CONSERVATION

INTRODUCTION TO **CONSERVATION**

CUSTOM MIXES

For nearly 100 years, we have been designing custom mixes here at Star Seed Inc. We understand that a "cookie cutter" mix may not fit with what you have in mind for a desired outcome. Answer some of the simple questions below, then give us a call! We can't wait to discuss your goals for your property.

- Where will this be planted?
- What is the soil type of the area?
- How is the water drainage?
- What is currently established?
- What benefits do you wish to see from the planting?
- What is your budget?
- Do you have USDA program specifications that you need to follow?

PURE LIVE SEED

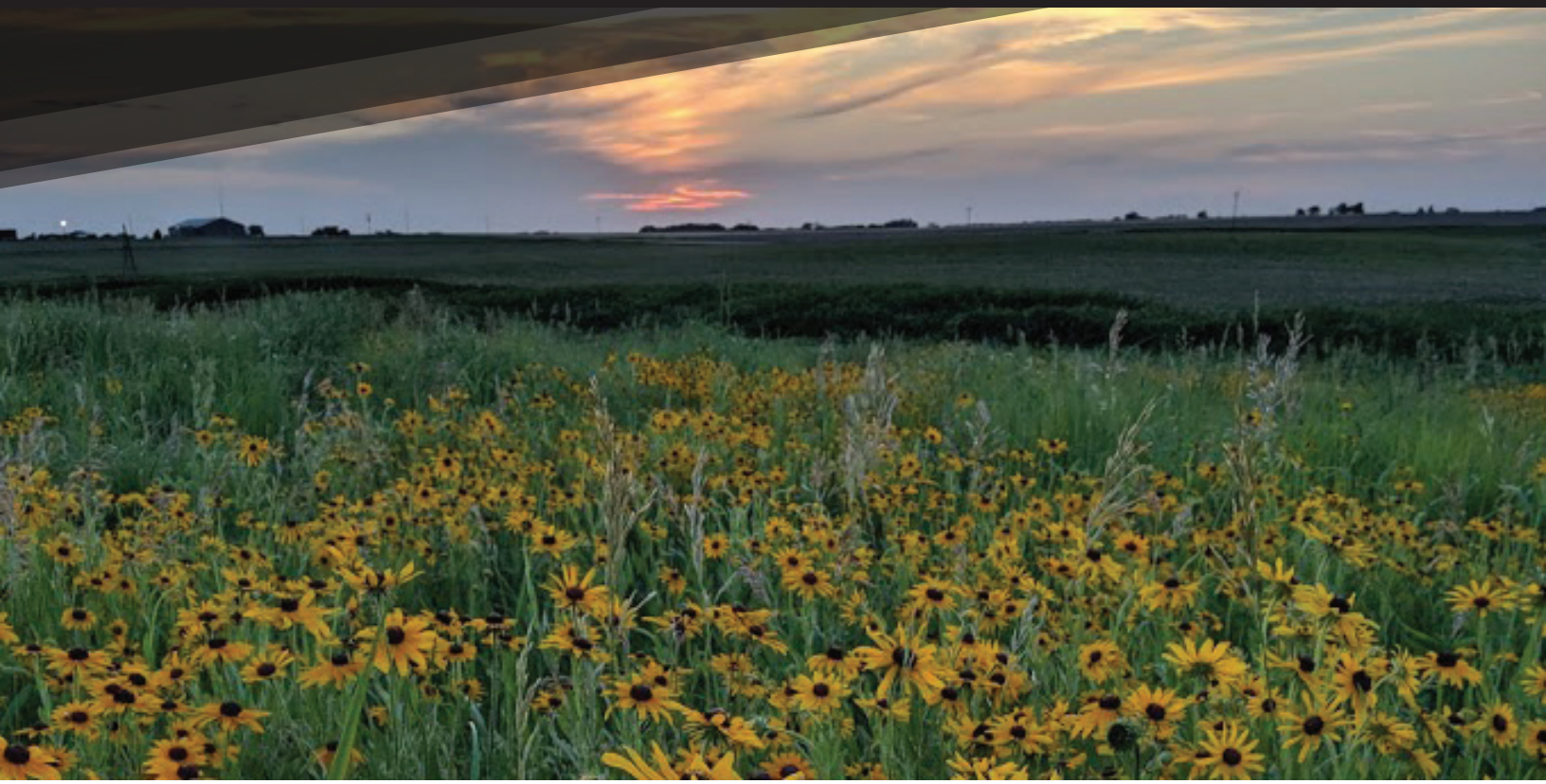
Why buy seed on a Pure Live Seed (PLS) basis?
Purchasing seed by the PLS weight ensures that you are only buying seed that is pure, and not paying for seeds that are not viable, weed seeds, stems, and leaves. We test each individual lot of seed on a regular basis. This tells us germination, purity, inert matter, and other crop seeds that we use to calculate the PLS %. The PLS % tells you that out of every bulk pound of seed, only a certain percentage of each pound would be good viable seed. When buying on a **bulk** basis, you have no way of knowing how much of that seed will actually germinate, or how much of that seed is inert matter and weed seed.

$$\frac{(\%\ Germ + \%\ Firm\ Seed) \times Purity}{100} = Percent\ PLS$$

CRP

The Conservation Reserve Program (CRP) is a land conservation program administered by the Farm Service Agency (FSA). Farmers who enroll in the program agree to remove land from agricultural production and plant species that will improve environmental health and quality, in exchange for yearly rental payments. CRP contracts are generally 10-15 years in length. The long-term goal of the program is to re-establish valuable land cover to help improve water quality, prevent soil erosion, and reduce loss of wildlife habitat.

