

# Need Seeds for U.S. Trees

➤ MORE THAN 25,000 tons of forest tree seeds will be required if the need for planting trees in the continental United States is met, a Government-employed research forester estimates.

Paul O. Rudolf of Lake States Forest Experiment Station, St. Paul, Minn., said some 50,000,000 acres in the United States, excluding Alaska and Hawaii, need planting.

He gave these four reasons:

The land is not restocking naturally with desirable trees. It is eroding, idle or unprofitably used. Trees would provide protection for farm fields, animals and buildings. "The United States is going to need all the timber we can grow."

Most seeds are collected from wild stands, but there is a growing trend toward special stands and orchards treated to foster heavy seed production, primarily in the South, Mr. Rudolf said. More such projects are expected.

Public forestry agencies are the biggest users of the seeds. Use by forest industries and commercial seed dealers is growing, however. All buy their stocks principally from "small private collectors."

Seeds should be collected when they are ripe and before they have suffered deterioration on the tree or on the ground. Collectors judge ripeness by such factors as fullness, size, color, degree of "milkiness," hardness of coat, and attractiveness to animals. For some pines and spruces, ripe-

ness can be better determined if the new-picked cones float in test liquids—such as linseed oil for eastern white pine and blue spruce, turpentine for white spruce, and kerosene for red and sugar pines.

Seeds of many species have to be cleaned of fruit parts or debris to stop spoilage, save storage space, and make handling and sowing easier. Some need their seedcoats softened as pretreatment to assure sprouting. Others require cold, moist treatment or fall sowing.

Laboratory tests determine the rate of sowing. Nursery and field germination of forest tree seeds is usually 50% to 80% of laboratory germination, but further post-germination losses normally occur.

The number of usable seedlings per 100 living seeds sown ranges from 10 to 60 for conifers. The variation is even wider for broadleaf species.

Mr. Rudolf said increased efforts by Federal, State and industrial agencies to obtain high-quality seeds and improve their handling will help provide "for the forestation of those 50,000,000 acres in the best and quickest way."

His comments are included in "Seeds," the 1961 Yearbook of Agriculture, published by the U. S. Department of Agriculture and sold by the Superintendent of Documents, Government Printing Office, Washington 25, D. C., at \$2.00 a copy.

• Science News Letter, 80:29 July 8, 1961

METEOROLOGY

# Earlier Storm Warnings

➤ EARLIER WARNINGS of hurricanes threatening life and property are now possible.

The period of uncertainty as to when a hurricane may curve towards land can probably be shaved by hours by spotting a characteristic change in the hurricane's eye, Alexander Sadowski of the U. S. Weather Bureau's emergency warning section told the American Meteorological Society's hurricane conference in Miami Beach, Fla. Radar stations scattered along the coast would pick out this definite change from the many temporary wobbles of the hurricane's center.

Hurricane forecasters presently know only the general area where the hurricane will recurve and not a specific location.

"Immediate report of the location of recurvature as observed by land-based radar can make more timely warnings available for some areas and the cancellation for areas no longer vulnerable," Mr. Sadowski said.

Hurricane recurvature occurs "when westerly winds engulf the hurricane and carry it along." Virtually all hurricanes from the Caribbean or lower latitudes head northwest, veering northeast when they meet the westerlies.

Hurricane warnings are now provided six to 12 hours in advance, depending on the

type of hurricane. When a hurricane first threatens a coast, a target area ranging from 100 to 200 miles is posted indicating where the hurricane is likely to strike. As it approaches, storm warnings are then issued more frequently.

Mr. Sadowski's method is expected to give coastal areas much faster warnings.

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AERONAUTICS

# High-Altitude Spins Can Be Fatal to Man

➤ PARACHUTISTS falling free from high altitudes may be subjected to spin rates more than three times as rapid as the 150 revolutions per minute possibly fatal to man, research conducted at the Wright-Patterson Air Force Base Aeronautical Research Laboratory, Dayton, Ohio, shows.

A scale parachutist model representing a 200-pound body was tested under conditions simulating a fall from 83,000 feet, about 15.7 miles. Falling in a lying down on the back position, the model went into spins at rates as high as 465 revolutions per minute. Maximum spin rates occurred at 50,000 feet after some 65 seconds of fall.

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