

in close detail. Therefore, what trees are selected becomes a critical matter. You must decide if the tree should have a regular or irregular outline. Those with a regular and precise form have a strong silhouette or outline that is most suitable for architectural plantings —avenues or regular geometric patterns. Those with irregular and perhaps somewhat open outlines offer a contrast of texture, an intricacy and decoration that is rarely present in our modern buildings. Today's architecture has clean, precise lines and shiny glossy surfaces that reflect our machine age and new technological materials. In a word they lack the delight, mystery and richness of detail typical of earlier periods. For this reason trees must be used to give to the urban landscape much of this delight and richness.

In the final analysis, the landscape, public and private, rural or urban, must be designed by man for his comfort, convenience and pleasure. We must be certain that our designers are not

built on meaningless pattern or contrived form. The use of trees should have more importance attached to it than just to improve the esthetic qualities of an area. We must enlighten the developer, the business man and the politician to the fact that trees have functional capabilities that help man to solve architectural, engineering, climatic, and environmental problems. I have tried to delineate some of this. Now the responsibility to prove this rests with you and how you use trees in the landscape. We need to use trees in the landscape to facilitate the human use of space, for the ultimate consumer of landscape is people!

*Department of Horticulture  
University of Illinois  
Urbana, Illinois*

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## ABSTRACT

Hinckley, T. M. and D. N. Bruckerhoff. 1975. **The effects of drought on water relations and stem shrinkage of *Quercus alba***. *Can. J. Bot.* 53: 62-72.

Stem circumference, xylem pressure potential (P), and leaf surface resistance were measured in a dominant forest-grown white oak tree from the beginning of, through the development of, and to recovery from a major drought in mid-Missouri. Continuous recording of several environmental variables and periodic measurements of soil moisture were made in coordination with the above plant variables. As base P and soil moisture decrease, net day-to-day and even week-to-week stem shrinkage was observed. Periodic thunderstorms alleviated soil and plant water deficits and stem circumference recovered. Excellent relationships were noted between soil moisture in the upper 30 cm of a 107-cm profile and either base P or stem circumference.

La circonférence de la tige, le potentiel de pression du xylème (P) et la résistance des feuilles ont été mesurés chez un chêne blanc dominant ayant poussé en forêt. Ces mesures ont été prises depuis le début d'une sécheresse importante dans le centre du Missouri, pendant son développement et jusque dans la période de récupération. On a tenu un record continu de plusieurs variables de l'environnement, et on a pris des mesures périodiques de l'humidité du sol par rapport aux variables déjà mentionnées. Pendant que la P basale et l'humidité du sol diminuaient, on a observé un rétrécissement net des tiges d'un jour à l'autre et même d'une semaine à l'autre. Des orages périodiques allégeaient les déficits en eau du sol et des plantes, et la circonférence de la tige regagnait sa grandeur. On a noté des rapports excellents entre l'humidité du sol dans les 30 cm supérieurs d'un profile de 107 cm et la P basale d'une part, et la circonférence de la tige d'autre part.