To inquire about the enrollment process, stop by your local USDA Service Center. Once you are enrolled into the CRP program, the NRCS will provide a seeding sheet for your specific site. Give us a call to quote your custom seed mixture once you receive your seeding sheet!



POLLINATORS

What are pollinators?

- Pollinators include: bees, birds, butterflies, and other animals and insects
- Pollinators fertilize plants by moving pollen from one flower to another

Why are pollinators important?

- Pollinator populations are diminishing worldwide
- About 3/4 of our major food crops require pollinators (flowers, fruit, coffee, chocolate, and many more)
- Higher quality crops and increased yields
- Pollinators are key to maintaining habitats and ecosystems that many animals rely on for food and shelter

Tips on establishing a healthy pollinator habitat

- Consider sunlight, soil type, and drainage when selecting which species to grow
- Choose a diverse range of flower colors and bloom periods to attract many different pollinators
- Select high quality seed that is native to your area

WILDLIFE

Tips on establishing a wildlife habitat

- Clear set of objectives and habitat requirements
- Prepare the area
- Go native
- Establish a diverse plant community
- Light disking
- Burn or mow

Cover

- Native grass clumps create ideal nesting habitat, brood, fawning, bedding, escape cover for wildlife
- Many native grasses remain standing throughout winter, unlike non-native grasses, creating crucial thermal protection from brutal winds and snow for all types of wildlife

Food

- Forbs and legumes attract beneficial insects that serve as the primary food source for most upland birds from spring to fall
- Seeds from forbs and legumes are eaten throughout fall and winter months by deer and other wildlife
- Most non-native plants cannot provide the food source that native grasses, forbs, and legumes are able to

HOW TO **PLAN, PREPARE, AND PLANT**

Understanding
Native warm season grasses are slow to establish. It is not uncommon to think that your first year was a failure. It takes longer to establish native warm season grasses than it does to establish cool season grasses. Weed competition the first year after planting is likely, but can be prevented or controlled with proper management.

Site Preparation
Weeds and unwanted grasses need to be killed the year prior to planting. It is very beneficial to remove as much vegetation from the site as possible the fall or spring before the desired planting. Some ways to do this include burning, grazing, haying, or mowing. If there is regrowth before planting, final application of glyphosphate may be required to help eliminate competition.

Seeding Methods
Seeding your site properly could either make or break your planting. Planting too deep results in seeds that are unable to sprout. Ideal planting depth is 1/4 to 1/2 inch. It is important to make sure your drill is properly calibrated before seeding your entire area. A native grass drill is the preferred method of seeding, but a conventional till drill will also work. When using a conventional till drill, it may be a good idea to use a “filler” like rolled milo or rice hulls to help the fluffy seed properly flow into the drill. Another method of seeding is broadcast seeding. This can be done by hand over a large or small area. Before broadcasting your seed, be sure you have a firm, weed free seed bed to ensure good seed to soil contact.

When to Plant
As a general rule of thumb, planting 2 weeks prior to average last frost and at least 6 weeks prior to hot, dry summer weather is recommended. During planting, soil temperature between 55-75 degrees is preferred. Planting too early may not give competing plants enough time to emerge and cannot be effectively killed. Planting too late may result in competition for soil moisture among other plants. Dormant seedings are planted from late fall to late winter. A hard freeze on the seed can help to break any dormancy in seeds.

Seed Quality
Buying seed by the PLS (pure live seed) weight ensures that you are only buying seed that is pure, and not paying for seeds that are not viable, weed seeds, stems, and leaves. Understanding the origin of the seed helps to find species that are well suited for your location. After purchasing your seed, be sure to store your seed in a cool, dry place that is out of sunlight.

Seeding Rates
Seeding rates vary by soil, precipitation, and intended use of the seeding. For help on seeding rates and mixtures, contact us for more information.

STAR SEED MIXES

HONEY BEE MIX

Our **Honey Bee Mix** is packed with 18 different clovers and wildflowers that are loved by honey bees and many other pollinators. The Honey Bee Mix produces brilliant flowers across all bloom periods providing pollen and nectar throughout the growing season. The best time to plant this mix is in early spring at a rate of 6 PLS lbs per acre. The Honey Bee mix contains low maintenance perennials and reseeding annuals:

- Maximilian Sunflower
- Red Clover
- Sainfoin
- White Blossom Sweet Clover
- Hoary Vervain
- Purple Prairie Clover
- Yellow Blossom Sweet Clover
- Wild Bergamot
- Western Yarrow
- Partridge Pea
- Crimson Clover
- Clasping Coneflower
- Lemon Mint
- Indian Blanket
- Alsike Clover
- Blackeyed Susan
- Ladino White Clover
- Lanceleaf Coreopsis

