Key Topic #5: Understanding how sustainable and best management practices enhance and protect water quality and quantity for humans and wildlife

Objective 1. Understand the importance of moving toward sustainable practices to protect water quality and quantity.

Objective 2. Understand best management practices that improve water quality and quantity such as improved agriculture practices, urban planning and water efficiency.

Objective 3. Understand the role of technology: flow meters, observation wells, Airborne Electromagnetic (AEM) surveys, Unmanned Aerial Vehicles (UAV) (drones, GIS, etc.), precision agriculture, etc.

Resources:

1. North Platte Natural Resource District Flow Meters *(2 pages)*
2. Use of Five Nitrogen Source and Placement Systems for Improved Nitrogen Management of Irrigated Corn *(3 pages)*
3. NebGuide: Planning Your Riparian Buffer: Design and Plant Selection *(4 pages)*
4. NebGuide: Landscape Plants for Wildlife *(4 pages)*
5. Overview of NWQI EQIP Programs *(1 page)*

(SCROLL DOWN for RESOURCES)

North Platte
NATURAL RESOURCE DISTRICT

Flow Meters

The North Platte Natural Resources District requires the installation and use of approved flow meters on all regulated wells within the Over-appropriated and Fully-appropriated Areas of the District.

Flow meters must be capable of measuring all the ground water pumped by that well or by all wells hooked in a series for each certified use. All water (including any ditch water mingled with well water) measured through a flow meter will be metered as groundwater.

Flow Meter Resources

Around the beginning of every October, NRD flow meter technicians go around and take the readings from every meter in the NRD. Tips and tools to get prepared are listed below.

- Flow Meter Rules - Full Text
- Flow Meter Water Use Calculator (Using Beginning and Ending Readings)
- View Over-appropriated Map in Detail *(The Over-appropriated Area includes the boundary lines established by the Department of Natural Resources - indicated in pink).*

Types of Meters

The North Platte NRD has designated specific brands of flow meters as conforming flow meters. Contact us for more information about flow meters, meter maintenance, or other any other inquiries.

Approved Flow Meter Brands:

- McCrometer
- Mastermeter
- Netafim Octave

Using Your Flow Meter

Most flow meters have a volume totalizer that registers in acre-feet, acre-inches, cubic feet, or gallons.

It is useful to know how to convert your meter registration value to acre-inches since groundwater allocations in the North Platte NRD are measured in acre-inches.

Example 1: Converting Gallons to Acre-Inches

Left: Standard 8 meter dial face with gallon totalizer. Remember to note the multiplier beneath the totalizer. In this case, the meter reads "GALLONS x 100, so we add 2 zeros to the 6-digit dial face reading. Gallons = 89,057,200

Present Meter Reading *89,057,200 gallons*
Subtract Previous Reading *79,488,700 gallons*
Total Gallons Used *9,568,500 gallons*

To convert gallons to acre-inches divide gallons used by 27,154

Example: 9,568,500 divided by 27,154 = 352.38 acre-inches

To figure acre-inches used, divide acre-inches by acres in field (example: 125 acres) 352.38 acre-inches divided by 125 acres = 2.82 acre-inches applied

Example 2: Converting Acre-Feet to Acre-Inches

Left: Dial face with acre feet totalizer. Remember to note the multiplier beneath the totalizer. In this case, the meter reads "ACRE FEET X .001, so we place a decimal point three places to the left. Acre Feet = 974.602

Present Meter Reading *974.602 acre-feet*
Subtract Previous Reading *968.176 acre-feet*
Total Acre-Feet Used *6.426 acre-feet*

To convert acre-feet to acre-inches, multiply acre-feet used by 12

Example: 6.426 x 12 = 77.112 acre-inches

To figure acre-inches used, divide acre-inches by acres in field (example: 64 acres)

77.112 divided by 64 acres = 1.20 acre-inches applied

Why Meter?

Flow meters accurately record the amount of water pumped and the rate at which water is passing through an irrigation system. Flow meter information not only helps an irrigator monitor the efficiency of irrigation wells but also allows water to be appropriately applied to match a crop's evapotranspiration (ET) rate.

The move toward metering came in 2006 after months of work by the North Platte NRD's Water Resources Subcommittee to come up with ways of dealing with drought-related water shortage issues and allegations by downstream water users of over-pumping in the North Platte NRD. Subcommittee members agree that the best way to substantiate ground water use is through metering.

Troubleshooting Flow Meter Problems

The following are typical problems encountered by NRD staff when servicing and repairing flow meters:

Condensation Under Lens

Flow meter should be repaired immediately to prevent further damage to the meter.

Meter Lid is Broken or Missing

Lid should be replaced or meter cap installed to prevent excessive heat build-up in the meter.

Gray Dust on Dial Face

Excessive vibration will damage the meter. The meter may need to be relocated.

Meter is not running

Contact your NRD immediately.

On **Facebook**

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Like Page

Be the first of your friends to like this

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SAT, AUG 24
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Scottsbluff, NE
56 people interested

Contact **Us**

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NATURAL RESOURCES DISTRICT

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Use of Five Nitrogen Source and Placement Systems for Improved Nitrogen Management of Irrigated Corn

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Improved N management for corn (*Zea mays* L.) production is necessary to maintain N in the root zone for greater yield and N uptake. Three field experiments were conducted in Nebraska on Thurman loamy sand at Concord in 2008, on Alcester silty clay loam at Haskell Agricultural Laboratory (HAL) in Concord in 2009, and on Hord silt loam at Pierce in 2009. Treatments included four N rates (56, 112, 168, and 224 kg N ha^{-1}) and five N-source–placement systems. The five N systems were broadcast polymer-coated urea (PCU), broadcast urea–NH_4NO_3 (UAN), a broadcast 7:3 mixture of UAN and Nitamin–Nfusion (NF), band UAN, and band NF. Each trial included a zero-N control. Only Concord had significant precipitation within 21 d after fertilizer application (141 mm). Results indicated that use of broadcast PCU and band NF had slight but N-conserving effects as measured by plant indicators. Band NF had 3% greater SPAD reading and 47% greater stalk NO_3–N compared with broadcast UAN across sites. Corn fertilized with broadcast PCU produced 4 to 13% (0.5–1.8 Mg ha^{-1}) greater grain yield and 7% greater grain and plant-N uptake at Concord and HAL compared with broadcast UAN. Band NF increased grain yield by 4% (0.6 Mg ha^{-1}) at Concord and Pierce and plant-N uptake by 7% at Concord compared with broadcast UAN. The use of slow-release fertilizers is a risk reduction strategy when weather is conductive to N losses; otherwise, they performed similarly to UAN.

Abbreviations: HAL, Haskell Agricultural Laboratory; HI, harvest index; NF, urea–ammonium nitrate and Nitamin–Nfusion; NHI, nitrogen harvest index; PCU, polymer-coated urea; UAN, urea–ammonium nitrate.

