

Red Maple has adapted to regional growing conditions from Florida to northern Michigan.



FURTHER EXPLORATION IS NEEDED TO GET MORE OUT OF NATIVE PLANTS

By DOUGLAS CHAPMAN

Plant exploration is one way to add diversity to the landscape. When one mentions plant exploration, Japan, China, Russia, and Poland first come to mind, but plant exploration in our country, stressing the factors of provenance and site adaption, is another way for American horticulture to develop its own distinct mark. We recommend selecting native plants from geographic regions, to be planted in those regions, e.g. Great Lakes, Northeast, Southeast, etc. By se-

lecting outstanding natives, we are taking advantage of provenance, or regional adaption, and unique site adaption, e.g. a hickory that grows in the flood plain as well as upland fertile soils. What precedent is there for this type of development?

Dr. Fred Meyer, of the National Arboretum, recently stressed the outstanding development of Japa-

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nese horticulture. The one thing highlighting Japanese horticulture is the fact it developed internally from native plants for 1,000 years. They select, breed, and landscape their gardens with plants native to Japan. They rarely explored outside of the Japanese islands, while developing the best, by yet improving on what they had.

Certainly as we look across this country, we see the marks of English and, now the mark of, Japanese horticulture. It is possible that the main legacy that Japanese horticulture should give to American horticulture is to develop our native plants to the fullest.

Regional adaption of trees is certainly one of the main considerations in selecting and developing native trees, or regional cultivars. Rehder and Wyman suggest, the native range of *Acer rubrum* (Red Maple) is from northern Michigan to Florida, but a northern Florida Red Maple would not survive in Michigan. Conversely, a northern

Michigan Red Maple would not thrive in Florida.

Provenance manifests itself not only in adaption but some unique physiological responses, e.g. photoperiodic effects on growth. Hanover at Michigan State University has shown clearly that plants native to northern climates are more photoperiodic responsive than those native to southern areas.

One of the most useful characteristics of this adaption would be juvenile northern Red Maple grown under continuous light will remain continuously vegetative, reaching 5 feet from 6 inch cuttings in one season. The same phenomenon is not as pronounced in southern Red Maple.

Further, provenance affects winter hardiness in northern areas and heat tolerance for southern natives. When selecting and developing cultivars for the Great Lakes Region, a line can be drawn from Columbus, Ohio (east and west), north of that line, the plants would be hardy throughout much of the

Great Lakes, and natives south of that line would show adaption to the south-central and southeastern areas.

Site adaption, or, if you will, adaption to micro-climate, is a further reason for plant selection. Horticulturists have noted that Sugar Maples thriving in fertile, well-drained soils and an ecotype that thrives growing at edges of swampy areas or flood plains. This adaption to soil conditions is a real opportunity for nurserymen and horticulturists, alike, to select plants that will tolerate urban conditions. Certainly many of us have observed Red Maples growing in flood plains, also upland soils.

One must be continually alert to this condition or other variations from the norm. In the mid-Michigan area alone, we have observed *Carya ovata* (Shagbark Hickory) growing in traditional soils and in swamps or flood plains where, in fact, their root system is in water 4 to 6 months of the year. Also observed are Red Maple growing on sand hills and swamps and Sugar Maple, or its sub species, growing in heavy soils, as well as the traditional well-drained fertile sites.

It is paramount to select trees for site adaption while looking for trees that have outstanding aesthetic characteristics, such as scarlet or yellow fall color, columnar habit of growth.

Further, tolerance to insects; Crab Apple - aphid; Hackberry - nipple gall; and disease resistance, e.g. Crab Apple - fire blight and apple scab; Hackberry - witches broom; Sycamore - anthracnose. This resistance or tolerance may give us an opportunity to satisfy low maintenance needs while adding diversity to the landscape.

These are only food for thought, but by utilizing native trees that prove to be "spartans" or grown under urban conditions while showing resistance to pest problems, it gives us one way to cut maintenance costs. Further, by developing regional cultivars of native trees and shrubs, we strengthen local nurserymen while adding diversity to the plants available for the landscape.

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Several characteristics for cultivars of native trees worth observing include:

White Ash (*Fraxinus americana*) drought tolerance

Northern Red Oak (*Quercus rubra*) some salt tolerance oak wilt resistance

Red Maple (*Acer rubrum*) droughty soil tolerance

Bur Oak (*Quercus macrocarpa*) droughty soil tolerance

Russian Olive (*Elaeagnus angustifolia*) Fusicoccum elaeagni canker resistance

Hackberry (*Celtis occidentalis*) nipple gall resistance

Yew (*Taxus*) resistance to scales or black vine weevil

Rhododendron (*Rhododendron*) resistance to Phytophthora

White Birch (*Betula papyrifera*) resistance to birch leaf miner and or borer.