BIG 12 WILDFLOWER MIX

The **Big 12 Wildflower Mix** is comprised of 12 native wildflower species that are both easy to grow and highly showy. Containing long lived perennials and reseeding annuals, this mix will provide many years of beautiful flowers with very little maintenance. This mix contains:

- Maximilian Sunflower
- Blackeyed Susan
- Lanceleaf Coreopsis
- Illinois Bundleflower
- Partridge Pea
- Plains Coreopsis
- Butterfly Milkweed
- Purple Prairie Clover
- Blanketflower
- Purple Coneflower
- Clasping Coneflower
- Upright Prairie Coneflower

KANSAS
FOOD PLOT MIX

Our **Kansas Food Plot Mix** is packed with millets and forage and grain sorghums. This high-yielding blend provides quail and pheasants with crucial winter cover and food. One 25# bag plants 4-5 acres. This blend contains:

- 2 millets
- 7 forage sorghums
- 5 grain sorghums

NATIVE
SHORTGRASS MIX

Our **Native Shortgrass Mix** contains a mixture of warm season grasses that will reach heights between 6 inches and 3 feet. This mix is perfect for shortgrass pasture reclamation, soil stabilization, or native landscape in residential areas. Our Native Shortgrass Mix contains:

- Little Bluestem
- Sideoats Grama
- Blue Grama
- Buffalograss

STAR SEED MIXES

NATIVE TALLGRASS MIX

Our **Native Tallgrass Mix** contains a mixture of warm season grasses that will reach heights between 2 and 6 feet. This mix is perfect for tallgrass pasture reclamation, creating wildlife habitat, or a living snow fence. Our Native Tallgrass Mix contains:

- Big Bluestem
- Indiangrass
- Sideoats Grama
- Switchgrass

PRETTY PRAIRIE SHORTGRASS MIX

The **Pretty Prairie Shortgrass Mix** is a combination of our Native Shortgrass Mix and the Big 12 Wildflower Mix. This mix provides the highly showy wildflowers and short grasses that are common in a native shortgrass prairie. Pretty Prairie Shortgrass Mix contains:

- Little Bluestem
- Sideoats Grama
- Blue Grama
- Buffalograss
- Maximilian Sunflower
- Blackeyed Susan
- Lanceleaf Coreopsis
- Illinois Bundleflower
- Partridge Pea
- Plains Coreopsis
- Butterfly Milkweed
- Purple Prairie Clover
- Blanketflower
- Purple Coneflower
- Clasping Coneflower
- Upright Prairie Coneflower

PRETTY PRAIRIE TALLGRASS MIX

The **Pretty Prairie Tallgrass Mix** is a combination of our Native Tallgrass Mix and the Big 12 Wildflower Mix. This mix provides the highly showy wildflowers and tall grasses that you would typically find in a mixed or tallgrass prairie. Pretty Prairie Tallgrass Mix contains:

- Big Bluestem
- Indiangrass
- Sideoats Grama
- Switchgrass
- Maximilian Sunflower
- Blackeyed Susan
- Lanceleaf Coreopsis
- Illinois Bundleflower
- Partridge Pea
- Plains Coreopsis
- Butterfly Milkweed
- Purple Prairie Clover
- Blanketflower
- Purple Coneflower
- Clasping Coneflower
- Upright Prairie Coneflower

COOL SEASON PASTURE MIX

The **Cool Season Pasture Mix** provides high quality forage for all classes of livestock. This mix does most of its growing in the cooler temperatures of spring and fall. Our budget friendly cool season pasture mix performs exceptionally well under a variety of conditions. This mix contains:

- Smooth Bromegrass
- Timothy
- Orchardgrass
- Annual Ryegrass

STAR SEED MIXES

ASYLUM INSANE DEER BEDDING

Asylum is a blend of carefully selected native grass varieties designed to provide superior bedding and escape cover for whitetail deer. Asylum is a perennial mix, so you plant only one time to provide your deer herd with what it needs to reach its full potential year after year! This mix contains:

- Big Bluestem
- Switchgrass
- Indiangrass

BARRICADE CONCEALMENT MIX

Barricade is an annual sorghum mix designed to provide concealment of your property, undetected stand entrance, and hidden travel corridors for wildlife. Barricade has the potential to reach 14 feet in height to help you hide what you do not want seen. This unique mixture is designed to withstand winter's harsh abuse and continue to provide concealment through hunting season. Barricade will produce grain that deer and other wildlife will find attractive. If you do not want to attract deer to the planting, such as along a road, you can delay your planting so the plants freeze out before producing grain. Not allowing the plants to produce seed will also aide in managing volunteer plants the following year.

FALL DEER FOOD PLOT MIX

Our **Fall Deer Food Plot Mix** provides the perfect blend of oats, Austrian peas, 4010 peas, turnips, and radishes to keep your deer returning day after day throughout fall and winter months.

SPORTSMAN'S SUNFLOWERS

Sunflowers are crowd favorite among sportsman and wildlife lovers alike. Dove and game birds will favor our high energy, high oil, sunflower blend. One 25# bag plants 4-5 acres.