Core Ideas

- **Slow-release fertilizers improve the synchronization of N release and crop needs.**
- **Applying N source in a band conserves N for greater corn yield and N uptake.**
- **Chlorophyll readings and stalk NO_3–N are useful tools for improving corn N management.**

Nitrogen management is a crucial component for sustainable corn production in eastern Nebraska. Corn N recommendations are developed by state extension services for states or regions and are based on research. Most N recommendations are developed under average conditions without accounting for above-normal N losses. Therefore, substantial yield reductions may result when N is lost after application. Nitrogen loss through leaching, denitrification, or surface runoff is generally associated with excess rainfall or irrigation. Urea-N can be lost to the atmosphere when left on the soil surface through urease hydrolysis (Keller and Mengel, 1986). Increased soil pH in the vicinity of urea granules is a result of hydrolysis, which facilitates the volatilization of ammonia to the atmosphere. Farmers tend to apply extra N to manage the suspected loss of previously applied urea-N at the soil surface due to excessive moisture after application (Ribaudo et al., 2012). This extra N may result in N loss through deep percolation, which causes groundwater N contamination. Cambardella et al. (1999) indicated that NO_3–N losses to subsurface drainage water were primarily a result of asynchronous production and uptake of NO_3–N in the soil. Efficient N management, such as choosing an appropriate N rate, source, and placement method,

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could reduce NO_3–N from reaching surface and groundwater and increase productivity.

Several slow- and controlled-release N fertilizers have been investigated for their potential to minimize N losses and improve the synchronization of N release and crop needs (Cahill et al., 2007, 2010; Halvorson and Bartolo, 2014; Noellsch et al., 2009; Sistani et al., 2014; Wang and Alva, 1996). Both slow- and controlled-release fertilizers slow the availability of urea to the environment, which can reduce leaching or other losses under some environmental conditions. The release mechanism of slow-release fertilizers depends on the low solubility of complex molecular chemicals containing amino groups that take time to break down to ammonium by microbial actions. Urea–formaldehyde polymers are in this category. Controlled-release N fertilizers are coated or encapsulated urea that act as a physical barrier to inhibit the quick release of urea. Coating materials could be organic polymer coatings or inorganic materials such as elemental S or other mineral-based coatings (Shaviv, 2001). The release mechanism of controlled-release N fertilizers is driven by a concentration gradient across the coating material as a result of water diffusion and capillary action. Nutrient release mechanism from slow-release N fertilizers depends on microbiological degradation, chemical hydrolysis, and water solubility. Important factors affecting degradation and hydrolysis are soil properties, soil temperature, and microbial activity. Unlike slow-release fertilizers, the nutrient release rate and pattern of controlled-release fertilizers are more predictable because they are mostly controlled by soil temperature, as long as there is a minimum moisture level. Generally, as temperature increases, the nutrient release rate increases. For instance, the release rate of polymer-coated urea has been shown to double with every 10°C increase (Kochba et al., 1990).

Few states make specific recommendations for the use of slow- and controlled-release fertilizers or N placement methods (Ruark, 2012). Research has documented advantages with the use of slow- or controlled-release fertilizers on decreasing N_2O emission (McTaggart and Tsuruta, 2003), on NO_3 leaching (Pack et al., 2006), and on corn grain yield and N uptake (Noellsch et al., 2009). Moreover, polymer-coated urea (PCU) was found to increase corn yield and plant N uptake by 23 and 48%, respectively, compared with urea in the low-lying silt loam soils of Missouri (Noellsch et al., 2009). Halvorson and Bartolo (2014) reported a significant grain yield (0.77 Mg ha^{-1}) and N uptake (8.9 kg ha^{-1}) advantage for continuous corn by using PCU over urea in silty clay soil in Arkansas. Conversely, a urea formaldehyde polymer slow-release fertilizer was not a more efficient N source for corn production on sandy and mineral organic soils in North Carolina when compared with urea–ammonium nitrate (UAN) (Cahill et al., 2007). Although Nelson et al. (2009) found reduced subsoil NO_3–N leaching with PCU, grain or silage yield and N uptake of corn did not show a significant advantage for PCU over uncoated urea in silty loam soil in Missouri. Other researchers have also reported no or small corn yield and N uptake differences between enhanced-efficiency N and conventional N fertilizers (Cahill et al., 2010; Sistani et al., 2014; Venterea et al., 2011).

Applying N in a band below the soil surface may improve N efficiency. Nitrogen application on the surface of the fields with high residue levels is subject to immobilization. Surface-applied N may cause significant loss to the atmosphere as NH_3–N (Al-Kanani and MacKenzie, 1992), but this loss can be minimized if N is banded or injected into the soil (Tomar and Soper, 1981). Surface broadcast spray of UAN was reported to produce less grain yield and N uptake compared with surface or incorporated band placement in corn (Touchton and Hargrove, 1982). Other researchers did not find any advantage of band vs. broadcast-placed fertilizer N on grain yield or N uptake (Fox et al., 1986; Raun et al., 1989). Although band placement may conserve N, there might be spatial and temporal N shortages when N is band applied as UAN or a slow-release fertilizer because the N may be spatially separated from roots or may not be converted into NO_3–N. For the slow-release fertilizer N to move in the soil, N needs to be in the NO_3–N form; otherwise, the roots have to grow to the band before uptake will occur. In addition, when N is temporally or spatially unavailable, the plants may have lower chlorophyll content relative to plants fertilized with broadcast conventional fertilizers. These lower readings with sensors might trigger N applications that are not warranted because the N is not lost but just available later in the season.

Nitrogen management on the farm level is the result of several factors in addition to agronomic ones. Risk management and economic considerations influence when and how much N is applied. In order for improved N management systems to be adopted by producers, they have to fit into existing nutrient management systems. To determine if enhanced-efficiency N fertilizers will be effective at the farm level, they need to be tested under the conditions that they will be used.

We hypothesized that the use of enhanced-efficiency N fertilizers broadcast or band applied on irrigated corn can improve the synchronization of N release and crop needs to increase corn yield and N uptake. Because both band placement and slow-release N fertilizers add to the total N cost, it is important to know the effect of band incorporation of slow-release fertilizers. Therefore, examining the effects of N rates, sources, and placement methods on corn yield and N uptake is critical for improving N management in irrigated corn production. The objectives of this research were to compare the effects of five N source/placement systems on midseason N indicators, irrigated corn yields, N uptake, and post-harvest soil NO_3–N.

