THE CORRELATION OF SITES AND SPECIES IN TREE PLANTING

J. A. GIBBS AND W. S. LIGON

Abstract

In a previous paper, emphasis was placed upon the importance of site evaluation in the selection of tree species for erosion control plantings. Conclusions were based largely upon observations of relatively young plantings, few being over 5 years of age. Since that time, additional site studies and tree measurements have, in general, substantiated earlier conclusions and have furnished additional information of importance.

Pines commonly used in the Ohio Valley Region, including red, white, shortleaf, loblolly, Scotch, Virginia, and pitch, have generally given good results over a wide range of site conditions. Even on the most severely eroded areas and hot south slopes the two-needle pines, particularly, have shown survival and growth that is highly encouraging. An exception to the general success of pine was observed in northern Indiana where red pine failed on sites having calcareous till layers at or near the surface. Also, white pine on many sites has shown a spotty growth characterized by an apparently haphazard occurrence of small, yellowed, sickly trees intermingled with healthy, vigorous trees.

Results indicate that the site range of black locust is much narrower than it was thought to be previously. While a calcareous influence in the soil is not always necessary for good locust growth, practically no failures occur when it is present; otherwise failures are much too numerous. On many sites lacking a calcareous influence, locust starts off much more vigorously than pine, only to stagnate in a few years; pine, after a slower start, begins to grow rapidly. Locust borer is universally present and its damage frequently is great even in plantings characterized by vigorous growth.

On eroded lands, plantings of the more common hardwoods (walnut, tulip poplar, ash, oaks, and others), whether from seed or seedlings, have failed to develop satisfactorily despite almost universally good survival. Few plants have been able to put on any appreciable growth in 8 years. In fact, the rule is that the young trees die back annually, each succeeding annual sprout becoming weaker and smaller until the root finally dies.

Elaborate site treatments have been found to be of little or no value. Even the beneficial effect of mulching, which was striking when the trees were young, has generally become unnoticeable by the time the trees reached 7 or 8 years of age.

Indicator plants have proved of value in site analysis in many instances.

---

1 Contribution from Soil Conservation Service, U. S. Dept. of Agriculture.
2 Senior Forester and Soil Scientist, respectively.