

# Arkansas Valley

S E E D



PRODUCT CATALOG

Values, honesty and integrity are all part of the moral fiber that makes up Arkansas Valley Seed. Back in 1945, Robert Appleman founded the standard for western seed companies and cultivated it with great people. Our markets include the beautiful Rocky Mountains, the short and tall grass prairies and the urban areas. We supply most cool and warm season grasses, shrubs, forbs and wildflowers throughout the West and strive to inventory and source the right seeds for your every need. *Our Mission is to supply the highest quality seed with integrity while building long lasting customer relationships.*

### *We're celebrating our 70th year of business!*

We are proud to say that we have been supplying quality seed with integrity to the Rocky Mountain and High Plains region since 1945. We continue to offer fair pricing and excellent personal service. We hope to be your sole source supplier of Native, Forage, Small Grains and Turf seeds along with Erosion Control products for decades to come.

We value your business and friendships. We want to give you a heartfelt "THANK YOU!"

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## OUR PEOPLE MAKE THE DIFFERENCE

In 1945, Arkansas Valley Seed began a tradition of bringing high quality seed to the Western United States with integrity and the highest degree of customer service. Our customers have realized that although products and people may change, Arkansas Valley Seed remains the reliable source for a wide variety of seed needs. Over the years we've continued to provide quality seed at fair prices, as well as improved all areas of our customer service. From a simple friendly hello to our high quality products, Arkansas Valley Seed strives to provide personalized service for each customer's unique and ever-changing demands in the seed world. As we move forward, we promise not to leave behind the time-honored commitment to quality that our philosophy embodies. So, let us extend a heartfelt thank you to those who already make Arkansas Valley Seed their all-purpose seed resource. For those considering us for the very first time, we look forward to forging new friendships and planting lifelong partnerships.

## OUR ROOTS

Bob Appleman founded Arkansas Valley Seed in Rocky Ford, Colorado. He named the company after the beautiful Arkansas River Valley in southeast Colorado. Under his leadership, our Rabbit Ears® logo, named for Rabbit Ears Pass near Steamboat Springs, in northern Colorado, came to symbolize quality and value.

Today, Arkansas Valley Seed, with its seed partners, has a strong distribution network throughout the West. We provide very prompt mixing far beyond the boundaries of Rabbit Ears Pass to the north and the Arkansas Valley to the south.

## EXCEEDING YOUR EXPECTATIONS

*We deliver VALUE to our customers:*

- By staying current with all market conditions and carrying a wide selection of products to meet consumer demand.
- By providing technical assistance and advice to assure that customers use the right amount of quality seed to meet their job specifications.
- By providing on-site consultation and grass identification.
- By being able to mix promptly, recognizing the value of our customers' time and keeping them productive.
- By offering Certifications of Compliance by request for any job – large or small.
- And, by being Customer Service Oriented!

## HIGHER CAPACITY = UNSURPASSED CUSTOMER SERVICE

Arkansas Valley Seed is able to dedicate one mixer solely to the blending of sod-quality Kentucky bluegrass to prevent contamination of other species. Two additional pasture and native mixers are committed to the production of both custom mixtures as well as stock mixes, and we also have added a pasture and native mixer to our Rocky Ford location. As a result, we're able to get your mixes to you faster than anyone else without sacrificing quality. Arkansas Valley Seed can also handle your private label seed needs with our precision small bag packaging line. To provide these elite services, we are well-staffed to maximize efficiency. At every level, we are doing what it takes to make our customers' experience more rewarding.

## BROAD MARKETS

The applications of seed are nearly as diverse as the number of available varieties. For this reason, Arkansas Valley Seed maintains a diverse inventory, as well as detailed information on the requirements of the various demands on performance.

## NATIVE GRASS AND RECLAMATION SEED PRODUCTS

Native grass and reclamation seed products include warm season grasses, cool season grasses, wetland species, wildflowers, forbs and shrubs.

Arkansas Valley Seed is a major supplier to governmental agencies for reclamation of the ravages of forest fires and for range management. The landscape and reclamation business also includes highway construction, mines, pipelines, smaller residential jobs, and other projects.

## FORAGE, ALFALFA AND SMALL GRAIN SEED PRODUCTS

Our broad lineup of premium alfalfa products with superior genetics are ideal for intensively managed acres. Arkansas Valley alfalfa blends and public alfalfas are ideal for dryland or less managed acres.

The Vitality™ brand and several proprietary varieties also provide an extensive selection of forage and pasture products. Arkansas Valley Seed is also a major regional marketer of sorghums, wheat, oats, barley and millets.

Additionally, Arkansas Valley Seed is a key supplier of forage products to farms and ranches through a dealer network of hundreds of accounts from Montana and the Dakotas, to New Mexico, Nebraska and Utah.

## TURF PRODUCTS

We carry a wide array of turf grasses including most major proprietary varieties and common varieties for residential lawns, sod farms, golf courses and sports fields. Most of our mixes are sold under the Vitality™ brand, and are specially-formulated for the Rocky Mountain region.

Arkansas Valley Seed is a dedicated mixer for sod quality Kentucky bluegrass, as well as a major supplier of turf seed throughout the region, especially to new and existing golf courses.

*We are proud members and supporters of the following associations:*

American Seed Trade Association	Colorado Riparian Association
New Mexico Hay & Forage Association	Rocky Mountain Sod Growers Association
American Society of Mining & Reclamation	Colorado Seed Growers Association
New Mexico Seedsmen's Association	Rio Grande Golf Course Superintendents Association
Associated Landscape Contractor's of Colorado	Colorado Seed Industry Association
Peaks & Prairies Golf Course Superintendents Association	Society for Range Management
Colorado Chapter of the American Society of Landscape Architects	Colorado Sports Turf Managers Association
Rocky Mountain Agribusiness Association	Green Industries of Colorado (GreenCO)
Colorado Hay & Forage Association	Turfgrass Producers International
Rocky Mountain Golf Course Superintendents Association	High Altitude Revegetation Organization
Colorado Mining Association	Western Seed Association
Rocky Mountain Regional Turfgrass Association	New Mexico Crop Improvement Association

**Please visit our website at: [AVSEEDS.COM](http://AVSEEDS.COM) or call for more information.  
We look forward to earning your business today and for years to come.**



# TURFGRASS SPECIES

## TURFGRASS PLANTING & ESTABLISHMENT

For turfgrass sites, select species that are suitable for the area designated for planting in question. For example, Kentucky bluegrass will be the best choice for high traffic areas. Fine fescues or Buffalograss will be a great option where low maintenance is a must. Turf is best on large, relatively flat areas that slope away from buildings but should not be considered for steep slopes and isolated islands where runoff can be an issue. Instead, native grasses and florae can be used to anchor these types of terrain.

When establishing a lawn in your landscape, soil preparation should be your No. 1 priority. It is essential that the proper steps be taken to ensure that your lawn is healthy and will survive periods of hot and dry weather. The soils in the Rocky Mountain region are typically very low in organic matter. To prepare a sandy soil, we recommend 3 to 5 cubic yards of weed-free organic matter (sphagnum peat and/or compost) tilled in to a depth of 4 to 6 inches for every 1,000 square feet of desired turf.

On clay soils, 2 to 4 cubic yards per 1,000 square feet is accurate. Clay soils can also benefit from the addition of other inorganic amendments containing pumice to assist in increasing porosity and improving water infiltration. Subsoil ripping to a depth of 10 to 12 inches may be required to break-up hard pans in some soils. A good healthy lawn with a strong root system will reduce the water use significantly and is also the best defense against weed invasion, disease and insect pests. Good soil prep has been shown to save up to 30% of the water required for the landscape.

Starting a lawn from seed has several advantages. Seeding will allow direct root establishment in the soil at the site. It is cost-effective and requires less labor. When starting a new lawn from seed, prepare the soil as described above and incorporate a starter fertilizer. We recommend a fertilizer ration (N-P-K) of 18-46-0 at a rate of 5 lbs. per 1,000 square feet. Frequent and light waterings are needed until the seed has germinated.

The soil surface must remain moist, but not saturated, for proper germination and establishment to occur. You should not allow the top ¼ inch of seedbed to become dry during the establishment period. Mulch can be added to the soil surface to prevent evaporation and conserve soil moisture. Once the lawn has established, normally after the first couple of mowings, watering can be reduced. Watering should be done during the cooler parts of the day, specifically during the morning and evening hours.

Fertilizing is highly recommended to maintain the health of your lawn. Adequate spring moisture will activate the fertilizer and release the nutrients into the turf. During the spring, the ideal fertilizer will include a mixture of both quickly and slowly available Nitrogen (N) sources. Phosphorus (P) and Potassium (K) are also highly recommended nutrients to supplement to your soil. Phosphorus stimulates root growth throughout the growing season and potassium enhances your lawn's tolerance to heat and other stresses. Kentucky bluegrass and other cool season grasses should normally be fertilized during the cooler parts of the growing season (early May and September). Buffalograss requires less fertilizer and is best fertilized during the warmer parts of the growing season (mid-June and August).

Lawn aeration is highly recommended in the spring. Core aeration will decrease compaction and improve penetration of water, air and nutrients into root zones. It also assists in the reduction of run-off and the build-up of thatch, an organic layer that often impedes the movement of water into the soil.

Arkansas Valley Seed carries a wide variety of turfgrass species. If you do not see the species that you are looking for please call us. As always, call for current pricing and availability.

## KENTUCKY BLUEGRASS - *Poa pratensis*



Kentucky bluegrass is the most widely used cool-season turfgrass in the Rocky Mountain region. It is most commonly used on home lawns, parks, cemeteries, institutional grounds, airfields, roadsides, golf course fairways and athletic fields because of its ability to withstand high turf injury. It prefers to be mowed at 1½ to 2½ inches. Select new varieties can be mowed down to a half inch for golf course fairways and tees. One of the biggest advantages is its extensive rooting and rhizomatous structure. Rhizomes are underground stems that allow the plant to repair itself quickly and survive through prolonged periods of stress. They also allow it to knit and present a dense turf. Kentucky bluegrass thrives in full sun and partial shade. It prefers a loam soil but can survive the extremes of sand or clay soils. Kentucky bluegrass exhibits excellent cold tolerance in the harsh winters of the Rocky Mountain region. Leaf texture of this species is fine to medium. Most have a dark green color.

### KENTUCKY BLUEGRASS CLASSIFICATION - *Rutgers Turfgrass Proceedings*

The following characteristics are for general observation only. Individual performance of varieties within each classification may vary widely and require comparative regional NTEP results to determine the best performing variety. Arkansas Valley can provide varieties from each classification, please call for a list of the newest Kentucky bluegrasses on the market today.

#### COMPACT AMERICA

- Characteristics of compact type
- Finer leaf, higher density
- 1/2 inch cutting height
- Moderate winter dormancy
- Moderate summer recovery
- High summer patch resistance
- Resistant to powdery mildew
- Good in shade

#### COMPACT MIDNIGHT

- Characteristics of compact type
- Very dark green color
- 1/2 inch cutting height
- Late spring green-up
- Good heat tolerance
- Susceptible to powdery mildew
- Variable resistance to Summer Patch

#### COMPACT MID-ATLANTIC

- Deep, extensive roots and rhizomes
- Vigorous turf and medium-high density
- High summer stress tolerance
- Early spring green-up
- Good winter performance
- Rapid recovery from disease
- Leaf Spot susceptible

#### COMPACT

- Low, compact growth
- High quality turf
- 1/2 inch cutting height
- Excellent resistance to Leaf Spot
- Long winter dormancy
- Variable under summer stress
- Often purple winter color

#### COMPACT P-105

- Aggressive lateral growth
- High shoot density
- Very wear tolerant
- Quickly knit sod and repair
- May predominate in blend
- Variable in other characteristics

#### SHAMROCK

- Moderate winter color
- Good resistance to leaf spot
- Good turf quality and sod strength
- Billbug susceptible
- High seed yields
- Less stemmy than BVMG
- Summer performance variable

#### JULIA

- High turf quality
- Excellent wear tolerance
- High density
- Good summer performance
- Moderate winter performance
- Good Leaf Spot, Stripe Smut resistance
- Susceptible to Brown Patch, Dollar Spot

#### TEXAS KENTUCKY HYBRIDS

- Hybrids between Texas and Kentucky bluegrass
- Heat tolerant
- Extensive rhizomes
- Wear tolerant
- Drought tolerant with good recovery
- Variable based on KBG parent
- Moderate winter dormancy

#### BVMG

- Medium-good turf
- Stripe Smut susceptible
- Medium low growth
- Medium texture
- Medium wide leaf
- Very stemmy turf
- Poor winter performance
- Resistant to Leaf Spot
- Billbug susceptible

#### LIMOUSINE

- High density
- Fine textured
- Light green
- Wear tolerant

#### SYDSPORT

- Good turf quality
- Medium low growth, density and leaf width
- Good resistance to Stripe Smut
- Less stemmy than BVMG types
- Moderate resistance to Leaf Spot
- Moderate winter dormancy
- Good sod strength

#### EURASIAN

- Variable in many characteristics
- Less stress tolerant
- Many high density
- Rust resistant
- Medium light-green color

#### EURASIAN MIDWEST (COMMON)

- Midwest ecotypes
- Erect growth and narrow leaf blades
- High water use
- Dormant during summer
- High Leaf Spot susceptibility
- Poor winter color and performance
- Stemmy early spring
- Good for soil stabilization and conservation





**PERENNIAL RYEGRASS - *Lolium perenne***

Perennial Ryegrass is one of the world's most widely used turf grasses. Its popularity comes from its ability to germinate in 7 to 10 days or less. This fine-bladed turf grass is preferred by many home owners because of its dark color, strong root system, its fast response to fertilization and its rapid recovery from trampling. A cool season grass, Perennial Ryegrass can adapt to many different kinds of soil, including poor soils, clay, and badly drained areas. A high level of endophytes allows this species to perform well under stress. Turf-type Perennial Ryegrass is a hardy grass that has been used in almost every premier sporting event and on the world's finest golf courses. This bunch type grass likes full sun but will tolerate some shade and can be mowed as short as 3/16 of an inch.

**TALL FESCUE - *Festuca arundinacea***

Tall Fescue is a bunch grass that is more drought, shade, heat stress and disease tolerant than many other cool season grasses. Tall fescues can provide an excellent turf for home lawns, athletic fields, golf course roughs and other high traffic areas. The roots can grow to a depth of 4 to 6 feet taking in moisture that shallow rooted grasses can't reach. New and improved varieties are naturally insect resistant due to high levels of endophytes. When mowing, it prefers to be mowed at 1½ to 3 inches. Most Tall Fescues don't mix well with the other species. It is shade and drought tolerant, coarse-textured, wide-bladed and adapted to various soil types and climates. Some of the newest varieties that are commercially available exhibit some rhizome capability similar to a Kentucky bluegrass.

**FINE FESCUES - *Festuca ssp.***

- Chewings, *Festuca rubra* var. *falax*
- Strong Creeping Red, *Festuca rubra* var. *rubra*
- Slender Creeping Red, *Festuca rubra* var. *litoralis*
- Hard, *Festuca brevipila*
- Sheep, *Festuca ovina*
- Blue, *Festuca ovina* var. *glauca*

Fine Fescues are a shade-tolerant turfgrass with a medium to dark green color. They require little maintenance and like to be mowed at 1½ to 2-1½ inches. The fine fescues are excellent choices for low maintenance sites, even as a part of showcase turf areas, due to their reduced water requirements, low nitrogen and reduced growth rates. They typically persist in soils that are droughty, acid and infertile, if the soils are properly drained. Fine Fescues also perform well in the shade and with tree root competition, so they can be utilized in areas where many other turfgrasses will not persist.

The five primary types used for turf, Chewings, Strong Creeping Red, Slender Creeping Red, Hard and Sheeps or Blue Fescue, all have unique strengths, weaknesses and preferred uses. Areas such as golf course roughs, slopes, and bunker edges, parks, home lawns, roadsides and reclamation areas can all benefit from the use of improved fine fescues for high quality, low maintenance turf.

**CREEPING BENTGRASS - *Agrostis palustris***

Creeping Bentgrass is a long-lived perennial grass. It is mainly used for golf greens and tees, croquet, lawn bowling, lawn tennis and for divot repair on fairways. You will find this high quality, attractive grass on almost every championship golf course where it is adapted. It's the finest bladed, lowest growing, highest maintenance of the cool season turf grasses. Establishment for this soft, dense grass is slow to normal and it requires a well-prepared seed bed with good drainage. Creeping Bentgrass spreads laterally, requiring more controlled management and making its use in home lawns and parks limited. This dense turf grass performs great when closely mowed at 1/8 to 1/2 inch, fertilized and watered consistently. Creeping Bentgrass grows best in full sun but will survive in light shade. Because of the growth habit, Creeping Bentgrass doesn't blend well with other grasses.

BERMUDAGRASS - *Cynodon dactylon*



Bermudagrass is a warm season sod forming perennial that spreads by stolons, rhizomes and seed. Bermudagrass has a fibrous root system with vigorous, deep rhizomes. Bermudagrass is a major turf species for sports fields, lawns, parks, golf courses, and general utility turfs in the southern region of the U.S. Bermudagrass has very good drought tolerance, traffic tolerance and can handle poor water quality compared to other turfgrasses. Due to its poor winter performance, the development of cold tolerant turf-type varieties of Bermudagrass has increased interest in the species.

ROUGH BLUEGRASS - *Poa trivialis*



*Poa trivialis* is a shallow-rooted perennial that thrives in dense shade where other turf grasses struggle and also used for overseeding golf greens in the southern region of the U.S. It can germinate in 6-10 days for quick establishment. *Poa trivialis* spreads with stolons to help establishment and flourish in moist soils. This grass is not recommended for high-traffic areas.

TEXAS HYBRID BLUEGRASS - *Poa arachnifera x Poa pratensis*



Texas Hybrid Bluegrass is a cool season, perennial cross between Kentucky bluegrass and Texas bluegrass. It produces a turf that has improved heat and drought tolerance that is derived from the Texas bluegrass while maintaining excellent turf characteristics and uniformity typical of Kentucky bluegrass. Seed size, seeding rates, germination, establishment and handling is very similar to Kentucky bluegrass. It will establish well and persist under conditions of drought that would cause other species to die off or become dormant.

SUPINA BLUEGRASS - *Poa supina*



Supina Bluegrass is a stoloniferous, cool season perennial turfgrass recently introduced into the temperate regions of the U.S. from Europe. It establishes slowly from seed, but forms a dense, yellow-green turf. It is quite wear and shade tolerant, but intolerant of drought. It has been planted alone, as well as mixed with Kentucky bluegrass in athletic turf mixes.

COLONIAL BENTGRASS - *Agrostis capillaris*

Colonial Bentgrass is a cool season perennial bunch grass. Much like Creeping and Velvet Bentgrass, Colonial Bentgrass is mainly found on golf course greens, tees, fairways, croquet courts, tennis courts and lawn bowling greens. It is a low maintenance grass whose color ranges from greenish yellow to medium dark green. This perennial turf grass is a native to Europe and is utilized all over the Pacific Northwest and Northeast. Its spreading tolerance is minimal compared to Creeping Bentgrass yet it produces less thatch and does not require a close mowing. Colonial Bentgrass does require a well-prepared seed bed when planting, frequent irrigation and a high level of fertilizer. This fine bladed grass blends well with fine fescues and is slow to establish.

VELVET BENTGRASS - *Agrostis canina*

Velvet Bentgrass is one of the finest textured turfs available. Its beauty is used on golf greens, lawn bowling and anywhere that requires close mowing. When planting this grass it likes a well-prepared seed bed and is slow to establish. This long-lived perennial grass grows best on well drained acidic soils. Velvet Bentgrass develops an extremely dense turf that spreads more than Colonial Bentgrass. Like Creeping and Colonial Bentgrass, Velvet Bentgrass doesn't blend well with other grasses because of its growth habit.

ANNUAL RYEGRASS - *Lolium multiflorum*

Arkansas Valley does not recommend Annual Ryegrass for turf applications. The species presents a weedy appearance when mixed with other proprietary turf species. Please call us to discuss other options. See Grass Species Section for more information on this species.

# FARM PRODUCTS

## SELECTING THE RIGHT ALFALFA

### FALL DORMANCY (FD)

- Fall dormancy is defined as the reduction in alfalfa top growth in the fall due to decreasing temperatures and shorter day lengths.
- Fall dormancy scores range from 1 to 11, with the lower numbers exhibiting less growth (fall dormant varieties) and the high numbers showing more growth in the fall (non-dormant varieties).
  - A rating of 1.0 indicates alfalfa will go dormant early in the fall and green-up late in the spring.
  - A rating of 11.0 indicates alfalfa will go dormant late in the fall and green-up early in the spring.
  - Rocky Mountain and High Plains Region varieties are typically values of 3, 4 or 5.

### WINTER HARDINESS (WH)

- A measure of the alfalfa plant's ability to survive the winter without injury.
- Scale of 1 to 6.
  - A rating of 1 indicates High Survivability, while 6 indicates Low Survivability.
  - Rocky Mountain and High Plains Region varieties are typically no higher than 3.0.

## IMPROVING SUMMER ANNUAL FORAGE QUALITY

### BMR TECHNOLOGY

Brown Mid Rib increases digestibility of the stem fibers in Forage Sorghums by reducing the quantity of indigestible lignin. Lignin content is decreased approximately 40-60% depending upon environmental conditions. This reduction in lignin increases cellulose and hemi cellulose content; both are more digestible than lignin. Because lignin is a structural component of the stem, its reduction will result in stems that are somewhat softer and more limber. BMRs can equal corn in milk production per ton for dairy cattle.

### MS TECHNOLOGY

Male Sterile hybrids will not produce a grain head unless a foreign pollen source is available. Male sterility offers high yields and produces high levels of structural carbohydrates in stalk and leaves for improved forage digestibility and overall energy content under most conditions. Increases standability since it will not cannibalize the stalk as a process of grain fill. An excellent choice for baling.

## FORAGE TERMINOLOGY

**CRUDE PROTEIN (CP)** is a mixture of a true protein and nonprotein nitrogen, and also includes insoluble crude protein. In general, a high CP level is desirable; it's usually obtained by harvesting at an early growth stage.

**ACID DETERGENT FIBER (ADF)** represents highly indigestible parts of the forage such as cellulose, lignin, silica, and insoluble nitrogen compounds. As forage plants mature, ADF increases and digestibility of forage decreases.

**NEUTRAL DETERGENT FIBER (NDF)** is composed mainly of the cell wall part of the forage and includes hemicellulose and the ADF components. The NDF part of the forage is only partially digestible. The higher the percentage NDF, the less of the forage the animal will eat. Therefore, a low NDF is desirable.

**DRY MATTER (DM)** is the percentage of the forage that is not water. If a forage is 55% dry matter, then it has 45% water ( $100 - 55 = 45$ ). Rations are balanced on a dry matter basis.

**DIGESTIBLE DRY MATTER (DDM)** is an estimate of the percentage of the forage that is digestible as determined from ADF concentration. DDM can be used to estimate the energy value of the forage. The lower the ADF, the higher the DDM will be.

**DRY MATTER INTAKE (DMI)** is based on NDF concentration and is an estimate of the amount of forage an animal will consume.

**DIGESTIBLE DRY MATTER INTAKE (DDMI)** is an estimate of the DDM the animal will consume.

**RELATED FEED VALUE (RFV)** is an index that combines ADG (digestibility) and NDF (intake) nutritional factors to arrive at one number to measure and compare forage quality.

Arkansas Valley Seed carries a wide variety of farm related products including alfalfas, grains and summer annuals. If you do not see the species that you are looking for please call us. As always, call for current pricing and availability.

## LEGUMES

**ALFALFA** - *Medicago sativa*

Alfalfa is a deep-rooted and moderately long-lived perennial. One of the most widely used legumes for hay production. Also found in pasture, range and revegetation mixes. Some varieties exhibit spreading ability that is suitable for grazing.

**ALSIKE CLOVER** - *Trifolium hybridum*

Alsike is a winter-hardy, short-lived perennial clover that acts as a biennial. It is well-adapted to cool climates and wet soils. Alsike is ideal for hay production in areas of high precipitation or poorly drained soils and for short rotation pasture mixes.

**BIRDSFOOT TREFOIL** - *Lotus corniculatus L.*

Birdsfoot Trefoil is a long-lived legume, highly palatable, with a high feed value. It is winter hardy. Widely adapted, easy to maintain and has certain advantages over alfalfa, ladino or red clover. It is more tolerant of infertile and acidic soil, less likely to cause bloat and survives better than most legumes.

**CICER MILKVETCH** - *Astragalus cicer L.*

Cicer Milkvetch is an extremely winter-hardy, long-lived, sod forming perennial legume. Its forage is late-maturing, bloat free, succulent and very palatable for all classes of livestock.

**COMMON VETCH** - *Vicia sativa*

Common Vetch is a summer annual vine with leaves that are divided into many leaf-lets. Although considered a weed when found growing in a cultivated grainfield, this hardy plant is often grown as green manure or livestock fodder.

**CROWN VETCH** - *Coronilla varia*

Crown Vetch is a sod-forming and long-lived perennial. Use on slopes to stabilize erodible soils.

**FIELD PEAS** - *Pisum sativum L.*

Field pea is an annual cool season grain legume that produces a high-quality, high-protein crop. Field Pea (also known as dry pea) differs from fresh peas in that field pea is marketed as a dry, shelled product for either human or animal food whereas fresh peas are typically marketed as a fresh vegetable for human consumption. Field Peas may be interseeded with oats or spring triticale to improve the forage value of the hay.

**HAIRY VETCH** - *Vicia villosa*

Hairy Vetch is a hardy, winter annual legume that can be planted in either fall or spring. It is used for hay, pasture or as erosion control and is commonly planted with cereal grains.

**LADINO CLOVER** - *Trifolium repens ssp. latum*

Ladino is a long-lived perennial which spreads by creeping stems or stolons that root at the nodes. A giant form of white clover which is very high in protein, vitamins and minerals. It is a good producer of high-quality feed and is utilized extensively as a soil building crop. It is an excellent legume to use in combination with other legumes and grasses.

**MAMMOTH RED CLOVER** - *Trifolium pratense var. sativum*

Mammoth Red Clover or single-cut clover is not as desirable for hay or pasture as medium red clover. It blooms about 10 days to 2 weeks later than medium red clover and recovers very slowly after cutting. Mammoth is larger and coarser than medium and tends to be more perennial in growth habit.

**MEDIUM RED CLOVER** - *Trifolium pratense L.*

Red Clover is a short-lived perennial, 2-3 years, and usually produces 2-3 cuttings of hay or silage per year with most aggressive growth in the spring. Red Clover is an aggressive establisher and can be seeded alone, in mixtures with grasses, frost seeded with a nurse crop or interseeded into an existing stand. Forage quality is comparable with alfalfa quality under similar harvest schedule.

**SAINFOIN** - *Onobrychis vicifolia*

Sainfoin is a winter-hardy, non-bloat legume whose forage is high in quality, very palatable and readily consumed. It is deep-rooted and very drought resistant.

**STRAWBERRY CLOVER** - *Trifolium fragiferum*

Strawberry Clover is a short-lived perennial with some creeping ability. It is tolerant of wet saline and alkaline soils. May be used for erosion control.

**WHITE BLOSSOM CLOVER** - *Melilotus alba*

White Clover is a short-growing biennial used for grazing or haylage. It is shallow rooted and spreads by creeping branches which root at the nodes. It grows best under cool, fertile, moist conditions. It is an aggressive creeper.

**WHITE DUTCH CLOVER** - *Trifolium repens*

White Dutch Clover is short-lived creeping perennial. It is shallow-rooted so it makes a good choice for lawns and pasture mixes. Very cold hardy.