MATERIALS AND METHODS

Site Descriptions and Cultural Practices

Field experiments were established at Concord, NE, in 2008; at the Haskell Agricultural Laboratory (HAL) (Concord, NE) in 2009; and at Pierce, NE, in 2009. Average monthly temperature, irrigation water, and cumulative precipitation dur-

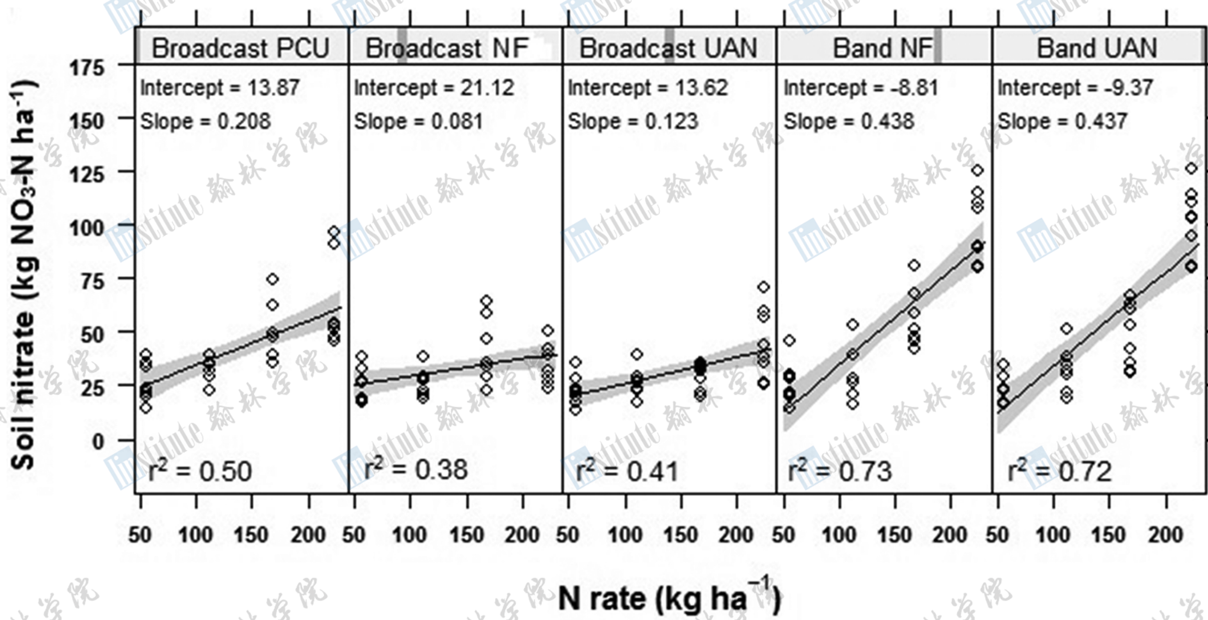

Fig. 2. Soil NO_3–N concentration for the 0- to 1.2-m depth profile at Haskell Agricultural Laboratory in Concord, NE, in 2009 and Pierce, NE, in 2009 as affected by N rates and N source placement systems. Shaded areas are 95% of confidence intervals. NF, 7:3 mixture of UAN and Nitamin–Nfusion; PCU, polymer-coated urea; UAN, urea–NH_4NO_3.

CONCLUSIONS

The effects of slow-release fertilizers relative to UAN solutions and band vs. broadcast placement of these materials were compared throughout the season using several N indicators. Although the data are variable across locations, different soils, different background N, and weather after N application, this range of situations is typical of commercial corn production in the western Corn Belt. We have found that the slow-release fertilizers did conserve N, especially under high precipitation (i.e., >100 mm) soon after N application, and that band placement tends to conserve N as well. Band placement, however, may not be a full substitute for the slow-release fertilizers. Broadcast PCU and band NF showed significant advantage against broadcast UAN, as shown by in-season N indicators and greater grain yield and N uptake, which was more pronounced at the low N rate. This greater yield might be attributed to reduced NO_3–N leaching and NH_3 volatilization or surface runoff losses. Soil NO_3–N concentration was relatively high in 0- to 1.2-m depth profile at the high N rate when N was broadcast applied as PCU or band placed. Nevertheless, soil NO_3–N was typical for these soils at approximately 20 kg NO_3–N ha^{-1} at the low N rate regardless of N system. These results suggest that N management for corn when there is potential for N losses by leaching or volatilization can be improved through banding a blend of UAN and NF or broadcasting PCU and by using an appropriate N rate (~150 kg N ha^{-1}).

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IANR NebGuide
University of Nebraska–Lincoln
University of Nebraska–Lincoln Extension, Institute of Agriculture and Natural Resources
Know how. Know now.
G1557

Planning Your Riparian Buffer: Design and Plant Selection

Amanda Fox, Graduate Student in Biological Systems Engineering;
Tom Franti, Extension Surface Water Management Specialist; Scott Josiah, Nebraska State Forester; and
Mike Kucera, State Resource Conservationist for the Natural Resources Conservation Service

Learn how to plan and design a riparian buffer and select appropriate tree and grass species. A companion NebGuide, *Installing Your Riparian Buffer: Tree and Grass Planting, Postplanting Care and Maintenance* (G1558), addresses buffer installation, planting trees and grasses, postplanting care and long-term maintenance.

Conservation buffers are planted for environmental, aesthetic, recreational, and economic reasons. Grass filter strips, grassed waterways, field borders, and field windbreaks are examples of conservation buffers. A conservation buffer also may be a streamside or riparian forest buffer and include trees, shrubs, and grasses. Riparian buffers are a *best management practice* to protect stream water quality, reduce streambank erosion, and provide wildlife habitat. Buffers also can provide income through payments from federal, state and local cost-share programs or through production and sale of specialty crops. This NebGuide provides instructions on riparian buffer planning, design and selection of tree and grass species appropriate for riparian buffers. It compliments the instructional video *Streamside Conservation: Installing and Maintaining Your Riparian Buffer*, available from University of Nebraska–Lincoln Extension. (To order the video, contact the University of Nebraska–Lincoln Educational Media, P.O. Box 830918, Lincoln, NE 68583-0918 or call 800-755-7765.)

Planning is the first step in buffer installation. First, identify your goals for the buffer, then select a design and plant materials to achieve your goals.

Goal Identification

Consider what you want to accomplish with your buffer. Do you want to protect surface water quality, enhance wildlife habitat, stabilize streambanks, and/or generate income? Buffers can be used to meet one or more of these goals.

Buffers protect surface water by intercepting runoff and irrigation water flowing from crop fields. Vegetation in the buffer slows the water, increasing infiltration and allowing sediment deposition. This allows nutrients, chemicals, and other pollutants to be removed. Riparian forest buffers also stabilize streambanks and provide shaded areas for aquatic habitat. Plant roots anchor the stream bank and help prevent erosion.

Income can be generated through land rental and maintenance payments by enrolling the buffer in the Continuous Conservation Reserve Program (CCRP) or by selling specialty crops such as nuts, fruits, and woody florals grown in the buffer. Typically, specialty products grown in buffers under a CCRP contract cannot be harvested for sale during the contract period; however, these products can be harvested for personal use. Contact your local Natural Resources Conservation Service (NRCS) or Farm Service Agency (FSA) office for more information on regulations affecting the harvest and sale of specialty crops planted in buffers.

