cure cankers on American chestnuts — but only at the spot where they are injected into the tree. The cure won't spread by itself, and scientists don't know why.

Another problem Ms. Anagnostakis has found, is that the fungus has diversified into dozens of strains, so that not every H strain blocks every killer strain. In response CAES scientists have experimented with mixtures of H strains in their inoculations.

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In the last few years, Congress has earmarked $300,000 for research in chestnut fungus H strains, according to Clay Smith of the U.S. Forest Service, which administers the grants.

The government also has its eye on another tree foe, the chestnut gall-wasp.

LIKE THE FUNGUS, the gall-wasp probably hitchhiked in from the Orient. Dr. Herry A. Payne, an entomologist with the U.S. Department of Agriculture, discovered it in 1974 in a Georgia grove of Chinese chestnuts.

The insect lay its eggs in the growing tips of chestnuts in July and August, and the irritated plant produces a growth called a gall. The larva winters and develops in the gall, then eats its way out in spring.

"It kills the shoot or limb it's on, and severe infestations will kill the tree," Payne said. "The gall-wasp is moving about 15 miles a year. It's now in at least 10 counties in central Georgia." The state has lost about half of its commercial Chinese chestnuts — 150 acres.

Will the gall-wasp move farther north? "We have no idea," said Payne. "But the history of epidemics of new, exotic insects is they tend to spread wherever the host is." Hosts include American, Japanese, and Chinese chestnuts.

Chinese chestnuts have become popular yard trees. Payne advises homeowners with gall-wasps to remove the galls and destroy them.

And after two years of experiments, he reports success with growth regulators so that trees also break buds in autumn, exposing the insect at the wrong time of the year. "It's a new method of insect control," he said. "I'm using the tree to manipulate the insect."

With all those enemies — insect and fungus — is it worth trying to save the chestnut?

Citing its timber quality, Ms. Anagnostakis said, "I think its commercial value could be quickly re-established."

And recalling that American import up to 10 million pounds of chestnuts a year, Payne said, "There's still a demand for them."