STAR SEED MIXES

GRASSES

SCIENTIFIC NAME	COMMON NAME	ANNUAL/PERENNIAL	WARM/COOL SEASON	FULL SEEDING RATE	HEIGHT
Andropogon gerardii	Big Bluestem	P	W	6	6-8 ft
Bouteloua gracilis	Blue Grama	P	W	2	10-20 in
Bromus biebersteinii	Bromegrass, Meadow	P	C	10	2-4 ft
Bromus inermis	Bromegrass, Smooth	P	C	15	2-4 ft
Bouteloua dactyloides	Buffalograss	P	W	5	6-8 in
Calamagrostis canadensis	Bluejoint	P	C	1	2-6 ft
Sporobolus heterolepis	Dropseed, Prairie	P	W	6	1-3 ft
Sporobolus compositus	Dropseed, Rough	P	W	3	2-4 ft
Sporobolus cryptandrus	Dropseed, Sand	P	W	1	1-3.5 ft
Tripsacum dactyloides	Eastern Gamma	P	W	8	8 ft
Glyceria striata	Fowl Mannagrass	P	C	10	7-11 in
Carex vulpinoidea	Fox Sedge	P	C	1	1-3 ft
Alopecurus arundinaceus	Garrison Creeping Foxtail	P	C	2	3-6 ft
Sorghastrum nutans	Indiangrass	P	W	6	3-7 ft
Schizachyrium scoparium	Little Bluestem	P	W	4	1.5-3 ft
Dactylis glomerata	Orchardgrass	P	C	4	15-18 in
Spartina pectinata	Prairie Cordgrass	P	W	6	6-8 ft
Koeleria macrantha	Prairie Junegrass	P	C	2	1/2-2 ft
Calamovilfa longifolia	Prairie Sandreed	P	W	4	3-5 ft
Phalaris arundinacea	Reed Canarygrass	P	C	7	6-8 ft
Lolium multiflorum	Rye Grass, Annual	A	C	25	2-3 ft
Lolium perenne	Rye Grass, Perennial	P	C	25	1-2 ft
Andropogon hallii	Sand Bluestem	P	W	6	2-6 ft
Eragrostis trichodes	Sand Lovegrass	P	W	2	2-5 ft
Bouteloua curtipendula	Sideoats Grama	P	W	6	1-3 ft
Panicum virgatum	Switchgrass	P	W	3	3-5 ft
Phleum pratense	Timothy	P	C	10	1.5-3.5 ft
Eragrostis curvula	Weeping Lovegrass	P	W	5	2.5-3.5 ft
Agropyron cristatum	Wheatgrass, Crested	P	C	7	1-3 ft
Agropyron intermedium	Wheatgrass, Intermediate	P	C	12	3-4 ft
Agropyron trichophorum	Wheatgrass, Pubescent	P	C	10	3-4 ft
Elymus trachycaulus	Wheatgrass, Slender	P	C	6	2-2.5 ft
Thinopyrum ponticum	Wheatgrass, Tall	P	C	12	3-10 ft
Elymus lanceolatus	Wheatgrass, Thickspike	P	C	6	1-3 ft
Pascopyrum smithii	Wheatgrass, Western	P	C	10	1-3 ft
Leymus cinereus	Wildrye, Basin	P	C	8	3-6 ft
Elymus canadensis	Wildrye, Canada	P	C	8	2.5-5 ft
Elymus virginicus	Wildrye, Virginia	P	C	6	2-3 ft
Elymus riparius	Wilerye, Riverbank	P	C	10	3-6 ft

WILDFLOWERS

SCIENTIFIC NAME	COMMON NAME	BLOOM PERIOD	PERENNIAL/ ANNUAL/BIENNIAL	FLOWER COLOR	HEIGHT
Heuchera richardsonii	Alumroot	E	P		1-3 ft
Teucrium canadense	American Germander	E-M	P		3 ft
Rosa arkansana	Arkansas Rose	M	P		.5-3 ft
Symphyotrichum oblongifolium	Aster, Aromatic	L	P		1-3 ft
Boltonia asteroides	Aster, False	M-L	P		3-5 ft
Doellingeria umbellata	Aster, Flat Top	M-L	P		3-5 ft
Heterotheca villosa	Aster, Hairy	E-M-L	P		3 ft
Aster ericoides	Aster, Heath	L	P		1-3 ft
Aster novae-angliae	Aster, New England	L	P		3-6 ft
Aster tanacetifolia	Aster, Prairie	E-M-L	P		3 ft
Aster sericeus	Aster, Silky	L	P		1 ft
Aster azureus	Aster, Sky Blue	L	P		2-3 ft
Aster laevis	Aster, Smooth Blue	L	P		2-3 ft
Aster puniceus	Aster, Swamp	L	P		3-6 ft
Aster ptarmicoides	Aster, Upland White	M-L	P		1-2 ft
Bidens aristosa	Beggars Tick, Bearded	M-L	A		1-5 ft
Bidens frondosa	Beggars Tick, Common	L	A		1-3 ft
Lotus corniculatus	Birdsfoot Trefoil	M	P		2-3 ft
Rudbeckia hirta	Blackeyed Susan	M-L	A/B		1-2 ft
Rudbeckia subtomentosa	Blackeyed Susan, Sweet	M-L	P		3-5 ft
Gaillardia aristata	Blanketflower	M	P		1-2 ft
Liatris punctata	Blazingstar, Dotted	L	P		1-2.5 ft
Liatris spicata	Blazingstar, Marsh	L	P		3-4 ft
Liatris pycnostachya	Blazingstar, Prairie	M	P		2-5 ft
Liatris aspera	Blazingstar, Rough	L	P		2-5 ft
Liatris squarrosa	Blazingstar, Scaly	M-L	P		1-3 ft
Iris virginica	Blue Flag Iris	E	P		1-3 ft
Agastache foeniculum	Blue Giant Hyssop	M	P		2-4 ft
Eupatorium perfoliatum	Boneset	M-L	P		3-6 ft
Brickellia eupatorioides	Boneset, False	L	P		1-3 ft
Eupatorium altissimum	Boneset, Tall	M-L	P		3-6 ft
Rudbeckia triloba	Brown-eyed Susan	M-L	P		2-5 ft
Lobelia cardinalis	Cardinal Flower	M-L	P		3-6 ft
Silene armeria	Catchfly	M	P		1-1.5 ft
Silene antirrhina	Catchfly, Sleepy	E-M	A		.5-1.5 ft
Nepeta cataria	Catnip	M-L	P		1-4 ft