Selecting the Appropriate Buffer Design

Select a buffer design based on your goals. In the eastern United States, riparian forest buffers provide streambank stabilization, shade streams, and absorb nutrients from shallow groundwater. These buffers typically consist of three zones: trees near the stream, then shrubs, and then 30 feet or more of grasses adjacent to the cropland.

In the Great Plains producers as well as government officials, have been reluctant to have trees planted next to streams because fallen trunks and limbs may block streams, ditches and culverts. An alternative design, with shrubs and small trees planted next to the stream followed by taller trees and then grasses next to the cropland, may be more suitable in this region (*Figure 1*).

If your main goal is to provide wildlife habitat, design your buffer accordingly. Some birds, including game species such as pheasant and prairie grouse and non-game species such as songbirds, prefer open grassland to woody cover. On the other hand, deer and sharptail grouse prefer woody edges

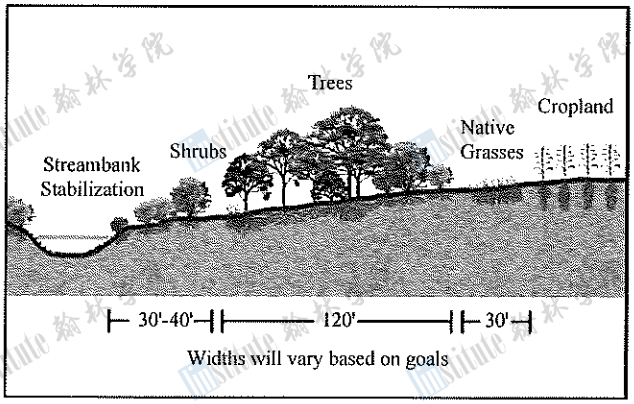

Figure 1. Cross section of an alternative buffer design.

(along narrow riparian forest buffers). Western meadowlark and mink prefer narrow (less than 35 feet wide) grass buffers. White-tailed deer, beaver, and red fox are content with just about any vegetation and width, whereas wild turkey and wood duck prefer forested buffers over 35 feet wide. For more information on wildlife needs refer to NRCS Conservation Practice Standard *Riparian Forest Buffer* Code 391.

A buffer also can be entirely grass (also called a grass filter or filter strip). Grass buffers are narrow strips of land between the crop and stream. The NRCS recommends a minimum width of 20-30 feet for grass buffers; however, widths may vary according to your goals, cropping history, crop field area, and the program in which your buffer is enrolled (*Table I*). For more information, refer to NRCS Conservation Practice Standard *Filter Strip* Code 393.

Selecting Appropriate Plant Materials

Trees and Shrubs, Seedlings or Seeds?

Trees and shrubs can be planted as seeds or seedlings. Tree seeds can be purchased or collected free from trees in the fall. Seeds from native trees and shrubs may be best adapted to your area's climate and soil conditions. Direct planting seeds can be cheaper than planting seedlings and usually results in a denser stand of trees and shrubs. This stand will be more like a natural forest and better able to withstand wildlife damage, especially in early growth stages. Trees grown directly from seeds develop strong root systems that remain undisturbed throughout establishment. Seeds also can be planted in the fall. Some species suitable for Nebraska and appropriate for direct seeding are noted in *Table II*. For more information on direct seeding trees and shrubs, refer to the University of Nebraska–Lincoln NebGuide, *Establishing Conservation Plantings of Nut Trees and Shrubs by Direct Seeding Methods* (G1512).

Tree and shrub seedlings can be purchased as unrooted cuttings, bareroot plants, or in a container. Unrooted cuttings look like sticks and are cut from dormant tree branches during the winter (*Figure 2*). When planted, the underground portion forms roots and the above ground portion forms branches and leaves. Establishment of unrooted cuttings is more difficult than other seedlings and only a limited number of species, such as willows and some poplars, are suitable for this method in Nebraska. Bareroot seedlings are the most common type of seedlings used (*Figure 2*). They are grown from seed in a nursery until healthy root systems form. They are lifted without soil from the nursery beds and are transported for planting. Containerized seedlings are produced in containers. They may be shipped in the containers in which they were originally grown or removed from the containers at the nursery and packed in plastic bags (*Figure 2*). Although they are more expensive, their roots are better protected and they may be better suited for planting in dry and hard-to-establish sites.

Commonly used tree and shrub species are listed in *Table II*. Many tree and shrub species produce commercially valuable products such as decorative stems for the floral industry, fruit and nuts for the food industry, and other products for the pharmaceutical and herbal industries (*Table III*). Personnel at a local Extension office, Natural Resources Conservation Service, or Nebraska Forest Service office or commercial nurseries can help you select plants suited to your climate and soil type.

Grasses

The selection of appropriate grass species will depend on your goals. Densely planted, stiff-stemmed species should be selected to trap sediment and protect water quality. Other species may be used if wildlife habitat is a goal. Buffers planted under a CCRP contract must follow NRCS specifications for grass selection. To meet NRCS specifications, grass

Table I. NRCS conservation buffer and Continuous Conservation Reserve Program (CCRP) width guidelines.

	Previous Land Use	*Minimum NRCS Width Requirements (feet)*	*CCRP Maximum Width (feet)*	*CCRP Grass Cover (feet)*	*CCRP Trees or Shrubs Cover (feet)*
Grass Filter Strip	Cropland only	20-30[1]	120	120	N.A.
Riparian Forest Buffer	Cropland	35	180	20-120[2]	35-180
Riparian Forest Buffer	Marginal pasture	35	180	20	35-180
Riparian Herbaceous Buffer	Marginal pasture only	20-50[3]	120	20-120[3]	Shrub clumps may be planted.

[1]Greater minimum may be required if the ratio of minimum filter strip to drainage area is more than 1:30.
[2]Grass width is considered along the outside edge of the buffer only.
[3]50-foot minimum width required for wildlife purposes.