**YELLOW BLOSSOM SWEET CLOVER** - *Melilotus officinalis*

Yellow Blossom Sweet Clover is a cold-tolerant biennial that is very easy to establish. Drought and cold-tolerant, use for erosion control on saline and alkaline soils. Matures 10 to 14 days earlier than White Blossom Clover.

**BARLEY** - *Hordeum vulgare*

Barley is an annual or biennial grass that is widely cultivated for yielding grain for breakfast food, animal feed and in malt beverages. Black barley, awnless, hooded, 2 row, 6 row, different awn lengths and different spike lengths characterize the many barley types.

**BUCKWHEAT** - *Fagopyrum esculentum*

Buckwheat is an erect-growing, annual plant, with broad heart-shaped leaves and a reddish colored stem. It establishes very quickly, has low heat requirements for development, and will produce a crop in 80-90 days. Buckwheat grows vegetatively and flowers until killed by frost. Buckwheat has been primarily used for humans and livestock, honey crop, smother crop and green manure.

**CEREAL RYE** - *Secale cereale*

Cereal Rye is a hardy annual grass that is widely cultivated for grain production, forage and soil improvement. Due to the late harvest of many crops, fall-planted cover crops often do not make adequate growth to provide winter soil protection, but cereal rye can germinate and grow under cooler conditions than other covers. Cereal rye can also be used for spring forage production, and fed as pasture, green chop, or put up as haylage.

**OATS** - *Avena sativa*

The Oat plant is an annual grass with kinds and varieties adapted either to fall planting and midsummer harvest or spring planting and late summer harvest. Most oats are used for livestock feed in this country either as grain, pasture, hay or silage. Less than 5% of the total oat production in this country is used as food for human consumption. The human consumption is mainly in the form of breakfast foods and oat flour.

**TRITICALE** - *Triticum aestivum x Secale cereale*

Triticale is a hardy hybrid of wheat and cereal rye producing a high yield of forage. Combination of grain quality, productivity, and disease resistance of wheat with the vigor and hardiness of rye. Both winter and spring types were developed, with emphasis on spring types.

**WHEAT** - *Triticum aestivum*

Wheat is an annual or biennial grass that is widely cultivated in temperate regions in many varieties for its commercially important grain. There are many different varieties of Wheat grown throughout the world, such as Soft/Hard/ White/Red; however there are only two classifications of wheat, winter and spring. Each particular type of Wheat, Hard Red, Soft Red, Hard White, Soft White, and Durum have a different use in the flour milling industry, and may require slightly different climatic growing conditions.

**FORAGE TURNIPS** - *Brassica rapa L.*

Turnips are short-season brassicas that provide roots, stem and leaf growth for rotational grazing or strip grazing 70 to 90 days after seeding. Turnips are one of the quickest growing fodder crops available to livestock farmers for cattle or sheep.

**RAPE** - *Brassica napus*

Rape is an annual, considered neither legume nor grass. It is a short-season leafy brassica; show stems and leaves are ready for harvest 90-120 days after establishment. Rape prefers rich and well-drained soils and is a heavy user of nitrogen.

## SUMMER ANNUALS

**SORGHUM** - *Sorghum vulgare*

Widely cultivated as a grain and forage, a drought tolerant bunchgrass type. Typically used for milo grain production in the south and forage production in the north.

**SUDANGRASS** - *Sorghum sudanese*

Highly palatable and high-yielding summer annual forage. Adapted to many types of soils and environments, use with caution when grazing or haying because of nitrates and prussic acid.

**FORAGE SORGHUM** - *Sorghum bicolor*

An excellent and versatile feed option with equivalent feed values to corn. Very drought tolerant. Suitable for grazing, haying and silage. Each option requires different management.

**FORAGE SORGHUM (BMR)**

This hybrid has a very sweet stem with excellent green leaf retention. It has excellent foliar disease resistance and maintains a healthy canopy until harvest. Because the hybrid has an exceptional level of sugars in the stem palatability is very high. These sugars also provide additional energy and nutrition from the hybrid. Although the hybrid is designed for a one-time harvest, it has good regrowth capacity that can be utilized for direct grazing after the silage crop has been removed.

**SORGHUM-SUDANGRASS** - *Sorghum bicolor x Sorghum sudanese*

**HONEY SWEET SORGHUM-SUDANGRASS** - Honey Sweet is an extra sweet and juicy three-way cross. The natural sweetness from the sorgho parent makes highly palatable and nutritious forage for grazing, green chop or hay. It is the smart choice for livestock producers in providing economical quality feed for livestock use. Excellent regrowth occurs after grazing or clipping cut at pre-boot stage for maximum tonnage and palatability.

**FORAGE SORGHUM (BMR)** - This hybrid has a very sweet stem with excellent green leaf retention. It has excellent foliar disease resistance and maintains a healthy canopy until harvest. Because the hybrid has an exceptional level of sugars in the stem palatability is very high. These sugars also provide additional energy and nutrition from the hybrid. Although the hybrid is designed for a one-time harvest, it has good regrowth capacity that can be utilized for direct grazing after the silage crop has been removed.

## SUMMER ANNUALS

**GERMAN MILLET - *Setaria italica ssp. stramineofructa***

A popular hay type millet that is leafy and fine-stemmed with compact heads. It exhibits good lodging resistance. The hay is sweet and palatable when harvested at late bloom. It is later than Siberian millet with yellow seed.

**HYBRID PEARL MILLET - *Pennisetum typhoides***

Hybrid Pearl Millet has little or no prussic acid with good regrowth after cutting. For best feed quality, clipping should be done in the pre-boot stage. Grazing should begin when plants are approximately 25 inches tall. Avoid grubbing to the ground to allow the best regrowth.

**JAPANESE MILLET - *Echinochola frumentaceae L.***

Japanese Millet grows 2 to 4 feet tall. Taller and coarser than other foxtail millets, it matures quickly and thus its forage yield is much less than that of pearl millet. Japanese Millet is also planted for wildlife feed and temporary soil stabilization on construction sites.

**SIBERIAN MILLET - *Setaria italica ssp. rubrofructa***

An early maturing hay type, adapted to the northern Great Plains. Requires approximately 60 to 70 days to harvest. Early maturity is its strong point as the plant is short and not a heavy yielder. Seeds are orange in color.

**WHITE PROSO MILLET - *Panicum miliaceum***

White Proso Millet is used primarily for birdseed. It grows to about 30 inches and its stems are hollow and coarse. Seed color varies among varieties, from white, cream, red to brown or black. Depending on variety and growing season, Proso Millet requires 70 to 100 days to mature grain.

**WHITE WONDER MILLET - *Setaria italica***

A Foxtail Millet that is used primarily as a forage crop, but can be used for grain. Stems are heavy and the heads are dense and bristly. Can be over 50 inches in height, and can be cut 75 to 90 days after seeding.



# GRASS SPECIES

## NATIVE GRASS PLANTING & ESTABLISHMENT

### PLANTING TIME

The best time to plant native grasses is in the early spring (mid-March to mid-May) when soil moisture is more abundant and temperatures are cooler. Late summer/early fall (mid-August through September) can also be a good time but supplemental water may be necessary to get good germination. Dormant seeding in late fall or early winter also works well providing the soil is not frozen. See more information on cool and warm season grasses on page 35.

### SITE PREPARATION

Preparing a good seedbed is very important to ensure proper seed to soil contact and provide a good growing environment. Rake, till or plow the site to loosen the top 3 to 4 inches (8 to 12 inches is ideal) of soil. Excess weeds or other undesirable vegetation should be removed or thoroughly worked into the soil. If needed, apply a high phosphorus fertilizer (18-46-0) at this time. Final seedbed should be smooth, free of large clumps and firm.

### SEED APPLICATION

Drill seeding with a mechanical seeder is usually the most efficient method. If a seeder is not available, applying the seed with a cyclone type broadcaster works well for large areas. Hand broadcasting can be done for small sites. Once the seed has been applied, rake or drag the site to cover the seed with 1/4 to 1/2 inch maximum of soil (this step can be omitted if drill seeded).

### MULCHING

Applying a light layer (maximum 1/4 inch) of straw or other organic material on top of the seedbed greatly improves the chance of success, especially if no supplemental water is available. Mulching also helps protect the seed from blowing away or being eaten by rodents or birds.

### WATERING

Lack of proper moisture during establishment is the number one cause of failure of most seeding projects in Colorado. Providing supplemental water to the site greatly improves the success rate (Mother Nature provides enough moisture during the growing season on average one out of every 3 years).

### WEED CONTROL

Weeds grow and establish much faster and easier than grasses, and can rob the soil of valuable moisture during the establishment period. The best method of weed control is by mowing the site before the weeds can mature and set seed. Chemical applications are generally not recommended unless you can spot spray areas of heavy weed growth.

PLEASE NOTE: *Do not mow if wildflowers have also been planted with the grasses.*

### ESTABLISHMENT TIME

Under proper growing conditions you should start to see grass growth in 4 to 6 weeks with full development in 6 to 8 months. Depending on planting time, available moisture, and weed control, full establishment may take more than one growing season. The more care and effort you provide initially will greatly influence the establishment time and success.

Arkansas Valley Seed carries a wide variety of native and introduced grass species. If you do not see the species that you are looking for please call us. As always, call for current pricing and availability.

**ALKALI SACATON - *Sporobolus airoides***



A tough perennial, warm season, native growing in large bunches 24" to 42" tall. It grows on dry to moist sites with sand or gravelly soil. This species is used for good forage or grazing grass in lowland and in alkali regions. Alkali Sacaton's abundant herbage is eaten by cattle, sheep, and horses. It ranges from South Dakota to Washington, south to Missouri, Kansas, Texas, and Mexico.

**Varieties:** Salado

**ALKALIGRASS - *Puccinellia distans***



A perennial, cool season, native bunchgrass standing 12" to 18" tall. It grows on a wide range of soils and can tolerate high amounts of salinity. This species is an excellent choice in reclamation, roadside stabilization or on saline sites requiring turf. Alkaligrass ranges from New Mexico to Canada and throughout the west.

**Varieties:** Fults

**ALPINE BLUEGRASS - *Poa alpina***



A perennial, cold-tolerant, native bunchgrass that grows 8" to 24" tall. Grows well in cooler alpine, subalpine zones and mountain meadows. Prefers open sites and well-drained soils. Utilized for erosion control, reclamation and restoration. Occurs in Colorado, Utah, Washington and Oregon.

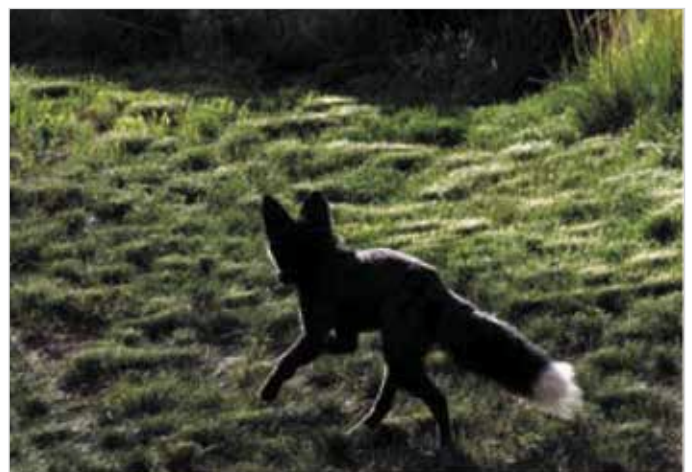
**ALPINE TIMOTHY - *Phleum alpinum***



A perennial, cold-tolerant, native short grass that is traditionally a bunchgrass, but can exhibit some sod-forming capability. Grows 6" to 24" in height and is commonly found in mountain meadows, bogs and wet places. Also grows on relatively well-drained soils and grassy slopes. It is added to seed mixtures to revegetate livestock and big game ranges, to protect road, ski slopes and mined lands. Occurring in the cooler and higher regions of the western United States.

**ALTAI WILDRYE - *Leymus angustus***

A perennial, cool season, introduced bunchgrass that grows 24" to 48" tall. It develops short rhizomes and is generally drought-tolerant and winter-hardy. It has adapted to the loam and clay-loam soils of the prairies and is often used in pasture grass. Although the growth of Altai Wildrye is coarse, cattle and sheep find it very palatable. Found in Intermountain Regions and Northern Great Plains of the western United States.



**ANNUAL RYEGRASS - *Lolium multiflorum*****Italian Type**

A short-lived annual or biennial, depending on climate and growing season, cool season, introduced bunchgrass. Can adapt to a wide range of soils, but thrive on dark rich soils in regions having mild climates and will stand fairly wet soils with reasonably good surface drainage. It is relatively easy to establish and can be used for grazing, hay, silage, and conservation purposes. Found throughout the entire United States.

**Varieties:** Max - Italian (Tetraploid)

**ARIZONA COTTONTOP - *Digitaria californica***

A perennial, warm season, native bunchgrass that grows 12" to 24" tall. It is green to bluish-green in color and has adapted to a variety of soils from clay loam to sandy loam as well as loose gravelly soils. Primarily used for in revegetation of eroded rangelands, retired croplands, and to provide forage for wildlife and livestock. Common in the Southwest, from southern Colorado to Texas, Arizona, and northern Mexico.

**ARIZONA FESCUE - *Festuca arizonica***

A long-lived, perennial, cool season native densely-tufted bunchgrass growing 12" to 36" tall. Found on shallow clay loam to loam and sandy to gravelly soils. A heavy root system is an excellent soil binder. Suited for revegetating and stabilizing disturbed soils, road, ski slopes and construction in the mountains. Moderately palatable, can be used for forage and range land restoration. Native to the ponderosa pine zone from Colorado south to west Texas, Mexico and Nevada.

**Varieties:** Redondo

**BEARDLESS BLUEBUNCH WHEATGRASS  
*Pseudoroegneria spicata ssp.inermis***

A perennial, cool season, native, erect bunchgrass, 12" to 30" tall, often with short rhizomes. It has a wide spectrum of adaptations. It is found on all aspects on mountain slopes, benches, basins, or alluvial fans, and in valley bottoms. Adapted to a wide variety of soils, but is found mostly in well-drained, medium to coarse-textured soils which vary in depth from shallow to very deep.

**Varieties:** Whitmar

**BEARDLESS WILD RYE - *Leymus triticoides***

A perennial, cool season, native sod-forming grass. It is typically at least 20" tall with strong rhizomes. This grass grows on mostly heavy soils in riparian areas, bottomlands, valleys, foothills, mountain flats and meadows from coastal marshes to high elevations. Beardless Wildrye is used for soil stabilization on channel, stream and river slopes and restoration of roadside, riparian and rangeland areas. It is also a good source of forage.

**Varieties:** Shoshone

**BIG BLUEGRASS - *Poa ampla***

A long-lived perennial, cool season, native, bunchgrass growing 24" to 48" high. It is a tall, tufted grass that is remarkably drought resistant. Known for high production of palatable forage making it a very valuable range grass.

Big Bluegrass is the largest of the native bluegrasses found in the intermountain zone of the northwest states.

**Varieties:** Sherman

**BIG BLUESTEM - *Andropogon gerardii***



A perennial, warm season, native tufted, sod-forming grass. It is tall, reaching a height of 6 to 8 feet on most sites when left ungrazed. It has short, scaly rhizomes and seed heads that normally have 3 spikelets that appear like a 'turkey foot.' Occurring from the short grass prairie region to the Atlantic Ocean.  
**Varieties:** Bison, Bonilla, Champ, Kaw, Pawnee

**BLACK GRAMA - *Bouteloua eriopoda***



A perennial, warm season, native sod-forming bunches, growing 12" to 24" tall. It grows in large patches and spreads by stolons. One of the best, most nutritious grasses, producing an abundance of forage. It remains palatable and nutritious throughout the year. Seed production is low, this grass is difficult to reestablish once it has disappeared from a range.

**BLUE GRAMA - *Bouteloua gracilis***



A common perennial, warm season, native bunchgrass reaching 10" to 20". It reproduces by tillering and by seed. Mature seed heads are curved, resembling a human eyebrow. This grass demonstrates good drought, fair salinity, and moderate alkalinity tolerances. It does not tolerate dense shade, flooding, a high water table, or acid soils. Blue Grama is distributed throughout the western United States, but primarily throughout the Great Plains.  
**Varieties:** Alma, Bad River, Hachita, Lovington

**BLUE WILDRYE - *Elymus glaucus***



A large perennial, cool season, native bunchgrass growing up to 5' in height. It is similar in stature and growth habit to slender wheatgrass. Blue Wildrye is good for streambank restoration, meadow and swale seeding. It is also excellent for reseeding burned or disturbed areas in oak woodland or forest. Found from California to Alaska and into the Great Plains and northern Mexico.  
**Varieties:** Arlington, Elkton

**BLUEBUNCH WHEATGRASS - *Pseudoroegneria spicata* ssp. *spicata***

A long-lived perennial, cool season, native bunchgrass that grows 18" to 48" tall with strong rhizomes. It is very drought resistant, persistent and adapted to stabilization of disturbed soils. This nutritious grass is used for hay production, but is better suited and more palatable when used for grazing. Most common to the northern Great Plains and the Intermountain regions of the western United States.  
**Varieties:** Anatone, Goldar, P-7, Secar

**BOTTLEBRUSH SQUIRRELTAIL - *Elymus elymoides***



A perennial, cool-season, native bunchgrass growing between 4" to 25" tall. Sometimes called "bristlegrass" and is considered to be one of the most fire resistant native bunchgrasses. It is considered to be fair to desirable forage for cattle, horses and sheep. Commonly found throughout the Rocky Mountain region and West.  
**Varieties:** Sand Hollow



**BUFFALOGRASS - *Buchloe dactyloides***

A perennial, low-growing warm-season, native sod-forming grass. Leaf blades are 10" to 12" long, but they fall over and give the turf a short appearance. This grass occurs naturally and grows best on clay loam to clay soils and does not adapt to shaded sites. It has a low fertility requirement and it often will maintain good density without supplemental fertilization. Buffalo grass is found throughout the Midwest.

**Varieties:** Bison, Bowie (Turf-Type), Cody (Turf-Type), Sharps Improved II, Sharp Shooter (Turf-Type), Texoka, Topgun (Turf-Type)

**CANADA BLUEGRASS - *Poa compressa***

A perennial, cool season, introduced grass growing to an average of 24" and spreading by underground rhizomes. Canada Bluegrass is similar to Kentucky bluegrass but is unrelated. It has some resistance to drought and salinity, and is used to reclaim disturbed areas such as gravel pits, cut roads, roadsides, and mines. It is widely distributed throughout the United States, but is mainly found in the northern states.

**Varieties:** Canon, Reubens, Talon

**CANADA WILDRYE - *Elymus canadensis***

A short-lived perennial, cool season, native bunchgrass that grows to 48". It is moderately drought tolerant and winter hardy, and has good tolerance to salinity and shade. Found on sandy shores and dunes; wooded areas, especially along trails, rivers and streams; and other disturbed sites. Canada Wildrye is found throughout the northeast, north, and western United States.

**Varieties:** Mandan

**CANBY BLUEGRASS - *Poa canbyi***

A perennial, cool season, native bunchgrass that grows 8" to 16" tall. Canby Bluegrass is vigorous, long-leaved, late-maturing, and more productive than other bluegrasses. Used as low maintenance turf and forest roads in northern Great Plains and Rocky Mountains. Common to the western U.S., Rocky Mountains, and northern Great Plains region.

**Varieties:** Canbar

**CANE BEARDGRASS - *Bothriochloa barbinodis***

A perennial, warm season, native grass reaching heights of 2 to 4 feet. Leaves are green to blue-green in color and narrow, long, and rough. The seedhead is a raceme 3 to 5 inches long, silvery to creamy or silky white when ripe. It is considered to be good forage for wildlife and livestock when green but tends to become unpalatable when dry. Ideal for seeding arid southwestern landscapes. It is best suited for plantings on silty or clayey soils and is drought tolerant. It is found in the southwestern United States and Mexico.

**CHEWINGS FESCUE - *Festuca brevipila***

A long-lived perennial, cool season, introduced densely-tufted bunchgrass growing 4" to 6" high. It is closely related to Cheewing Fescue and a form of Sheep Fescue. It has broader, longer, coarser, more lax leaves than Sheep Fescue. It is a heavy root producer and drought tolerant. In addition, its abundant dense leaves and low crowns makes it an excellent erosion control plant. Primary use has been for soil protection on road sides, ditchbanks, airports, skid trails in the higher rainfall zones, and as a cover crop in irrigated orchards and windbreaks.

**Varieties:** Durar

*Please see Turf Species section*

**COLUMBIA NEEDLEGRASS - *Achnatherum nelsonii ssp. dorei***



A perennial, cool season, native bunchgrass that grows 6" to 24" tall, without rhizomes. Growth starts in mid-spring, matures by September, reproduces from seeds and tiller; may regrow in the fall if moisture is adequate. Provides good forage for livestock and wildlife, however injury can occur from the sharp-pointed callus, working into the ears, eyes, nostrils, and tongues of grazing animals. Also used for rangelands and reclamation it is commonly found across the western U.S. from Canada to Mexico.

**CREeping MEADOW FOXTAIL - *Alopecurus arundinaceus***



A long-lived perennial, cool season, introduced sod-forming grass that grows 12" to 24" tall. It is extremely winter-hardy and recovers quickly from grazing due to its numerous aggressive underground rhizomes. Creeping Meadow Foxtail is palatable to all classes of livestock. Most commonly utilized throughout the Pacific Northwest, Intermountain West, Northern Great Plain States and western Canada.  
*Varieties:* Garrison

**CRESTED WHEATGRASS**

**CRESTED WHEATGRASS - *Agropyron cristatum***



A long-lived perennial, cool season, introduced bunch-type reaching 12" to 36" tall. Drought tolerant, and winter-hardy grass with a deep-rooted system making an excellent soil binder. Crested Wheatgrass is commonly recommended for a palatable forage production. Crested wheatgrass is well-adapted to stabilization of disturbed soils and does well on shallow to deep, moderately coarse to fine-textured, moderately-well to well-drained soils. The grass commonly seeded in the arid sections of the western United States.

The Fairway type was first recognized in 1950 as being different than other crested types. Fairway is shorter, denser, finer stemmed, and less productive than Desert wheatgrass at lower elevations and may exceed Desert wheatgrass production at higher elevations. Newer varieties such as Ephraim and Roadcrest exhibit strong rhizome activity.

*Fairway Type Varieties:* Douglas, Ephraim, Kirk, Parkway, Roadcrest, Ruff

**DESERT WHEATGRASS  
*Agropyron desertorum***

A perennial, cool season, introduced bunchgrass 1 to 3 feet. It is later maturing and more productive than Crested Wheatgrass. More drought tolerant than crested or fairway, but less than the Siberian type. Found in the Northern Rocky Mountain Region.

*Desert Type Varieties:* Nordan, Summit

**HYBRID WHEATGRASS  
*Agropyron cristatum x  
Agropyron desertorum***

A hybrid cross between standard and Desert wheatgrass, which results in a plant with excellent seedling stamina that establishes quickly. It is taller and has higher yielding forage potential than its parents during establishment.

*Hybrid Type Varieties:* CD-II, Hycrest

**SIBERIAN WHEATGRASS  
*Agropyron fragile ssp. sibericum***

A long-lived perennial, cool season, introduced bunchgrass. Similar to Desert Wheatgrass, Siberian is more drought tolerant and retains its greenness and palatability later into the summer than standard, fairway or even the hybrid cross types.

*Siberian Type Varieties:* P27, Vavilov

**CURLY MESQUITE GRASS - *Hilaria belangeri***

A perennial, warm season, native bunchgrass grows 6" to 12" tall that forms clumps or loose sod. It has strong stolons and does well in dry soil areas that may range in texture from clay to gravelly; preferring full sun and lower elevations. Stems are slender with short narrow leaves. Palatable both green and dry, thus a valuable range grass for warm dry areas. Found in the southern regions of Texas, Arizona and New Mexico.

**DAHURIAN WILDRYE - *Elymus dahuricus***

A short-lived perennial, cool season, introduced bunchgrass that grows 12" to 60" tall. Dahurian Wildrye has a deep root system allowing good drought tolerance, preferring well-drained fertile soils. It germinates quickly and regrows aggressively after cutting and grazing, thus providing excellent palatable forage and making it common in pasture mixes. Located in the Northeast, Midwest, and northwestern United States.

**DESERT NEEDLEGRASS - *Achnatherum speciosum***

A perennial, cool season, native bunchgrass that grows at least 24" tall. It grows well in rocky, dry or sandy areas of the desert making it very drought tolerant. Primary use is for revegetation or landscape. Found across the southwest desert of the U.S. and used in restoration seedings in the more arid portions of the Great Basin.

**FESTULOLIUM - *Festulolium braunii***

A short-lived perennial, cool season, introduced bunchgrass. Derived from a cross between either Italian ryegrass and meadow fescue. Its ease of establishment and management, drought resistance, rapid regrowth and good disease resistance are combined with the season-long productivity and high forage palatability quality.

**Varieties:** Duo, Spring Green

**FOWL BLUEGRASS - *Poa palustris***

A perennial, cool season, native sod forming grass that grows 12" to 24" tall. Prefers fertile sandy to clayey alluvial soils and thrives in moist, cool, temperate climates and has winter hardiness. It is widely distributed in the U.S. and used for lawns and landscaping, grows in meadows, stream banks and moist areas in the northern U. S., south to New Mexico and California.

**FOXTAIL BARLEY - *Hordeum jubatum***

A short-lived perennial, cool season, native bunchgrass without rhizomes, growing 12" to 24" tall. Foxtail Barley grows most abundant on poorly-drained, wet soils, where textures vary from sandy loams to silty clay loams. It is tolerant of salts and alkali areas, but can be prone to become weedy. It is highly palatable to cattle and wildlife, and moderately palatable to sheep.

**GALLETA GRASS - *Pleuraphis jamesii***



A perennial, warm season, native low coarse grass growing 3" to 20" tall. It reproduces from rhizomes and seeds, and occurs in a wide variety of soils, but is most abundant on fine-textured soils where other grasses are rare. Galleta is a highly palatable forage plant for cattle, horses, and sheep, particularly when used during late spring and summer. It is useful for roadside seedings, campground and picnic due to its high traffic tolerance.  
**Varieties:** Viva

**GIANT DROPSEED - *Sporobolus giganteus***

A perennial, warm season, native bunchgrass that grows at least 24" tall. It prefers light, sandy and medium-loamy soils and requires well-drained soil and preferring acid, neutral and basic or alkaline soils. It cannot grow in the shade and requires dry or moist soil thus making it very drought tolerant. Because it has poor palatability it is commonly used for erosion control on sand dunes or blowouts. Found mainly in NM and other parts of the southwest United States.

**GREAT BASIN WILDRYE - *Leymus cinereus***



A large, long-living perennial, cool season, native bunchgrass growing on average of 3 to 6 feet tall. Due to its extensive deep, coarse fibrous root system, Great Basin Wildrye adapts well to broad climates, stabilizes disturbed soils, and it is palatable to all classes of livestock and wildlife and native to the Great Plains and Intermountain regions of the western United States.  
**Varieties:** Magnar, Trailhead

**GREEN NEEDLEGRASS - *Nassella viridula***



A perennial, cool season, native bunchgrass growing between a height of 18" to 36". It grows on medium to fine-textured soils. Green Needlegrass naturally occurs on bottomlands, flat benches and overflow area along streams. It is an important native of the Northern Great Plains, and is found as far south as Arizona.  
**Varieties:** Lodorm

**GREEN SPRANGLETOP - *Leptochloa dubia***



A short-lived perennial, warm season, native, bunchgrass growing 24" to 42" tall. Grows well on rocky sites and soils and is cold and drought tolerant. It is primarily used for erosion control and grazing as it is highly palatable and nutritious to all classes of livestock. It is adapted throughout Texas, Southern New Mexico, and Southeast Arizona and Florida.

