THE NEED FOR IMPROVED URBAN TREES

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Abstract .--Many urban foresters are unaware that forest tree improvement activities can benefit municipal tree planting programs. At the present time, there is a great need to increase species diversity in municipal planting programs, and many superior varieties of forest trees actually have a place in urban areas. Pest resistance, drought tolerance, and broad adaptability are important tree qualities in harsh urban environments as well as improved forests. A greater effort should be made to inform the public of the development of superior trees, and to make these improved varieties available in municipal areas.

As a City Forester, I get a lot of calls asking about what type of shade trees to plant. A typical caller might ask "Where can I get a beautiful shade tree that grows fast, doesn't litter, doesn't break up in storms, won't get sick or eaten up by bugs, won't interfere with my grass or sidewalk and takes care of itself?" Well, such a tree does not exist, but there are several points that we can address.

SPECIES DIVERSITY

Urban forestry planting programs have a need for a diverse selection of superior species. It would be advantageous to have available from the commercial nurseries a diverse selection of shade trees for the general public. Let me illustrate the problem of a lack of diversity. Currently, the street tree population of the City of Omaha is:

Silver Maple	29.2%
Siberian Elm	15.7%
Green Ash	7.6%
American Elm	5.4%
Ailanthus	4.3%
Mulberry	3.2%

In 1965, the street tree population contained over 39% American elms. We all know what Dutch Elm Disease did to our elms. Now oyster shell scale, green stripe maple worm and maple chlorosis are devastating silver maples all over the City. Elm leaf beetle and Dutch Elm Disease are working over the Siberian elms, while borers are raising havoc in Omaha's prestigious Regency neighborhood, and ash die back is running through Trendwood and Maple Village Additions. The answer is simple, diversity. Don't allow any more than, say 5% of any one species. However, it is easier to indicate the magnitude of the problem and a likely solution than it is to actually effect the needed changes. One major obstacle is the rather limited availability of species and varieties of trees adapted to environmental conditions in eastern Nebraska.

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We can make progress though; take, for example, Omaha's parks. Green ash comprises 11.6% of the total population, silver maple 10.7%, cottonwood 8.4%, Austrian pine 4.3%, flying crab 5.5%, hackberry 4.8%, Scotch pine 4.3%, walnut 3.6%, bur oak 3.2%, spruce 3.2%. This is better but still needs improvement. The greatest factor responsible for silver maple being nearly 20% lower than the street tree population, and Siberian elm 1.7% lower, while increasing green ash by 11.6% over street tree populations, is an emphasis on species diversity. In addition, we have made greater use in our parks of superior tree selections reported in the literature. Some species of superior shade trees are commercially available, such as the green ash, honey locust, Norway maple, and linden, but many others are available to the Omaha Forestry Division only because of professional knowledge. Omaha has over 5,000 trees in holding nurseries, largely because many superior trees are only available as one year old planting stock. What I'm trying to emphasize is the need to make available to the general public those superior trees which have already been developed.

Let me use one more example to illustrate. Through the efforts of Dr. Bagley and others, I have seen superior strains of many species at Horning Tree Farm for use in Nebraska. There are beautiful cottonless cottonwoods, black cherries that produce some delightful tasting fruit, limber pine, Russian olive, red oak and many others. As an urban forester, we would love to make use of these superior trees. About three years ago it was made known to us that we might be able to obtain some superior red oak stock through the Bessie Nursery. We tried, but we were turned down by the State Forest Service and by the U.S. Forest Service. We applied to Senator Zorinsky, a former Mayor of the City of Omaha, for help. Senator Zorinsky's inquiries to the U.S. Forest Service yielded results. We were able to order trees from Bessie Nursery, but in spite of our success, to date we have not been able to get seedlings for any of the superior red oaks, cottonwoods, hackberrys, black cherrys, limber pine or Russian olive that are there at Horning Tree Farm.

THE URBAN ENVIRONMENT

A difficult situation that is peculiar to the urban forest is that of trying to grow trees in a downtown setting. The downtown is an extremely harsh environment where the wind is channeled and accelerated by tall buildings. The sun's heat is reflected off glass, concrete and asphalt. The root zone is restricted 'to a hole punched through a slab of concrete. The stem and branches are mutilated by pedestrians, cars, trucks, topiary and well intentioned building managers. A study in Boston states that the life expectancy of the downtown tree is only 10 years. In Omaha we have had a similar experience. The life expectancy of a downtown tree is short. Realizing this, we need not concern ourselves with what the downtown tree will look like in 25 or 50 years. The first concern is survival for 10 to 15 years. Why not use more Siberian elm, mulberry, black locust, Russian olive, white poplar, cottonwood and even ailanthus? If most urban trees do not survive for 50 years, the desirable adult characteristics of many species are never realized. Perhaps more emphasis should be placed upon relatively short-lived, hardy species or varieties that provide the needed shade and aesthetic features with less concern for adult features. However, it would be nice to have sterile forms of mulberry, Osage orange and others to minimize litter problems.

Another problem that we are seeing more and more of is the automatic lawn sprinkler system. Tree drowning is on the increase. I can show you Redmond lindens, concolor fir, spruce, red oak and ginkgo trees that have been drowned by automatic lawn sprinklers. Therefore, some tree species bred for growth in heavily irrigated lawns would be of increasing usefulness.

The last problem area I will cover is that of compacted soils. Omaha has predominantly clay soils. Many residential and park settings receive heavy foot and vehicular traffic or moderate traffic over very extended periods of time. Our clay soils, coupled with its high usage, has created many soil compaction problems, compounded by a lack of good maintenance. Therefore, tree selections that survive well under compacted soil conditions would be a very desirable trait.

To sum up, I have described the two man-made environments of heavily irrigated lawns and the downtown environment, which are on the increase and demand our special attention. I emphasize that superior red oak, black cherry, cottonless cottonwood and Russian olive from Nebraska already exist. I would like to see sycamore, walnut and hackberry added to that list. But I emphasize that the most urgent need is for the dissemination of information about superior trees and distribution of these superior trees so that a greater variety and a greater number will be planted in Omaha.