Table II. Commonly used shrub and tree species in riparian forest buffers [1]

	Common Examples[2]	*Desirable Characteristics*	*Best Planting Location*
Small Shrubs	Sand cherry	White flowers, black cherries	Statewide
	Peking cotoneaster	Berry-like fruit	Statewide
	Elderberry	Dark purple berries	All but Panhandle
	Sandbar willow	Flood tolerant, fast growing	Statewide
	Streamco willow	Flood tolerant, fast growing	Statewide
	Chokecherry	Edible fruit	Statewide
	Gray dogwood	High wildlife value	Statewide
	Redosier dogwood	Floral stems, winter color	Statewide
	Hansen rose	Flowers, fruit	Statewide
	Snowberry	High wildlife value	Statewide
	Golden currant	Yellow flowers, purple fruit	Statewide
Large Shrubs	Chokecherry	White flowers and cherries	Statewide
	American hazelnut	Hazelnuts	All but Panhandle
	Lilac	Flowers	Statewide
	Juneberry	Edible fruit	Statewide
	American plum	White flowers, fruit, fall color	Statewide
	Caragena	Nitrogen fixing	Statewide
Small Trees	Black cherry	Cherry wood, fruit	East
	Chickasaw plum	Drought tolerant	Statewide
	Amur maple	Drought tolerant, fall color	Statewide
Large Trees	Red mulberry	Edible fruit	Statewide
	Green ash	Yellow foliage in fall	Statewide
	Cottonwood	State tree, major wood supply	Statewide
	Hackberry	Tolerant to adverse weather	Statewide
	Black walnut	Wood, nuts	East
	Black willow	Flood tolerant	Statewide
	Silver maple	Flood tolerant	Statewide
	Bur oak	Drought tolerant, acorns	Statewide

[1]Additional species are approved by NRCS for buffer plantings.
[2]Species listed in bold are well suited for direct seeding methods.

seed must be a mixture of at least three species adapted to the site. Warm season grass mixtures must contain at least 60 percent sod-forming stiff stem species such as big bluestem or switchgrass, and cool season grass mixtures must contain at least 40 percent sod-forming stiff stem species such as western wheatgrass or Virginia wild rye. Grass seed should be planted at a minimum rate of 40 pure live seeds (PLS) per square foot. Several common warm and cool season grass mixtures appropriate for Nebraska are presented in *Table IV*. Wildflowers, such as coneflower and blanket flower, may be added to grass mixtures for appearance and wildlife enhancement.

Figure 2. Types of seedlings.

Table III. Common specialty crop species.[1]

	Common Examples	*Preferred Planting Location*
Nut Producing	Black walnut	East
	Chinese chestnut	Southeast
	Northern pecan	East
	Hybrid hazelnut	East
Woody Florals	Redstem dogwood	Statewide with irrigation
	Pussy willow	Statewide with irrigation
	Curly willow	Statewide with irrigation
	Forsythia	Statewide with irrigation
Fruit	Sand cherry	Statewide
	Elderberry	East
	Nanking cherry	All but Panhandle
	Cornelian cherry dogwood	East
	Chokecherry	East
	American plum	Statewide
	Mulberry	Statewide

[1]When these species are used to produce a marketable product, planting location is limited to sites with superior growing conditions for maximum production. Planting locations are more restrictive than those listed in *Table II*.

Table IV. Common grass species used in grass buffers.[1]

Recommended Mixtures	*Species in the Mixture*	*Percent of Mixture (%)*	*Seeding Rate[2] (PLS/ft²)*	*Upland Bird Wildlife Value*
Cool Season	Virginia wild rye	30	7.0	Nesting cover
	Canada wild rye	26	4.0	
	Western wheatgrass	44	7.0	
Warm Season	Big bluestem	40	4.2	Winter cover
	Switchgrass	35	1.6	
	Indiangrass	25	2.5	
Warm/Cool Season Mix	Switchgrass	60	2.7	Winter cover and nesting cover
	Big bluestem	20	2.1	
	Intermediate wheatgrass	20	4.0	
Warm Season	Big bluestem	30	3.2	Winter cover and nesting cover
	Switchgrass	25	1.1	
	Indiangrass	20	2.0	
	Sideoats grama	15	1.4	
	Little bluestem	10	0.7	
Warm/Cool Season Mix	Pubescent wheatgrass	30	5.2	Winter cover and nesting cover
	Western wheatgrass	30	4.8	
	Switchgrass	40	1.8	

[1]Add legumes to mixtures to provide brooding cover benefits for upland game birds.
[2]PLS — pure live seeds.

Resources

For more information on installing and maintaining riparian buffers, contact: 1) your local University of Nebraska–Lincoln Extension office or visit the University's *Conservation Buffer* Web site at *www.conservationbuffers.unl.edu;* 2) your local Natural Resources Conservation Service office or visit the Natural Resources Conservation Service Web site, *Buffer Strips: Common Sense Conservation* at *www.nrcs.usda.gov/feature/buffers;* or 3) the USDA Agroforestry Center or its *Riparian Forest Buffers* Web site at *www.unl.edu/nac/riparian.html.*

References

Establishing Conservation Plantings of Nut Trees and Shrubs by Direct Seeding Methods, University of Nebraska–Lincoln Extension NebGuide G1512, 2003.

Riparian Forest Buffer, Natural Resources Conservation Service Conservation Practice Standard CODE 391.

Filter Strip, Natural Resources Conservation Service Conservation Practice Standard CODE 393.

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Water Quality
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G1572
(Revised July 2011)

Landscape Plants for Wildlife

Ron J. Johnson, former Extension Wildlife Specialist, now Professor, Clemson University, South Carolina
Kim A. Todd, Extension Horticulture Specialist

This NebGuide lists some of the plants that benefit songbirds and other wildlife in Nebraska. It includes information about plants, their wildlife benefits, and where they grow best.

Several plants in this list have a variety of cultivars with features that may differ from those indicated. Also, there may be good plant selections for your area that are not included.

Consult NebGuide G1571, *Backyard Wildlife, Planting for Habitat* for additional guidelines on plant selection, including: 1) where you live and what is nearby, 2) food and cover, 3) plants for all seasons, 4) plant diversity, and 5) advantages of native species.

We have tried to include the more important landscape plants to consider for wildlife benefits around homes or for planting on acreages or farms. The larger areas of acreages and farms often include wildlife habitats such as grasslands, wooded riparian (creek) zones, windbreaks, vegetated ravines, tree groves, and odd uncultivated areas. Conservation of these natural habitat areas benefits wildlife.

Protecting snags (dead trees) benefits cavity nesting birds such as chickadees, woodpeckers, tree swallows, owls, and others. If the snag is in a location where it might cause a safety or other concern, consider cutting it about 15 feet above the ground. Leaving the tall stump will provide nesting and foraging spots for cavity nesters. Some property owners on land without snags have created them using small tree trunks placed vertically in the ground like tall (15 feet) fence posts.

Tables show selected plants that benefit songbirds and other wildlife in Nebraska, the sites where they grow best, and their wildlife benefits during summer (S), fall (F), and winter (W). Bold italic letters or more stars indicate greater documented value to wildlife, especially songbirds.

a. An asterisk (*) in front of the plant name indicates a species native to Nebraska. The symbol (‡) indicates our selections of the top 20 + 2 plants (20 trees, shrubs, vines; 2 native grasses, flowers) for songbird benefits in Nebraska.
b. Landscape value only, not wildlife benefit. More stars (1-3) indicate greater landscape value for planting in backyards and near living spaces. Plants with fewer stars are usually better suited for larger backyards, acreages, or farms. Check comments.
c. The plant grows well in: full sun ○, partial shade ◑, and/or full shade ●.
d. The plant grows well in: ◇ dry sites (drought tolerant); ◈ moderately dry sites; or ◆ moist soils (may need water during dry conditions).
e. Performs well across Nebraska (All) or best in eastern (E) or western (W) portions.

