

## Superior Tree Selection -- A Comparison of Grading Systems

Franklin C. Cech 1/

One of the most difficult problems in a selective type program such as our companies have underway is that of rating phenotypic characteristics to insure the incorporation of the few most outstanding trees in our seed orchards.

Some of the earlier selections such as those reported on today by Goddard, Brown, and Campbell were made subjectively, using the following criteria 2/: (1) outstanding height and diameter growth, (2) limbs of small diameter, (3) an efficient crown, i. e. , have a small narrow crown and dense foliage while still retaining better-than-average growth rate, (4) good natural pruning ability, (5) exceptional ability to be good competitors, and (6) straight bole with little taper. No attempt was made to put this selection on an objective basis, but each tree was compared to its immediate neighbors and the final selection made on the basis of these comparisons.

About the same time, Dr. T. O. Perry was initiating the first industrial drive for the establishment of seed orchards containing representatives of superior pine phenotypes. Because of the many individuals involved, some method of standardizing the selection procedure was needed. As a result, after a meeting with representatives from the participating industries, the first tree rating form was developed which made an effort to put superior phenotype selection on an objective footing. At this meeting, the consensus of opinion was that growth rate was the most important element and as a result, the first system gave a great deal of weight to vigor. The other items considered were bole straightness, branch diameter, natural pruning, and presence or absence of disease symptoms (although this criteria is not included on the rating sheet). Different values were assigned the various criteria in accord with their comparative importance. The superior tree candidate was compared to the 10 nearest dominants, codominants, and intermediates. The second year this system was in use, the comparison trees were limited to the nearest dominants and codominants.

This system fared differently with individual companies, depending on the person doing the final grading. When one man did all the grading, selection was better on the whole than where several men were involved. Where the individual making the original selection did the final grading, results were generally poor.

---

1/ Silviculturist, International Paper Company, Southland Expt. Forest, Bainbridge, Georgia.

2/ First Progress Report, Texas Forest Service Circular #35, October 1953.





