

In another agriculture-related area, the atom may be used to help grow superior timber by cultivating trees with the straight grain preferred by builders for lumber. By injecting radioisotopes into the roots of a tree, the direction of the grain can be traced by a Geiger counter as the radioactive material moves up the trunk. The technique, still under development, calls for identifying straight-grain trees and using these for seed for selective breeding of more trees with the stronger, more workable grain.

A nuclear gadget used to measure the water content and density of snow is expected to help the farmer. The AEC and the Forest Service of the Department of Agriculture have developed a portable gauge that uses radioactive cesium to show even small changes in water content and density of snow over long periods of time. The gauge, now being refined by its developers at the Forest Service Experiment Station at Berkeley, Calif., aids in flood and avalanche predictions, helps foresters predict the effect of timber cutting patterns on snow accumulation and melt, and helps managers of water supply reservoirs anticipate snow-melt and runoff. Spring and summer runoff is related to plant growth. Gauge readings are also useful in predicting the forest-fire potential of a particular region.

The device, which gives almost instant information, consists of two aluminum tubes 10 inches apart, one containing the cesium and the other a detector to capture and measure gamma rays that pulse through the snow.

The Nuplex

What about using nuclear power plants, long heralded as a developing source of cheap and abundant electricity, to desalt seawater to irrigate arid seacoast areas? The basic technology is already in hand. Studies show that high-value fruits and vegetables may be grown economically with desalinated seawater, which would cost about 20¢ or more for 1,000 gallons. But such a price is still too high for general farm crops.

The most practical immediate applications would be in isolated desert areas or areas where fresh water and vegetables are not available and are costly to provide. The prospects for very large nuclear power and desalting plants near the northern end of the Gulf of California are good. Large plants in this area would produce fresh water and electric power for the arid regions of Arizona and California and the Mexican states of Baja and Sonora.