**IDAHO FESCUE - *Festuca idahoensis***



A perennial, cool season, native bunchgrass 12" to 36" tall. Although it will grow anywhere, it prefers silt loam or sandy loam soils. Idaho Fescue has excellent cold tolerance, moderate drought tolerance, moderate shade tolerance, and adapted to stabilization of disturbed soils. It is one of the most common and widely distributed grasses in the western United States.  
**Varieties:** Joseph, Winchester





**INDIAN RICEGRASS - *Achnatherum hymenoides***

A short to medium lived perennial, cool season, native bunchgrass growing 8" to 30" tall. It is very winter hardy, has a broad climatic adaptation and prefers dry and primarily loamy- sandy-gravelly sites. Indian Ricegrass is highly palatable to livestock and wildlife. One of its greatest assets is stabilizing sites susceptible to wind erosion. Indian Ricegrass is generally found in the plains, foothills, mountains, and intermountain basins of the western United States.

**Varieties:** Nezpar, Paloma, Rimrock

**INDIANGRASS - *Sorghastrum nutans***

A perennial, warm-season grass, native bunchgrass, growing 3 to 5 feet tall. It grows best in deep, well-drained floodplain soils and is highly tolerant of poorly to excessively well-drained soils, acid to alkaline conditions, and textures ranging from sand to clay. Indiangrass once dominated the prairies of the central and eastern United States, but today has adapted to the Northeast west to Texas and North Dakota.

**Varieties:** Cheyenne, Holt, Llano, Osage, Tomahawk

**INTERMEDIATE RYEGRASS - *Lolium hybridum***

A short-lived perennial, cool season, introduced bunchgrass. It is the result of a cross between annual and perennial ryegrass. It has a finer leaf texture, very heat tolerant, and is less winter hardy but higher yielding than perennial ryegrass. Intermediate Ryegrass is used for grazing, or as a great rotation crop, hay production in northern Michigan, Minnesota, and Wisconsin.

**Varieties:** Bison

**INTERMEDIATE WHEATGRASS**

*Elytrigia intermedia ssp. intermedia*



A long-lived perennial, cool season, introduced grass growing 36" to 48" tall. It has short rhizomes and a deep feeding root system, preferring well-drained loamy to clayey-textured soils. Intermediate Wheatgrass will tolerate slightly acidic to mildly saline conditions, can withstand moderate periodic flooding in the spring, and is very tolerant of fire. It has good palatability to livestock and wildlife and adapts well to the stabilization of disturbed soils.

**Varieties:** Oahe

**KENTUCKY BLUEGRASS - *Poa pratensis***

A perennial, cool-season, introduced sod-forming grass 18" to 24" tall. It is a darker green foliage, longer leaves, and pubescence at the bases of the leaves. In the west, it is very abundant and frequently used for hay and forage for sheep and cattle. In the east, it is planted as a pasture grass, but not usually used for hay.

**Varieties:** Troy, Ginger  
Also hundreds of commercially available turf-type varieties, *please see Turf Species Section.*

**KLEINGRASS - *Panicum coloratum***

A perennial, warm season, introduced bunchgrass grows 36" to 48" tall at maturity. Adapted to a wide range of heavy soils and dry conditions. Performs well on loamy to clayey soils and is salt tolerant. Considerable drought tolerance but not cold tolerant. Common in southern New Mexico, and Oklahoma, Texas, and Arizona.

**LEHMANN'S LOVEGRASS - *Eragrostis lehmanniana***

A perennial, warm season, introduced sod forming grass that grows 12" to 24" tall. Adapted to a wide variety of sites, and is drought tolerant. It has good palatability for livestock and the seed passes unharmed through the animal assisting with reseeding. Can persist for several years in the soil until soil has adequate moisture for growth. Found across southwest United States.

**LETTERMAN NEEDLEGRASS - *Achnatherum lettermanii***



A perennial, cool season, native bunchgrass with mostly glabrous stems that are 6" to 24" tall. Provides valuable forage for many species of wildlife and domestic livestock, and excellent reclamation grass for upper elevation regions. Found across the western United States.

**LITTLE BLUESTEM - *Schizachyrium scoparium***



A slow-growing perennial, warm season, native bunchgrass reaching a height from 18" in dry areas or 3 to 5 feet in deep, fertile soils. It displays coarse stems and basal leaves are greenish-blue to purplish in color, and grows on a wide variety of soils, but is very well adapted to well-drained, medium to dry, infertile high salinity soils. Resistant to trampling and fair forage it is very palatable for livestock, deer, and elk and suitable for hay. Distributed throughout the United States.

**Varieties:** Aldous, Blaze, Camper, Cimmaron, Pastura

**MAMMOTH WILDRYE - *Leymus racemosus ssp. racemosus***

A perennial, cool season, native sod forming grass that grows 24" to 48" tall. Used for stabilizing inland sand dunes, mine tailings and permanent cover on shallow to deep sands. Moderately tolerant of saline and saline sodic soils. It has poor palatability due to its coarse leaves, but it has been grazed in drought situations. Adapted to the Pacific Northwest and Intermountain Region.

**Varieties:** Volga

**MEADOW BARLEY - *Hordeum brachyantherum***



A short-lived perennial, cool season, native bunchgrass that grows 12" to 14" tall. Establishes rapidly and is a good cover crop in orchards and vineyards. Tolerates drought as well as infertile, alkaline, compacted soil. Meadow Barley is especially useful in reclamation and erosion control. Common in the western states and some of the northeastern states.

**MEADOW BROME - *Bromus biebersteinii***



A long-lived perennial, cool season, introduced grass that spreads by short rhizomes. Reaching 2 to 6 feet in height when irrigated. Its primary use is for rotational forage production and is highly palatable to all classes of livestock and wildlife. Meadow Brome is very winter hardy. It performs best on fertile, moderately deep to deep, well-drained soils. Used in cool moist climates of across the northern United States.

**Varieties:** Fleet, Montana PVP, Paddock, Regar

**MEADOW FESCUE - *Festuca pratensis***

A short-lived perennial, cool season, introduced bunchgrass that grows 6" to 12" tall. It is slow to establish but is very palatable and highly productive. Commonly found on cool and moist sites across the Pacific Northwest and northern U.S.

**MOUNTAIN BROME - *Bromus marginatus***

A short-lived, perennial, cool season, native bunchgrass growing 3 to 4 feet tall. Prefers deep, fertile, mesic soils of medium to fine textures, but also survives on thin, dry or coarse soils, resulting in lower production levels. It is winter hardy and has good shade tolerance and fair tolerance to fire. Well-adapted to the northwestern regions, the foothills and mountains of the Intermountain West and some midwestern states.

*Varieties:* Bromar, Garnet

**MUTTONGRASS - *Poa fendleriana***

A long-lived perennial, cool season, native bunchgrass that usually grows 12" to 24" tall. Leaves are 2" to 12" long, growing largely from the base of the plant has clusters of small silvery pink flowers. It is closely related to Cusick's Bluegrass. This is a common grass of open woodland and forested areas and commonly used for grazing. Grown on a wide range of elevation and ranges in the western part of the United States.

**NEEDLE & THREAD GRASS - *Hesperostipa comata ssp. Comata***

A perennial, cool season, native bunchgrass growing 12" to 36" tall. It is without rhizomes, erect to ascending growing, and its seed has a sharp attachment point with beards near the point, and is very drought tolerant. It has adapted to excessively drained, sandy or gravelly soils and also to shallow or deep sandy loam, fine sandy loam, or even clays that are shallow to deep. It is widely distributed throughout the western United States.

**NEEDLE GRAMA - *Bouteloua aristidoides***

An annual, warm season, native bunchgrass that grows 6" to 12" tall. Use for erosion control on unstable soils. Persists on dry hillsides across the higher deserts of Arizona, southern California and northern Mexico.

**NEWHY HYBRID WHEATGRASS - *Elymus hoffmani***

A long-lived perennial, cool season, introduced, sod-forming grass that grows 12" to 24" tall. It's a cross between quackgrass and Bluebunch Wheatgrass making it both aggressive and productive. Will recover quickly after grazing. Used on both irrigated and dryland sites throughout the western United States.

**NODDING BROME - *Bromus anomalus***



A perennial, cool season, native bunchgrass that grows 6" to 12" tall. It adapts well to coarse-textured soils and is drought tolerate. It is highly palatable for grazing livestock and wildlife. Found on dry, coarse-textured soils across Idaho, Utah and Arizona.

**OLD WORLD BLUESTEM - *Bothriochloa ischaemum***



A perennial, warm season, introduced bunchgrass that grows at least 12" and up to 5 feet tall. Does well on any well drained soils. Highly palatable in hay production by itself, but can be used with other pasture grasses. Commonly found across southeast United States and the lower Midwest.

**Varieties:** Granada, King Ranch, Plains, W.W. Spar

**ORCHARDGRASS - *Dactylis glomerata***



A persistent perennial, cool season, introduced bunchgrass, forming distinct flowering clumps 24" to 48" tall. It is one of the earliest species to grow in the spring, making tremendous growth during cool conditions. It performs well on different textured soils ranging from clay to gravelly loams and on shallow to deep soils. The primary use of Orchardgrass is for forage production and is highly palatable to all livestock. Found in the high-rainfall regions of the western mountains and in irrigated areas throughout the West.

**Varieties:** Latar, Paiute, Potomac.  
Plus numerous others.

**PERENNIAL RYEGRASS - *Lolium perenne***



A perennial, cool season, introduced bunchgrass growing to a height of 18" to 36". Perennial Ryegrass is one of the most widely used grasses and is adaptable to a wide variety of soils and climatic conditions. With a leafy head and fine stem, it is considered very palatable, used for both forage and hay. A proven performer pastures in the northern area of the United States.

**Varieties:** Linn (Diploid), Herbie (Diploid, Elgon (Tetraploid), plus numerous others.  
Please see Turf Species Section.

**PLAINS BRISTLEGRASS - *Setaria vulpisetia***

A perennial, warm season, native bunchgrass that can grow up to 36" in height. Found on open dry ground, in dry woods, and on well-drained soils along gullies, stream courses, and other areas occasionally with abundant moisture. It provides moderate to high-quality forage for all types of grazing livestock. Plains bristlegrass makes up an appreciable part of the forage on southwestern ranges.

**PLAINS LOVEGRASS - *Eragrostis intermedia***



A perennial, warm season, native bunchgrass growing 15" to 36" tall. Poor grazing for wildlife, good grazing for livestock. Grows best on rich soils on rocky, gravelly or sandy land. Most commonly found throughout the southwest United States.



**PRAIRIE JUNEGRASS - *Koeleria macrantha***

A perennial, cool season, native bunchgrass that grows 12" to 30" tall. Persists in open woodlands and ponderosa pine at higher elevations. Use for revegetating rangeland, mine sites and other disturbed sites. Commonly found across southern Canada to Texas, California, and Washington.

**PRAIRIE SANDREED - *Calamovilfa longifolia***

A long-lived perennial, warm season, native sod-forming grass growing 24" to 72" in height possessing rigid, leafy stems. Used mostly for range seedings in mixtures; prefers sandy sites and is drought tolerance and winter hardy. Prairie Sandreed is found in northern and central Great Plains and intermountain desertic basins plant growth regions.

**Varieties:** Bowman , Goshen

**PUBESCENT WHEATGRASS - *Elytrigia intermedia ssp. trichophorum***

A long-lived perennial, cool season, introduced sod-forming grass 36" to 48". The grass has basal type leaves and spreads by rhizomes. Its strongest asset is its ability to stay green into the summer months when soil moisture is adequate. It has adapted to a wide range of conditions, including low-fertility soils, and saline soil tolerant, making it drought and winter tolerant. Pubescent Wheatgrass yields high-quality hay and pasture grass.

**Varieties:** Most common varieties are: Greenleaf, Luna, Mandan, Manska

**PURPLE THREE-AWN - *Aristida purpurea***

A perennial, warm season, native bunchgrass that grows up to 16" in height. Deep-rooted growing in well-drained soils. It has good forage potential and provides grass cover in hot deserts of the southwest. Found across the western United States.

**QUICKGUARD - *Triticum aestivum x Secale cereale***

An annual, cool season, introduced cover grass. A sterile, non-reseeding, cross between wheat and cereal rye grass. Well-adapted to a wide range of soil varieties. Used for reclamation and stabilization of disturbed areas. Adapted all across the United States.

**RED THREE-AWN - *Aristida purpurea var. longisetata***

A perennial, warm season, native bunchgrass that grows 8" to 16" tall. Deep-rooted growing in well-drained soils. A very competitive grass, it is best suited for disturbed sites and for erosion control. Found across parts of the western United States.

**RED TOP - *Agrostis gigantea***



A perennial, cool season, introduced sod-forming grass growing to 30" or 40" tall. A coarse but fairly dense turf that has slender stems. It will grow under a wide variety of soil and moisture conditions; is drought-resistant and also grows well on poorly-drained soils. Redtop is used for erosion control, pastures, temporary grass in turf seedings and occasionally for hay. It is distributed throughout most of the United States.

*Varieties:* Streaker

**REED CANARYGRASS - *Phalaris arundinacea***



A long-lived perennial, cool season, introduced sod-forming grass reaching a height of 6 to 8 feet. The extensive, rhizomatous root system protects it from drought, but is also suited to wet soils and dense growth of coarse erect stems, providing excellent erosion control, especially along stream banks, shorelines and waterways. It can be found throughout the west, north, and northeastern United States.

*Varieties:* Chiefton, Palaton

**REGREEN - *Triticum aestivum x Elytrigia elongata***



An annual, cool season, introduced cover grass. A sterile, non-reseeding, cross between wheat and Tall Wheatgrass. Well-adapted to a wide range of soil varieties. Used for reclamation and stabilization of disturbed areas. Adapted all across the United States.

**ROCKY MOUNTAIN FESCUE - *Festuca saximontana***



A long-lived perennial, cool season, native bunchgrass. Cold and drought tolerant, it persists on fertile, silty and clayey soils, growing in well-drained meadows, sub-humid grassland sites. Rocky Mountain Fescue may be used on rangeland or erosion control on mine sites. Common at higher, subalpine and alpine elevations in the Rocky Mountains and the northwest of the United States.

**ROTHROCK'S GRAMA - *Bouteloua rothrockii***



A perennial, warm season, native bunchgrass that grows 6" to 12" tall. It is drought tolerant thriving on poor rocky soils. Used for reclamation in parts of Utah, Arizona and New Mexico.

**ROUGH BLUEGRASS - *Poa trivialis***



A perennial, cool season, introduced grass that spreads by stolons and forms dense, thick patches. The leaf blades are upright at first, but tend to lay down and mat as the patches become older. It is capable of withstanding a considerable amount of shade if sufficient moisture is present. Rough Bluegrass is considered a nuisance in the Rocky Mountain region but can be a beneficial grass in other parts of the U.S.



**ROUGH FESCUE - *Festuca campestris***

A perennial, cool season, native bunchgrass averaging 12" to 14" in height. The basal leaves have a purple coloration and are firm, rough and tightly enrolled. Thrives on sandy loams to moderately- heavy soils thus the highest producing bunchgrass in the mountain grasslands. It is not tolerant of any extremes in soil salinity or acidity, or drought tolerant. It can be found in open mountain grasslands to the foothills and northern prairie.

**RUSSIAN WILDRYE - *Psathyrostachys juncea***

A long-lived perennial, cool season, introduced bunchgrass reaching 2 to 4 feet in height. It can be grown on a fairly wide range of soil types, but is most productive on fertile loam soils to heavy clay soils. Russian Wildrye is exceptionally cold and drought tolerant and is one of the most versatile forage grasses available for dryland pastures. Established in the Rocky Mountain region.

**Varieties:** Bozoisky, Swift, Vinal

**SAND BLUESTEM - *Andropogon hallii***

A perennial, warm season, native bunch grass and in the best growing conditions it can reach 7 feet in height. It is often used in erosion control plantings on sandy, loamy sand or sandy loam sites. Sand Bluestem is a good to excellent forage due to its palatability and high yield. Predominantly found west of the Mississippi River to the Rocky Mountains and from Canada to Mexico.  
**Varieties:** Elida, Garden County, Goldstrike, Woodward

**SAND DROPSEED - *Sporobolus cryptandrus***

A perennial, warm season, native bunchgrass growing 16" to 40" tall. It is without rhizomes and commonly grows on sandy soils but is adapted to medium-textured soils also. It is not tolerant of wet soils. Sand Dropseed is very essential grass for wind erosion control on sandy soil sites.

**SAND LOVEGRASS - *Eragrostis trichodes***

A perennial, warm season, native bunchgrass that grows 24" to 60" tall. Persists on deep sands and sandy loam soils. Occurring in central and southern Great Plains.

**Varieties:** Bend, Nebraska 27

**SANDBERG BLUEGRASS - *Poa sandbergii***

A long-lived perennial, cool season, native bluegrass that reaches 24" to 48" in height. It thrives on a variety of soils from moderately coarse sands to fine clays. Sandberg Bluegrass is distributed throughout the western United States.

**SHEEP FESCUE - *Festuca ovina***



A perennial, cool season, introduced bunchgrass that grows 12" to 24" tall. Well-adapted to most soil conditions and can be used for erosion control and low-maintenance mixtures. Found across the entire United States.  
**Varieties:** Bighorn, Covar, MX-86

**SIDEOATS GRAMA - *Bouteloua curtipendula***



A medium-size perennial, warm season, bunchgrass or sod-forming grass grows 15" to 30" tall or occasionally taller. Sideoats Grama is a large and coarse grass, found on rocky open slopes, woodlands, and forest openings up to an elevation of about 7,000 feet. It has adapted to most soil conditions and one of the most important range grasses. Sideoats Grama is distributed throughout most of the United States.  
**Varieties:** Butte, El Reno, Haskell, Killdear, Niner, Pierre, Premier Trailway, Vaughn

**SIX WEEKS FESCUE - *Vulpia octoflora***



An annual, cool season, native grass that grows 6" to 18" tall. The root system is coarsely fibrous and shallow. This grass spreads by reseeding itself; it occasionally forms sizable colonies. This weedy grass prefers full sun, dry conditions, and barren soil containing sand or gravel. This grass is often found in disturbed areas and degraded natural habitats across the entire U.S.

**SLENDER WHEATGRASS - *Elymus trachycaulus ssp. trachycaulus***



A short-lived perennial, cool season, native tufted bunchgrass ranging in height from 24" to 30". It has very short rhizomes which prefer loams and sandy loams. It is a relative species to the mountain and intermountain areas of the western United States and the northern Great Plains.  
**Varieties:** Pryor, Revenue, San Luis

**SMOOTH BROME - *Bromus inermis***



A perennial, cool season, introduced sod-forming growing 24" to 48" spread by rhizomes. Frequently the leaves are marked by a transverse wrinkle resembling a "W" a short distance below the tip. It is resistant to drought and extremes in temperature. Smooth Brome is the most widely used of the cultivated brome-grasses. It is distributed throughout most of the United States.  
**Varieties:** Carlton, Lincoln, Manchar

**SPIKE MUHLY - *Muhlenbergia wrightii***



A perennial, warm season, native bunchgrass that grows 12" to 18" tall. Adapted to wide spectrum of soils, it can be used for revegetation on rangelands, mine lands and other reclaimed sites. Found across southwestern Colorado, Utah, Arizona, New Mexico, Oklahoma and Texas.  
**Varieties:** El Vado





**STREAMBANK WHEATGRASS***Elymus lanceolatus ssp. psammophilus*

A long-lived perennial, cool season, native grass growing from 12" to 36" tall. The leaves have a light green and grey tint and are somewhat curled on the ends. It is drought tolerant and commonly used for reclamation and not forage production. Found in the northern Great Plains and Intermountain Regions of the western United States.

**Varieties:** Sodar

**SWITCHGRASS - *Panicum virgatum***

A perennial, warm season, native sod-forming grass that grows 3 to 5 feet tall. Switchgrass is very tolerant of poor soils, flooding and drought. Seedlings tend to be slow to develop, and are susceptible to weed competition. Prefers moderately-deep to deep, somewhat dry to poorly-drained, sandy to clay loam soils. Provides high-quality pasture and hay for livestock. Also used for reclamation sand dunes and dikes. It has climatically adapted throughout most of the United States.

**Varieties:** Alamo, Blackwell, Cave-in-Rock, Dacotah, Forestburg, Kanlow, Nebraska 28, Grenville

**TALL FESCUE - *Festuca arundinacea***

A long-lived perennial, cool season, introduced deep-rooted, bunchgrass growing up to 5 feet. It will grow fairly well on soils low in fertility, but it is better adapted to fertile conditions. Beware of endophytes in this species especially when feeding to livestock. Adaptation regions include all area east of the Great Plains, except southern and central Florida.

**Varieties:** Fawn, KY-31

Plant breeders have developed tall fescue cultivars for every region of the tall fescue adaptation area. These cultivars include both forage and turf types, and low and high endophyte types. *Please see Turf Species Section*

**TALL WHEATGRASS - *Thinopyrum ponticum***

A perennial, cool season, introduced bunchgrass that grows 3 to 7 feet tall. It is a tall, coarse, late-maturing grass that is especially tolerant of saline or alkali soils and adapted to either irrigated or sub-irrigated. It prefers soils with a high water table. Used in wildlife plantings where it is tall, persistent, bunchy growth provides nesting sites and cover for upland gamebirds. Occurring in the Rocky Mountain region from north New Mexico to Canada.

**Varieties:** Alkar, Jose, Largo, Platte

**TANGLEHEAD - *Heteropogon contortus***

A short-lived perennial, warm season, native bunchgrass growing between 3 to 8 feet in height. It is palatable to most livestock for grazing rather than hay. It is drought tolerant and re-establishes from its own seed. In the United States, it is present in the southern parts of Texas, New Mexico, Arizona, and in Hawaii.

**THICKSPIKE WHEATGRASS - *Elymus lanceolatus ssp. lanceolatus***

It is a long-lived perennial, cool season, native sod-forming grass, grows from 12" to 36" tall. Its extensive rhizomatous root system combined with a few deep roots makes it more drought tolerant than Western Wheatgrass. This species is common to the northern Great Plains and Intermountain Region of the western United States.

**Varieties:** Bannock, Critana, Schwendimar

**THURBUR FESCUE - *Festuca thurberi***



A long-lived perennial, cool season, native densely tufted bunchgrass, growing 18" to 36" tall. Without rhizomes, it prefers deep, well-developed, medium-to-fine textured soils. Thurbur's Fescue is good to fair forage for cattle, sheep, horse, elk, and deer during the spring season. Limited in its distribution to the high mountain slopes and valley bottoms.

**TIMOTHY - *Phleum pratense***



A relatively short-lived perennial, cool season, introduced bunchgrass grows in erect stools or culms 20" to 40" tall. It has a shallow, compact, and fibrous root system which thrives best on rich, moist bottomlands and on finer textured soils, such as clay loams, and does not do well on coarser soils. Timothy is palatable and nutritious and mostly for used for hay but also makes good pasture and silage. It has adapted to a cool and humid climate and distributed throughout the entire United States.

**Varieties:** Climax, Drummond

**TUFTED HAIRGRASS - *Deschampsia caespitosa***



A short-lived perennial, cool season, native densely tufted, bunchgrass, growing 24" to 48". It grows in deep, moisture-saturated, poorly or drained soils, and well-developed soils. It is somewhat tolerant to salt and alkalinity. Tufted Hairgrass is considered to be a good forage livestock and wildlife. It resists toxic wastes, and is therefore often used in the reclamation of mining sites. It is also recommended for the reclamation of subalpine, alpine, and mountain meadow habitats. Found in the Rocky Mountain region and west to the coast, and northeastern states.

**Varieties:** Nortran

**VINE MESQUITE GRASS - *Panicum obtusum***



A perennial, warm season, native sod forming grass growing 12" to 30" tall. The leaf blade is long, narrow, upright, and smooth. It reproduces by stolon roots and is established by seeding or sod pieces. It is better suited for reclamation and along banks of streams or ditches, bottomland and highly productive soils than for grazing being most palatable when green. Found from Missouri to Colorado and south into Mexico.

**WEEPING LOVEGRASS - *Eragrostis curvula***



A rapidly growing perennial, warm-season, introduced bunchgrass, reaching heights of 2 to 4 feet. The drooping basal shape leaf characteristic gives rise to the name "weeping" Lovegrass. Prefers a light-textured, well-drained soil, and will thrive on soils of low fertility. It produces excellent pasture during early spring and fall if grazed close it is palatable. Weeping Lovegrass is distributed throughout the southern Great Plains of the United States.

**Varieties:** A-67, Ermelo | Morpa

**WESTERN WHEATGRASS - *Pascopyrum smithii***



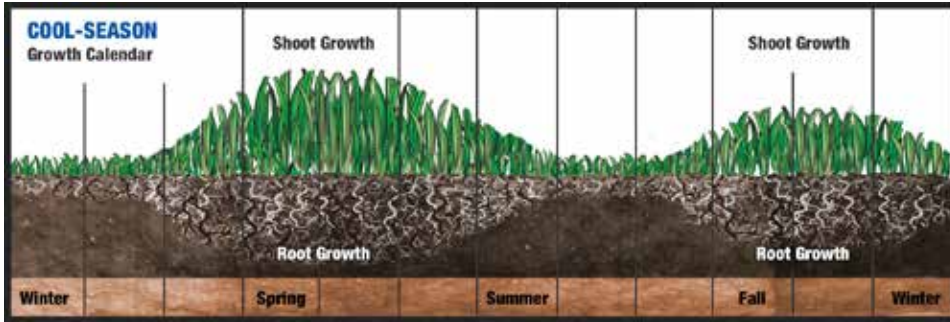
A long-lived perennial, cool season native sod-forming grass growing in small clusters from 12" to 36" tall. It is common to moist, sometimes saline to saline-sodic, and medium-to-fine textured soils. It has adapted to stabilization of disturbed soils because of its extensive, strong spreading rhizomes combined with a few deep roots. A good hay source and forage to domestic and wild animals across the Great Plains, Southwest, and Intermountain regions of the western United States.

**Varieties:** Arriba, Flintlock, Barton, Rosana, Rodan, Walsh

# SPRING SEEDING - WHAT TO EXPECT

## COOL VS. WARM SEASON GRASSES

Grasses are classified into two groups, cool season and warm season. These groups are determined by when the grasses grow best. Cool season grasses have a longer growing season compared to warm season grasses. Warm season grasses green-up later in the spring and go dormant earlier in the fall - usually after the first frost. Cool season grasses are much easier to establish than warm seasons. Maintenance for cool season grasses normally begins in early spring (April 1st) whereas warm season grasses are normally in mid-spring (May 15th). Ambient (air) temperature will determine when existing plants begin to actively grow and require care, as illustrated below. On the other hand, consistent soil temperatures dictate when new seedlings begin to wake-up from dormancy and germinate. The threshold for plant growth in a minimum soil temperature of 55 to 60 degrees F for cool season and 65 to 70 degrees F for warm season grasses. When seeding prior to these conditions, the seed will lay dormant and remain viable until they are met. During the growing season, optimal plant growth for established grasses occurs between 60 and 80 degrees F for cool season and 80 to 95 degrees F for warm season grasses. Dormant seeding in the late fall/winter is also an option.



