BACTERIOLOGY

Nation's Bacteria Bank

Department of Agriculture keeps over 1,200 strains of bacteria for present or future use with legume crops. Other bacteria banks also operate around the world.

➤ THE NATIONAL agricultural bacteria bank at Beltsville, Md., would surprise those who know bacteria only as dreaded disease-causing germs.

There bacteriologists of the U. S. Department of Agriculture have stored more than 1,200 strains of legume bacteria, *Rhizobium,* which are useful or may prove to be useful in the growing of such legume plants as peas, clover, alfalfa and beans.

Dr. L. W. Erdman, senior bacteriologist, points out that in addition to storing and studying our native legume bacteria, the Department imports agricultural bacteria from other nations and exports proved types to help farmers in foreign nations.

Plant explorers each year send new strains from abroad to be added to the store to be tested for possible use on legume crops.

The bacteria form nodules on the roots of legume plants that fix nitrogen from the air. Protein-rich legumes need plenty of nitrogen, an expensive chemical if bought as fertilizer to be added to the soil. Bacteria work for the farmer without pay.

Dr. Erdman said that this is one of the few useful relations between plants and bacteria observed in agriculture. Bacterial diseases take an annual economic toll from the farmer just as such diseases in man are serious menaces to health.

Prior to planting legume seed, many farmers inoculate the seeds with bacteria by mixing them thoroughly with a preparation containing an appropriate bacteria. Some bacteria strains are effective with only one legume and others vary in effectiveness.

Dr. Erdman said the nation's agricultural bacteria bank contains strains from Africa, Europe, Turkey, Japan and South America. The bacteria are kept as long as four years in a nutrient solution covered with sterilized mineral oil.

Elsewhere in Washington some highly unbeneficial bacterial organisms are kept in storage for research by scientists. The Microbiological Institute of the National Institutes of Health keeps disease organisms, known as pathogens, frozen for research.

The American Type Culture Collection, a non-profit private institution sponsored by nine scientific societies, stores many kinds of organisms, both pathogenic and non-pathogenic.

Scientists needing a particular organism for research can obtain it from the American Type Culture Collection. The University of Wisconsin at Madison, Wis., also has an extensive collection of legume bacteria.

Government and university laboratories in Great Britain, Australia and Japan also store useful agricultural bacteria.

Science News Letter, January 23, 1954

AGRICULTURE

Grow Chinese Chestnuts

➤ CHINESE CHESTNUTS are being grown commercially today in Georgia, Pennsylvania and Maryland orchards, replacing the blight-killed native American chestnut.

Dr. H. L. Crane of the U. S. Department of Agriculture, who has spent many years on chestnut research, has pointed out that these Chinese chestnuts have not replaced the American variety as forest timber trees. They are orchard trees grown for their nuts.

Beginning in 1904, a fungus blight disease struck native chestnut trees with deadly force, practically eliminating the tree from our forests. Plant explorers found that Chinese varieties had a high degree of resistance to the blight.

Certain of these Chinese varieties have outstanding nut characteristics, Dr. Crane said. Larger than American chestnuts, the Chinese nuts compare favorably with European nuts for size and quality. They also have a shell that can be easily be removed to leave the kernel free.

One peach and pecan grower in Georgia has planted enough of the Chinese chestnut trees to ship chestnuts by the carload in the near future. His production already amounts to several tons of nuts annually.

Attempts to develop a hybrid tree having the timber characteristics of the American tree, combined with the blight resistance of the Chinese variety, have largely failed so far, Dr. Crane said. Some of the hybrids have survived, but most are only slightly less susceptible to the blight than American trees. The project to produce hybrid chestnut timber trees in America still has a long way to go, he indicated.

At the present time we import about 20,000,000 pounds of chestnuts annually from Europe, mainly Italy. In 1938 the blight struck Italy, and the destruction of all chestnuts in that country is expected soon.

This country is sending pollen, nuts and shoots from Chinese trees here to Italy to help develop blight-resistant varieties there.

Science News Letter, January 23, 1954

• RADIO

Saturday, Jan. 30, 1954, 3:15-3:30 p.m. EST

"Adventures in Science" with Watson Davis, director of Science Service, over the CBS Radio Network. Check your local CBS station.

Dr. Vincent Archer, professor of roentgenology, University of Virginia School of Medicine, will discuss "Radiations Help the Doctor."

Slums cost a city more than they contribute in tax revenue.

Erosion has refilled the great *meteor crater* in Arizona to less than half of its original depth.

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