WILDFLOWERS

SCIENTIFIC NAME	COMMON NAME	BLOOM PERIOD	PERENNIAL/ ANNUAL/BIENNIAL	FLOWER COLOR	HEIGHT
Silphium laciniatum	Compass Plant	M	P		3-10 ft
Echinacea angustifolia	Coneflower, Black Sampson	M	P		1.5-2 ft
Rudbeckia amplexicaulis	Coneflower, Clasping	E-M	A		2-3 ft
Rudbeckia laciniata	Coneflower, Cutleaf	M-L	P		3-6 ft
Ratibida pinnata	Coneflower, Greyhead	E-M-L	P		3-6 ft
Echinacea pallida	Coneflower, Pale Purple	M	P		2-4 ft
Echinacea purpurea	Coneflower, Purple	E-M-L	P		1-3 ft
Ratibida columnifera	Coneflower, Upright	E-M-L	P		1-3 ft
Coreopsis lanceolata	Coreopsis, Lanceleaf	E-M	P		.5-2 ft
Coreopsis tinctoria	Coreopsis, Plains	E-M	A		1-3 ft
Coreopsis palmata	Coreopsis, Prairie	M	P		1-3 ft
Coreopsis tinctoria	Coreopsis, Red Dwarf	E-M	A		1-3 ft
Coreopsis tripteris	Coreopsis, Tall	M	P		3-6 ft
Papaver rhoeas	Corn Poppy, Red	M	A		1-2 ft
Centaurea cyanus	Cornflower	M	A		1-3 ft
Gentiana flavida	Cream Gentian	M-L	P		1-3 ft
Veronicastrum virginicum	Culver's Root	M-L	P		3-6 ft
Silphium perfoliatum	Cup Plant	M-L	P		3-6 ft
Grindelia squarrosa	Curly Cup Gumweed	M-L	A/B		1-3 ft
Englemannia peristenia	Daisy, Engleman	E-M	P		.5-2 ft
Leucanthemum ×superbum	Daisy, Shasta	M	P		3-4 ft
Monarda punctata	Dotted Mint	E-M	A		1-3 ft
Froelichia floridana	Field Snake Cotton	M	A		3-6 ft
Linum lewisii	Flax, Blue	E-M	P		1-2 ft
Linum grandiflorum	Flax, Scarlet	M	A		1-3 ft
Penstemon digitalis	Foxglove Beardtongue	M	P		1-3 ft
Zizia aurea	Golden Alexander's	E-M	P		1-3 ft
Solidago canadensis	Goldenrod, Canada	L	P		3-6 ft
Solidago ulmifolia	Goldenrod, Elm-Leaf	L	P		3-6 ft
Solidago gigantea	Goldenrod, Giant	L	P		3-6 ft
Solidago graminifolia	Goldenrod, Grass-Leaved	L	P		2-4 ft
Solidago nemoralis	Goldenrod, Gray	M-L	P		1-2 ft
Solidago missouriensis	Goldenrod, Missouri	M	P		1-3 ft
Solidago riddellii	Goldenrod, Riddell's	L	P		2-3 ft
Solidago speciosa	Goldenrod, Showy	M	P		3-6 ft
Solidago rigidium	Goldenrod, Stiff	L	P		3-5 ft
Angelica atropurpurea	Great Angelica	M	P		6-12 ft
Lobelia siphilitica	Great Blue Lobelia	M-L	P		1-3 ft
Hypericum pyramidatum	Great St. John's Wort	M	P		2-5 ft
Desmanthus illinoensis	Illinois Bundleflower	E-M-L	P		1-3 ft
Gaillardia pulchella	Indian Blanket	M	A		1-2 ft
Baptisia australis	Indigo, Blue False	E-M	P		3-5 ft