### Germination Threshold

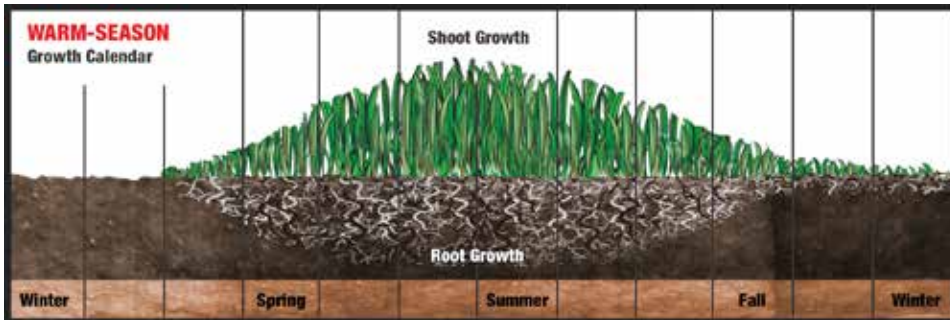
55-60 degrees F in soil

### Elevation\*

<6,000 ft = April 20th  
 6-8,000 ft = April 30th  
 8,000+ ft = After May 10th

### Cool Season Species (Average Germination Rate Once Soil Temperature Threshold Achieved)

- |   |                                    |                                |
|---|------------------------------------|--------------------------------|
| Kentucky Bluegrass (14-21 days)   | Crested Wheatgrass (14-21 days)    | Perennial Ryegrass (7-10 days) |
| Western Ryegrass (21-28 days)   | Turf-Type Tall Fescue (10-14 days) | Smooth Brome (10-14 days)      |
| Fine Fescues including Creeping Red Fescue, Chewings Fescue, Hard Fescue and Sheep Fescue (7-21 days) |                                    |                                |



### Germination Threshold

65-70 degrees F in soil

### Elevation\*

<6,000 ft = May 20th  
 6-8,000 ft = May 31st  
 8,000+ ft = After June 10th

### Warm Season Species (Average Germination Rate Once Soil Temperature Threshold Achieved)

- |                           |                              |
|---------------------------|------------------------------|
| Buffalograss (14-21 days) | Little Bluestem (21-28 days) |
| Blue Grama (21-28 days)   | Big Bluestem (14-21 days)    |

# COVER CROP OPTIONS

Perennial grasses and other plant material are not always the answer when it comes to project planning or the lack of water for perennial establishment. Utilizing one of the following cover crops will stabilize topsoil and reduce erosion during that period of time. The following cover crops are recommended for use in the West; please contact us to find the right option for you.

Regreen   <i>Triticum aestivum</i> x <i>Elytrigia elongata</i> QuickGuard   <i>Triticum aestivum</i> x <i>Secale cereale</i> Triticale   <i>Triticum aestivum</i> x <i>Secale cereale</i> Winter Rye   <i>Secale cereale</i>	Wheat   <i>Triticum aestivum</i> Oats   <i>Avena sativa</i> Barley   <i>Hordeum vulgare</i> Annual Ryegrass   <i>Lolium multiflorum</i>
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# WILDFLOWER & FORB SPECIES

## WILDFLOWER PLANTING & ESTABLISHMENT

### PLANTING TIME

The best time to plant wildflowers is during the early spring when temperatures are cooler and the need for supplemental water is reduced. This spring planting allows the plants to fully establish before the hot dry conditions of summer, plus gives you a longer period of blooming. Dormant seeding in the late fall allowing the seed to overwinter in the soil until spring can also work well, especially if seeded with grasses.

### SITE PREPARATION

Rake or till the site to loosen the top 2 inches of soil. Excess weeds or other undesirable vegetation should be removed to allow proper seed to soil contact. Wildflowers typically do not need soils with high fertility but if a fertilizer is deemed necessary, use one low in Nitrogen (5-10-10 ratio).

### PLANTING METHODS

Because wildflower seed mixes contain seeds of many different sizes, blending an inert carrier like sand, potting soil or vermiculite in a 2 to 1 ratio (sand to seed) will help to distribute the seed evenly over the site. For small areas, hand broadcasting the seed with the carrier works well. For larger areas, you may want to use a cyclone type spreader. Once the seed has been broadcast it must be covered by a light layer (1/8 to 1/4 inch maximum) of soil for proper germination to occur. This can be achieved by lightly raking the site for small areas or by using a drag or chain-link fence behind a tractor for large areas.

### POST-PLANTING CARE

The planting must be kept moist for 4 to 6 weeks using supplemental watering if necessary. You should begin to see seedlings in 2 to 3 weeks and the first blooms in 6 to 10 weeks. Once established, adding supplemental water during the dry, hot time of the year will help the blooming period into the fall.

Arkansas Valley Seed carries a wide variety of wildflower & forb species. If you do not see the species that you are looking for please call us. As always, call for current pricing and availability.

**AFRICAN DAISY - *Dimorphotheca aurantiaca***



An annual with large orange, salmon or white flowers that are 2 inches wide and blooms in 53 days. Naturalized in the U.S. Best in full sun, dry soils; an excellent cut flower but will close at night, drought-tolerant.

**ANNUAL BABY'S BREATH - *Gypsophila elegans***



A slender annual that produces graceful, open branches with clusters of 1/2 inch white flowers that bloom in 45 days. Naturalized in eastern North America in sandy places. Best in full to partial sun, dry soils; creates a misty effect in borders, rock gardens; prized for bouquets.

**ANNUAL GAILLARDIA - *Gaillardia pulchella***



An annual with leafy plants that bear daisy-like flowers, to 3 inches across, red tipped with yellow or entirely yellow or red. State flower of Oklahoma. Found across coastal Virginia to Florida, west to New Mexico, north to Colorado, Nebraska and Missouri on open, loose or sandy soil; prairies, fields and woodland openings. Best in full sun, well-drained soils.

**ANNUAL PHLOX - *Phlox drummondii***



*Synonyms: Drummond Phlox (Mixed Colors)*  
An annual that produces showy clusters of flowers in lovely shades of pink, rose, red, purple and white. Found in south-central Texas; naturalized throughout the southeastern U.S. and Florida on deep, sandy soils in disturbed areas, pastures, hillsides, and woodland openings. Best in full sun, dry soils; excellent for borders and rock gardens.

**ANNUAL SUNFLOWER - *Helianthus annuus***



*Synonyms: Common Sunflower, Mirasol*  
A robust annual that produces cheery yellow flowers, 2-4 inches across with purplish-brown center. Has allelopathic properties. Distributed throughout U.S., southern Canada and northern Mexico; abundant in roadsides, waste places and other open sites. Best in full sun, dry soil; highly adaptable, produces seeds that attracts seed-eaters.

**ARROWLEAF BALSOMROOT - *Balsamorhiza sagittata***



*Synonyms: Oregon Sunflower, Breadroot*  
A long-lived, tap root perennial with large, bright yellow flowers are on individual stems but may be numerous, sunflower-like; blooms May to June. Found across British Columbia to CA east of the Cascades, east to Alberta, ND, SD and CO, south to northern AZ on open hillsides and flats, fairly deep soil, valleys and foothills up to 9000 ft. elevation, typically with Big Sagebrush. Best in full sun, dry, well-drained, gravelly soils.

**ARROYO LUPINE - *Lupinus succulentus***



*Synonyms: Succulent Lupine*  
An annual that has succulent stems and palmately compound leaves; the bluish to purple flowers have a yellow dot on the banner. Found in western CA, northern Baja peninsula; abundant along roadsides and disturbed areas, establishes quickly in native coastal scrub areas that have burned. Best in full sun, dry soils, drought; attracts hummingbirds.

**BABY BLUE-EYES - *Nemophila menziesii***



An annual with delicate, trailing plant with masses of bright, blue flowers, 1-2 inches across, with white centers. Found in California; moist flats and slopes below 2,500 ft. elev., foothills, grasslands, coastal sage scrub, chaparral. Best in partial sun to shade, moist soils; excellent for shady borders.

**BASKET-OF-GOLD** - *Alyssum saxatile*

**Synonyms:** Goldentuft, Madwort, Gold-dust, *Aurinia Saxatilis*  
A mat-forming perennial with woody roots and bright yellow flowers in clusters; blooms from mid-April to early June. Found on rocky, stony slopes, ledges and cliffs, usually on limestone. Plants form large, spreading mounds, excellent for the front of borders and rock gardens. Performs best in lean, very well-drained soil, full sun.

**BERGAMOT** - *Monarda fistulosa*

**Synonyms:** Bee Balm, Horsemint  
A perennial with purple clusters of flowers appear July through August. Rhizomatous, can be aggressive. Found in North America, east of the Rockies; floodplains, shorelines and open woodlands, moist to mesic prairies. Best in full to partial sun; moderately dry to moist, but not wet soils, tolerates sandy, clay or loam soils. Moist rich soils are best.

**BIRD'S EYES** - *Gilia tricolor*

A slender annual with flowers to 1 inch across, pale violet with throats marked by paired purple spots surrounding a yellow or orange tube, fragrant. Found in California on open grassy plains and slopes, below 2,000 ft. Best in full sun, dry soils.

**BLACK-EYED SUSAN** - *Rudbeckia hirta*

**Synonyms:** Hairy Coneflower  
An annual, biennial or short-lived perennial leafy plant with bright yellow daisy-like flowers with dark, dome-shaped centers. Blooms from late June through September. Native to the Midwest and lake states, naturalized in the east. Disturbed prairies, roadsides and waste places. Best in full to partial sun, various soils; quite adaptable and somewhat aggressive.

**BLUE COLUMBINE** - *Aquilegia caerulea*

A perennial with all leaves basal; bell-shaped flowers are up to 3 inches wide, with long spurs, in blue, white, yellow, lavender or red. State flower of Colorado. Found in the Rocky Mountains along with Sagebrush, Pinyon-Juniper, Mountain Brush, Aspen, Douglas Fir, White Fir, Aspen-Forb, Spruce-Fir and Alpine communities at 5,000-11,000 feet elevation. Best in full sun to shady conditions, moist soils; provide filtered shade in sunny, hot climates.

**BLUE FLAX** - *Linum lewisii*

**Synonyms:** *Linum perenne*, European species, *Linum lewisii*, native U.S. 'Appar'  
A perennial, produces masses of 5-petaled, sky blue flowers. Blooms in mid-May through June. Found across parts of the western U.S. prairies and calcareous rocky banks, sagebrush, Pinyon-Juniper, Mountain Brush, Mixed Desert Scrub, Aspen and Spruce-Fir communities, dry slopes and ridges. Best in full sun, dry and well-drained soils; drought resistant; does not tolerate combination of heat and humidity.

**BLUE VERVAIN** - *Verbena hastata*

**Synonyms:** *Simpler's Joy*  
A clump-forming perennial with stiff, upright stems with square hairy stems; lance-shaped, toothed leaves to 6 inches long; small purple-blue flowers are found on thin spikes, blooming from top to bottom; blooms from July to September. Found across British Columbia to Nova Scotia, south to CA, AZ and FL; wet meadows, wet river bottoms, stream banks, fields and waste areas. Best in full sun, moderate to wet soils; self sows readily.

**BLUE-EYED GRASS** - *Sisyrinchium bellum*

**Synonyms:** California Blue-Eyed Grass  
A perennial and a member of the Iris family but resembling a tuft of bluish-green grass; the violet-blue clusters of flowers are borne well above the foliage,  $\frac{3}{4}$ -1 inch wide. Blooms late May through June and again in September. Found in coastal California, open grassy places below 3000 feet elev. Best in full sun, moist soils; plant in groups for best effect and do not allow soil to dry out.

**BUTTERFLY MILKWEED - *Asclepias tuberosa***



*Synonyms: Butterflyweed, Pleurisy Root, Tuberroot*  
 Perennial with deep, tuberous roots. Flowers are large clusters, orange to reddish blooms from mid-June to mid-July. Attracts butterflies. May be poisonous to livestock. Adapted to many parts of the U.S. Usually in dry open soils of prairies, roadsides and waste places, upland woods. Best in full sun, well-drained sandy or gravelly soils; will endure drought well.

**CALIFORNIA BLUEBELL - *Phacelia campanularia***



An annual, compact plant producing a profusion of dark blue, bell-shaped flowers. Found across southern California in the Colorado and Mojave deserts. Best in full sun, dry soils, grows best in sandy, well-drained, infertile soils.

**CALIFORNIA POPPY - *Eschscholzia californica***



An annual to perennial that forms a tuft of basal, blue-green, finely divided leaves; flowers deep orange to pale yellow, blooms in 55 days. This is the state flower of California. Found across Washington to California; common in grassy and open places up to 6,500 feet. Very adaptable to full sun, dry to moist soils, prefers well-drained poor soils.

**CLASPING CONEFLOWER - *Rudbeckia amplexicaulis***



An annual that produces an abundance of flowers with dark cones and reflexed petals, petals are yellow with a reddish base. Found across KS to TX, southeast to GA; roadsides, streambanks, fields, and prairies. Prefers full sun, various soils; drought-tolerant; use in mixes, beds and a good cut flower.

**COMMON EVENING PRIMROSE - *Oenothera biennis***



A biennial to perennial with tall flowering stalks that arise from leafy basal rosettes, yellow flowers open in the evening and are 2-3 inches wide. Naturalized in cooler northern areas of the U.S. Best in full sun, moderate to dry soils; reseeds readily.

**CORN POPPY - *Papaver rhoeas***



*Synonyms: Flanders Poppy, Shirley Poppy*  
 A slender annual that produces large blossoms of pink, red or white on slender stalks. This may be poisonous to livestock. Naturalized in the U.S. and found here in open or shaded sites in sandy or gravelly soils, roadsides, cultivated ground, waste places. Best in full to partial sun, dry soils; good for borders or rock gardens.

**CORNFLOWER - *Centaurea cyanus***



*Synonyms: Bachelor's Button, Bluebottle*  
 A winter annual with foliage with cottony hairs, bluish-green; flowers are fringed, bright blue, 1 in. wide, blooms in 60 days. Common in cultivated ground; established in disturbed sites and roadsides in the U.S. Best in full to partial sun, dry soils; drought-resistant and aggressive.

**COSMOS - *Cosmos bipinnatus***



An annual with tall, airy plants that bear finely divided leaves and showy, 4-inch flowers in white, pink or purple. Blooms in late summer and early autumn. Sometimes escapes from garden, becoming established along roadsides and waste places. Best in full to partial sun, dry, sandy soils, avoid rich soils; excellent cutflower, good for backgrounds in flower beds, fairly aggressive, self-sows easily, seeds attract birds.



**CREeping THYME** - *Thymus serpyllum*

**Synonyms:** Wild Thyme

A spreading perennial that forms thick mats with clusters of lavender flowers, very fragrant, not as strong as the garden thyme (*T. vulgaris*). Blooms from June through August. Found across northwest Europe on dry slopes, grasslands and dunes. Best in full to partial sun, dry soils, an excellent ground cover or lawn substitute, flowers attract bees; has a wide variety of uses as an herb for cooking, teas, medicines, etc.

**DESERT GLOBEMALLOW** - *Sphaeralcea ambigua*

A bushy perennial, rhizomatous; stems and leaves covered with grey hairs, leaves resemble small maple leaves; red to orange flowers appear spring and early summer, resemble miniature holyhock flowers. Blooms late June through August. Native to cold deserts of the Southwest, UT, NV, AZ, CA and Mexico. Requires full sun, prefers well-drained, sandy soils, very drought-tolerant; avoid overwatering as it can become aggressive.

**DESERT MARIGOLD** - *Baileya multiradiata*

**Synonyms:** Wild Marigold

An annual or perennial; daisy-like flowers are single and yellow, 1-2 inches across; blooms for most of the season. Poisonous to livestock (sheep, not cows). Found across UT to southern CA, TX and northern Mexico.

**DOTTED GAYFEATHER** - *Liatris punctata*

**Synonyms:** Hairy Coneflower

A perennial with slender, unbranched plant with tall spike of purple flowers; blooms from July to mid-August. Found across Long Island to Michigan, south to Florida and Louisiana; moist areas, meadows, borders of marshes, savannas, damp slopes, wet-mesic prairies, in neutral to slightly acid soil. Best in full to partial sun, moist to mesic soils; tolerates combination of heat and humidity; an excellent cut flower.

**DWARF COLUMBINE** - *Aquilegia vulgaris*

**Synonyms:** European Crowfoot, Granny's Bonnet

A perennial, all leaves basal; drooping bell-shaped flowers with strongly hooked spurs, in white, red, violet or blue. Blooms from May to mid-June. Found in mountain pastures, rocky places, shady slopes and woods. Best in full sun to shady conditions, prefers sandy, well-drained soils, moderate water; attracts hummingbirds.

**DWARF EVENING PRIMROSE** - *Oenothera missouriensis*

**Synonyms:** *O. macrocarpa*, Missouri Evening Primrose

A tap-rooted perennial with low plants bearing 3-5 inch, yellow flowers. Blooms from mid-June through August, day-blooming. Found across Missouri and Kansas, south to Texas; dry, thin, rocky, exposed calcareous soils on prairies, cliffs, hillsides, slopes. Best in full to partial sun, dry soils, prefers a soil with good drainage; does not tolerate combination of heat and humidity.

**EATON'S PENSTEMON** - *Penstemon eatonii*

**Synonyms:** Firecracker Penstemon

A short to long-lived, perennial with several red flowers growing in stalks or clusters. Each flower has the typical 5-lobed corolla and blooms between May to July. Growing upwards of 2 feet tall. It prefers well-drained soils and is cold and drought tolerant. Mainly planted for its beauty and erosion control. Found on dry slopes in the southwest from Colorado to California.

**ENGELMANN DAISY** - *Engelmannia pinnatifida*

**Synonyms:** Cutleaf Daisy

A perennial with leaves that are deeply pinnately lobed; flowers are yellow, daisy-like, up to 1 inch across. Found across KS to CO, south to LA and northern Mexico; open, dry, calcareous soil. Best in full sun, dry locations; drought tolerant but supplemental watering may extend the flowering period.

**FIREWEED - *Epilobium angustifolium***



A perennial with pink, purple or mauve flowers growing in clusters on the top of the reddish stem; blooming July to September. The fruit are narrow seed pods that split and release numerous tiny white seed heads. It has an unpleasant odor, is slightly hairy. It grows from 3 to 7 feet. Prefers full sun to partial shade, moist to dry, in sandy soil and thrives in burned areas and open wooded areas. Found throughout most of the United States.

**FIVE-SPOT - *Nemophila maculata***



An annual with cup-shaped, white blossoms, 1-2 inches across with light purple veins and a purple spot at the edge of each petal lobe. Found in California on mesic to moist slopes and flats, below 7,500 ft. elev., west of the Sierra Nevadas. Best in partial sun to shade, mesic to moist soils; excellent for shady borders.

**FLEABANE DAISY - *Erigeron speciosus***



**Synonyms:** *Aspen Daisy*  
A perennial, 8-24 inches tall; produces masses of aster-like, lavender flowers with yellow centers. Blooms mid-June to mid-July. Found across Alberta and British Columbia, south to Montana, New Mexico, and Arizona; open, wooded areas. Best in full to partial sun, dry to moist soils, prefers well-drained soil that is not too rich; attracts butterflies.

**FORGET-ME-NOT - *Myosotis sylvatica***



An annual or biennial, depending on climate produces masses of miniature, sky blue blossoms with white, yellow or pink centers. Blooms from mid-April to June. Found on rocky places, mountain pastures, damp meadows, woods. Naturalized in the U.S. in moist, shaded places. Best in partial sun to shade, moist soils; perfect for borders, rock gardens and for dainty bouquets.

**FOUR O'CLOCKS - *Mirabilis jalapa***



**Synonyms:** *Marvel-of-Peru, Beauty-of-the-night*  
A tender perennial that produces handsome, trumpet-shaped flowers in shades of red, pink, yellow and white, often striped or mottled. Flowers open in late afternoon. Blooms late summer through autumn. Found in tropical America, occasionally escaping from cultivation and establishing in waste places and roadsides. Best in full sun, dry to moist soils; attracts birds and butterflies.

**FOXGLOVE - *Digitalis purpurea***



A biennial with flowers on tall stalks arising from clump of basal leaves, flowers are tubular, to 3 inches long, purple or cream colored with spots inside. Blooms in June. Found on open woods and heaths in mountains. Best in partial sun to shade, moist soil; prefers porous but rich, moist soils; may reflower if cut back; dried leaves are the principal source of the drug, digitalis. Flowers may attract hummingbirds.

**GOLDEN BANNER - *Thermopsis montana***



A perennial with yellow, pea-like flower, growing on 2 foot stalks; blooming in May and August. The seed pods are curved, a blue green color, and covered with hair to promote regermination and also spreads by rhizomes. The plants grow in colonies and spread from underground roots. Prefers moist, well-drained garden soils thus found in the foothills along streams and ponds.

**GOLD YARROW - *Achillea filipendulina***



**Synonyms:** *Fernleaf Yarrow*  
A perennial with leaves doubly pinnatifid, like fern leaves, woolly hair; flowers dull yellow, in dense, flat-topped clusters up to 5 inches across; plants very aromatic. Blooms from mid-June through August. Naturalized throughout the United States. Prefers sunny locations and dry soil; tolerant to combination of heat and humidity, drought tolerant; can be very aggressive.

**GOOSEBERRYLEAF GLOBEMALLOW - *Sphaeralcea grossulariifolia***

A native perennial that has a taproot, non-rhizomatous; leaves resemble those of gooseberries, produces an abundance of coral orange flowers, blooms from June to August. Distributed across AZ, NM and CA, north to WA and ID; found on well-drained slopes, valley to foothills, elevation 3000 to 6000 feet. Best in full sun, very drought-tolerant.

**GREY-HEADED CONEFLOWER - *Ratibida pinnata***

A perennial with flowers that have drooping yellow petals and gray-brown, columnar disks. Blooms in July and August. From Ontario to GA, west to MN and OK; dry to wet prairies and dry woods. Best in full to partial sun; dry to moist soils; good for back of the border mixes.

**HOARY VERVAIN - *Verbena stricta***

A native perennial that has very erect, leafy stems; produces dense spikes of purple flowers from early July through mid-August. Found across MA and MT, south to northern Mexico; common in pastures, prairies, thickets, roadsides and waste places. Best in full sun, extremely drought tolerant, prefers dry sandy soils.

**ICELAND POPPY - *Papaver nudicaule*****Synonyms: Artic Poppy**

A short-lived perennial that produces large, white, orange or yellow flowers on slender stalks, arising from clumps of basal leaves. Blooms in late spring and early summer. Found across arctic regions of North America, south to Colorado. Best in full sun, dry to moist soils; at home in cool climates, does not tolerate combination of heat and humidity, does not transplant well.

**ILLINOIS BUNDLEFLOWER - *Desmanthus Illinoensis*****Synonyms: Illinois Tick Clover, Prairie Mimosa, False Sensitive Plant**

A warm-season perennial that has doubly compound leaves which create a fern-like appearance; flowers are creamy white and spherical, blooms mid-late summer. Common throughout tallgrass prairie and great plains, usually in disturbed sites, pastures, rocky open wooded slopes, ravines, streambanks, roadsides, waste places. Prefers full sun, dry to moist soils; also used for revegetation and prairie restoration.

**INDIAN PAINTBRUSH - *Castilleja chromosa*****Synonyms: Common Paintbrush**

A perennial with hairy leaves, linear; bracts and flowers tipped with scarlet. Found across Oregon and California, east to Wyoming and New Mexico; mostly Sagebrush, Pinyon-Juniper, Creosote Bush, and Blackbrush communities. Best in full sun, dry soils; may benefit when planted with native grasses or sagebrush since it is thought to be partly parasitic.

**JOHNNY JUMP-UP - *Viola cornuta*****Synonyms: Horned Violet**

An annual to perennial, produces tiny, Pansy-shaped flowers in purple and gold. Blooms all summer, strongest in spring and fall in hot climates. Best in full to partial sun, prefers moist soils; tolerates full sun best in cool summer areas, will not tolerate combination of heat and humidity; reseeds easily.

**LANCE-LEAVED COREOPSIS - *Coreopsis lanceolata*****Synonyms: Tickseed**

A perennial with showy, bright yellow flowers are 2.5 inches wide; blooms in June through July. Found across Florida to Louisiana, north to Vermont, southern Ontario, Michigan, Illinois and Missouri; dry, sandy or gravelly soils, open prairies and roadsides. Best in full to partial sun, dry to moderately moist soils; fairly drought tolerant and tolerates a wide range of pH and the combination of heat and humidity.

**LEADPLANT - *Amorpha canescens***



*Synonyms: Prairie Shoestrings, Bastard Indigo*  
 A shrub-like perennial with compound leaves with a silvery pubescence, purple flower occur in tight spikes at the ends of the branches in late June-July. Attracts butterflies. Found across Manitoba, south to LA and NM. Prairies, open woods, roadsides. Prefers full sun, mesic to dry soils, adapted to sandy or gravelly soil, can thrive in poor soil and is very drought tolerant, deeply tap-rooted. A nitrogen fixer.

**MAIDEN PINKS - *Dianthus deltoides***



A mat-forming perennial, flowers are dark pink with serrated petals. Blooms from mid-May to July. Best in full sun to light shade, dry to moist soils; prefers gritty, alkaline soil; does not tolerate combination of heat and humidity; excellent for borders, rock gardens, fragrant gardens; can be susceptible to crown rot.

**MAXIMILLIAN SUNFLOWER - *Helianthus maximilliani***



A tall perennial sunflower with yellow flowers to 3 inches across, clustered leaves are grayish-green and rough to the touch, often folded and curving downward. Rhizomatous and aggressive. Blooms late August to October. Naturally dominant plant of the prairies, across southern Canada, south to NC, KY and TX. Best in full to partial sun, dry to moist soils; important wildlife plant, deer forage on leaves and birds eat the seeds.

**MOUNTAIN LUPINE - *Lupinus alpestris***



A perennial native with blue flowers, tip of keel long and slender. Leaves in distinctive digitate clusters. Blooms June-July. Distributed across OR and CA, east to CO, NM, SD. Dry, rocky places, pine forests to subalpine ridges, generally 5,000-11,000 feet elevation. Best on dry, well-draining soils, full to partial sun, avoid overwatering.

**MOUNTAIN PHLOX - *Linanthus grandiflorus***



A bushy annual, has leaves divided into needle-like divisions, 1-inch flowers in dense heads, white to pale lilac. Found across California, open woods and sandy places, below 3,500 ft. elev., coastal strand and scrub, pine forests. Prefers full sun and light, sandy soils; can sow in the fall in spring elsewhere after soil warms up.

**MUNRO GLOBEMALLOW - *Sphaeralcea munroana***



A perennial with apricot-orange flowers with gray-green leaves and stems. Blooms May to August, and grows upright, vase-like shrub, to 2-4' high and across. Prefers full sun, can grow in any well-drained soil. Very drought tolerant. It has been found to be poisonous to cattle. Established in desert plains and the high desert, rocky and disturbed areas; native to the western U.S.

**NARROW-LEAF PURPLE CONEFLOWER - *Echinacea angustifolia***



*Synonyms: Black Sampson, E. pallida var. angustifolia*  
 A perennial, leaves narrow (linear-lanceolate), flowers are violet, with shorter petals than *E. pallida* or *E. purpurea*. Produces a long taproot. Blooms in mid June to late July. Found across MN to Saskatchewan, south to OK, TX; dry upland prairies and barrens. Best in full sun, dry well-draining soils; perfect for Shortgrass Prairie mixes and xeriscaping.

**NARROW-LEAVED BEARDTONGUE - *Penstemon angustifolius***



*Synonyms: Prairie Penstemon*  
 A glabrous and glaucous native perennial, stems tend to be bent at the base; produces blue flowers from May to early June. Found across short-grass prairie, SD and MT, south to NM. Best in full sun, drought tolerant, great for shorter native mixes.

**NEW ENGLAND ASTER - *Aster novae-angliae***



A perennial that has leafy stems, leaves hairy; a robust, autumn-blooming aster with thick clusters of pink to dark purple flowers with yellow centers; blooms from mid-August to mid-October. Found across Canada; Vermont to Alabama, west to North Dakota, Wyoming and New Mexico on moist to mesic sandy areas, moist meadows, stream banks, roadsides, open woods and fields. Best in full sun, tolerates partial shade; moist to mesic soils.

**NODDING PINK ONION - *Allium cernuum***



*Synonyms: Wild Onion, Lady's Leek*  
A perennial with leaves numerous and linear; umbels many flowered, nodding, pink to white. Blooms July through August. Native from NY to SC, west to British Columbia and CA. Rocky slopes, dry meadows, hillsides and woodlands. Prefers full sun to light shade, well-draining soils; great for the garden or naturalized in a meadow. Very drought tolerant once established.