CONIFERS (Excellent winter cover, food, and nesting sites)

Common Name[a] (Scientific Name)	*Landscape Value[b]*	*Nest*	*Food*	*Cover*	*Sun Exposure[c]*	*Moisture Preference[d]*	*Height/ Spread (feet)*	*NE[e]*	*Zone*	*Comments*
white fir (*Abies concolor*)	★★★	★	F	SF***W***	○ ◑	◇ ◈	50 / 30	ALL	3-7	1
‡*eastern redcedar (*Juniperus virginiana*)	★	★	F***W***	SF***W***	○	◇	50 / 20	ALL	3-9	2
*Rocky Mountain juniper (*J. scopulorum*)	★	★	F***W***	SF***W***	○	◇	40 / 15	W	3-7	2
Colorado blue spruce (*Picea pungens* var. glauca)	★★★	★	FW	SF***W***	○	◇	60 / 30	ALL	2-7	1
Norway spruce (*Picea abies*)	★★★	★		SF***W***	○ ◑	◈	60 / 35	ALL	2-7	1
white spruce (*Picea glauca*)	★★★	★	F	SF***W***	○ ◑	◇ ◈	50 / 25	ALL	2-5	1
jack pine (*Pinus banksiana*)	★★	★★	F	SF***W***	○	◇	60 / 25	ALL	2-6	1, 3
lacebark pine (*Pinus bungeana*)	★★★		F	SF***W***	○	◈	40 / 25	ALL	4-8	1, 3
pinyon pine (*Pinus edulis*)	★★★	★★	F	SF***W***	○	◇	30 / 20	ALL	5	1, 3
*limber pine (*Pinus flexilis*)	★★★		F	SF***W***	○	◇	50 / 25	ALL	4-7	1, 3
Austrian Pine (*Pinus nigra*)	★★	★★	F	SF***W***	○	◇	75 / 45	ALL	4-7	1, 3, 4

CONIFERS (Excellent winter cover, food, and nesting sites)

Common Name[a] *(Scientific Name)*	*Landscape Value*[b]	*Nest*	*Food*	*Cover*	*Sun Exposure*[c]	*Moisture Preference*[d]	*Height/ Spread (feet)*	*NE*[e]	*Zone*	*Comments*
‡*ponderosa pine (*Pinus ponderosa*)	★★★	★★	F	SF*W*	○	◇	50 / 35	ALL	3-8	1, 3
eastern white pine (*Pinus strobus*)	★★★	★★	F	SF*W*	○ ◑	◈	60 / 45	ALL	3-7	1, 3, 5
Douglas-fir (*Pseudotsuga menziesii*)	★★★	★	F	SF*W*	○ ◑	◇ ◈	80 / 35	ALL	4-6	1

DECIDUOUS TREES (Nesting and foraging sites, food, canopy, and habitat structure)

Common Name[a] *(Scientific Name)*	*Landscape Value*[b]	*Nest*	*Food*	*Cover*	*Sun Exposure*[c]	*Moisture Preference*[d]	*Height/ Spread (feet)*	*NE*[e]	*Zone*	*Comments*
*Rocky Mountain Maple (*Acer glabrum*)	★★★	★★	S	SF	○ ◑	◈	30 / 20	W	3–8	6
*sugar maple (*Acer saccharum*)	★★★	★★	S	SF	○ ◑	◈	60 / 40	E	4-8	6, 7
*Saskatoon serviceberry (*Amelanchier alnifolia*)	★★	★	*S*	SF	○ ◑	◈	12 / 10	ALL	4-5	7, 8, 9
‡*shadblow serviceberry (*Amelanchier canadensis*)	★★★	★	*S*	SF	○ ◑	◆	18 / 15	E	3-7	7, 8, 9
hickory (*Carya* spp.)	★★	★	FW	SF	○ ◑	◇ ◈	60 / 40	E	4-9	10
‡*hackberry (*Celtis occidentalis*)	★★	★★	F*W*	SF	○ ◑	◇	70 / 55	ALL	2-9	11
‡hawthorn (*Crataegus* spp.)	★★	★★	FW	SF	○	◈	20 / 20	ALL	3-8	9, 12
persimmon (*Diospyros virginiana*)	★★		FW	SF	○ ◑	◇ ◈	30 / 25	E	4-9	5, 13
*white ash (*Fraxinus americana*)	★★	★	FW	SF	○ ◑	◈	70 / 40	ALL	3-9	7, 14
*green ash (*F. pennsylvanica*)	★★	★★	FW	SF	○ ◑	◇ ◈	70 / 40	ALL	3-9	14
*black walnut (*Juglans nigra*)	★	★	FW	SF	○ ◑	◇	70 / 50	ALL	4-9	15

Comments

1. Nesting sites for early-nesting robins, chipping sparrows, mourning doves, others.
2. A top winter food and cover source. Unless managed, will spread through bird droppings into pastures or grasslands.
3. Seeds consumed by many birds. Pine branches are not very dense so a small grouping provides better winter cover.
4. Moderately susceptible to pine wilt disease. Avoid Scotch pine because it is highly susceptible and generally killed by pine wilt, which is moving westward in Nebraska.
5. Protect from excessive winds.
6. Avoid boxelder (*A. negundo*) and silver (*A. saccharinum*) maples near homes and living areas because they are somewhat messy and have weak wood.
7. Autumn leaf color
8. Showy flowers
9. Ornamental fruit
10. Grafted varieties have faster growth and nut production than those from seed.
11. Often have leaf galls, which may reduce aesthetic appeal but don't significantly harm the tree.
12. Thornless cultivars are available if desired. Fallen fruits may grow into young seedling trees.
13. Interesting shape; fruit edible after frost.
14. Plant seedless varieties where branches may overhang gutters. 'Patmore,' 'Autumn Purple,' and 'Cimarron' ash varieties are less susceptible to insect and disease injury.
15. Messy as a landscape tree and needs deep, fertile soils. Wood is valuable, nuts edible. The chemical juglone, from walnut roots, may inhibit the growth of other plants under the canopy.
16. Cultivars such as 'Sargent,' 'Prairifire,' and 'Snowdrift,' are disease-resistant and attractive to birds. Other good selections for Nebraska that attract birds include 'Bob White,' 'Indian Magic,' 'Mary Potter,' 'Ormiston Roy,' 'Red Jade,' and 'Red Splendor.' Birds, however, do not readily eat the fruits of 'Donald Wyman' and 'Red Jewel' varieties.
17. Fruits discolor concrete and ground so avoid over walks, patios, and driveways.
18. Nebraska state tree. Large cottonwoods are preferred nesting sites for Baltimore orioles and warbling vireos. Choose seedless varieties where the wind-blown seeds may be a concern and avoid planting cottonwoods near homes because the wood is weak and not durable in strong winds. Suggested varieties include: 'Platte,' 'Mighty Mo,' and 'Majesty.'
19. Acorns are overall a top wildlife food, especially for game animals and larger songbirds; small birds consume broken pieces. Squirrels and deer can become too numerous in suburban areas so plan for a balance of oaks and other trees so there is diversity in the landscape.
20. Suckers will eventually form a dense thicket, which provides excellent nesting and escape cover, but avoid in sites with limited space.
21. The nonnative winged euonymus (*Euonymus alata*) and wintercreeper or climbing euonymus (*E. fortunei*) are listed as invasive weeds in some eastern states.
22. The nonnative wayfaringtree (*Viburnum lantana*) and European cranberrybush (*V. opulus*) are invasive weeds in some eastern states.
23. Cotoneaster species listed in the table have been used without being noted as invasive. Some cotoneaster species, however, including Franchet (*C. franchetti*), silverleaf (*C. pannosus*), and milkflower (*C. lacteus*) are invasive in other states, primarily California.
24. Gangly form is best for out-of-the-way spots or larger areas.
25. Both male and female plants are required for fruit production. Aggressive woody growth becomes too rank for small spots or on houses.
26. Plant these native vine-like honeysuckles where they can climb on a trellis or fence. Avoid the nonnative, invasive Amur honeysuckle (*L. maackii*).
27. Growth form is less coarse than most vines and suitable for a variety of sites.
28. Patches or brambles make excellent escape cover and nesting sites. Can be thorny and typically die back in winter so best planted in odd areas or field edges.