WILDFLOWERS

SCIENTIFIC NAME	COMMON NAME	BLOOM PERIOD	PERENNIAL/ ANNUAL/BIENNIAL	FLOWER COLOR	HEIGHT
Baptisia bracteata	Indigo, Cream False	E-M	P		1-3 ft
Batisia alba	Indigo, White Wild	E-M	P		2-4 ft
Vernonia fasciculata	Ironweed	M	P		2-4 ft
Vernonia baldwinii	Ironweed, Baldwin's	M-L	P		3-6 ft
Helianthus tuberosus	Jerusalem Artichoke	M-L	P		3-6 ft
Eupatorium fistulosum	Joe-Pye Weed	M-L	P		2-7 ft
Eupatorium maculatum	Joe-Pye Weed, Spotted	M-L	P		3-6 ft
Eupatorium pupureum	Joe-Pye Weed, Sweet	M	P		3-6 ft
Delphinium virescens	Larkspur, Prairie	E-M	P		3-6 ft
Consolida ajacis	Larkspur, Rocket	M	A		2-4 ft
Amorpha canescens	Lead Plant	M	P		3-6 ft
Monarda citriodora	Lemon Mint	M	A		1-3 ft
Lespedeza capitata	Lespedeza, Roundhead	M	P		3-6 ft
Lespedeza virginica	Lespedeza, Slender	M	P		3-6 ft
Lupinus perennis	Lupine, Perennial	E-M	P		1-3 ft
Bidens cernua	Marigold, Nodding Bur	L	A		1-3 ft
Bidens coronata	Marigold, Tall Swamp	L	A		1-2 ft
Senna marilandica	Maryland Senna	M	P		3-6 ft
Ratibida peduncularis	Mexican Hat	E-M-L	P		2-3 ft
Astragalus canadensis	Milkvetch, Canada	M	P		1-3 ft
Astragalus cicer	Milkvetch, Cicer	M	P		1-3 ft
Asclepias tuberosa	Milkweed, Butterfly	E-M-L	P		1-3 ft
Asclepias syriaca	Milkweed, Common	M	P		3-6 ft
Asclepias arenaria	Milkweed, Sand	M-L	P		2-4 ft
Asclepias speciosa	Milkweed, Showy	E-M-L	P		1-3 ft
Asclepias sullivantii	Milkweed, Smooth	M	P		1-3 ft
Asclepias incarnata	Milkweed, Swamp	M-L	P		3-6 ft
Asclepias verticillata	Milkweed, Whorled	M	P		1-3 ft
Mimulus ringens	Monkeyflower	M	P		1-3 ft
Pycnanthemum tenuifolium	Mountain Mint, Slender	M	P		1-3 ft
Pycnanthemum virginianum	Mountain Mint, Virginia	M	P		1-3 ft
Ceanothus americanus	New Jersey Tea	E	P		1-3 ft
Allium cernuum	Nodding Pink Onion	M	P		1-3 ft
Physostegia virginiana	Obedient Plant	L	P		3-6 ft
Chamaecrista fasciculata	Partridge Pea	M-L	A		.5-1 ft
Phlox drummondii	Phlox	E-M	A		.5-1 ft
Callirhoe alcaeoides	Pink Poppy Mallow	E	P		1-3 ft
Salvia azurea	Pitcher Sage	L	P		3-6 ft
Monarda pectinata	Plains Bee Balm	M	A		1-3 ft
Potentilla arguta	Prairie Cinquefoil	M	P		1-3 ft
Dalea purpurea	Prairie Clover, Purple	M	P		1-3 ft
Dalea villosa	Prairie Clover, Silky	M	P		..5-2 ft

WILDFLOWERS

SCIENTIFIC NAME	COMMON NAME	BLOOM PERIOD	PERENNIAL/ ANNUAL/BIENNIAL	FLOWER COLOR	HEIGHT
Dalea candida	Prairie Clover, White	M	P		1-2 ft
Silphium terebinthinaceum	Prairie Dock	M-L	P		1-3 ft
Eustoma grandiflorum	Prairie Gentian	M-L	P		.5-1 ft
Phlox pilosa	Prairie Phlox	E	P		1-3 ft
Packera plattensis	Prairie Ragwort	E-M	B		1-3 ft
Oenothera biennis	Primrose, Common Evening	M	B		3-6 ft
Oenothera rhombipetala	Primrose, Four-Point	E-M	A		1-3 ft
Oenothera missouriensis	Primrose, Missouri	M	P		.5-1 ft
Thalictrum dasycarpum	Purple Meadow Rue	E-M	P		3-6 ft
Callirhoe involucrata	Purple Poppymallow	E-M	P		0-1 ft
Eryngium yuccifolium	Rattlesnake Master	M	P		4-6 ft
Thelesperma megapotamicum	Rayless Greenthread	E-M-L	P		1-3 ft
Cleome serrulata	Rocky Mountain Bee Plant	M	A		3-6 ft
Silphium integrifolium	Rosinweed	M	P		3-6 ft
Agalinis aspera	Rough Purple Gerardia	L	A		.5-2 ft
Salvia coccinea	Sage, Scarlet	E-M-L	P		1-3 ft
Artemisia ludoviciana	Sagewort, Cudweed	M-L	P		1-3 ft
Artemisia frigida	Sagewort, Fringed	M	P		1-3 ft
Sphaeralcea coccinea	Scarlet Globemallow	E-M-L	B		3-6 ft
Ludwigia alternifolia	Seedbox	M-L	P		2-3 ft
Mimosa quadrivalvis	Sensitive Briar	E-M-L	P		0-3 ft
Penstemon grandiflorus	Shell-Leaf Penstemon	M	P		1-3 ft
Penstemon gracilis	Slender Beardtongue	M	P		1-3 ft
Sanguisorba minor	Small Burnett	M	P		.75-2 ft
Polygonum pensylvanicum	Smartweed, Pennsylvania	E	A		1-4 ft
Helenium autumnale	Sneezeweed	M-L	P		2-5 ft
Tradescantia ohiensis	Spiderwort, Ohio	E-M	P		1-3 ft
Tradescantia occidentalis	Spiderwort, Prairie	M	P		0-1 ft
Cosmos sulphureus	Sulphur Cosmos	M	A		2-6 ft
Helianthus annuus	Sunflower, Annual	M-L	A		3-6 ft
Helianthus mollis	Sunflower, Ashy	M-L	P		2-6 ft
Heliopsis helianthoides	Sunflower, False (OX-EYE)	M-L	P		3-6 ft
Helianthus maximiliani	Sunflower, Maximilian	M-L	P		3-6 ft
Helianthus angustifolius	Sunflower, Narrow-Leaf	L	P		1-3 ft
Helianthus petiolaris	Sunflower, Plains	M-L	A		1-3 ft
Helianthus grosseserratus	Sunflower, Sawtooth	M-L	P		3-5 ft
Helianthus laetiflorus	Sunflower, Showy	M-L	P		3-6 ft
Helianthus pauciflorus	Sunflower, Stiff	M	P		2-4 ft
Helianthus occidentalis	Sunflower, Western	M-L	P		2-4 ft
Helianthus salicifolius	Sunflower, Willowleaf	L	P		8-10 ft
Anemone cylindrica	Thimble Weed (Candle Anemone)	M	P		.75-1.5 ft
Desmodium illinoense	Tick Trefoil, Illinois	M-L	P		3-6 ft