**NORTHERN SWEETVETCH - *Hedysarum boreale***



A perennial with purple bell-shaped flowers that hang individually along the stalk, growing 1 to 3 feet. The flowers are hermaphrodite and blooms July to August. The plant prefers full sun in deep well-drained, but moist sandy, loamy and clay soils. Found across most of the western half of the U.S.

**PALE EVENING PRIMROSE - *Oenothera pallida***



A rhizomatous perennial with large white flowers 4 inches across. Blooms late June to September. Found across WA to SD, south to NV, AZ, NM and TX. Desert Shrub, Pinyon/Juniper, Sagebrush, Mountain Brush and Ponderosa Pine communities; up to 7,500 ft. elev. Best in full sun, dry soils. Excellent for xeriscape mixes, erosion control on slopes.

**PALE PURPLE CONEFLOWER - *Echinacea pallida***



*Synonyms: Rudbeckia pallida*  
A perennial, has long, reflexed lavender petals with purplish brown disk; strongly taprooted, leaves are usually more narrow than *E. purpurea*. Blooms in mid-July to mid-August. Found in midwest U.S. south to LA, AL, GA, dry to mesic prairies and open savannas. Best in full sun to light shade, dry to moderate soils best, attracts birds and butterflies, a good cut flower. Suitable for tallgrass prairie plantings.

**PALMER PENSTEMON - *Penstemon palmeri***



A perennial, has grayish-green foliage, long flower stalks produce many light pink flowers; blooms early June through mid July. Found across CA, east to UT and AZ; open, rocky areas. Best in full sun, prefers sandy, gravelly soils; drought-tolerant; does not tolerate combination of heat and humidity. Best in southwest gardens.

**PARTRIDGE PEA - *Cassia fasciculata***



An annual legume bright yellow with 5 unequal petals flowers growing to 1 to 4 feet tall. Blooms in August and July. Prefers full sun, well-draining sandy soils in old fields, pastures and open woodlands. Flat seeds are an important food source for many game and song birds and part of the reestablishing processes. Found across most of the United States.

**PERENNIAL GAILLARDIA - *Gaillardia aristata***



*Synonyms: Blanketflower*  
A perennial with leafy plants that bear 4 inch, daisy-like flowers, in shades of yellow, bronze and burgundy, often banded. Blooms from June though August. Found across North Dakota to Colorado, west to Oregon and southwest Canada; pinyon-juniper, ponderosa pine, aspen, lodgepole pine, and spruce-fir communities, usually below 8,500 feet elevation. Best in full sun; prefers light, well-drained, infertile soils; withstands heat and drought.

**PERENNIAL LUPINE - *Lupinus perennis***



*Synonyms: Sundial Lupine, Wild Lupine*  
 A perennial, forms clumps of basal leaves with leaflets in digitate clusters, flowers in spikes, mostly blue but sometimes pink or white. Blooms from mid-May through June. Distributed from Maine to Florida, dry woods, clearings and openings. Best in full sun, dry to moist soils; thrives in well-drained soil, do not transplant. Attracts hummingbirds.

**PLAINS COREOPSIS - *Coreopsis tinctoria***



*Synonyms: Tickseed, Calliopsis tinctoria*  
 A slender annual, produces masses of flowers, ranging in color from deep red and bronze to bright yellow with red centers. Dwarf varieties grow 12-18 inches tall. Found across Minnesota and British Columbia, south to Louisiana and New Mexico; common garden escape elsewhere; seasonally damp, disturbed sites, especially roadside ditches and low, sandy ground. Best in full to partial sun, dry to moist, well-drained soils; attracts seed eaters.

**PRAIRIE ASTER - *Machaeranthera tanacetifolia***



*Synonyms: Tahoka Daisy, Tansyleaf Aster, Aster tanacetifolius*  
 A winter annual, compact, bushy plants with tansy-like foliage. The 2-inch flowers are lavender with yellow centers. Blooms mid-summer through autumn. Found across Alberta to South Dakota, south to north-central Mexico; some-what aggressive, colonizing disturbed sandy and silty soils, plains and hill-sides. Best in full to partial sun, dry soils; a good choice for sandy soils.

**PRAIRIE CONEFLOWER - *Ratibida columnifera***



*Synonyms: Mexican Hat, Rudbeckia columnifera, Ratibida columnaris*  
 A biennial to perennial, flowers with drooping yellow or bronze ray flowers and upright, brownish center. Blooms from July through August. Mexican Hat is mostly red with a little yellow. Dwarf Red is solid red. Found from Alberta to Mexico, east to Manitoba, Minnesota, Illinois, Missouri, Arkansas and Texas; dry plains, prairies and ravines. Best in full sun; dry, well-drained soils, quite drought-tolerant.

**PRAIRIE SPIDERWORT - *Tradescantia occidentalis***



*Synonyms: Cow Slobbers*  
 An erect, branching perennial with grass-like leaves to 18 inches long; blue-purple, three-petaled flowers in terminal clusters, flowering June to July; each flower lasts one day and will close by noon on sunny days; Found across Minnesota to Louisiana and Arizona; prairies in sandy or rocky soil; to 8000 ft. elevation. Best in sun to partial shade, dry to moderate moisture.

**PRICKLY POPPY - *Argemone polyanthemos***



This sticky plant can be either annual, biennial, perennial growing upward of 3 feet. Its white flower blooms up to 5 inches across with yellow ball of stamens in the center. The seed pods are to 9 inches tall with many prickles helping the seeds reestablish in the ground. Prefers sandy soils and found in flood plains, disturbed areas and roadsides. It can be poisonous to cattle but usually left uneaten due to its spines.

**PURPLE CONEFLOWER - *Echinacea angustifolia***



*Synonyms: Hedgehog Coneflower*  
 A perennial, produces large, rose-purple flowers, up to 6 inches across, with dome-shaped centers. A bushy plant, blooming from late June through August. Distributed across Ohio to Iowa, south to Louisiana and Georgia; dry, open woods and rocky prairies. Best in full sun to light shade, tolerates various soil types but does best in moderately moist but well-drained soil which is rich in humus; tolerate combination of heat and humidity. A good cutflower, attracts butterflies, seeds attract birds.

**PURPLE PRAIRIE CLOVER - *Petalostemon purpurea***



*Synonyms: Dalea purpurea*  
 A perennial, legume with pinnately compound leaves, flowers in dense spikes, rose to dark purple. Has a stout taproot. Blooms from July to early August. Found across Indiana to Saskatchewan, south to Texas, Colorado and New Mexico; rocky plains and hillsides, open wooded areas, stream valleys and roadsides. Best in full sun, dry to mesic well-drained soils; palatable to wildlife.

**RIGID GOLDENROD - *Solidago rigida***

A perennial, produces dense clusters of dark gold flowers, blooms late August through October. Does not spread by rhizomes like so many other goldenrods. Found across MA to Saskatchewan, south to GA, LA and TX; dry to mesic prairies, open woodlands, neutral soil. Best in full sun, prefers moderate to dry soil; use for late season color, back of border, mixes, meadows; great paired with New England Aster; attracts birds and butterflies, a good cut flower.

**ROCKET LARKSPUR - *Delphinium ajacis***

*Synonyms: Consolida ambigua*

An annual, spikes of flowers arising from clump of basal leaves, flowers are pink, blue, purple or white. Found on cultivated ground and roadsides. Best in full to partial sun, moist to dry soils, avoid acid soils; attracts hummingbirds.

**ROCKY MOUNTAIN BEEPLANT - *Cleome serrulata***

*Synonyms: Spiderplant, Stinking Clover*

An annual that has pink to lavender flowers with 4 sepals and 4 petals, resembling a small garden spiderplant (*C. spinosa*); leaves are compound with 3 elliptical leaflets. A good nectar plant; attracts bees. Wide ranging, from California and eastern WA, east to the Great Plains; disturbed areas along roadsides, on stream traces and other pioneer situations. Best in full sun, dry to moderate soil moisture.

**ROCKY MOUNTAIN PENSTEMON - *Penstemon sticus***

A perennial that produces spikes of showy, blue or blue-violet flowers, 1 inch long. Blooms from June through July. Found across southern Wyoming and Utah, south to northern New Mexico and northeast Arizona; Pinyon-Pine, Mountain Brush, Sagebrush and Aspen-Conifer. Best in full to partial sun, dry soils; excellent for the rock garden, drought-tolerant, attracts hummingbirds.

**RUSSELL LUPINE - *Lupinus polyphyllus***

A perennial that forms clumps of basal leaves with leaflets in digitate clusters, flowers are in spikes, red, blue or pink. Blooms late May to June. Found from California to British Columbia. Best in full sun, dry to moist soils; attracts hummingbirds.

**SCARLET BUGLER - *Penstemon barbatus***

*Synonyms: Scarlet Penstemon*

A glabrous perennial, stems glaucous (with whitish cast), scarlet red flowers occur along a long flowering stem. Blooms late June through late August. Distributed throughout southwestern U.S. (UT, AZ, NM, TX); canyonsides, dry slopes, Ponderosa pine woodlands. Best in full sun, dry soils; excellent for xeriscape mixes, attracts hummingbirds.

**SCARLET FLAX - *Linum grandiflorum rubrum***

An annual that produces masses of 5-petaled, brilliant red flowers; blooming in April to September. Best in full sun, dry to moist, well-drained soils. Seedlings are not cold-tolerant, usually dying with the first frost. The flower is heat and drought-tolerant.

**SCARLET GILIA - *Ipomopsis aggregata***

*Synonyms: Gilia aggregata, Skyrocket*

A biennial with flowers usually scarlet but pinkish to white colors, trumpet-shaped and pollinated by hawkmoths and hummingbirds; arises from a narrow taproot. Blooms from mid-July to September. Found across British Columbia to MT, south to CA and NM, common in the mountains, foothills Sagebrush steppes and mesas. Also associated with dry ground on the open plains. Best in full sun, dry soils, good for xeriscaping.

**SCARLET GLOBEMALLOW - *Sphaeralcea coccinea***



**Synonyms:** *Cowboy's Delight, Prairie Mallow, Red False Mallow, Malva coccinea*  
 A low spreading perennial with deep woody taproot; saucer-shaped flowers are orange to red and in small terminal clusters; blooms May to August. Found across Manitoba south to Texas and Arizona; primarily a species of the Great Plains; semi-deserts, foothills, grasslands and prairies. Best in full sun, very drought and grazing-tolerant, leaves falling during prolonged drought; tolerant of poor soils, hot temperatures.

**SHASTA DAISY - *Chrysanthemum maximum***



**Synonyms:** *Chrysanthemum X superburn*  
 A perennial, similar to Ox-Eye Daisy, but flowers are generally larger and not as aggressive. Blooms from mid-May to early August. Best in full to partial sun, moist to moderately dry soils but does best in rich, well-drained soils; deadhead to extend bloom, an excellent cut flower, attracts butterflies.

**SHOWY EVENING PRIMROSE - *Oenothera speciosa***



An annual to perennial, has running rhizomes; day flowering, white to pink flowers are 2-3 inches wide. Blooms March to July. Distributed Kansas to Texas; various soils in prairies, open woodlands, ungrazed pastures and plains. Best in full to partial sun, dry or moist soils; rhizomatous, can form large patches and be quite invasive; does not tolerate combination of heat and humidity.

**SHOWY GOLDENEYE - *Heliomeris multiflora***



**Synonyms:** *Viguera multiflora*  
 A long-lived, native perennial with flowers of golden yellow. Often growing in small bushy clumps, this bright sunflower is abundant in summer and fall mountain meadows, frequently brightening many acres; blooms July to September. Its long, narrow leaves are almost an olive drab. Flowers start with a green central disk and tiny green rays, gradually changing to golden discs and golden-yellow rays. Prefers full sun to partial shade in rich to well-drained soils. Common and widely distributed in the Intermountain West.

**SHOWY MILKWEED - *Asclepias speciosa***



**Synonyms:** *Asclepias giffordii*  
 A perennial, coarser than *A. tuberosa*, plants densely white tomentose, large pink clusters of flowers appearing from June to August. Pods are 3.5-4.5 inches long and are covered with white hairs. Rhizomatous, may be aggressive. Found from Manitoba to MN, TX, west to British Columbia and CA. Common along roadsides, fields, streamsides and other moist sites. Best in full sun, moderate to moist sites, considered a wetland species; excellent for butterflies, can be aggressive.

**SIBERIAN WALLFLOWER - *Cheiranthus allionii***



**Synonyms:** *Erysimum hieraciifolium*  
 A biennial or perennial, slender plants with fragrant, bright orange flowers, similar to stock. Blooms in late April to early June. Best in full sun, moderately dry to moist soils; use in fragrant gardens and to attract butterflies.

**SILVER LUPINE - *Lupinus argenteus***



**Synonyms:** *Mountain Lupine*  
 A hardy perennial with blue flowers, sometimes white or pink; blooms from March to June. Flowers may turn muddy yellow at lower elevations. The plant has silvery, hairy foliage, and leaves form distinctive digitate clusters. Poisonous to livestock. Prominent in meadows, roadsides, wooded areas and found from 6,000-10,500 feet elevation. Best in sunny to shady areas; prefers drier soils; attracts hummingbirds. Native primarily in California and Oregon.

**SMALL BURNET - *Sanguisorba minor***



**Synonyms:** *Delar*  
 A long-lived, evergreen, perennial forb growing 2 to 25 inches. The flowers are closely packed in head-like to elongate spikes 3 to 8 inches long, the lower ones male and the upper ones female, with no petals and about 12 stamens. The purple thumb-sized seed head blooms May to July. Prefers full to partial sun, well-drained soils and infertile to disturbed soils. Is cold and drought tolerant. Distributed primarily throughout the west and northeast.



**SMOOTH ASTER - *Aster laevis***

**Synonyms:** *Smooth Blue Aster*  
A perennial, has smooth, bluish-green foliage, leafy branches; flowers are purple with yellow centers; blooms from mid-August to early October. Found across Canada; Yukon to northeast Oregon and New Mexico, east to Maine and Georgia; in open, dry to moist sites such as borders of woodlands, prairies. Prefers full sun, dry to moist soils, drought tolerant.

**SNOW-IN-SUMMER - *Cerastium biebersteinii***

A mat-forming perennial, foliage white woolly, bluish-green; white flowers with notched petals, about 1 inch wide. Blooms from May through June. Best in full sun, dry to mesic soils that are well-draining; fairly aggressive, spreads rapidly, good ground cover.

**SPURRED SNAPDRAGON - *Linaria maroccana***

A slender annual, has numerous tiny snapdragon-like flowers, in shades of pink, yellow, red, purple and violet with yellow patches in the throats and long, pointed spurs; blooms in 50 days. Naturalized in the northeastern U.S. Best in full to partial sun and dry soils.

**SULFUR FLOWER BUCKWHEAT - *Eriogonum umbellatumpallida***

A native, low-growing woody perennial with flower stems 3 to 16 inches tall that are topped by clusters of tiny sulfur-yellow flower heads. Flowers range from yellow to orange or reddish. Blooms June to August. Commonly found on hot, dry sunny exposures on rocky slopes and ridges throughout the west. Sulfur Flower Buckwheat plants withstand sun, heat, drought and wind, making them ideal plants for dry sunny slopes. It is found in dry, open and often rocky places. It is found in California to western Canada and also Colorado and New Mexico.

**SWAMP MILKWEED - *Asclepias incarnata***

**Synonyms:** *Marsh Milkweed, Rose Milkweed, Silkweed*  
An erect, clump-forming perennial with milky sap, stems are branching, opposite leaves bend upward on either side of the prominent midrib, flowers are small, fragrant, pink to mauve, and in tight clusters at the stem ends, blooming July to September. Distributed from Nova Scotia to Florida, west to Utah; swamps, wet meadows and prairies, poorly drained sites. Best in full sun, moderate to wet soils.

**SWEET ALYSSUM - *Lobularia maritima***

**Synonyms:** *Alyssum maritimum*  
A tender perennial, produces fragrant masses of white, pink or purple flowers, plants tend to be spreading. Blooms quickly. Found on rocky and sandy places, waste places, roadsides. Excellent for fragrant, butterfly and old-fashioned gardens; highly adaptable, blooms all year round in warm climates. Best in full to partial sun, dry to moist soils.

**SWEET WILLIAM PINKS - *Dianthus barbatus***

An annual to short-lived perennial, produces clusters of flowers with toothed petals, in white, pink, red, purple or violet, often bi-colored. Sweet-scented. Blooms from mid-May to mid-July. Naturalized in the U.S. Best in full sun, dry to moist soils, prefers rich, moist and well-draining soil; does not tolerate combination of heat and humidity; good for fragrant gardens, cut flowers, attracts butterflies.

**TEXAS BLUEBONNET - *Lupinus texensis***

A winter annual or biennial, leaves are basal with leaflets in digitate clusters; flowers in spikes, blue with white markings; has a deep taproot. The state flower of Texas. Blooms late July through September. Found in Texas, frequent in dry sandy or gravelly soils, plains, brushlands, flats, hillsides and along roadsides. Best in full to partial sun, dry to moist soils, requires moisture to flower.

**THICKSPIKE GAYFEATHER - *Liatris pycnostachya***



*Synonyms: Prairie Blazingstar, Prairie Gayfeather, Kansas Gayfeather*  
 A hardy perennial, has linear leaves, spikes of purple flowers which bloom from the top down; blooms July to mid-August. Found across IN to SD, south to FL, LA and TX; moist to dry prairies. Best in full sun, prefers moderate to moist soils but can be drought-resistant, tolerant of heat and humidity; good for borders, meadows. May need staking, attracts birds and butterflies, a good cut flower.

**TUSSOCK BELLFLOWER - *Campanula carpatica***



A perennial, clump-forming; has broad, bell-shaped flowers, 1-2 inches wide, in white or violet. Blooms from late June through July. Best in sun to shade, dry to moist soils, excellent for the rock garden and border edgings.

**WASATCH PENSTEMON - *Penstemon cyananthus***



A native perennial with blue, 1" trumpet flowers on densely packed spikes. The flower blooms May to June. It requires full sun, dry conditions, and well-drained soil. Excellent in rock gardens, cutting gardens, front of bed or containers. Native to Utah, Idaho and Wyoming.

**WESTERN LARKSPUR - *Delphinium occidentale***



*Synonyms: Tall Larkspur, Tall Mountain Larkspur, Duncecap Larkspur*  
 An upright perennial, 3-6 feet tall, upper stems are sticky/glandular; small flowers are pale blue to purple, spurred, and numerous in tall, dense clusters; leaves are palmately divided; flowers June to August. Found across the western U.S. Best in partial sun, moist soils, considered an invasive weed in some areas; poisonous to livestock.

**WESTERN WALLFLOWER - *Erysimum capitatum***



A perennial native growing about 12 inches tall and is conspicuous due to the upper half being covered with numerous bright yellow flowers. Flowers have four petals and are about 3 to 4 inches wide. It begins to bloom in April. Prefers sunny and dry conditions. The species can be found from southern Canada to New Mexico and through many of our eastern states.

**WESTERN YARROW - *Achillea lanulosa***



*Synonyms: Achillea millefolium var. occidentalis, A. millefolium var. lanulosa*  
 A perennial with leaves finely divided with gray, woolly hairs; flowers are white, in dense, flat-topped cluster; plants are aromatic. Blooms from June through July. Native from Quebec to Yukon, south to OK, CA and Mexico on dry, open rocky places. Prefers full sun; well-draining soils. Very drought-tolerant; will be aggressive in moister soils, spreads by rhizomes.

**WHITE PRAIRIE CLOVER - *Dalea candida***



A native perennial plant with flowers that are about 1/4" across, with 5 petals and 5 white stamens. The flowers often have a pleasant fragrance. It blooms June to August. It is drought tolerant. Grows well in full sun and prefers loamy, clay, sand or gravel soils. Common in dry black soil prairies, sand prairies, savannas, openings in upland forests and limestone glades. Found mainly east of the Rocky Mountains and west of the Appalachian Mountains.

**WHITE UPLAND ASTER - *Aster ptarmicoides***



*Synonyms: Stiff White Aster, Stiff Aster, Solidago ptarmicoides*  
 A perennial, clump-forming; produces masses of white flowers; blooms from August to late September. Found across western Quebec and Vermont, south to Georgia, west to Saskatchewan, South Dakota, Colorado and Arkansas; found in open, drying prairies, limestone bluffs, sandy sites, gravelly glacial hills and dunes. Best in sunny locations and dry soils.

**WHITE YARROW - *Achillea millefolium***



A perennial with leaves finely divided, flowers are white, in dense, flat-topped clusters; plants very aromatic. Quite drought tolerant. Blooms from mid-June through August. Naturalized throughout the U.S., usually in fields and roadsides. Prefers full sun, dry to moist soils; very aggressive with spreading rhizomes, difficult to eradicate. Can be mowed to form a groundcover, good for soil erosion, withstands combination of heat and humidity.

**WILD BLUE IRIS - *Iris missouriensis***



*Synonyms: Western Blue Flag, Rocky Mountain Iris*

A hardy rhizomatous perennial with sword-like leaves are bluish-green, blue to pale lilac flowers resemble common garden Iris but are smaller. Blooms April-June; usually flowers the 3rd year. Persists in moist meadows and streambanks from low valleys to 9,000 ft. elev.; SD to British Columbia, south to CA, AZ and Mexico. Prefers full sun, moist soils; great for the rock garden, spreads readily.

**WILD GERANIUM - *Geranium maculatum***



A native perennial covered with delicate 1.5 inch rosy-lavender to soft pink flowers. Blooms April to June. Used in open woodlands, perfect for the border of a shade garden, or naturalized in sweeps at the base of large trees. Wild Geranium prefers moist, humus-rich, well-drained soil and high open shade and accepts sunny conditions with moisture but will go dormant in drought conditions. Occurs in rich or rocky open woods from the Midwest to the eastern part of the United States.

**RABBIT EARS WILDFLOWER MIXTURES**

**ROCKY MOUNTAIN WILDFLOWER MIX**



Our most popular mix, the Rocky Mountain Wildflower Mix is a special blend of annuals and perennials that grows color throughout the season. Grows from 10 to 30 inches high and is very drought tolerant. Not recommended for planting during the heat of summer.

**ALL PERENNIAL WILDFLOWER MIX**



This mix includes perennial wildflowers that will provide color year after year. Grows from 10 to 30 inches and is very drought tolerant.

**LOW GROW WILDFLOWER MIX**



The Low Grow Wildflower Mix offers a combination of both annuals and perennials that will be lower growing. Grows from 8 to 20 inches high and is very drought tolerant.

**ALL ANNUAL WILDFLOWER MIX**



This mix is excellent when there is an immediate need for colorful wildflowers. Grows from 10 to 30 inches and is very drought tolerant.





# SHRUB & TREE SPECIES

## INTRODUCTION

A shrub or bush is a woody plant, distinguished from a tree by its multiple stems and lower height, usually less than 12 feet tall. A large number of plants can be either shrubs or trees, depending on the growing conditions they experience. Most trees and shrubs in cities or communities are planted to provide beauty or shade. Woody plants also serve many other purposes, and it often is helpful to consider these other functions when selecting a tree or shrub for the landscape.

Trees and shrubs alter the environment by moderating climate, improving air quality, conserving water and supporting wildlife. Climate control is obtained by moderating the effects of sun, wind and rain. Temperatures are generally cooler in the vicinity of trees than that away from trees. The larger the tree, the greater the cooling. Air quality can be improved through the use of trees, shrubs and turf. Leaves filter the air we breathe by removing dust and other particulates. Above ground, the dense stems of native prairie grasses, shrubs and trees physically slow surface runoff from fields and out-of-bank floodwater. Below ground, roots improve soil porosity that allows more surface runoff to soak into the soil. For the most part native trees, shrubs and prairie grasses develop significantly deeper and greater root masses compared to crop plants and cool season grasses.

Arkansas Valley Seed carries a wide variety of tree & shrub species. If you do not see the species that you are looking for please call us. As always, call for current pricing and availability.

**ANTELOPE BITTERBRUSH - *Purshia tridentata***



A long-lived perennial, evergreen growing to an average of 9 feet. Stems are short and spear-shaped, buds are small and scaly. It has dark green leaves and flowers that are solitary and funnel-shaped blooming in May and June. Seeds mature July to August. It is mostly palatable to wildlife in the winter months and is recommended distributed sites in the Intermountain west. Has long taproots that grow well in coarse-textured, deep, well-drained soils. Found in the Intermountain Region west of the Rocky Mountains to California and in northern Arizona and New Mexico.

**APACHE PLUME - *Fallugia paradoxa***



An evergreen shrub growing up to 6 feet high. It is more shrub-like in appearance, having numerous branches at the base. Its small grayish, downy leaves are innately divided into linear divisions, attached alternately on slender stems and curved slightly downward. Fruit heads are silvery puffs and the plumes are white or pinkish. A white rose-like flower with yellow centers blooms April through June. It prefers gravelly soils and is found on rocky slopes and hillsides. It has poor palatability that is sometime grazed when other forages are limited. Found throughout the Southwest in deserts.

**BASIN BIG SAGEBRUSH - *Artemisia tridentata ssp. Tridentata***



A perennial, evergreen shrub averaging 4 feet high but can grow as high as 15 feet. The tall rounded shrubs with short branched, woody trunks. Numerous yellow tubular flowers cover the shrub blooming July to September. Prefers moderately shallow to deep, well-drained, sandy to silt loam soils of neutral to slightly alkaline reaction and is drought tolerant. It supplies better cover for livestock and wildlife than its palatability. Basin Big Sagebrush is distributed throughout the western United States.

**BEARBERRY - *Arctostaphylos uva-ursi***



**Synonym:** *Kinnikinnick*  
 A long-lived evergreen, dense shrub growing between 6 to 12" high. Flower growth process begins as small pinkish urn that mature into red berries. The flower blooms in the spring. Prefers growing in the open on sand dunes, but will grow under the partial shade of forest. Grows well in coarse, well-drained sandy and acidic soils in full sun. It is cold tolerant and used for reclamation and as a soil stabilizer. It is popular ground cover used in many landscapes due to its thick vegetative mat. Located in all upper states of the United States and sometimes as south as New Mexico and Arizona.

**BIRCH-LEAF MOUNTAIN MAHOGANY - *Cercocarpus montanus***



A shrub or small deciduous tree growing to 12 feet tall. Severe drought, changes of climate, and the poor soil may cause the growth to be stunted. The bark is grayish in color, and can be scaly, with twigs that are spur like and a bright reddish-brown. The single small dry fruits have spiral, somewhat silky plumes 1-1/2" to 2" long, with feathery tails on the end. There are clusters of 2-3 apetalous flowers, each have five broad-triangular sepals and many stamens, blooming from March to June. It is fire resistant sprouting new growth quickly from its roots. Most common in the California Chaparral Mountains and dry, rocky slopes from South Dakota to Mexico.

**BLACK GREASEWOOD - *Sarcobatus vermiculatus***



A deciduous, native, monoecious shrub, growing 2 to 8 feet tall. It has moderate to dense vegetation with spiny appearance and the bark is yellowish-gray to light brown with deep grooves. Flowers are green with hint of red; the males are cone-like with terminal spikes and the females are wing-like, from June to August. The fruit is tan or reddish in color with a small brown seed in the center. The hardy shrub is common in saline or alkaline, deep clay, silty clay, sandy clay or loam soils. Located in the northern parts of the Rocky Mountain region.



**BLACK SAGEBRUSH - *Artemisia nova***

An evergreen, native shrub growing 10" to 18" tall. The trunk bark is a dark reddish-brown to black and twigs are short, rigid, light to dark reddish-brown and become black with age. Flowers are oblong, and brownish to tan, blooming August to September. Seeds are flat and brown in color. The aromatic shrub preferring well drained clayey to gravelly soils that are dry and shallow. It is good forage for livestock in the winter season. Found in the foothills and desert mountain ranges of Utah and Nevada.