DECIDUOUS TREES (Nesting and foraging sites, food, canopy, and habitat structure)

Common Name[a] (Scientific Name)	Landscape Value[b]	Nest	Food	Cover	Sun Exposure[c]	Moisture Preference[d]	Height/ Spread (feet)	NE[e]	Zone	Comments
‡flowering crabapple (*Malus* spp.)	★★★	★★	*FW*	SF	○	◊	15 / 15	ALL	4-8	8, 9, 16
*red mulberry (*Morus rubra*)	★	★★	*S*	SF	○ ◑	⧫	40 / 40	ALL	5-9	17
‡*eastern cottonwood (*Populus deltoides*)	★	★★	S	SF	○	⧫	80 / 60	E	2-9	7, 18
‡*black cherry (*Prunus serotina*)	★★	★	*S*	SF	○	⧫	60 / 25	E	3-9	9, 17
*white oak (*Quercus alba*)	★★★	★	*FW*	SF	○	◊ ⧫	60 / 50	E	3-8	7, 19
swamp white oak (*Quercus bicolor*)	★★★	★	*FW*	SF	○	◊ ⧫	60 / 50	ALL	3-8	19
*red oak (*Quercus borealis [rubra]*)	★★★	★	*FW*	SF	○	◊ ⧫	70 / 50	ALL	4-7	7, 19
‡*bur oak (*Quercus macrocarpa*)	★★★	★	*FW*	SF	○	◊ ⧫	70 / 50	ALL	2-8	19
*chinkapin oak (*Quercus muehlenbergii*)	★★★	★	*FW*	SF	○	◊ ⧫	60 / 45	ALL	4-7	19
*black oak (*Quercus velutina*)	★★★	★	*FW*	SF	○	⧫	60 / 50	E	4	19

TALL AND MEDIUM SHRUBS (Nesting sites, food, cover near the ground)

Common Name[a] (Scientific Name)	Landscape Value[b]	Nest	Food	Cover	Sun Exposure[c]	Moisture Preference[d]	Height/ Spread (feet)	NE[e]	Zone[e]	Comments
‡pagoda dogwood (*Cornus alternifolia*)	★★	★	*SF*	SF	○ ◑	⧫	20 / 20	E	3-7	8, 9
‡*gray dogwood (*Cornus racemosa*)	★★	★★	FW	*SF*	○ ◑	◊ ⧫	10 / 10	ALL	4-8	7, 8, 9
American hazelnut (*Corylus americana*)	★★	★	*FW*	SF	○	⧫	10 / 7	ALL	4-9	
beaked hazelnut (*Corylus cornuta*)	★★	★	FW	SF	○	⧫	8 / 5	ALL	4-8	
*eastern wahoo (*Euonymus atropurpureus*)	★★	★	FW	SF	○ ◑	⧫	12 / 10	ALL	3-7	7, 9, 20, 21
‡*American (wild) plum (*Prunus americana*)	★★	★★	SF	*SF*	○ ◑	◊	12 / 15	ALL	3-8	9, 20
nanking cherry (*Prunus tomentosa*)	★★★		*S*	S	○	◊	10 / 10	ALL	2-7	7, 8, 9, 20
‡*chokecherry (*Prunus virginiana*)	★★	★	*SF*	*SF*	○	◊	15 / 15	ALL	2-5	7, 9, 20
*smooth sumac (*Rhus glabra*)	★★		*W*	S	○	◊	15 / 15	ALL	2-9	7, 9, 20
staghorn sumac (*Rhus typhina*)	★★		*W*	S	○ ◑	◊	20 / 10	ALL	3-8	7, 9, 20
‡arrowwood viburnum (*Viburnum dentatum*)	★★★	★	*F*	SF	○ ◑	◊	12 / 12	ALL	2-8	7, 9, 22
nannyberry viburnum (*Viburnum lentago*)	★★★	★	FW	SF	○ ◑	⧫	15 / 10	ALL	3-7	7, 9, 22
‡blackhaw viburnum (*Viburnum prunifolium*)	★★★	★	F	SF	○ ◑	◊	15 / 15	ALL	3-9	7, 9, 22
‡American cranberrybush (*Viburnum trilobum*)	★★	★	FW	SF	○ ◑	⧫	12 / 12	ALL	2-7	7, 8, 9, 22

SHORT SHRUBS (Nesting sites, food, cover near the ground)

Common Name[a] (Scientific Name)	Landscape Value[b]	Nest	Food	Cover	Sun Exposure[c]	Moisture Preference[d]	Height/ Spread (feet)	NE[e]	Zone	Comments
black chokeberry (*Aronia melanocarpa*)	★★		FW	SF	○ ◑	◊ ⧫	5 / 5	ALL	3-8	7, 9, 20
red chokeberry (*Aronia arbutifolia*)	★★		FW	SF	○ ◑	◊ ⧫	6 / 5	ALL	4-9	7, 9, 20
‡*redosier (redtwig) dogwood (*Cornus sericea*)	★★★	★★	*SF*	SF	○ ◑	◊ ⧫	8 / 10	ALL	2-7	7, 9
cranberry cotoneaster (*Cotoneaster apiculatus*)	★★★		F	SF	○ ◑	◊	3 / 4	ALL	4-7	7, 9, 23
spreading cotoneaster (*Cotoneaster divaricatus*)	★★★		F	SF	○ ◑	◊	6 / 7	ALL	4-7	7, 9, 23
*fragrant sumac (*Rhus aromatica*)	★★★	★	W	SF	○ ◑	◊	6 / 6	ALL	3-9	7, 9