WILDFLOWERS

SCIENTIFIC NAME	COMMON NAME	BLOOM PERIOD	PERENNIAL/ ANNUAL/BIENNIAL	FLOWER COLOR	HEIGHT
Desmodium canadense	Tick Trefoil, Showy	M-L	P		3-6 ft
Verbena hastata	Vervain, Blue	M-L	B		3-6 ft
Verbena stricta	Vervain, Hoary	E-M-L	P		2-4 ft
Vicia americana	Vetch, American	E-M	P		.5-1.5 ft
Monarda fistulosa	Wild Bergamot	E-M-L	P		2-5 ft
Parthenium integrifolium	Wild Quinine	E-M	P		2-4 ft
Rosa woodsii	Wild Rose, Western (Woods Rose)	M	P		3-6 ft
Senna hebecarpa	Wild Senna	M	P		4-6 ft
Krascheninnikovia lanata	Winterfat	E-M	P		1-3 ft
Achillea millefolium occ.	Yarrow, Western	E	P		1-3 ft
Achillea millefolium	Yarrow, White	E-M-L	P		1-3 ft

STAR SEED CLOVERS

ALSIKE CLOVER

Trifolium hybridum L.

Alsike clover is used for hay, pasture, and soil health, and works best in wet and acidic soils. It does not yield as well as other clover species. Alsike clover is not normally grown as a pure stand but rather in grass or cover crop mixes and serves best as a one cut forage.

Alsike clover is a short-lived perennial similar to red clover. It can be distinguished from red clover by the absence of crescent-shaped marks on each leaflet and more conspicuously toothed leaves. Alsike clover grows from the crown and the plant can reach a height of 2-4 feet with a tendency to lodge.

Alsike clover is adapted to a wide range of soil types and grows well in northern latitudes and at high elevations. It survives severe winters and performs best where summers are cool. It grows well in soils that are too acidic for red clover (pH < 6.0) and can tolerate more alkalinity than most clovers. It will tolerate wetter soils better than other clovers. It prefers silty clay loams where moisture is sufficient throughout the growing season or can be supplied by irrigation. Alsike clover does not tolerate droughty sites but will tolerate soils that are completely waterlogged and can withstand some flooding, however, is not shade tolerant.

ARROWLEAF CLOVER

Trifolium vesiculosum Savi

Arrowleaf clover is utilized for haying, grazing, and soil improvement and a great wildlife attractant for deer and turkey. Arrowleaf clover is an upright, cool-season, annual legume that grows to a height of 40 to 50 inches under good conditions. Seeds germinate in the fall and grow slowly during the winter. Blossoms are a cluster up to 2 inches long. Initially, the blossoms begin white to pinkish in color and later turn brown when mature. The plant is suited to a wide range of soil conditions from slightly acidic to slightly alkaline.

Seed should be planted at 1/4 to 1/2 inch deep or may also be planted in an established summer perennial grass sod by light disking or with a no-till drill. Interseeding into a grass sod should be done around the first frost date at a rate of 10 lbs of seed per/acre.

STAR SEED CLOVERS

BERSEEM CLOVER / EGYPTIAN CLOVER

Trifolium alexandrinum

Berseem Clover, also known as Egyptian clover, is a winter annual legume. It resembles alfalfa but produces small seed heads with white flowers.

It is a heavy nitrogen producer but is the least winter-hardy of all annual clovers. Berseem clover will provide the highest yields when planted in fertile, well-drained soil. It will grow on a wide range of soils, from loam to clay, but does not do well in very wet soils. Lighter loamy and silty soils produce excellent crops, and the plant is tolerant of relatively high salt concentrations.