**BLACKBRUSH - *Coleogyne ramosissima***

An evergreen, native, cool season shrub growing 3 to 15 feet. A soft wood shrub with gray to ashy bark that can appear black with age or when wet. Thorny branches produce many greenish-yellow to purple flowers from March to May. Seed are dry, smooth achenes, somewhat flat, with a long, bent and twisted, thread-like stalks. It resprouts vigorously from seeds when excessive moisture is available however it most common in dry and well-drained, sandy, gravelly and rocky soils. Established in a small southwest region of the United States.

**BLUE PALO VERDE - *Parkinsonia florida***

An evergreen tree growing to an average of 20 feet. It has spiny greenish trunk and branches. It blossoms thousands of five-petaled yellow dull flowers during a short growing season starting in early spring. Blue Palo Verde seeds are slightly larger and flatter, with thicker, harder shells than the other species. It grows faster and dies sooner than other species and used more as shelter than as a forage to livestock and wildlife. Found mainly in the lower half of New Mexico, Arizona and the southern tip of California.

**BRITTLEBUSH - *Encelia farinosa***

A short-lived evergreen, deciduous leafy bush, growing 2 to 5 feet tall and wide. The herbaceous bush has leaves that are triangular, greenish-gray to silvery, and produce a substance toxic to other plants in the proximity. Flowers are yellow and daisy-like blooming mostly from March to June. The fragrant woody bush prefers dry gravelly slopes to open sandy washes. It is a poor forage that reproduces easily from seeds and cuttings. Occurs in the desert areas of the southwestern United States.

**BROOM SNAKEWEED - *Gutierrezia sarothrae***

A short-lived perennial, native, warm season shrub that grows from 8" to 28" tall. The clusters of small golden-yellow flowers bloom August to October, which may remain well into the fall. The seed is brown, hairy and with chaffy scales. Because it contains saponin, it is poisonous to all livestock except goats. Used for reclamation and mines as it absorbs selenium. Prefers clay loams of broad alluvial slopes and shallow, rocky or sandy soil and does poor in saline or alkaline soils. It is drought-tolerant and reproduces from seeds. Found west of the Mississippi river and almost to the Pacific coast.

**CASTLE VALLEY CLOVER SALTBUSH - *Atriplex cuneata***

A woody, native shrub growing 6" to 12" tall. It has two flowers, one is dark in color and glomerules arranged in panicles, the other is borne in axillary clusters, both blooming in April and May. Leaves are a light to grey-green in color and its fruits are small. Often found in clay or soils, and moderate to high alkaline soils. It grows on a variably of saline soils. It can be suppressed by perennial grasses or annual weeds. Provides a palatable forage for livestock and wildlife year round. Native to eastern Utah, southwest Colorado and northern New Mexico.

**CHOCKECHERRY - *Prunus virginiana***



A perennial, native, deciduous, shrub or small tree rarely reaches a height of over 30 feet. The bark is smooth and grayish brown with many white flowers having elongated raceme. The fruit is deep red to dark red-purple. Chokecherry is nutritious throughout the growing season; however, new leaves and growth can be poisonous during some growing season to livestock and humans. It spread by rhizomes making it a great for erosion control. Common throughout the central and northern states from the Pacific to the Atlantic oceans.

**COMMON SNOWBERRY - *Symphoricarpos albus***



A perennial, deciduous, native shrub or small tree that grows between 2 to 5 feet. The large, toothed leaves have five to seven leaflets and irregularly lobed. It has many small, white flowers with an unpleasant odor blooming May to July. The fruit is white with berry like drupes that turn black when ripe. Grows well in sun or shade and found along stream banks, in swampy thickets, moist clearings and open forests at sea level to middle elevations. It tolerates all soil types but grows best in heavy clay, well drained soils and either in sun or shade. Common among all the northern United States.

**CREEPING OREGON GRAPE - *Mahonia repens***



An evergreen under shrub growing 1 to 3 feet tall. Leaves are dull green with spiny edges turning deep red in the fall. The bright yellow flowers bloom in April and May. Bluish berries are similar to other fleshy varieties of grapes. Grows in all types of soil and pH balance and prefers sun or shade with moist or dry soil. It has poor palatability for livestock but good for wildlife. Commonly used by landscapers. Found east of the Rocky Mountains through the Cascade Mountains and as far south as New Mexico.

**CREOSOTE BUSH - *Larrea tridentata***



An evergreen shrub, usually growing less than 4 feet, but can grow to 12 feet high. The small pointed yellow leaves have a creosote smell when crushed with a thick, glossy cuticle to withstand water loss. Flowers have twisted, yellow petals and bloom from February-August. The flower turns into a small white fuzzy fruit capsule that has five reddish-white, hairy seeds. It competes aggressively with other plants for water in well-drained slopes and plains. It is not palatable for livestock or wildlife. Found in the very far south of the southwestern United States.

**CURL-LEAF MOUNTAIN MAHOGANY - *Cercocarpus ledifolius***



An evergreen large shrub or small tree growing an average of 25 feet tall. The deeply grooved bark is reddish-brown, with leaves that are lance-shaped with rolled margins. The flowers grow in singles or clumps, lack petals and blooms from May to July. The fruit is a hard, narrow and has sharp-pointed achenes and the tree reproduces with a quark, screw shape seed. It is dense and strong and was used for cooking as it produces little smoke. Palatable to livestock primarily in the winter months. Adapted to a wide range of soil textures, most abundant in dry coarse-textured soils. Found on hills, rocky slopes and rocky ridges, and canyons in the western United States.

**DESERT BITTERBRUSH - *Purshia glandulosa***



A native evergreen shrub growing an average of 3 to 7 feet. The leaves are green and hairless with depressed glands on inrolled leaf edges. Flowers are tubular with 5 white petals. It has deep roots with a taproot sometimes exceeding 16 feet making it very drought tolerant. Occurs in valleys, foothills and slopes in well drained soils. Palatable and good quality forage for livestock and wildlife. Established in the southern desert regions of Colorado, Utah and Nevada to New Mexico.





**DESERT SALTBUCH - *Atriplex polycarpa***



An evergreen, perennial shrub growing 3 to 6 feet. Leaves are covered with small scales on both sides. The female and male flowers grow on separate shrubs and are both a green tan color blooming from May to August. The seed are pale brown. Grows well in arid or saline areas, sandy loam, loam and clay loam soils. Used for erosion control plant, rangelands and road cuts. Provides high quality and nutritious forage during the cool seasons for livestock and wildlife. Found in eastern New Mexico and southwest California from sea level to 4,000 feet.

**DESERT WILLOW - *Chilopsis linearis***



A deciduous shrub or tree growing 20 to 30 feet. It is known for its strong trunk; has a scaly bark dark brown in color with twigs that are hairy and sticky. The flowers are similar to an orchid, white with purple to pink throats blooming April to August. Fruit matures in autumn, and remains on the tree until spring which contain tan seeds with dual hair wings. Grows in desert washes and creeks, stream banks and drainages, preferring full sun and well drained soils making it drought tolerant. Common along the Southwest boarder between the United States and Mexico.

**DESERT ZINNIA - *Zinnia acerosa***



A perennial sub-shrub averaging a foot in height and spreading up to 3 feet wide. The leaves are grayish-green, thin and needle-like with smooth edges. It has solitary flowers, white rays with a yellow disk blooming as early as March into November. Prefers full sun, and well-drained rocky, loose or clay soils making it very drought tolerant. Commonly used for landscaping. Native throughout the southern regions of Arizona, New Mexico and Texas.

**DOUGLAS FIR - *Pseudotsuga menziesii***



An evergreen, native tree growing from 60 to over 150 feet tall. The bark on mature trunks is dark brown, thick and deeply furrowed. Blue green needles have blunt or slightly rounded tips that are very fragrant. The cone has rounded scales with 3-lobed bracts ripening in late summer. Grows in both dry and moist well drained soils. Known for its strength it has been used for telephone poles and railway ties and traditionally grown for Christmas trees. Common in the Rocky Mountains and Cascade Mountains and as far south as the Mexico border.

**DOUGLAS RABBITBRUSH - *Chrysothamnus viscidiflorus***



**Synonyms:** *Low Rabbitbrush*  
A deciduous, perennial, native shrub growing 1 to 4 feet tall. The small yellow flowers grow in round clusters and bloom from July to September. The light brown fruit is wedge shaped with 5 ribs and slightly barbed. Produces an abundance of small, plumed seeds and reproduces from its seeds and vigorous sprouting. Adapted to dry, well-drained, medium to coarse-textured soils making it drought tolerant and is common in alkaline soils. Has no substantial value as forage but is used for reclamation. Commonly found in the western part of the United States.

**FOOTHILLS PALO VERDE - *Parkinsonia microphylla***



A deciduous tree growing to an average of 20 feet. It is multi-trunked with a yellowish bark and thousands of five-petaled cream color flowers blooming in spring and early summer. It may not bloom every year depending on rain fall. The spine-tipped branches have small, green leaves are bipinnately and have oval leaflets. Lentil sized pods have single to multiple seeds and have narrow waists between the seeds, pointed at end and ripening in July. It is a common desert tree that can live for over 100 years and may reach 400 years. Occur in the southwest central and southwestern Arizona and extends south into Mexico and west to California.

**FOUR-WING SALTBUUSH - *Atriplex canescens***



A deciduous, evergreen shrub growing 1 to over 8 feet in height. Four-wing saltbush named from the four membranous 'winged' capsules, which encompass the seed. Adapted to most soils but is best suited to deep, well drained; loamy to sandy to gravelly soils. It is saline soil, and drought tolerant and somewhat tolerant of sodic soil conditions. Livestock and wildlife find it highly palatable. Excellent screens, hedges and barriers because of its extensive root system provides excellent erosion control it is commonly used for reclamation. The native shrub is distributed rangelands in the western United States including the Intermountain, Great Basin and Great Plains regions.

**FRINGED SAGEBRUSH - *Artemisia frigida***



A herbaceous perennial low, mat-forming shrub growing 6" to 18" high. Has silvery velvet foliage with taller stems flowering on the end. Small, yellow flower clusters bloom in August. Adapts to the conditions that it finds itself living in, due to its extensive deep taproot system making it drought and cold tolerant. It is a nutritious and palatable forage for wildlife and livestock. Prefers full sun, sandy and loamy soils, requires well-drained, dry or moist soil and can grow in poor soil. Does not grow well in alkaline soils. Found on open sites from Mexico northward to Canada and Alaska.

**GAMBEL OAK - *Quercus gambelii***



A deciduous, perennial shrub or tree growing 6 to 30 feet tall. The shiny green leaves are round with three or four cleft lobes and in the fall changing from red to yellow. The tan acorn is the plants fruit and seed maturing in autumn, blooming in March and April, and reestablishes from the acorn. It is a predominate tree growing in dry foothills and canyon walls where the rainfall averages between 12" and 25" per year. It can grow on all soil types but it prefers moist, rich, well-drained soils. Found from the western part of Kansas through Utah, south of Montana and almost to the Mexico border.

**GARDNER SALTBUUSH - *Atriplex gardneri***



An evergreen, perennial subshrub growing 8 to 20 inches tall. The leaves are gray to green, narrowly linear and rounded at the tip. It has both males and female flowers; the male is brown and the females are borne on the leafy spikes and blooms June to August. The fruit is utricle with brown seeds. It is very salt and alkaline tolerant growing in poorly developed, clay or sandy soils. Provides quality forage for livestock and wildlife. Native to the state of Wyoming and the southern part of Montana.

**GOLDEN CURRANT - *Ribes aureum***



A deciduous shrub growing 3 to 8 feet. Leaves are a glossy green with 3 to 5 rounded lobes turning yellow to red in the fall. The golden yellow long-tubed flowers with red petals inserted at the top have a fragrance of cloves and bloom in April to June. The fruit is a berry ripening to a dark purple with numerous seeds. Prefers fertile, moist, well-drained soils on cliffs, rocky slopes, ravines, bluffs, open hillside and often sandy areas. A great food source for birds and small mammals. Easily reproduced from seeds cuttings or with rhizomatous roots. Found throughout most of the western United States.

**GREEN MORMON TEA - *Ephedra viridis***



A semi-evergreen shrub growing 2 to 4 feet in height. Leaves are bright green with tiny scales and the golden flowers blooming spring to early summer. Prefers full sun and sandy or rocky, well-drained soils, on the rocky slopes and valley plains; cold and drought tolerant. The plants are relatively slow-growing and slow to reestablish by seeds. Good palatability for livestock and wildlife and great for xeriscape landscaping. Found across mainly in Utah and Nevada and in some of the surrounding states.



**LOGEPOLE PINE - *Pinus contorta* var. *latifolia***



A conifer evergreen, perennial tree growing between 70 and 150 feet. Slender trunk with thin rigid bark; the wood is hard, brittle and straight grained. The needle-like leaves that form in twisted bundles of two. Flowers are orange-red cones blooming in clusters in May. The small thin shell seeds are cone shaped, yellow-brown in color with sharp prickles, and reproduce well after fire, ripening in January and February. Grows best on moist, medium-textured soils. Used for lumber and other mill products and provide important cover for wildlife and range cattle. Adapted to high mountain slopes at elevations in the middle to northwestern United States.

**MAT SALTBUCH - *Atriplex corrugata***



An evergreen, perennial mat-forming shrub growing between 8 and 20 inches tall. The white bark is thick and spongy; leaves are thin and lance shaped with white hairs and fruits that are utricle. The solitary yellow to light brown flowers grow on an erect and slender stem, blooming from April to early June. Prefers moderately-deep and deep alkaline or saline soils. It is a fair forage for livestock and wildlife, but can be poisonous if too much is consumed. Native along the Colorado and Nevada border.

**MEXICAN CLIFFROSE - *Purshia mexicana***



An evergreen shrub grows an average of 8 feet tall can reach as tall as 20 feet. Small leaves are 5-lobed, and covered with tiny, glandular-dotted hairs that are sticky to the touch. The white, 5-petal flower has many yellow stamens blooming from mid-spring until summer. With enough moisture it can bloom in the fall as well. The pistil mature into seeds; when ripe they have a long-tailed hair act like tiny parachutes and aid the wind in both dispersing the seeds and helping "drill" the seeds into the ground. Prefers full sun, sandy and loamy soils and requires well-drained, dry or moist soil. It prefers alkaline soils. Wildlife find the forage palatable and small mammals eat the seeds. Found in the southwest of the United States and into Mexico.

**MOUNTAIN BIG SAGEBRUSH - *Artemisia tridentata* ssp. *vaseyana***



An evergreen, native tree growing from 60 to over 150 feet tall. The bark on mature trunks is dark brown, thick and deeply furrowed. Blue-green needles have blunt or slightly rounded tips that are very fragrant. The cone has rounded scales with 3-lobed bracts ripening in late summer. Grows in both dry and moist well drained soils. Known for its strength it has been used for telephone poles and railway ties and traditionally grown for Christmas trees. Common in the Rocky Mountains and Cascade Mountains and as far south as the Mexico border.

**MOUNTAIN GOOSEBERRY - *Ribes montigenum***

A perennial shrub that grows from 1 to 2 feet high. The leaves are densely hairy, somewhat sticky, and 3 to 5-lobed. The small white to rose-purple flowers grow in groups of 3 to 7 cover the plant by the hundreds blooming June to August. It produces red berries that are covered with spiny bristles which are eatable but not very palatable. Growing near riverbanks and in canyons as well as on exposed slopes and ridges. Found across the western half of the United States.

**MOUNTAIN SNOWBERRY - *Symphoricarpos oreophilus***



A deciduous, perennial shrub growing 2 to 5 feet. Leaves are usually slightly hairy. The pink or white bell-shaped flowers blooming in late spring. Seeds are small, light green to white in color. Occurring in woodlands and moist areas. Reproduces by its seeds, sometimes by layering and rhizomatous roots. Favors well-drained, sandy loam to clay loam soils, and does not tolerate alkalinity or salinity soils. Good forage for wildlife and livestock, but not very palatable. Also used for landscapes and recreational planting. Found central northern states to north Texas.

**NARROWLEAF YUCCA - *Yucca glauca***



*Synonyms: Spanish Bayonet, Small Soapweed*  
 A perennial shrub growing an average of 2 to 3 feet tall. The leaves are stiff, tough, fibrous horizontal or upright stem, bearing one or more erect crowns with inrolled edges and sharp tips that can cause harm to animals and humans. Ten to fifteen green-white flowers grow on a spike 2 to 3 feet long, blooming in June and July. At maturity, the large capsules enclose long black seeds. Grows on dry prairie slopes and open lands. Native west of the Missouri River to the Rocky Mountains and North Dakota to Texas. *Over 40 different species.*

**NEVADA MORMON TEA - *Ephedra nevadensis***



A deciduous, semi-evergreen shrub growing 2 to 5 feet. The bark is gray; twigs are pale green, becoming yellow with age with tiny scales leaves at the stem joints. The individual flowers male and female grow on separate shrubs and bloom in early spring. Seed cones are brown herbaceous and usually grow in pairs. Prefers full sun with well-drained sandy and loamy soils. It is drought and lime tolerant and grows well in any alkaline soil. Common on dry, rocky slopes and hills, rarely in sandy flat areas. Found throughout Nevada and into the surrounding states.

**NOOTKA ROSE - *Rosa nutkana***



A perennial, deciduous shrub growing up to 10 feet tall. The leaves are usually round tipped and have 5 to 7 leaflets with a pair of prickles at the base. Pink flowers resemble a single rose, thus the name, blooming May to July. Prefers full sun meadows with moist to fairly dry, but generally are nitrogen rich, well-drained, loamy to sandy type soils in lower to middle elevations. Provides food and shelter for birds and small animals as well as forage for wildlife. Because of its spreading root system it makes a great soil binder and used for reclamation or landscaping. Found west of the Rocky Mountains to the northwest United States.

**PAPERFLOWER - *Psilostrophe cooperi***



A perennial shrub growing 1 to 2 feet. Leaves are slender with green tops and silver, hairy undersides when young. Delicate bright yellow flowers with 3 lobes on the end, is similar to a daisy, blooming March to September with adequate moisture. Flowers last longer cut, becoming paper like. Fruit is plentiful like a marigold and contains the seed. Prefers full sun, well-drained sandy, gravelly and rocky soils. Growing in California to Utah and Arizona, south into northern Mexico.

**PONDEROSA PINE - *Pinus ponderosa***



An evergreen tree that is fast growing up to 150 feet. The scaly bark is orange-brown; needles are a lush green with toothed edges and pointed ends. Flowers are red-brown with white-fringed blooming from April to June. Male cones are orange or yellow and are located in small clusters near the tips of the branches. The female cone is oval with a small prickle at the tip of each scale. Both make good forage for many small wild animals consuming the seeds found inside the cone. Common to forest and open ranges, it roots well in most soils making in great for erosion control and cover. Used for lumber and can live up to 300 to 600 years. Established in the north and southwestern United States.

**PRAIRIE SAGE - *Artemisia ludoviciana***



*Synonyms: White Sage, Louisiana Sage*  
 A white-woolly, perennial herb growing 1 to 2 feet tall. The leaves are irregularly toothed or lobed. Flowers are small, tight, greenish clusters blooming August through September, with fruits that are dry, smooth, broadly cylindrical. Adapted to wide variety of soils, dry, sandy and rocky; quickly reestablishes by creeping rhizomes that form clusters and spread. Provides forage to small and large wildlife. Found from the plains to the Pacific coast.



**PROSTRATE SUMMER CYPRESS - *Kochia prostrata***

A long-lived, perennial semi-evergreen shrub was introduced growing to an average of 3 feet tall. It is simple branched with gray-green to green stems. It has developed a non spreading, fibrous root system with large deep taproot. It is drought tolerant but competes for moisture when limited. Palatable to livestock and wildlife, and used for erosion control and landscaping. It is fire-resistant forage with the capacity to choke out invasive exotic weeds. Established from Montana to New Mexico and west to Nevada and Oregon.

**RED ELDERBERRY - *Sambucus racemosa***

A deciduous spreading shrub that can reach 18 feet in height. It has thin long leaves, and clusters of small creamy white flowers that bloom in the spring. The berries grow in clusters and become red when ripening in the summer. Grows quickly and does well in poor, moist soils; best in cool shaded areas, although it will tolerate mostly sunny sites. The extensive root system holds soil to prevent erosion. Palatable to small and large wildlife and livestock; however, uncooked berries are poisonous to humans. Found throughout the western United States.

**REDOSIER DOGWOOD - *Cornus sericea ssp. Sericea***

A deciduous, thicket forming, shrub growing 3 to 9 feet. The bark a deep red turning gray-brown with a rough sandpaper like texture and horizontal branches at the base. Foliage is green in summer, and in the fall turns to a reddish-purple. The cream-white flowers appear in cymes in the spring producing dull white drupes in July to September. Prefers full sun with an evenly moist soil, and common along stream banks and swamps. The fibrous root system holds soil well for use as a bank cover, and grows faster vertical than horizontal. Common throughout most of the United States except in the southeast.

**ROCKY MOUNTAIN JUNIPER - *Juniperus scopulorum***

An evergreen shrub or tree growing 3 to 30 feet tall. The trunk is durable wood and the bark is dark reddish-brown to gray in color, shredding with age. The blue-green leaves are long and needle-like with black berry-like fruit. Male and female cones grow on separate trees. The male cones are yellowish-brown, papery and long. It is as valuable as a food source for birds and small animals as it is a cover. This native grows on rocky, sandy or clay soils in fields and pastures seldom in woodlands. Found across the Rocky Mountain region.

**RUBBER RABBITBRUSH - *Ericameria nauseosa ssp. Nauseosa***

A deciduous, perennial, shrub growing 12" to 90". The trunk has small gray-brown cracks and bark that is fibrous and somewhat shreddy. The yellow-green, umbrella-shaped flower blooms June to September and the fruit is an achene. Grows best on medium to coarse-textured and somewhat basic, but may range from moderately acidic to strongly alkaline and somewhat salt tolerant. Commonly grows on dry, sandy, gravelly or heavy clay. The native prefers full sun and open plains, valley and mountains. Reproduces from seeds and root sprouts and quickly reestablishes. Common throughout the western United States.

**RUSSET BUFFALOBERRY - *Shepherdia canadensis***

A deciduous, shrub growing from 3 to 13 feet. The leaves are dark green on the upper surface with white silvery hairs and rusty brown spots on the undersurface. The small yellow male and female flowers grow on separate shrubs and bloom in April. The red or yellowish fruits are fleshy and edible but almost tasteless or bitter ripening in July and August. The berries are desired by grouse, black bears, grizzly bears and rabbits. It prefers partial shade, moist to wet soil and is generally found on rocky, sandy or gravelly soils. It is able to survive on nutrient poor soils because of its nitrogen fixing ability. Native to the northern United States and west of the Rocky Mountains.

**SAND SAGEBRUSH - *Artemisia filifolia***



A perennial, evergreen shrub growing 2 to 6 feet. Thread like leaves are deciduous, silver color and aromatic. Flowers are yellow blooming in August through September. The small fruit are achenes. Reproduces from small white seeds. The sprawling shrub is used for landscaping as background brush and against wind erosion. It grows in deep sands, dunes, sometimes calcareous soils and is very drought tolerant. Found in desert regions in the southwestern United States.

**SASKATOON SERVICEBERRY - *Amelanchier alnifolia***



A deciduous, native shrub growing 3 to 15 feet. It has thin light brown bark and green leaves with a few small teeth at the top. The flowers are white with short petals that bloom April to June. The fruit is sweet with smooth skin, purple-black with a slightly gray-blue waxy, the pulp are used in pies, jams, syrup and wine, ripening from June to August. Reestablishes from seed or vegetative cuttings or by its extensive root system growing in clumps with horizontal and vertical rhizomes. Used for reclamation and is good forage for livestock and wildlife. Pacific coast through the Rocky Mountains and the north midwest States.

**SHADSCALE SALTBRUSH - *Atriplex confertifolia***



An evergreen shrub growing up to 3 feet tall. Leaves are silvery gray-green and scruffy, crushed leaves may have a "fishy" smell. The inconspicuous green color flower blooms in the spring. Its fruit turns from green to pink to light brown when ripening in the fall; clustered at the branch tips, with two round papery wings enclosing the seed. Prefers alkaline soils of valleys and slopes. Native across most of the western United States and northern Mexico.

**SILVER BUFFALOBERRY - *Shepherdia argentea***



A deciduous shrub growing 6 to 20 feet in height. Flowers are clusters of brownish-yellow, small, with male and female flowers on separate plants. The reddish fruit is a globe-shaped berry commonly used for making jelly. Prefers full sun and is winter hardy and alkaline tolerant with shallow roots that readily sprout however it is only partly drought tolerant. Provides cover and forage for birds and small animals. Occurs along streams, in bottomlands and on moist hillsides. It is native throughout the western United States and some northern states.

**SILVER SAGEBRUSH - *Artemisia cana***



A perennial evergreen, shrub growing 2 to 5 feet tall. Leaves are lobed with canescent surface with yellow flowers blooming in September. The fruit is a cylindrical, light brown achene with 5-6 ribs, and lacks a pappus, ripen in October and November. Grows on rocky, open sites, river valleys, uplands and floodplains, preferring moist, deep loamy or sandy soils and is moderately salt tolerant. It has deep taproot and is rhizomatous growing 3 times the height of the shrub. Palatable to live-stock and wildlife and provides cover to birds and small animals. Native to Montana, Wyoming and northern Colorado into central North and South Dakota and northwestern Nebraska.

**SKUNK BRUSH - *Rhus trilobata***



**Synonyms:** *Three-Leaf Sumac*  
 A long-lived, deciduous shrub growing on average 3 to 4 feet. Leaves are divided into 3 leaflets that turn rich red-orange in the fall and give off the odor of a skunk, thus the name. Tiny yellow flowers form a dense cluster in the spring. The tart red berries attract birds and tasted like tart lemons. Prefers full sun to partial sun locations with well-drained soils. It is drought and winter tolerant. Great for landscaping as a background hedge or screen and for erosion control. Range extends across the western U.S., and Canada, and south to Mexico. Occurring at elevations from 3,000 to 10,000 feet.



**SMOOTH SUMAC - *Rhus glabra***

A deciduous shrub or small tree growing up to 20 feet. The stems have a whitish waxy coating with dark green and lustrous leaves that are sharply serrated at the margins. Flowers are green, maturing from the bottom up with drupes that have a flattened-globe shape and are covered with red, sticky hairs; the seeds are yellow and smooth. Prefers moist, fertile, well-drained soils, reestablishing by strong rhizomes growing 4 to 7 feet. Found in open woodlands, prairies, on dry rocky hillsides and in canyons across most of the United States.

**SNOWBRUSH CEANOTHUS - *Ceanothus velutinus***

A perennial evergreen shrub growing 3 to 6 feet tall. The leaves are a shiny dark green with toothed margins. White flowers are inflorescence panicle-like blooming May to July. The fruit is a 3 lobed capsule with 1 seed which are shiny, tan to dark brown in color and ripen in August and September. Most common on rocky to medium coarse, moderately acidic to neutral soils, with full sun in open woods and mountain slopes. Provides forage for wildlife and is also used for erosion control. Produces a strong cinnamon or balsam-like odor. Found in California and Nevada, and east to South Dakota and Colorado.

**SPINY HOPSAGE - *Grayia spinosa***

A long-lived perennial, deciduous, evergreen, shrub growing 1 to 5 feet. The leaves are spatula-shaped and fleshy, with a gray-green surface. The green flowers are clustered with the male and female growing on separate plants blooming April to July. A thin, smooth fruit encloses the greenish-white or reddish seed and has wing on the back or midrib. Establishes from wind or gravity dispersed the winged seed and vegetatively by sprouting after top-killing disturbances such as fire. Native to dry plains, deserts and foothills and preferring sandy soils but will grow in alkaline, limestone, gravelly and dry, heavy, clay soils. It is highly tolerant of drought and fairly tolerant of grazing and fire. Found across the western United States.

