

containing 25 ppm indolebutyric acid, 12 ppm indoleacetic acid, 12 ppm naphthaleneacetic acid, 10 ppm vitamin B₁, all essential mineral elements and 5 per cent. sugar. The most favorable environment, according to present information, is as follows: well-drained sand as the rooting medium, full sunlight in nursery, high humidity, temperatures between 75° and 90° F., and cuttings exposed to fine spray of water (from atomizing nozzles mounted above the beds), with spray on either continuously or for 5 minutes out of each 10-minute cycle for from 10 to 12 hours each day. The spray system used is an adaptation of the spray chamber technique described by Raines.⁴

All research in propagation is being pointed toward the development of effective vegetative techniques sufficiently simple for large-scale use under nursery conditions. If successful, it is possible that certified high-yielding planting stock will be produced in public nurseries and offered for sale to land owners at or below cost. When one considers the rate at which trees grow in the naval stores belt, and that normally over 100 million trees are planted annually in the Southeast, the possibilities of this undertaking become more apparent. It is reasonable to believe that the development of high-yielding stands would contribute greatly to the solution of production problems which have long troubled the \$25,000,000 a year naval stores industry, which supports some 50,000 workers and their dependents. Yield increases of 200 per cent. or more seem possible of attainment. By thus increasing the average output per tree it should be possible to reduce production costs sufficiently to meet low prices and competition from synthetics, and at the same time allow good wages for labor and an adequate profit for the producer.

H. L. MITCHELL
C. S. SCHOPMEYER
K. W. DORMAN

SOUTHERN FOREST EXPERIMENT STATION

A NEED FOR MORE UNIFORM USAGE OF WORDS OF INDEFINITE MEANING

IN science it is our practice to observe, accurately measure and record and, accordingly, we are ever faced with the necessity of posing mathematical relationships. Despite the vast and rapid accumulation of recorded data which makes up the body of our respective sciences, it is nevertheless true that the

greater part of our knowledge as individuals consists of a memory of casually observed phenomena which we have not yet taken the time to analyze, accurately measure or record. Thus in our general discussions we are obliged to make use of words of indefinite meanings, such as "few," "some," "very," "many," "much," "most," "frequent," "slightly" and "seldom."

During a discussion with a group of scientific friends I was interested to note that there was no agreement among them as to the relative significance of these words. If to each mind they conveyed differing impressions, these words are not as efficient as they might be as vehicles for our thoughts. It has occurred to me that as these words are such useful tools, it would be a worth-while project to attempt to increase their usefulness by more narrowly restricting their meanings and by securing a more uniform usage.

As a preliminary step I have tabulated the impression some of these words convey to me. I have ex-

TABLE 1

Per cent. frequency indicated		Per cent. frequency indicated
1 } very few, seldom		60
2 }		70
3 } few, some, slightly		80
4 }		90 } most
5 }		95 }
10 } many, much, frequent		98 } practically all
15 }		99 }
20 }		100 all
25 }		
30 } very many		
40 }		
45 } about half		
50 }		
55 } average (in general sense)		

pressed them in terms of approximate percentage spread of the relative frequency or intensity they indicate to me. Obviously their meanings must indicate approximations, for they indicate frequencies we do not know. In each case also their meanings will vary with the nature of the subject of discussion, but in each case the percentage noted is in relation to a maximum applicable to the particular case. I do not expect acceptance of any of my figures, but it would be of great interest to learn how great will be the variance shown by our readers.

P. C. ACKERMAN

MERCK AND CO. INC.,
RAHWAY, N. J.

SCIENTIFIC BOOKS

FOREST TREE SEED

Forest Tree Seed. By HENRY IVES BALDWIN. The Chronica Botanica Company, Waltham, Massachusetts.

⁴ M. A. Raines, *Am. Jour. Bot.*, 27: 10, 18, 1940.

setts, and G. E. Stechert and Company, New York, N. Y. \$4.75.

THE great conservation programs that our country had under way during the middle and late 1930's re-