

SPLASH INTO EXTENSION

IANR's Growing Focuses on Water Stewardship, Research

The fall 2018 issue of **Growing** magazine, a publication of the the Institute of Agriculture and Natural Resources (IANR), focuses on water stewardship, Nebraska's long history of irrigation research and development, and new research studying potential links between irrigation, cloud formation, and rainfall.

Other articles take a closer look at IANR work in antimicrobial resistance and rural serviceship, and shine a spotlight on an alumnus of the College of Agricultural Sciences and Natural Resources (CASNR).

<https://ianr.unl.edu/growing-magazine-fall-2018>



Drought Tolerant Shrubs

Kelly Feehan, Extension Educator – Platte County

Water conservation is important in home and business landscapes. While leaving automatic irrigation systems turned off, and only turning them on when plants need water, is a much needed practice change in many residential and business landscapes, selecting drought tolerant plants is also important.

This article focuses on drought tolerant shrubs for different functions. While listed as drought tolerant, keep in mind plants need established roots to develop tolerance to dry sites. It is often a deep or extensive root system that makes a plant drought tolerant.

The first year after planting provide adequate moisture without overwatering. Roots need water and oxygen in soil to grow and function well. Improving planting sites with double digging or tillage to loosen compacted soil, incorporating compost, and using a two to three inch layer of organic mulch placed on soil helps provide a good rooting environment.



When watering, moisten the soil eight inches deep within and outside of the planting hole; then allow the soil to dry slightly for oxygen recharge. If a drought tolerant shrub is selected and watered correctly the first year, it may not need watering again except during very dry conditions.

Now on to drought tolerant shrubs for Nebraska. There are many to choose from so I focused on shrubs that are not overplanted in our state and add value such as attracting pollinators, soil erosion control, or have edible fruit.

Almost all of the shrubs I list are flowering plants that can attract pollinators. Two especially good pollinator shrubs are New Jersey Tea (*Ceanothus americanus*) and blue beard (*Caryopteris*). New Jersey Tea grows 3 to 4 feet tall and wide with white, fragrant blooms from May to

July. It is a tough plant for hard to grow areas.

Blue beard is known for bluish-purple blooms that last from late July into September. A time when few other shrubs bloom. As a blue flower, it is heavily visited by many types of bees. The shrub grows up to 3 feet tall and a little wider. The light green foliage has silvery undersides. This zone 5 plant will die back in hard winters and need pruning to remove the dead wood.

April blooming shrubs include clove currant (*Ribes odoratum*) and Nanking cherry (*Prunus tomentosum*). Clove currant grows 6 to 8 feet tall and wide. It can be a loose, open shrub with an unkempt look but tolerates poor soil, has yellow blooms with a clove like fragrance and the fruit, when produced, is edible. Nanking cherry is a very hardy shrub with red, cherry-like edible fruit. It grows 6 to 10 feet tall and wide.



A tough, low growing plant for erosion control is 'Gro-Low' fragrant sumac (*Rhus aromatic*). It only grows 2 to 3 feet tall, but suckers out to 8 feet wide. It is a dense low growing shrub that will stabilize banks and grow in poor soil. The leaves and twigs are fragrant if bruised.

Not all Viburnums are drought tolerant but three that are include 'Judd' (*Viburnum juddii*), blackhaw (*V. prunifolium*) and 'Mohican' (*V. lantana*). They bloom in May with white blossoms and if there are other Viburnums nearby, they will produce ornamental fruit later in the season.

'Judd' and 'Mohican' grow up to 8 feet tall and 10 feet wide. Blackhaw viburnum will reach 15 feet in height and spread up to 12 feet. Viburnums are very tidy shrubs that hold their shape well.

Japanese kerria (*Kerria Japonica*) is a shrub for heavy shade. It has unique foliage and produces fairly large yellow blooms in April. A suckering shrub, kerria grows 5 to 10 feet tall and 10 feet or more wide. The cultivar 'Picta' only grows three feet tall and four feet wide. Root suckers can become a problem and may need to be removed to keep this plant in bounds. Or plant it for erosion control and it will do its job.

'Pawnee Buttes' western sandcherry (*Prunus besseyi*) is another low growing shrub reaching only two feet in height but up to six feet in spread. It has prolific white blooms in May and is eye catching when in bloom. It can develop dark red fall color during good fall color years. It is one of our native shrubs and if you have room for a low growing, spreading shrub, this one is worth a try.



CropWater App for Irrigation Management

The CropWater App is one of the earliest irrigation management apps developed many years ago and its functions are based on the research conducted by Dr. Suat Irmak. It is a product of our efforts in the NAWMN to enhance technology implementation in agricultural production. The CropWater App was developed for iPhone and iPad and provides an easy and a robust way to estimate soil water status based on soil matric potential sensors installed at soil depths of 1, 2, 3 or 4 feet. The App uses the algorithms and procedures researched and published by Irmak et al.

(2006; 2010). With these sensor readings, the app estimates the crop water used as well as what available soil water is remaining in the profile for typical 8 different soil types. The user can also see historic sensor readings and graph the data and pin his/her GPS locations. On the background, the App converts soil-matric potential readings to soil water content and amounts per ft soil layer and calculates the amount of water depleted and the amount of water remain per ft of soil profile and the user can make accurate and technology-based irrigation management decisions for all eight soils embedded into the software. The app also estimates the last irrigation based on available water and crop growth stages. The app operates based on the measured field-specific data rather than simulation or estimation of different variables. Thus, the app does not rely on any estimates of any soil moisture information; rather it utilizes field-measured soil moisture data directly. One of our primary goals with this app was to enhance the technology implementation/adoption in agricultural water management. For more information, please contact [Dr. Suat Irmak](mailto:sirmak2@unl.edu) (E-mail: sirmak2@unl.edu; Phone: 402 472-4865).

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