**TRIANGLE-LEAF BURSAGE - *Ambrosia deltoidea***

An evergreen shrub about 1 to 2 feet tall. Triangle-shaped leaves are hairy and resinous, occasionally with serrated edges becoming smooth with age. It has yellow-green flowers blooming on a spike from February to July. It has burr like seeds that are round, covered with spines that attached to animals helping it reproduce. Prefers well-drained coarse soils and high pH on open flat, spaces and steep, gravelly hillsides. It has a long taproot system making it drought tolerant. Native plant of the Sonoran Desert and can be found throughout southwestern Arizona, U.S.A, south into Sonora and Baja California, Mexico.

**UTAH SERVICEBERRY - *Amelanchier utahensis***

A perennial, cool season shrub or small tree growing to an average of 15 feet tall. Leaves have coarse, toothed edges with fine soft hairs, turning brown in the fall. The flowers have white petals that grow in small clusters covering the full plant, blooming April to June. The small berries or seeds turn red to brown and then black when ripe. The fruit is sweet, juicy and palatable. It is drought tolerant. Found in arid areas in canyons, rocky areas, and foothills preferring coarse to medium well-drained soils and is not salt tolerant. Reproduction is by seed or by sprouting from the root crown. Found across the western United States.

**VELVET MESQUITE - *Prosopis velutina***

This deciduous shrub or tree growing between 20 to 30 feet in height. The tree's trunk averages 2 feet with a red-brown, smooth bark when young turning rough and gray with age. Yellow thorns grow in the pairs at the base of each leaf. The leaves are dark to dusky green with a gray, hairy surface and paler undersides. Branches grow in a zig-zag pattern. Yellow green flowers have a bell shape forming dense, cylindrical, clusters 4" long, blooming in hundreds during Spring. The seeds form in flat pods, drooping in clusters, dispersed when ripe in the fall or by mammals and birds. It has a massive root system extending as much as 60 feet. Common in southwestern deserts of California, Arizona, New Mexico and Texas.

**WAX CURRANT - *Ribes cereum***



A deciduous, shrub reaching to 5 feet. Leaves are small, fan-shaped, dark green, fuzzy when young; deciduous 3 to 5-lobed with irregularly round toothed, crinkly edges. Small, white to faint pink tubular flowers hang in clusters and bloom in late spring. The fruit is bright orange-red turning to dark red when ripening in late summer. Prefers dry to moist soils in areas of dry mountain slopes, mostly rocky areas, open forest and in forest openings. Wildlife find the forage moderately palatable and small mammals consume many of the berries. Found across the western part of the United States.

**WINTERFAT - *Krascheninnikovia lanata***



A long-lived half-shrub growing to 4 feet. Low-growing, cool season shrub with numerous annual stems. Leaves have rolled edges and are densely hairy. Flowers are apetalous and white, wooly outside. The fruit is a utricle enclosed by two bracts which are green, pubescent, 2 horned and covered by dense tufts of white hair. It has an extensive fibrous root system and a deep penetrating taproot, helping stabilize soils. Growing well on a wide range of soil textures, although it prefers more basic or limy soils, tolerating moderate to highly saline soil. Easily established thus used for erosion control and disturbed sites. Both nutritious and palatable for livestock and wildlife. Native to the western United States.

**WOLFBERRY - *Lycium andersonii***



A long-lived perennial, deciduous shrub. The stems are stiff and thorny. The flowers have purple, white or greenish-white petals, with a corolla of five petals blooming from February to March. The numerous berries are multi-seeded and can range in color from yellow to red. Prefers full sun, well-drained, dry or moist, sandy, loamy, clay soils and can grow in nutritionally poor soil. It has an extensive root system allowing it to thrive in the southwestern desert of the United States.

**WOODS ROSE - *Rosa woodsii***



A perennial shrub growing 2 to 5 feet tall. Leaves are deciduous, long and finely toothed toward the tip. Pink or lavender, 5-petal flowers occur in a cluster at the stem tip, bloom from June to August. Has a fleshy red berry when ripe. The branching, rhizomatous, fibrous roots, sometimes forming nearly impenetrable thickets. Adapted to a broad range of moisture conditions, it is easily established thus used for erosion control, disturbed sites and even wetland. Moderately palatable to livestock and wildlife and small mammal consume the berries. Native across the western United States.

**WYOMING BIG SAGEBRUSH - *Artemisia tridentata ssp. wyomingensis***



A perennial, evergreen shrub growing 1 to 3 feet tall. Leaves are 3-toothed with dense hair on both sides. It also contains oils giving them a distinct odor when crushed. The small and yellow flowers are in composite heads of 3-5 disk. The seeds are sparsely hairy. It has a long taproot and shorter fibrous roots and prefers well-drained shallow soils. Forage is fair palatability for wildlife and great cover for small mammals and birds. Found on lower slopes and plains in the Intermountain west, east of the Continental Divide.







# WETLAND SPECIES

## INTRODUCTION

Wetlands are areas where water covers the soil, or is present either at or near the surface of the soil all year or for varying periods of time during the year, including during the growing season. Most wetlands are seasonal and, particularly in the arid and semiarid west, may be wet only periodically. When water does persist for a long period of time, it creates conditions that favor the growth of specially-adapted plants and promote the development of characteristic wetland soils. Wetlands comprise a small, but very significant percentage of land area of the continental United States.

There are four types of wetlands: aquatic, emergent, forested and scrub. All are considered valuable because they improve water quality, regulate water levels within watersheds, recharge water supplies, reduce flood risks and provide fish and wildlife habitat. In addition, wetlands support a high diversity of plants and animals, provide recreational opportunities, aesthetic benefits, sites for research and education and commercial fishery benefits.

Arkansas Valley Seed carries a wide variety of wetland grass and grass-like species. If you do not see the species that you are looking for please call us. As always, call for current pricing and availability.

**ALKALI BULRUSH - *Bolboschoenus maritimus***

A perennial herb with rhizomes that grows up to 48" tall. Found at low to mid elevations in marshes, transient wet spots, pond margins and backwater areas. Distributed from the West Coast of the U.S. east to Minnesota and south to Louisiana.

**ALKALI CORDGRASS - *Spartina gracilis***

A perennial herb with rhizomes that grows up to 40" tall. Found on alkaline lake shores, streambanks, meadows and marshes throughout much of the west.

**AMERICA THREE SQUARE BULRUSH - *Schoenoplectus americanus***

*Synonyms - Olney's Three Square Bulrush*

A perennial herb with long rhizomes that grows 8" to 40" tall. Found in marshes, pond and lake edges and other wet areas across the entire U.S.

**AQUATIC SEDGE - *Carex aquatilis***

*Synonyms - Water Sedge*

A perennial herb that grows 8" to 32" tall. Found in large meadows in high montane or around ponds and streams at lower elevations across the northern U.S.

**BALTIC RUSH - *Juncus balticus***

A cool season wire-like rush, growing up to 32" tall, with numerous rhizomes. Baltic rush is the most common of the rushes found in the Intermountain west. It occurs most abundantly at low to mid elevations. It can be found on a variety of soils, ranging from silt and clay loams to coarser sandy substrates.

**BEAKED SEDGE - *Carex rostrata***

A cool season sod-forming perennial that grows 40" tall. Found along streams, around lakes and ponds, wet meadows, swamps, from sea level to the mountains. Distributed across northern parts of the U.S.

**BEBB'S SEDGE - *Carex bebbii***

A cool season perennial bunchgrass that grows up to 32" tall. Commonly found in wet meadows across northern parts of the U.S.

**BECKMANN'S SLOUGHGRASS - *Beckmannia syzigachne***

*Synonyms - American Sloughgrass*

A cool season short-lived perennial that grows up to 24" tall. Found along streams, in marshes, around ponds and lakes, in wet roadside ditches. Distributed across northern parts of the U.S.

**BLACK SEDGE - *Carex atrata***

A cool season rhizomatous perennial that grows up to 30" tall. Persists in wet, open habitat including roadsides and swales. Found across parts of northeastern U.S. and Michigan.

**BLADDER SEDGE - *Carex intumescens***

A cool season perennial bunchgrass that grows up to 40" tall. Found in moist woods, meadows and bogs across eastern parts of the U.S.

**BLUEJOINT REEDGRASS - *Calamagrostis canadensis***

A sod-forming cool season perennial that grows 20" to 48" tall. Found in lowland wet sites, semi-shaded woodlands and windswept alpine ridges across the U.S. except for southeast parts.

**BOTTLEBRUSH SEDGE - *Carex hystericina***

A stout, clump-forming perennial that grows 4" to 40" tall. Bottlebrush Sedge is found in shallow marshes, bogs and shores of lakes and streams throughout most of the U.S.

**CATTAILS - *Typha latifolia***

A coarse perennial herb with stout, branching rhizomes that can grow up to 10 ft. tall. Found in marshes, along streams and around lakes and ponds across northern parts of the U.S.

**COLORADO RUSH - *Juncus confusus***

A perennial herb with fibrous roots that grows up to 20" tall. Found in wet meadows, along streams and in moist woods in the Intermountain west of the U.S.

**COMMON RUSH - *Juncus effusus***

A grass-like perennial with short rhizomes that grows up to 36" tall. Found in wet ditches, the edges of streams and ponds and in tidal zones throughout a majority of the U.S.

**COMMON THREE SQUARE BULRUSH - *Scirpus pungens***

A perennial herb with rhizomes that grows 10" to 48" tall. Found in wet meadows, marshes and around lakes and ponds across parts of northeastern U.S.

**CREEPING SPIKERUSH - *Eleocharis palustris***

A perennial, heavily rhizomatous wetland plant that grows up to 40" tall. Found in wet ditches, meadows and around lakes and ponds from the West Coast east to Michigan and south to Louisiana.

**DARK GREEN BULRUSH - *Scirpus atrovirens***

A perennial herb with short rhizomes that grows up to 60" tall. Found in wet meadows, bogs and along streams throughout eastern parts of the U.S.

**DOUGLAS SEDGE - *Carex douglasii***

A perennial herb with long slender rhizomes that grows up to 12" tall. Found on wet or dry prairies and ditches in the Intermountain west of the U.S.

**FOWL MANNAGRASS - *Glyceria striata***

A tufted perennial herb with short rhizomes that grows up to 40" tall. Found on wet meadows, low woods, bogs, roadside ditches and swamps. Distributed across the eastern half of the U.S. and parts of the west.

**FOX SEDGE - *Carex vulpinoidea***

A perennial herb with thickened rootstocks that grows 8" to 36" tall. Found on wet ditches, ravines, prairie swales and the edges of marshes, springs, lakes and ponds. Distributed across the entire U.S. with the exception of the desert southwest.

**GIANT BUR REED - *Sparganium eurycarpum***

A stout perennial herb with rhizomes that grows up to 60" tall. Found in shallow water, marshes, bogs and margins of lakes and streams across the entire U.S.

**GIANT MANNAGRASS - *Glyceria grandis***

*Synonyms - American Mannagrass*

A cool season perennial bunchgrass that grows up to 60" tall. Found in shallow water or wet meadows across the northern U.S. and west.

**HALL'S RUSH - *Juncus hallii***

A perennial with erect clusters of stems that are 4" to 12" tall. Found on boggy meadows, margins of ponds and lakes and along streams. Distributed throughout Idaho, Montana to Colorado and Utah.

**HARDSTEM BULRUSH - *Schoenoplectus acutus***

A perennial herb with stout rhizomes that grows up to 10 ft tall. Found in deep and shallow marshes, lakes, streams and occasionally bog lakes.

**INLAND SALTGRASS - *Distichlis stricta***

A warm season perennial with tough, scaly rhizomes that will grow 4 to 16" tall. Found in wetlands, swales and margins of ponds, lakes and reservoirs across the entire U.S.

**MEADOW SEDGE - *Carex praeegracilis***

*Synonyms - Silver Sedge*

A native perennial plant with short rhizomes that grows 8" to 30" tall. Found in openings of woodlands, swamps, weedy meadows and abandoned fields. Distributed across the western and northeast U.S.

**MERTEN'S RUSH - *Juncus mertensianus***

A perennial herb with short, stout rhizomes that grows up 4" to 16" tall. Found in wet meadows, along streams and marshes throughout the Intermountain and Pacific northwest.

**NEBRASKA SEDGE - *Carex nebrascensis***

A cool season perennial with numerous rhizomes that grows 10" to 30" tall. Found on swamps, wet streambanks and wet swales throughout the Intermountain and Pacific Northwest.

**NEEDLE SPIKERUSH - *Eleocharis acicularis***

A perennial herb with slender stolons that grows up to 8" tall. Found around ponds, lakes and marshes throughout the entire U.S.

**NORTHERN REEDGRASS - *Calamagrostis stricta***

A cool season native perennial with rhizomes that grows 12" to 36" tall. Found on stream banks, marshes and meadows throughout the Great Plains region except Oklahoma and Texas.

**NUTTALL ALKALIGRASS - *Puccinellia nuttalliana***

A tufted perennial grass with fibrous roots that grows up to 24" tall. Found on alkaline flats throughout the Intermountain and Pacific Northwest.

**PALE BULRUSH - *Scirpus pallidus***

A perennial herb with short, stout rhizomes that grows up to 40" tall. Found along streams, wet ditches and marshes throughout the Intermountain west including Texas and Missouri.

**POPCORN SEDGE - *Carex microptera***

*Synonyms - Small-Winged Sedge*

A perennial herb with short rhizomes that grows up to 20" tall. Found in wet meadows, stream banks and springs throughout the western half of the U.S.

**POVERTY RUSH - *Juncus tenuis***

*Synonyms - Path Rush*

A cool season perennial herb with rhizomes that grows up to 24" tall. Found in sedge meadows, ditches and paths across the entire U.S.

**PRAIRIE CORDGRASS - *Spartina pectinata***

A perennial grass that grows up to 10 ft tall. Found in wet prairies, roadsides, marshy meadows and along stream, dams and drainages across most of the U.S. with the exception of a few southern states.

**RIVER BULRUSH - *Scirpus fluviatilis***

A stout, perennial herb from a thick rhizome that grows 12" to 60" tall. Found in swamps, sloughs, around ponds and lakes and along rivers throughout the upper Midwest and northeast U.S.

**SLENDER SEDGE - *Carex lasiocarpa***

A perennial herb with thickened rootstocks that grows up to 20" tall. Found in wet woods, around ponds and lakes and roadside ditches across the upper Midwest and northeast U.S.

**SLOUGH SEDGE - *Carex obnupta***

A perennial grass-like plant with stout, creeping rhizomes that grows 12" to 36" tall. Found on wet meadows, roadside ditches, coastal swamps, lakeshores, bogs, marshes and riverbanks along the West Coast of the U.S.

**SMALL-FRUITED BULRUSH - *Scirpus microcarpus***

A perennial herb from slender rhizomes that grows up to 10 ft. tall. Found in deep and shallow marshes, lakes, streams, A perennial herb with long, stout rhizomes that grows up to 48" tall. Found on sloughs, streambanks, ditches and wet clearings throughout the west and northeast.

**SOFTSTEM BULRUSH - *Schoenoplectus tabernaemontani***

A perennial herb from slender rhizomes that grows up to 10 ft. tall. Found in deep and shallow marshes, lakes, streams and occasionally bogs throughout the entire U.S.

**TICKLEGRASS - *Agrostis scabra***

A tufted perennial that grows 16" to 24" tall. Found on wet meadows, seepage area, ditches, stream banks and shores throughout the continental U.S.

**TORREY'S RUSH - *Juncus torreyi***

A perennial with rhizomes that grows 16" to 40" tall. Found in marshes, wet prairies and roadside ditches throughout a majority of the U.S.

**WESTERN MANNAGRASS - *Glyceria occidentalis***

A perennial herb that grows up to 8' tall. Found in shallow ponds, pools and prairie depressions across the western states of the U.S.

**WOOLY SEDGE - *Carex pellita***

A perennial sedge that can grow 12" to 40" tall. Found in low moist prairies, marshy areas and along shores. Distributed across the Midwest to Texas and California.







## EROSION CONTROL PRODUCTS

### SINGLE NET STRAW BLANKET

- Comprised of 100% agricultural straw stitched with degradable thread to a single photodegradable polypropylene netting.
- Provides erosion protection for up to 12 months on 4:1 to 3:1 slopes and low flow channels.
- Dimensions: 8 ft by 112 ft

### BIONET® SINGLE NET STRAW BLANKET

- Comprised of 100% agricultural straw stitched with biodegradable thread to a biodegradable natural fiber top netting (100% organic).
- Provides erosion protection for up to 12 months on 4:1 to 3:1 slopes and low flow channels.
- Dimensions: 8 ft by 112 ft

### DOUBLE NET STRAW BLANKET

- Comprised of 100% agricultural straw stitched with degradable thread between two photodegradable polypropylene nettings.
- Provides erosion protection for up to 12 months on 3:1 to 2:1 slopes and moderate flow channels.
- Dimensions: 8 ft by 112 ft

### BIONET® DOUBLE NET STRAW BLANKET

- Comprised of 100% agricultural straw stitched with biodegradable thread between two biodegradable natural fiber nets (100% organic).
- Provides erosion protection for up to 12 months on 3:1 to 2:1 slopes and moderate flow channels.
- Dimensions: 8 ft by 112 ft

### DOUBLE NET STRAW-COCONUT BLANKET

- Comprised of 70% agricultural straw/30% coconut fiber matrix stitched with degradable thread between a UV stabilized top netting and a standard polypropylene bottom netting.
- Provides erosion protection for up to 24 months on slopes up to 1:1 and medium flow channels.
- Dimensions: 8 ft by 112 ft

### BIONET® DOUBLE NET STRAW-COCONUT BLANKET

- Comprised of 70% agricultural straw/30% coconut fiber matrix stitched with biodegradable thread between biodegradable natural fiber nets (100% organic).
- Provides erosion protection for up to 18 months on slopes up to 1:1 and medium flow channels.
- Dimensions: 8 ft by 112 ft

### UV DEGRADABLE STRAW WATTLES™

- Comprised of weed-free straw wrapped in tubular plastic netting.
- Cost effective way to prevent sediment pollution from bare lots and cut slopes.
- Replaces silt fences, straw bales, earth berms and sandbag barriers.
- Dimensions: 9 in diameter by 25 ft.

### GENERAL EROSION CONTROL RECOMMENDATIONS

- Add 10% for overlap and waste when calculating blanket needs.
- Approximately 100 staples required for each blanket or 10 stakes for each straw wattle.
- Other erosion control products available, please contact us for more information.

## 18-46-0 STARTER FERTILIZER

A fertilizer rich with phosphorus to stimulate root growth in young plant establishment. Apply 50 lbs evenly across 10,000 square feet of soil or 200 lbs per acre after seed planting.

Fertilizing is highly recommended to maintain the health of your plant materials. Adequate spring moisture will activate the fertilizer and release the nutrients. During the spring, the ideal fertilizer will include a mixture of both quickly and slowly available Nitrogen (N) sources. Phosphorus (P) and Potassium (K) are also highly recommended nutrients to supplement to your soil. Phosphorus stimulates root growth throughout the growing season and Potassium enhances your plant's tolerance to heat and other stresses.



**Properties:**

Biosol® Forte's beneficial bacterial biomass and fungal biomass enhances soil health and microbial life. This unique slow release nutrient formulation provides vital plant nutrients throughout the entire growing season due to the fermented organic material. There is an increased effect on the formation of humus, root mass, and the living microbial biomass in the soils. Promoting a healthy balance of microbial life insures the long-term plant color and plant healthy. This results in far lower concentrations of nitrates or phosphorous in ground water than mineral fertilizers. Safe to be used around pets, animals, children, lakes and streams.

**Composition:** 96% fungal and bacterial biomass, 4% water    **Nutrient Ratio:** N-P-K = 7-2-1

Guaranteed Product Analysis:	
Total Nitrogen (N) .....	7%
Water Soluable Nitrogen (N) 0.50%	
Water Insoluable Nitrogen (N) 0.50%	
Available Phosphate (P <sub>2</sub> O <sub>5</sub> ) .....	2%
Soluble Potash (K <sub>2</sub> O) .....	1%

Nutrients derived from: Fermented Cottonseed Meal and Soybean Meal	
Organic Matter: .....	94%
Carbon/Nitrogen Ratio .....	2%
pH level .....	7.1

**Application Rates:**

**Revegetation of Disturbed Soils:** 1000 - 2,000 lbs. Per acre depending upon soil conditions.

**Lawns and playing fields:** 12-15 lbs. Per 1,000 sq. feet twice per year

**Garden preparation:** 2 oz. Per sq. yard (1/3 cup) - 1 1/3 lbs. Per 100 sq. feet (3 3/4 cups)

**EARTHGREEN MENEFEE HUMATE®**

A natural fresh water trace mineral, carbon, and humic acid-based granular soil conditioner that acts as an organic chelator and microbial stimulator. It has a unique carbon matrix incorporating a high concentration of trace minerals and organic acids, specifically humic acid, which improves the plant's ability to take in vital nutrients. For plant growth and development.

Guaranteed Product Analysis:		
Humic Acids .....	50.00%	
Nitrogen (N) .....	1.00%	
Potassium (K <sub>2</sub> O) .....	<0.10%	
Phosphate (P <sub>2</sub> O <sub>5</sub> ) .....	<0.10%	Iron (Fe) ..... 0.30%
Calcium (Ca) .....	1.04%	Manganese (Mn) ..... 0.0004%
Sulfur (S) .....	0.18%	Copper (Cu) ..... 0.0002%
Magnesium (Mg).....	0.14%	pH .....
		3.4

**Application Rate for Tees and Fairways:** 10-20 lbs. / 1,000 ft<sup>2</sup> (5-10 kg / 100 m<sup>2</sup>) annually applied in 4-6 equal monthly applications.

**Application Rate for Permanent Crops:** 250 lbs. per acre (275 kg / ha) in early spring and fall.

**MYCOAPPLY® MICRONIZED ENDO**

MycApply® Micronized Endo mycorrhizal micronized powder inoculum consists of a 4 species blend of spores of arbuscular mycorrhizal fungi (endomycorrhizal fungi). The powder comes in a particle size less than 300 microns (#50 screen). About 90% of the world's plant species form mycorrhizae with these beneficial endomycorrhizal fungi. These beneficial fungi colonize plant roots, expand into the surrounding soil and greatly increase the root's ability to absorb water and nutrients, while improving plant yields and health.

**Reduces:**

- Drought stress
- Water inputs
- Transplant shock
- Nutrient loss

**Increases:**

- Yields
- Fruiting & flowering
- Survivability

**Promotes:**

- Rooting
- Nutrient uptake
- Self sufficient plants

**Ingredient:** Endo's = Glomus intraradices, G. mosseae, G. aggregatum, G. etunicatum: 100,000 propagules/lb

**Application Rates:**

**Agriculture:** Band or mix with seed on average approximately 1lb. per acre. Rates vary by crop and seed planting density. **Restoration:** Use 10 pounds per acre for broadcast or hydromulch applications.

**Nurseries:** Inoculum can be mixed in planting soil before/during filling cavities, pots, and trays. Use .25 to .75 pounds per cubic yard.

**Transplants:** Touch damp roots to the inoculum so a small amount sticks to the roots or sprinkle into planting holes. Use 1/4 tsp. under each cutting: 1-2 tsp. for potted transplants or 1/2 ounce per inch of stem caliper plantings.



*Seed with confidence.*

Vitality™ blends and mixtures, formulated by professional seed experts, provide the finest, purest, best performing seed varieties to meet the quality and performance demands of our customers who make their living growing healthy turf, restoring natural landscapes and producing hearty forages. With Vitality™, you can Seed With Confidence.



### BLUE VALLEY BLUEGRASS BLEND

This blend of elite Kentucky bluegrasses is an excellent choice for overseeding fairways, sports fields and parks & open space as well as establishing new lawns or reseeding existing lawns originally established by sod. The bluegrass types selected for this mix exhibit very dark green color, improved drought & heat tolerance and can handle the stresses of multiple management levels. The entire genetics package tolerates high wear and traffic levels across a wide range of climates. Adapted to mowing heights as low as ½ inch and has dense growth habit to naturally crowd out Poa annua and other weeds.

### CARE FREE FESCUE MIXTURE

Known for surviving under extreme conditions, fine fescues can be found thriving in infertile, dry soils, deep shade and where turf is neglected, tortured and forgotten. Perfect for areas where water and fertilizer conservation is important. Solution for difficult to manage areas. Excellent for establishing and stabilizing naturalized areas for wildlife cover, wildlife beds, erosion buffers.

### HERITAGE PREMIUM LAWN MIXTURE

A top performer, this premium mix of Kentucky bluegrasses and Turf-Type Perennial Ryegrass establishes quickly and develops into a thick, beautiful lawn in one growing season. Excellent for starting new lawns or revitalizing existing ones. Ideal for moderate to high traffic areas. Very winter hardy and establishes quickly and permanently.

### NATIVE WONDER

A mixture of warm season grasses including Buffalograss and Blue Grama. Native to the Great Plains, these grasses are ideal for those desiring a true native lawn with that "back to nature" look. Very heat and drought tolerant.

### NATURE'S CHOICE

A mixture designed for areas where regular watering is not available. Ideal for those on wells or watering restrictions who cannot maintain more traditional types of lawn grass. This mixture features Ephraim crested wheatgrass, which is known as a deep-rooted and drought tolerant wheatgrass. Ephraim is one of only a few wheatgrass species that propagates through rhizomes.

### QUICK-2-GRO MIXTURE

A three-way blend of Kentucky bluegrass, Creeping Red Fescue and Perennial Ryegrass. Quick-2-Gro Mixture can adapt to a wide range of soil types. An economic mixture offering good value.

### SHADY PLACE MIXTURE

Professionally formulated fine fescue-based mixture for shadier areas.

### SPORTS PARK TURF MIXTURE

Ideal for new seeding or renovating football, soccer, baseball fields and playgrounds, this mix was developed to provide durable, high-quality turf on high-traffic areas. Resistant to diseases common to intensively managed turf areas. Superior wear tolerance and excellent winter hardiness. Excellent spring and fall vigor with superior midsummer performance.

### TRIPLE STAR PERENNIAL RYEGRASS BLEND

This blend of elite perennial ryegrasses is an excellent choice for overseeding fairways, sports fields and parks & open space as well as overseeding existing lawns. The entire genetics package tolerates high wear and traffic levels across a wide range of climates. Adapted to mowing heights as low as 3/16 inch, it has rapid establishment to out-compete Poa annua and other weeds. Triple Star contains very high levels of viable endophyte. Due to these very high endophyte levels, the blend exhibits enhanced resistance to a number of important insects including: billbugs, sod webworms, chinch bugs, armyworms and aphids. The presence of the endophyte also contributes to improved stress tolerance with better summer survival, enhanced fall recovery and reduced weed invasion.

### TRIPLE THREAT TALL FESCUE BLEND

An excellent blend of high endophyte, rhizome-rich turf-type tall fescues. Deep-rooted and winter hardy, tall fescues have the ability to access water from deeper soil depths than Kentucky bluegrass or perennial ryegrass - assuming adequate soil prep. Survivor exhibits good disease and pest resistance that survives on many soil types in full sun or light shade. It is highly stress tolerant and requires minimal care. Forms a tough, durable turf that easily tolerates constant use, heat and drought.

### TUFF STUFF FESCUE BLEND

This mixture of tough, vigorous varieties easily withstands the abuse of continual use. The durable carpet of green stands up to summer stress and requires minimal upkeep. Features rhizome forming tall fescues. Excellent for high traffic areas such as backyards and play areas. Stands up exceptionally well to summer heat and drought - assuming adequate soil prep.

