CSU Agronomy Agents Corner

Windbreaks

Windbreaks protect assets around the farm. Privacy is improved by blocking the view of gawkers passing by on the road. Shops are kept cleaner by filtering out dust as it is blown toward work areas. Utility bills are decreased by shading homes in the summer and insulating in the winter. Most importantly, wind erosion is decreased.

Erosion control has been a focus in high plains agriculture for nearly 100 years. The reaction to the dust bowl era included establishment of the Soil Conservation Service. Although some conservation attempts like kudzu left the country with long term challenges, most have moved us toward sustainable production practices. Terracing was an early attempt to slow water erosion. While this technique was effective during its peak of use, the economy of scale has increased equipment sizes beyond compatibility with the width of some terraces. Conservation tillage to keep an adequate amount of surface residue to slow soil movement by both wind and water displacement is a popular modern technique. No till is the peak of conservation tillage. No till is currently being challenged by the decrease in glyphosate efficacy brought on by overuse of a single mode of herbicidal action. A willingness to invest in other burndown herbicides and occasional emergency tillage is necessary to keep these tools working. In addition to no till other techniques are necessary maintain soil sustainability on highly erodible land. Ideally steep slopes should be kept out of row cropping and into crops which remain on the land for many years. In central Missouri no till in areas of steep and/or long slopes is supplemented with cover crops. This supplement allows for an increased soil organic matter content contribution and the leaves of the cover crop absorbing the impact of raindrops. With an already stressed water supply, the choice of cover crops in eastern Colorado should consider the water use during the duration of the cover to ensure adequate water is present in the soil to start the next crop. What this experience has taught us is the appropriate soil conservation technique is specific to both time and place.

In eastern Colorado part of the appropriate technique in the present is wind breaks. Establishing the wind breaks takes time as the chosen trees need to grow. A common choice in the area is the Norway Spruce. The USDA plant hardiness zone range for Norway Spruce is from three to seven. Sedgwick county sits solidly in the middle of this range. The challenges to overcome with this technique are our alkaline soils and frequent droughts.

Overcoming these challenges is best managed in the first years after transplant. Sulfur can be placed in the transplant hole to allow for pH adjustment. The pH will slowly decrease and then return to the native pH over time. Supplementing the initial application with additional surface applications can assist too. The presence of micronutrient deficiency symptoms serve notice that the soil pH is not in the range preferred by these trees. Irrigating for the life of the tree is likely not financially feasible. However, providing water for the first three to five years until the root system is well established beyond the transplant ball will help improve the chance of a healthy line of trees.

Other tree species are available for the development of wind breaks as well. Rocky Mountain juniper will bring the delightful scents of mountain streams to your farm, but these trees can struggle with the summer heat of the plains. Ponderosa pines adapt well to our soil and water conditions. The drawback of ponderosas is the susceptibility to pine tip moth. Blue spruce trees add a touch of color to the landscape. The challenge with growing them in the plains is limited drought tolerance. For people

interested in adding some fall color to their windbreaks, CSU's ornamental specialist Jim Klett Ph.D. has published a list of deciduous trees that are adapted to our area as well. Some highlights include the Yellow Chestnut Oak, Chancellor Littleleaf Linde, Greencolumn Black Maple, Shademaster Thornless Honeylocust, and some Elm varieties.