

Tree researchers work to save the chestnut

WASHINGTON, D.C. — Any chestnuts roasting on open 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 vitally wiped out the American chestnut tree.

Yet many old chestnut roots keep sending up new sprouts—only to be knocked back down by the 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 trunk and rot-resistant timber were 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 nine 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, explained Sandra Anagnostakis of the Connecticut Agricultural Experiment Station 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 years...."

Work on hybrids has another drawback, she asserted: "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 or-

chards, 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 here, and scientists don't know why.

Another problem, Miss 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.

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. Jerry A. Payne, an entomologist with the U.S. Department of Agriculture, discovered it in 1974 in a Georgia grove of Chinese chestnuts.

The insect lays 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." He has shown that the gall-wasp will attack American, Japanese, and Chinese chestnuts.

Chinese chestnuts have become a popular yard tree. 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 year.

"It's a new method of in-

sect control," he said. "I'm using the tree to manipulate the insect."

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

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

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

Fuel use cut 36% for heating greenhouses

WILLIAMSPORT — Commercial greenhouse operators aren't the only persons experimenting with fuel conservation, according to Michael A. Sedlak of the Williamsport Area Community College, Williamsport.

Sedlak, associate professor of horticulture at the College, pointed out that an increasing number of educational institutions are analyzing methods of reducing fuel in campus greenhouses.

WACC is one such institution and is quite interested in fuel conservation as it has three types of greenhouses, covering approximately 7200 square feet of space, Sedlak said. All three are located at the College's Earth Science Campus, near Allenwood.

Sedlak, "We are listening to what the researchers tell us about their energy conservation methods and then trying them on our houses."

"In one of our greenhouses, the heating system consisted of two above ground oil burners feeding a fan-jet poly-tube distribution. Since its construction, air stratification at the plant level had a serious problem, Sedlak said.

"We lowered the oil burners to the floor and ducted the heat along the sides. The results were amazing," he continued. "Savings have been averaging 36 percent over the previous year."

Other greenhouse changes including recalculating and adjusting the environmental controls. The changes in that

particular house, Sedlak said, showed a drop of 23 percent fuel.

The College has investigated covering a greenhouse with 602 poly film, Sedlak also noted.

He explained that as a class project, the students were asked to determine the savings which would result from a house covered with 602.

Students, using a Greenhouse Energy Saver Analysis Form, calculated savings at \$3000 a year. Sedlak said the actual figure should be higher, perhaps as high as \$4300.

As the College has a complete fuel consumption and heating degree day record for the last four years, it will be possible to see whose estimate is the closest, Sedlak concluded.

New base dates set for 1981 dairy shows

LITITZ — The directors of the Holstein Friesian Association have voted to implement the new base dates of September 1 and March 1 for classes in 1981 shows. These dates coincide with the Pennsylvania Junior Dairy Show class dates for all breeds published in last month's Dairy Digest.

The 1981 Fair Fund guidelines will also be compatible with the Pennsylvania Junior Dairy Show dates. This does not mean that the date changes will automatically get into all fair catalogs this year.

Class	Born between
Junior calf	March 1, 1981 and May 31, 1981
Intermediate Calf	December 1, 1980 and February 28, 1981
Senior calf	September 1, 1980 and November 30, 1980
Junior yearling	March 1, 1980 and August 31, 1980
Senior yearling	September 1, 1979 and February 29, 1980
Junior 2-year-old	March 1, 1979 and August 31, 1979
Senior 2-year-old	September 1, 1978 and February 28, 1979
3-year-old	September 1, 1977 and August 31, 1978
4-year-old	September 1, 1976 and August 31, 1977
5 years and over	Born before September 1, 1976



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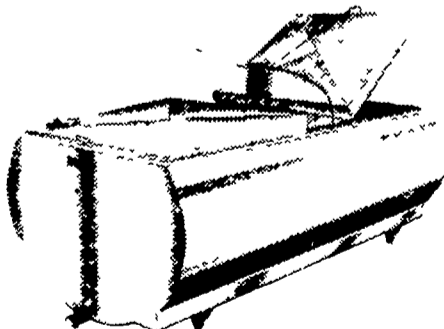
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