

Variety of trees can survive, thrive in New Mexico

For more than 100 years, residents of New Mexico's eastern plains have been planting trees and shrubs to improve living conditions and protect property from climatic extremes. Early settlers brought seedlings with them or dug seedlings from other locations to plant around their homesites. Today, many trees are bought from mail order catalogs and online merchants. Unfortunately, many of the varieties and species obtained through these sources are poorly adapted to our local environment and fail to produce the desired results. To realize long-term benefits from established trees and shrubs, it is important to select species that are adapted to the local environment.

The off-campus science centers of New Mexico State University's Agricultural

Experiment Station are generally associated with crop and livestock research aimed at improving production efficiency, increasing sustainability, and improving profitability, however, the centers also conduct non-economic research related to quality of life matters.

The NMSU Agricultural Science Center at Tucumcari has been involved in the performance evaluation of trees and shrub species for almost 100 years.

Trees and shrubs for ornamental plantings were first established in 1913.

Large scale evaluations of tree and shrub species were established from 1923 to 1938. Original records from those plantings provide data as to the date individual trees were transplanted and the care they received in the initial years after establishment at Tucumcari. Many of the

original plantings still exist today. Although the various plantings received differing

levels of irrigation and care in the initial years following establishment, they have received no supplemental irrigation, cultivation, or pruning since 1949. The species that have survived to 2010 have demonstrated an adaptation to the area.

Historical data from Tucumcari indicate at least 97 different tree and shrub species have been evaluated for adaptability. As of 1987, the last time data were collected, 32 species had some degree of long-term survival. Many of the original species showed little promise of

adaptation and didn't survive the initial years following planting, even though they received supplemental irrigation and periodic cultivation. A second group of 18 trees and shrub species had good short-term survival rates, but had no long-term survivals. Plants in this category are perhaps the most disappointing for homeowners because they have good survival rates for the first four to 20 years, but as the plants reach mature size and become beneficial for landscape or windbreak purposes, they begin to die-off.

Trees and shrubs that have had good survival rates at Tucumcari can often be found in local garden centers. Among the species with the highest long-term survival rates are Desertwillow (*Chilopsis linearis*). As of 1987, 100 percent of the trees that had been planted 50 to 60 years earlier were still alive. No other deciduous tree had survival rates approaching this level.

The jujube or false date

(*Ziziphus jujuba*), also had good survival rates (79 percent). This thorny tree formed dense thickets, produces edible fruit, and is excellent wildlife cover, but should be used with caution due to its thorny growth and spreading nature.

Several conifers had good long-term survival rates. Chinese arborvitae (*Thuja orientalis*) had outstanding survival rates (in excess of 90 percent), when first and second-year death were excluded from calculations. The named varieties that were evaluated (Baker, Berkman, Excelsa, Goldspire and Gracillis), and an unnamed non-compact genotype all did well at Tucumcari. The number of different growth forms, sizes, texture and color are available within this species.

A number of pine (*Pinus*) species were evaluated at Tucumcari. Among the species evaluated, Pinon (*P. edulis*) has been best adapted to long-term dryland plantings at Tucumcari, with an

average height of 20 feet, and a survival rate of 75 percent, when death losses during the initial two years following establishment are excluded. In addition to these historical tree and shrub plantings, the Agricultural Science Center at Tucumcari has, in recent years, re-initiated efforts to provide information on tree and shrub adaptation. Mature trees and shrubs and a number of new ornamental species have been established under irrigated conditions on the center's grounds. A self-guided Tree Identification Walking Trail has been established in conjunction with the center's Eastern New Mexico Outdoor Arboretum.

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