CRIMSON CLOVER

Trifolium incarnatum L.

Crimson clover, as a winter annual, planted in the late summer to early fall. It is often used in pasture, hay, pollinator enhancement, and cover cropping for soil health.

Crimson clover is a winter annual legume that resembles red clover. The plant will grow on soils of poorer quality than most other clovers, thriving on both well drained sandy and clay soils and prefers a pH range of 6.0 to 7.0. After seedling establishment, growth at lower temperatures is superior to other clovers and has been used for a cover cropping well into the northern states.

Crimson clover seed should be inoculated before planting. On sites that have been in pasture or hay, inoculating may not be necessary. Nitrogen should not be necessary unless planting sites are of poor quality. Plant in the spring, late summer, or frost seed in late winter. The best planting method is to drill the seed into a firm, weed free seedbed. No-tilling can be used successfully if effective weed control is employed. Seed should be planted at about 1/4 inch depth with seeding rates from 10 to 15 pounds per acre when seeded alone and 5 to 10 pounds per acre when seeded in a mixture.

WHITE CLOVER

Trifolium repens L. (Ladino vs Dutch)

White clover is an important pasture legume. It is highly palatable and nutritious for all classes of livestock. White clover is commonly companion planted with a variety of pasture grasses. Grass benefits from the nitrogen produced by white clover when included in a pasture mix. The plant seldom grows tall enough to be a high tonnage hay or silage producer.

White clover is seeded at 2 pounds per acre with grass and establishes best on moist soils. White Clover has other common advantages such as being a choice food for deer and other wildlife. Solid stands of white clover form a good erosion controlling cover on moist fertile soils, but may not establish well in dry areas. White clover seldom roots deeper than 2 feet, which makes it adapted to shallow soils when adequate moisture is available. It should produce pink flower heads consisting of 40 to 100 florets on a plant.

The standard seeding rate is two pounds per acre of seed and should be inoculated before seeding. The proper time of seeding is determined by seasonal and moisture conditions. This may vary from April to May. Late summer and fall seedings should be done well before freezing and planted into soils with adequate moisture.

RED CLOVER

Trifolium pratense L.

Red clover is primarily used for hay, pasture, silage, and soil improvement. It is a quick growing crop, easily established, and produces high quality forage. Red clover is very shade tolerant making it a good companion cover crop under crops such as corn.

Red clover is a biennial or short-lived perennial that grows from crowns. There are generally two types of red clover, Medium and Mammoth. Stem lengths of Medium types average 18 inches and have about 4 branches per stem. Medium will mature earlier than Mammoth, making it possible for multiple harvesting operations. Mammoth

stems grow to 24 to 30 inches long, have 6 branches, and a longer maturity, making it a one harvest crop. The taproot of red clover is extensively branched, and the flowers are pink in color.

Red clover seed should be inoculated prior to seeding. It can be planted with a drill at a depth of 1/4 to 1/2 inch or broadcast. Red clover may be seeded in pure stands, but it is often mixed with grain or grass. Seeding rate is 8 to 12 lbs per acre in a pure stand or 4 to 8 lbs in a mix. Establishment may occur in spring or late summer or over seeded in the spring on fall seeded grasses.

Graze or cut for hay when the red clover is 1/4 to 1/2 in bloom. A second cutting may occur when red clover is 1/4 in bloom. Leave at least 2 inches of growth after each harvest.

YELLOW BLOSSOM CLOVER

Melilotus officinalis L.

WHITE BLOSSOM SWEETCLOVER

Melilotus alba Medik

Sweetclover is an introduced species to North America from Europe in the 1700's and is now widespread throughout North America in multiple wildlife habitats and uses. Yellow and white sweetclover are separated by scientists because of flower color and by flower size, white clover having a somewhat smaller flower. Yellow sweetclover is shorter growing, finer stemmed, more drought tolerant and easier to establish than white sweetclover.

Both sweetclovers are used for hay, silage, and pasture however, cattle graze it sparingly as it can have a bitter taste. It is preferred by livestock in spring and early summer before stems become course and woody. Hay should be cut at 10% bloom stage, waiting until full flowering results in stemmy, lower-quality hay.

Sweetclover provides exceptional habitat to a variety of wildlife species. Deer, turkeys, and upland birds utilize sweetclover as a vital part if their diet. The abundant flowers are attractive to bees and butterflies making sweetclover a popular plant in pollinator mixes nationwide.

Rapid growth and ease of establishment make sweetclover a popular choice for reclamation seedings. Roadside seedings, mining, and fire restoration are just a few of the areas which sweetclovers have become an important part. The plants increase nitrogen in poor soils and a large taproot decreases soil compaction and aides in aeration and water absorption by opening the soil.

Prior to planting, seed should be inoculated with the proper inoculant for nitrogen fixation. If starting a monoculture stand, sweetclover should be planted at a rate of 4 lb/ac. When sweetclover is used in a mix, it should not exceed 10% of the total mix due to its competitive growing pattern. Rangeland seedings can be done in late fall but no later than 6 weeks prior to a first frost. This will allow for natural stratification of the seed, helping with germination. Seed should be planted in a firm, seedbed at a depth of 1/8 to 1/2 inch.