SHORT SHRUBS (Nesting sites, food, cover near the ground)

Common Name[a] *(Scientific Name)*	*Landscape Value*[b]	*Nest*	*Food*	*Cover*	*Sun Exposure*[c]	*Moisture Preference*[d]	*Height/ Spread (feet)*	*NE*[e]	*Zone*	*Comments*
Virginia rose (*Rosa virginiana*)	★★		W	SF	○	◊ ◆	5 / 5	ALL	3-7	7, 8, 9
*Woods rose (*Rosa woodsii*)	★		W	SF	○	◊	5 / 5	ALL	3- 6	7, 8, 9
‡*American elder (*Sambucus canadensis*)	★	★★	*S*	SF	○ ◑	◆	10 / 8	ALL	3-9	9, 17, 24
*common snowberry (*Symphoricarpos albus*)	★★★	★	*FW*	SF	○ ◑ ●	◊	4 / 4	ALL	3-7	9
*western snowberry (*Symphoricarpos occidentalis*)	★	★	*FW*	SF	○ ◑	◊	4 / 5	ALL	2-5	9, 20
*coralberry (*Symphoricarpos orbiculatus*)	★★		*FW*	SF	○ ◑ ●	◊	3 / 5	ALL	2-7	9, 20

VINES AND VINE-LIKE PLANTS

Common Name[a] *(Scientific Name)*	*Landscape Value*[b]	*Nest*	*Food*	*Cover*	*Sun Exposure*[c]	*Moisture Preference*[d]	*Size (feet)*	*NE*[e]	*Zone*	*Comments*
*American bittersweet (*Celastrus scandens*)	★★	★	*FW*	SF	○ ◑	◊	30†	ALL	4-8	9, 25
*trumpet honeysuckle (*Lonicera sempervirens*)	★★		SF	SF	◑	◆	15	ALL	5-8	8, 26
*limber honeysuckle (*Lonicera dioica*)	★★		S	SF	○ ◑	◆	10	ALL	2-4	9, 26
‡*Virginia creeper (*Parthenocissus quinquefolia*)	★★★	★	*FW*	SF	○ ◑ ●	◆	30†	ALL	4-9	7, 27
‡*raspberry & blackberry (*Rubus* spp.)	★★	★	*S*	*SFW*	○ ◑	◆	5 / 5	ALL	3-5	28
*wild grape (*Vitis* spp.)	★	★★	*SF*	*SF*	○	◆	40†	ALL	5-8	

†Height of the trellis or structure on which vines are planted tends to determine how high the vines will grow. Avoid planting vines to climb on buildings because they may damage wooden or brick siding or be difficult to remove.

NATIVE PRAIRIE PLANTS — Provide food and foraging and, in larger plantings, cover and nesting sites. Can be used as accent plantings or in small focus areas, perhaps surrounded by a rail fence or railroad ties. Many native prairie plants are available to consider; below are some favorites.

‡*Native Grasses - Common Name (*Scientific Name*)

- big bluestem (*Andropogon gerardii*)
- Indian grass (*Sorghastrum nutans*)
- little bluestem (*Schizachyrium scoparium*)
- sideoats grama (*Bouteloua curtipendula*)
- prairie dropseed (*Sporobolus heterolepis*)
- buffalo grass (*Buchloe dactyloides*)
- blue grama (*Bouteloua gracilis*)

‡*Native Flowers - Common Name (*Scientific Name*)

- purple coneflower (*Echinacea purpurea*)
- pale purple coneflower (*E. pallida*)
- gray-head coneflower (*Ratibida pinnata*)
- purple prairie-clover (*Dalea purpurea*)
- compass plant (*Silphium laciniatum*)
- leadplant (*Amorpha canescens*)
- rattlesnake master (*Eryngium yuccifolium*)
- butterfly milkweed (*Asclepias tuberosa*)
- blue sage (*Salvia azurea*)
- blue false indigo (*Baptisia australis*)

Resources

These publications provide additional details on plants, their growth patterns, and values for wildlife. These and other references were used in developing this publication and are good sources for additional information.

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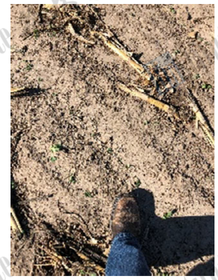
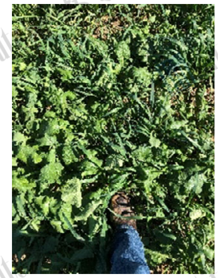
Natural Resources Conservation Service

Overview of NWQI EQIP Programs

- **Cover Crop**
  - **Basic Scenario 17:** Single species small grain or legume will be planted as a cover crop after harvest of a cash crop $26.76 /ac.
  - **Multiple Species Scenario 19:** Multi-species (three or more species) cover crop mix is seeded after harvest of a cash crop $33.97 /ac.
- **Nutrient Management**
  - **Scenario 268 Basic NM:** A basic nutrient management system on 40 or more acres cropland or hayland. Records of the 4 Rights of the NM criteria (Right Source of Nutrients, Right Time of Application, Right Rate, and Right Method of Application) required. $6.03/ac.
  - **Scenario 272 Basic Precision NM:** Includes split and variable rate applications, use of nitrification or urease inhibitors, slow release fertilizers, additional nutrient tests. A nutrient budget is developed for each field based on soil test analysis using UNL recommendations. Additional nutrient tests used to include PSNT (pre-side dress nitrate test), CSNT (corn stalk nitrate test), in-season plant tissue tests, chlorophyll meters, and spectral analysis. $25.53/ac.
- **Conservation Crop Rotation**
  - **Scenario 64: Basic Rotation:** Add additional crop, preferably a small grain crop, into the crop rotation to improve water quality, break up pest cycles, reduce erosion, and other benefits. $8.93/ac.
- **Irrigation Water Management**
  - **Scenario 4 IWM Advanced Technique:** Soil moisture is determined by automated soil moisture monitoring stations equipped with telemetry data. Irrigation amounts are recorded from a flow meter. Telemetry data is automatically sent to a computer with irrigation software. Irrigator also receives real time data via mobile phone applications. $1284.88/each system.
- **Residue and Tillage Management**
  - **No-Till Scenario 9 No-Till:** This practice involves conversion from a clean-tilled (conventional tilled) system to continuous no-till (conservation tilled) system on cropland. $10.80/ac.

Many other scenarios for these and other practices may work better for your operation. Please contact your local NRCS office to learn more about how NRCS can work with you to develop a conservation plan that fits your operation!

Payment rates are for General Signup practices, rates are higher for Beginning and Limited Resource Farmers (HU rates). Your NRCS office can help you decide if you qualify for these increased rates. There is a $7500 maximum payment per year for Cover Crops and $5,000 maximum per year for No-till.