

Kansas State Agricultural College
EXPERIMENT STATION
Circular No. 33.

DEPARTMENT OF FORESTRY
Charles A. Scott, State Forester in Charge

THE CHINESE ARBOR VITÆ.

(*Thuja orientalis*.)

By CHARLES A. SCOTT.

THE CHINESE ARBOR VITÆ is an evergreen tree, generally of low, compact growth in its native habitat—the dry, rocky mountains of northern China. When planted in good soil under favorable climatic conditions, the trees attain a height of sixty feet and a trunk diameter of from five to six feet. They reach their best development in a deep, fertile soil, and they resist even a considerable amount of alkali. According to Chinese observations, these trees are known to live to an age of more than two thousand years. The old specimens develop a very characteristic ragged and irregular outline, and are striking objects in the landscape in northern China.

This tree thrives especially in those parts of China where the summers are hot and fairly dry, with an annual rainfall of between fifteen and twenty-five inches, practically all of which falls during the months of July, August, and September. The summer temperature in this region frequently reaches 110 degrees in the shade, while in the mountainous regions, where the tree grows under natural conditions, the winter temperature falls to ten degrees below zero. The Chinese arbor vitæ will withstand a greater degree of cold than this if the winters are dry, but will not endure the cold in moist climates. The soil, moisture and temperature conditions demanded by this tree prevail throughout the western two-thirds of the state of Kansas.

The Chinese arbor vitæ is of recent introduction into the United States. It was introduced into this state probably not over twenty years ago, as the oldest specimens that have been seen are not more than twenty years of age. Wherever the Chinese arbor vita has been planted in Kansas it is making a very successful growth, having withstood the climatic conditions of the past eighteen or twenty years without serious injury. It promises to become one of the most desirable trees that has yet been found for western Kansas windbreak and ornamental planting.

METHODS OF PROPAGATION.

The Chinese arbor vita is propagated entirely from seed, which is produced in considerable abundance after the trees are from eight to ten years old. The cones are gathered from the trees as soon as they begin to show signs of ripening, which usually occurs during the latter part of September or early in October. These are spread on large sheets or board floors and exposed to the sun until the cones open and liberate the seeds. The seeds and cones are then separated by screening. The seeds may be stored over winter in any dry room, if protected from mice. They are sown in well-prepared beds, either in rows or broadcast, the following April or early May. The seed beds must be given part shade, which is usually accomplished by using a lath or brush screen.

At the age of one year they are ready to be set out in the nursery row, where they are grown for one or two years until ready for permanent planting. The growing of evergreen seedlings, however, requires expert knowledge of nursery work, and it is usually much cheaper to buy the nursery stock than to attempt to grow the seedlings on the farm. The most desirable stock for extensive planting consists of twelve-to eighteen-inch once transplanted trees. The Chinese arbor vitæ is perhaps the easiest of all conifers to propagate. It transplants with very little loss, which feature is sufficient in itself to insure the extensive use of this tree.

ECONOMIC USES.

Because of its extreme hardiness and the ease with which it can be transplanted, the Chinese arbor vitæ should in the future be the most commonly planted windbreak and ornamental tree in western Kansas. The wood is durable and en-

tirely satisfactory and serviceable for fence posts. The greatest worth of the tree, however, will be in its live state for protection and ornamentation. The rate of growth of the Chinese arbor vitæ is faster than that of any other of the evergreens. The one-year-old seedlings range from three to six inches in height, and the rate of growth from this time on varies with the conditions under which the trees are growing. Under favorable conditions they will make a height growth of from fifteen inches to three feet a year.

Under favorable soil conditions in western Kansas, the Chinese arbor vitæ should attain a height of from thirty to forty feet and a stump diameter of from twelve to eighteen inches. There are two distinct forms of this species. One is a dwarf type that grows very compact and symmetrical. This form is prized highly for ornamental planting. The other form grows erect, with ascending limbs, and on account of its greater height is the more desirable of the two for windbreak planting. The two types are readily distinguishable in the nursery when the trees are two or three years old.

For windbreak or other protection planting, the Chinese arbor vitæ should be planted six or eight feet apart, in rows from eight to ten feet apart. Three rows will make a very efficient windbreak in from eight to twelve years.

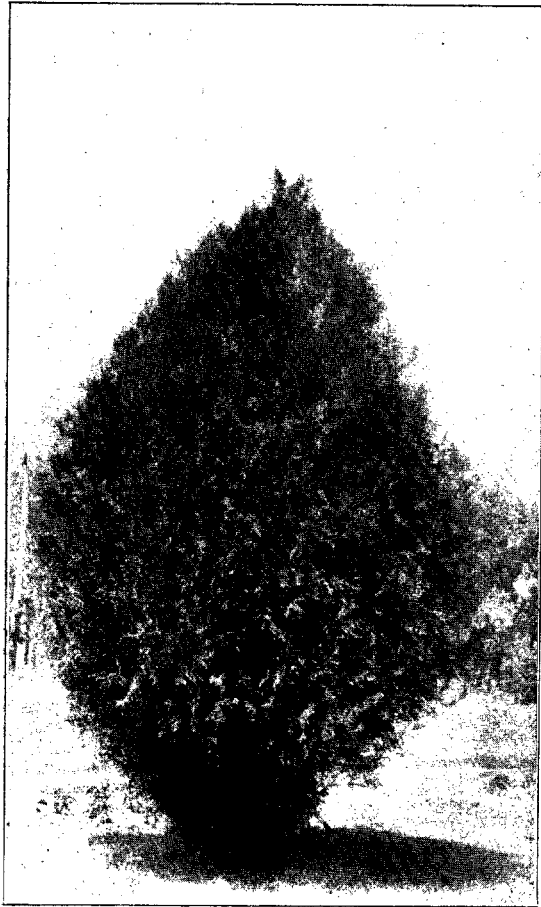
In general appearance the tree is very much like the American arbor vitæ. The leaves are scale-like, closely appressed, and throughout the summer deep green, changing with the approach of winter to a rusty brown. The trees retain their leaves for several years, and on account of their compact form are excellent for windbreak purposes.

The Chinese arbor vitæ is found growing with equal success both on very light sandy soils and on heavy clay soils. The fact that it will grow on soils that are strongly alkali gives it a distinct advantage over many other species for prairie planting.

Note: Those who are interested in securing stock for planting might do well to communicate with the State Forester, at the Kansas State Agricultural College, Manhattan, Kan.



Chinese arbor vitæ in the state nursery. Two years of age and once transplanted.



A Chinese arbor vitae eight years of age.
A very good form for an ornamental tree.



A windbreak of 18-year-old Chinese arbor vitae.
These trees average about 20 feet in height and 8 inches in diameter at the stump