**PREMIUM IRRIGATED PASTURE MIXTURE**

This pasture mix is a formulation of high-quality producing and palatable grasses to be used for grazing and or hay production. This combination is designed with cool season grasses that produce well in the Intermountain area as well as the High Plains of the Rocky Mountain region. Use this mix for intensive grazing or for the production of high-quality forage.

**ECONOMY IRRIGATED PASTURE MIXTURE**

This mix is formulated with production in mind. The grasses provided are high yielding and fast growing especially in the spring and fall. Yield is the major objective with this mix either by haying or grazing. Use this mix where water is limited because it includes hardy, drought tolerant grasses.

**SMOOTH MEADOW IRRIGATED MIXTURE**

The yield and quality of meadow brome combined with the aggressiveness and drought tolerance of smooth brome come together to form this high-yielding pasture mix. By combining these two brome grasses with Orchardgrass and Festulolium, this mix will deliver high-quality forage with excellent winter hardiness. For use in all soil types, this mix requires irrigation to realize maximum benefits of all grasses.

**DRYLAND PASTURE MIXTURE**

A mixture of hardy, drought tolerant grasses adapted to the Northern Plains and Intermountain regions. It provides good spring forage and fair regrowth in the fall. Widely adapted to many soil types and elevations of 3,000 to 10,000 feet. Ideal for areas not receiving regular irrigation.

**MOUNTAIN MIXTURE**

A mixture of grasses adapted to higher elevations. Very good for mountain pasture and meadows as well as soil stabilization for ski slopes and construction sites.

**FOOTHILLS MIXTURE**

A mixture developed for elevations of 3,000 to 8,000 feet to provide natural cover under dryland conditions. Contains both cool and warm season grasses adapted to the Western Great Plains and Southwest regions. Has excellent cold and drought tolerance. Good for soil stabilization on poor soils.

**ROCKY MOUNTAIN NATIVE MIXTURE**

This mixture was developed for the Rocky Mountain region. It consists of native grasses that include both cool and warm season species. Provides great cold and drought tolerance for the extremes of this region.

**LOW GROW MIXTURE**

A mixture of low growing (8-12 inches), drought tolerant grasses suitable for areas where mowing is difficult or not desirable. Our wildflower mixes are very compatible with this mix.

**MULTI-COLOR HIGH ALTITUDE MIXTURE**

A mixture of low-growing cool season grasses and native wildflowers. This mix is excellent for areas from 5,000 to 9,000 feet in elevation. Wildflowers will bloom in late-spring through the summer and into the fall.

*Please visit our website or call us for current formulations.  
Formulations and varieties are subject to change without notice.*

Vitality Turf Mixtures	Cool/Warm Ingredients	Seeding Rate per 1,000ft <sup>2</sup>	Germination
Blue Valley Bluegrass Blend	Cool	3-4	21-28
Heritage Premium Lawn Mixture	Cool	3-4	14-21
Quick-2-Gro Mixture	Cool	4-5	7-21
Care-Free Mixture	Cool	4-6	10-14
Tuff-Stuff Fescue Blend	Cool	8-10	10-14
Triple Star Perennial Ryegrass Blend	Cool	5-6	7-10
Triple Threat Tall Fescue Blend	Cool	8-10	10-14
Sports Park Turf Mixture	Cool	4-5	14-21
Shady Place Mixture	Cool	4-5	14-21
Nature's Choice Lawn Mixture	Cool	4-5	14-21
Native Wonder Mixture	Warm	3-4	21-28

Wildflower Mixtures	Seeding Rate Bulk#/Acre	Seeding Rate per 6,000ft <sup>2</sup>	Seeding Rate per 3,000 ft <sup>2</sup>	Germination
Rocky Mountain Wildflower Mixture	6-8	1	0.5	14-21
All Perennial Wildflower Mixture	6-8	1	0.5	14-21
Low Grow Wildflower Mixture	6-8	1	0.5	14-21
All Annual Wildflower Mixture	6-8	1	0.5	14-21

Reclamation Mixtures	Cool/Warm Ingredients	Broadcast Seeding Rate Bulk#/Acre	Drilled Seeding Rate Bulk#/Acre	Germination
Foothills Mixture	Cool & Warm	20-25	15-20	7-21
Rocky Mountain Native Mixture	Cool & Warm	20-25	15-20	14-28
Low Grow Mixture	Cool	30-35	20-25	14-28
Multi-Color High Altitude Mixture	Cool	30-35	20-25	14-28

Pasture Mixtures	Cool/Warm Ingredients	Broadcast Seeding Rate Bulk#/Acre	Drilled Seeding Rate Bulk#/Acre	Germination
Premium Irrigated Pasture Mixture	Cool	30-35	21-28	14-28
Economy Irrigated Pasture Mixture	Cool	30-35	14-21	14-28
Smooth Meadow Irrigated Mixture	Cool	30-35	14-21	14-28
Dryland Pasture Mixture	Cool	20-25	10-14	14-28
Mountain Mixture	Cool	30-35	14-21	14-28

Scientific Name	Common Name	Cool/ Warm	Growth Habit	Seeding Rate Per 1,000 ft <sup>2</sup>	Seeds/Lb	Germination	Recommended Mowing Height	Water Use (ET Rate)	Drought Tolerance	Nitrogen Require- ment	Salinity Tolerance
<i>Agrostis canina</i>	Velvet Bentgrass	Cool	Spreads by Stolons	.75 - 1.25#	8,000,000	10-14 days	.10"- 2.0"	Low	Very Good	Low	Low
<i>Agrostis capillaris</i>	Colonial Bentgrass	Cool	Bunch Type	1.5 - 2.5#	5,000,000	7-10 days	0.5"- 2.0"	Low	Good	Low	High
<i>Agrostis palustris</i>	Creeping Bentgrass	Cool	Spreads by Stolons	1 - 1.5#	6,000,000	7-10 days	.125"- 2.0"	Medium	Poor to Good	Low to Medium	High
<i>Buchloe dactyloides</i>	Buffalo Grass	Warm	Spreads by Stolons	2 - 3#	50,000	14-21 days	2.0"- 4.0"	Low	Excellent	Low	Medium
<i>Cynodon dactylon</i>	Turf-Type Tall Fescue	Warm	Spreads by Rhizomes/ Stolons	1 - 5#	1,600,000- 2,000,000	7-30 days	0.5"- 3.0"	Low to Medium	Excellent	Medium	High
<i>Festuca arundinacea</i>	Hard Fescue	Cool	Bunch Type	8 - 10#	225,000	10-14 days	2.0"- 3.5"	High	Good	Medium	High
<i>Festuca brevipila</i>	Sheep Fescue	Cool	Bunch Type	5 - 6#	530,000	14-21 days	1.5"- 3.5"	Low	Excellent	Low	Low to Medium
<i>Festuca ovina</i>	Blue Fescue	Cool	Bunch Type	5 - 6#	400,000	10-14 days	0.5"- 3.5"	Low	Excellent	Very Low	Low to Medium
<i>Festuca ovina</i> var. <i>glauca</i>	Chewing Fescue	Cool	Bunch Type	5 - 6#	400,000	10-14 days	1.5"- 3.5"	Low	Excellent	Very Low	Low to Medium
<i>Festuca rubra</i> var. <i>falax</i>	Slender Creeping Red Fescue	Cool	Bunch Type	5 - 6#	365,000	7-10 days	0.5"- 3.5"	Low	Very Good	Low to Medium	Low
<i>Festuca rubra</i> var. <i>litoralis</i>	Strong Creeping Red Fescue	Cool	Weak Rhizomes	5 - 6#	500,000	10-14 days	1.5"- 3.5"	Low	Good	Low to Medium	High
<i>Festuca rubra</i> var. <i>rubra</i>	Perennial Ryegrass	Cool	Strong Rhizomes	5 - 6#	365,000	10-14 days	1.5"- 3.5"	Low to Medium	Good	Low to Medium	Low
<i>Lolium perenne</i>	Kentucky Bluegrass	Cool	Bunch Type	6- 8#	225,000	7-10 days	0.5"- 3.5"	Medium	Very Good	Medium to High	High
<i>Poa arachnifera</i> x <i>Poa pratensis</i>	Texas Hybrid Bluegrass	Cool	Spreads by Rhizomes	3- 4#	1,200,000	14-21 days	1.0"- 3.0"	Low	Excellent	Medium	High
<i>Poa pratensis</i>	Kentucky Bluegrass	Cool	Spreads by Rhizomes	3- 4#	800,000- 1,600,000	14-21 days	0.5"- 3.5"	Low to Medium	Excellent	Medium to High	Low to Medium
<i>Poa supina</i>	Supina Bluegrass	Cool	Spreads by Rhizomes	1.5 - 3#	2,000,000	14-21 days	.75"- 1.5"	Medium	Poor to Good	Medium to High	Low
<i>Poa trivialis</i>	Rough Bluegrass	Cool	Spreads by Rhizomes	1 - 2#	2,000,000	7-14 days	.125"- 2.0"	Very High	Poor to Good	High	Low

Scientific Name	Common Name	Grain	Hay	Grazing	Recommended Planting Date	Irrigated	Dryland	Seeds/Lb	Germination
<i>Astragalus cicer</i> L.	Cicer Milkvetch		X	X	Apr-May	10-12	5	130,000	14-21
<i>Avena sativa</i>	Oats	X	X	X	Feb-Jun	70-100	40-50	16,200	7-14
<i>Brassica napus</i>	Rape	X		X	Mar-May, Sep-Oct	8	5-6	156,960	4-7
<i>Brassica rapa</i> L.	Forage Turnips			X	July-Aug	2-5	2-3	80,000	4-7
<i>Coronilla varia</i>	Crown Vetch		X	X	Apr-May	15-25	5-10	110,000	21-28
<i>Echinochloa frumentaceae</i> L.	Japanese Millet		X	X	May-June	15-25	10-15	120,000	4-10
<i>Fagopyrum esculentum</i>	Buckwheat	X		X	Apr-May	60-75	35-45	20,400	4-7
<i>Hordeum vulgare</i>	Fall Barley	X	X		Aug-Oct	80-100	60	14,000	7-14
<i>Hordeum vulgare</i>	Spring Barley	X	X		Feb-Mar	80-100	60	14,000	7-14
<i>Lotus corniculatus</i> L.	Birdsfoot Trefoil		X	X	Apr-May	15	5-10	375,000	10-14
<i>Medicago sativa</i>	Alfalfa		X	X	Mar-Apr, Aug	15-18	12-15	200,000	7-10
<i>Mellilotus alba</i>	White Blossom Cover		X	X	Mar-May, Aug-Sep	N/R	5	260,000	4-7
<i>Mellilotus offi cinalis</i>	Yellow Blossom Sweet Clover		X	X	Mar-May, Aug-Sep	N/R	5	260,000	4-7
<i>Onobrychis vicifolia</i>	Sainfoin		X	X	Apr-May	35-45	20-25	30,000	10-14
<i>Panicum miliaceum</i>	White Proso Millet	X			May-Jun	20	5-10	80,000	4-7
<i>Pennisetum typhoides</i>	Hybrid Pearl Millet		X	X	May-Jun	15-25	10-15	80,000	4-7
<i>Pisum sativum</i> L.	Field Peas		X	X	Mar-May	100-120	60	3,000+	3-8
<i>Secale cereale</i>	Cereal (Winter) Rye	X			Mar-May, Sep-Oct	80-100	60	18,200	7-10
<i>Setaria italica</i>	White Wonder Millet		X	X	May-Jun	20	5-10	80-100,000	4-7
<i>Setaria italica</i> ssp. <i>rubrofructa</i>	Siberian Millet		X	X	May-Jun	20	5-10	80-100,000	4-10
<i>Setaria italica</i> ssp. <i>stramineo-fructa</i>	German Millet		X	X	May-Jun	20	5-10	80-100,000	4-10
<i>Sorghum bicolor</i>	Forage Sorghum		Silage		May-Jun	10-20	5-15	16,000	4-10
<i>Sorghum bicolor</i> x <i>Sorghum sudanense</i>	Sorghum-Sudangrass		X	X	May-Jun	15-25	5-12	20-22,000	4-10
<i>Trifolium fragiferum</i>	Strawberry Clover		X	X	Mar-May, Aug-Sep	10-15	N/R	290,000	4-7
<i>Trifolium hybridum</i>	Alsike Clover		X	X	Mar-May, Aug-Sep	4-5	N/R	680,000	7-10
<i>Trifolium pratense</i> L.	Medium Red Clover		X	X	Mar-May, Aug-Sep	10-15	N/R	260,000	4-7
<i>Trifolium pratense</i> var. <i>sativum</i>	Mammoth Red Clover		X	X	Mar-May, Aug-Sep	10-15	N/R	260,000	4-7

Scientific Name	Common Name	Grain	Hay	Grazing	Recommended Planting Date	Irrigated	Dryland	Seeds/Lb	Germination
<i>Trifolium repens</i>	White Dutch Clover		X	X	Mar-May, Aug-Sep	4-5	N/R	700,000	4-7
<i>Trifolium repens</i> ssp. <i>latum</i>	Ladino Clover		X	X	Mar-May, Aug-Sep	4-5	N/R	780,000	7-10
<i>Triticum aestivum</i>	Hard Red Winter Wheat	X			Aug-Oct	80-120	60	18-20,000	7-14
<i>Triticum aestivum</i>	Hard Red or Soft White Spring Wheat	X			Feb-Mar	80-120	60	18-20,000	7-14
<i>Triticum aestivum</i> x <i>Secale cereale</i>	Fall Triticale		X	X	Aug-Sep	100	50-60	18,000	7-14
<i>Triticum aestivum</i> x <i>Secale cereale</i>	Spring Triticale		X	X	Mar	100	50-60	18,000	7-14
<i>Vicia sativa</i>	Common Vetch		X	X	Apr-May	40-50	20	18,000	10-14
<i>Vicia villosa</i>	Hairy Vetch		X	X	Apr-May	20	10	20,000	10-14

Scientific Name	Common Name	Varieties	Height (in)	Native/ Introduced	Cool/ Warm	Growth Habit	Seeding Rate PLS#/Acre	Seeds/Lb	Germination
<i>Achnatherum hymenoides</i>	Indian Ricegrass	Nezpar, Paloma, Rimrock	8-30	Native	Cool	Bunch	4-6	161,920	40-60
<i>Achnatherum lettermanii</i>	Letterman Needlegrass		6-24	Native	Cool	Bunch	8-12	150,000	21-28
<i>Achnatherum nelsonii</i> ssp. <i>dorei</i>	Columbia Needlegrass		6-24	Native	Cool	Bunch	6-8	150,000	7-28
<i>Achnatherum speciosum</i>	Dester Needlegrass		18-24	Native	Cool	Bunch	5	150,000	7-28
<i>Agropyron cristatum</i>	Crested Wheatgrass	Ephraim, Roadcrest, Douglas, Ruff, Parkway, Kirk	12-36	Introduced	Cool	Bunch	5-10	311,200	14-21
<i>Agropyron cristatum</i> x <i>Agropyron desertorum</i>	Hybrid Wheatgrass	CD-II, Hycrest	24-48	Introduced	Cool	Bunch	5-10	311,200	14-21
<i>Agropyron desertorum</i>	Dester Wheatgrass	Nordan, Summit	12-36	Introduced	Cool	Bunch	5-10	311,200	5-14
<i>Agropyron fragile</i> ssp. <i>sibericum</i>	Siberian Wheatgrass	P27, Vavilov	12-36	Introduced	Cool	Bunch	6-11	206,000	14-21
<i>Agrostis gigantea</i>	Red Top	Streaker	30-40	Introduced	Cool	Sod	.5-1	4,851,200	7-10
<i>Alopecurus arundinaceus</i>	Creeping Meadow Foxtail	Garrison	12-24	Introduced	Cool	Sod	3-5	786,064	10-14
<i>Andropogon gerardii</i>	Big Bluestem	Bison, Bonilla, Champ, Kaw, Pawnee	72-96	Native	Warm	Bunch/Sod	5-8	144,240	14-21
<i>Andropogon hallii</i>	Sand Bluestem	Woodward, Garden County, Elida, Goldstrike	12-84	Native	Warm	Sod	6-8	96,640	21-28
<i>Aristida purpurea</i>	Purple Three-Awn		16-24	Native	Warm	Bunch	6	250,000	7-21
<i>Aristida purpurea</i> var. <i>longisetata</i>	Red Three-Awn		8-16	Native	Warm	Bunch	4-7	300,000	7-21
<i>Bothriochloa barbinodis</i>	Cane Beardgrass		24-48	Native	Warm	Bunch	2-4	754,000	21-28
<i>Bothriochloa ischaemum</i>	Old World Bluestem	Ganada, Plains, King Ranch, WW Spar	12-60	Native	Warm	Bunch	2	479,000	7-21
<i>Bouteloua aristidoides</i>	Needle Grama		6-12	Native	Warm	Bunch	5	414,000	7-21
<i>Bouteloua curtipendula</i>	Sideoats Grama	El Reno, Vaughn, Butte, Pierre, Trailway, Niner, Haskell, Killdear, Premier	15-30	Native	Warm	Bunch/Sod	4-6	159,200	14-21
<i>Bouteloua eriopoda</i>	Black Grama		12-24	Native	Warm	Sod	1-2	1,300,000	7-14
<i>Bouteloua gracilis</i>	Blue Grama	Alma, Bad River, Hachita, Lovington	10-20	Native	Warm	Bunch/Sod	3-5	724,400	7-10
<i>Bouteloua rothrockii</i>	Rothrock's Grama		6-12	Native	Warm	Bunch	1-2	2,360,000	7-28
<i>Bromus anomalus</i>	Nodding Brome		6-12	Native	Cool	Bunch	5-10	142,800	7-14
<i>Bromus biebersteinii</i>	Meadow Brome	Paddock, Regar, Fleet, Montana	24-72	Introduced	Cool	Bunch	8-12	86,875	10-14
<i>Bromus inermis</i>	Smooth Brome	Lincoln, Manchar, Carlton	24-48	Introduced	Cool	Sod	8-12	142,880	10-14
<i>Bromus marginatus</i>	Mountain Brome	Bromar, Garnet	36-48	Native	Cool	Bunch	10-15	64,080	10-14
<i>Buchloe dactyloides</i>	Buffalograss	Sharps Improved II, Texoka, Cody, Bowie, Topgun, Bison, Sharp Shooter	10-12	Native	Warm	Sod	10-15	45,000	14-21
<i>Calamovilfa longifolia</i>	Prairie Sandreed	Goshen, Bowman	24-72	Native	Warm	Sod	4-7	274,000	21-28



Scientific Name	Common Name	Varieties	Height (in)	Native/ Introduced	Cool/ Warm	Growth Habit	Seeding Rate PLS#/ Acre	Seeds/Lb	Germination
<i>Dactylis glomerata</i>	Orchardgrass	Bronc, Crown Royale, Jack Rabbit, Latar, Paiute, Potomac, Pizza, Renegade, Profile	24-48	Introduced	Cool	Bunch	8-10	427,000	14-21
<i>Deschampsia caespitosa</i>	Tufted Hairgrass	Nortran	24-48	Native	Cool	Bunch	1-2	1,500,000	7-14
<i>Digitaria californica</i>	Arizona Cottontop		12-24	Native	Warm	Bunch	2-4	980,000	7-14
<i>Elymus canadensis</i>	Canada Wildrye	Mandan	24-48	Native	Cool	Bunch	11-15	114,000	7-21
<i>Elymus dahuricus</i>	Dahurian Wildrye		12-60	Introduced	Cool	Bunch	10-15	80,000	7-21
<i>Elymus elymoides</i>	Bottlebrush Squirreltail	Sand Hollow	4-25	Native	Cool	Bunch	7-12	192,000	10-14
<i>Elymus glaucus</i>	Blue Wildrye	Arlington, Elkton	20-60	Native	Cool	Bunch	12	134,500	6-10
<i>Elymus hoffmannii</i>	Newhy Hybrid Wheatgrass		12-24	Introduced	Cool	Sod	12-14	122,000	7-14
<i>Elymus lanceolatus</i> ssp. <i>lanceolatus</i>	Thickspike Wheatgrass	Critana, Bannock, Schwendimar	12-36	Native	Cool	Sod	5-10	154,000	21-28
<i>Elymus lanceolatus</i> ssp. <i>psammophilus</i>	Streambank Wheatgrass	Sodar	12-36	Native	Cool	Sod	5-10	156,000	21-28
<i>Elymus trachycaulus</i> ssp. <i>trachycaulus</i>	Slender Wheatgrass	Pryor, Sand Louis, Revenue	24-30	Native	Cool	Bunch	5-10	135,000	21-28
<i>Elytrigia elongata</i>	Tall Wheatgrass	Alkar, Jose, Largo, Platte	36-48	Introduced	Cool	Bunch	12-15	75,320	21-28
<i>Elytrigia intermedia</i> ssp. <i>intermedia</i>	Intermediate Wheatgrass	Oahe	36-48	Introduced	Cool	Sod	7-10	80,080	21-28
<i>Elytrigia intermedia</i> ssp. <i>trichophorum</i>	Pubescent Wheatgrass	Luna, Mandan, Manska, Greenleaf	36-48	Introduced	Cool	Sod	7-10	95,000	21-28
<i>Eragrostis curvula</i>	Weeping Lovegrass	A-67, Ermelo, Morpa	24-48	Introduced	Warm	Bunch	1-2	1,482,320	7-10
<i>Eragrostis intermedia</i>	Plains Lovegrass		15-36	Native	Warm	Bunch	2-3	3,500,000	7-28
<i>Eragrostis lehmanniana</i>	Lehmans Lovegrass		12-24	Introduced	Warm	Sod	5-1	6,500,000	7-10
<i>Eragrostis trichodes</i>	Sand Lovegrass	Nebraska 27, Bend	24-60	Native	Warm	Bunch	1-2	1,625,680	10-14
<i>Festuca arizonica</i>	Arizona Fescue	Redondo	12-36	Native	Cool	Bunch	3-5	480,500	14-21
<i>Festuca arundinacea</i>	Tall Fescue	Fawn Fuego, KY-31, Seine, Longhorn	24-60	Introduced	Cool	Bunch	15-18	230,000	7-10
<i>Festuca brevipila</i>	Chewings Fescue	Durar	4-6	Introduced	Cool	Bunch	3-5	600,000	10-14
<i>Festuca campestris</i>	Rough Fescue		12-14	Native	Cool	Bunch	6-10	200,000	7-21
<i>Festuca idahoensis</i>	Idaho Fescue	Winchester, Joseph	12-36	Native	Cool	Bunch	3-6	450,000	8-10
<i>Festuca ovina</i>	Sheep Fescue	Covar, Bighorn, MX-86	12-24	Introduced	Cool	Bunch	3-5	530,320	14-21
<i>Festuca pratensis</i>	Meadow Fescue		6-12	Introduced	Cool	Bunch	10-15	230,000	10-14
<i>Festuca saximontana</i>	Rocky Mountain Fescue		12-24	Native	Cool	Bunch	1.5-3	1,300,000	7-21
<i>Festuca thurberi</i>	Thurber Fescue		18-36	Native	Cool	Bunch	3-5	500,000	7-21

Scientific Name	Common Name	Varieties	Height (in)	Native/ Introduced	Cool/ Warm	Growth Habit	Seeding Rate PLS#/Acre	Seeds/Lb	Germination
<i>Festulolium braunii</i>	Festulolium	Spring Green, Duo	20-48	Introduced	Cool	Bunch	15-18	150,000	7-14
<i>Hesperostipa comata</i> ssp. <i>comata</i>	Needle & Thread Grass		12-36	Native	Cool	Bunch	7-10	137,857	14-21
<i>Heteropogon contortus</i>	Tanglehead		36-96	Native	Warm	Bunch	4-7	630,000	14-21
<i>Hilaria belangeri</i>	Curly Mesquite Grass		6-12	Native	Warm	Bunch	5-9	270,000	7-21
<i>Hordeum brachyantherum</i>	Meadow Barley		12-14	Native	Cool	Bunch	12-15	85,000	7-14
<i>Hordeum jubatum</i>	Foxtail Barley		12-24	Native	Cool	Bunch	6-9	136,000	4-14
<i>Koeleria macrantha</i>	Prairie Junegrass		12-30	Native	Cool	Bunch	1-2	2,315,000	7-14
<i>Leptochloa dubia</i>	Green Sprangletop		24-42	Introduced	Warm	Bunch	3-5	538,000	7-21
<i>Leymus angustus</i>	Altai Wildrye		24-48	Introduced	Cool	Bunch	15-20	58,300	7-21
<i>Leymus cinereus</i>	Great Basin Wildrye	Magnar, Trailhead	20-40	Native	Cool	Bunch	5-7	130,000	21-28
<i>Leymus racemosus</i> ssp. <i>racemosus</i>	Mammoth Wildrye	Volga	18-36	Introduced	Cool	Sod	8-15	100,000	7-21
<i>Leymus triticoides</i>	Beardless Wildrye	Shoshone	10-36	Naative	Cool	Sod	5-7	170,304	21-28
<i>Lolium hybridum</i>	Intermediate Ryegrass	Bison	18-36	Introduced	Cool	Bunch	15-18	153,280	7-14
<i>Lolium multiflorum</i>	Annual Ryegrass	Gulf, Graze-n-Go, Max, Striker	10-36	Introduced	Cool	Annual	8-16	227,000	4-7
<i>Lolium perenne</i>	Perennial Ryegrass	Linn, Herbie, Elgon	18-36	Introduced	Cool	Bunch	4-8	227,000	5-8
<i>Muhlenbergia wrightii</i>	Spike Muhly	El Vado	12-18	Native	Warm	Bunch	1-3	1,635,000	7-21
<i>Nassella viridula</i>	Green Needlegrass	Lodorn	18-36	Native	Cool	Bunch	5-8	167,840	21-28
<i>Panicum coloratum</i>	Kleingrass		36-48	Introduced	Warm	Bunch	3-5	490,000	7-28
<i>Panicum obtusum</i>	Vine Mesquite Grass		12-30	Native	Warm	Sod	6-12	145,000	7-28
<i>Panicum virgatum</i>	Switchgrass	Blackwell, Nebraske 28, Forestburg, Alamo, Greenville, Cave-in-Rock, Dacotah, Kanlow	36-60	Native	Warm	Sod	2-3	259,000	21-28
<i>Paspopyrum smithii</i>	Western Wheatgrass	Arriba, Barton, Rosana, Flintlock, Rodan, Walsh	12-36	Native	Cool	Sod	5-10	115,000	21-28
<i>Phalaris arundinacea</i>	Reed Canarygrass	Cheifton, Palaton	72-84	Introduced	Cool	Sod	3-5	537,920	14-21
<i>Pheleum alpinum</i>	Alpine Timothy		6-24	Native	Cool	Bunch/Sod	1-2	1,044,689	7-10
<i>Phleum pratense</i>	Timothy	Climax, Drummond	20-40	Introduced	Cool	Bunch	3-5	1,163,200	7-10
<i>Pleuraphis jamesii</i>	Galleta Grass	Viva	3-20	Native	Warm	Sod	5-8	151,850	10-14
<i>Poa alpina</i>	Alpine Bluegrass		8-24	Native	Cool	Bunch	1-2	1,069,291	7-21
<i>Poa ampla</i>	Big Bluegrass	Sherman	24-48	Native	Cool	Bunch	3-5	910,000	14-21

Scientific Name	Common Name	Varieties	Height (in)	Native/ Introduced	Cool/ Warm	Growth Habit	Seeding Rate PLS#/ Acre	Seeds/Lb	Germination
<i>Poa canbyi</i>	Canby Bluegrass	Canbar	8-16	Native	Cool	Bunch	3-5	925,000	14-21
<i>Poa compressa</i>	Canada Bluegrass	Canon, Reubens, Talon	8-24	Introduced	Cool	Bunch/Sod	3-5	2,392,820	14-21
<i>Poa fendleriana</i>	Muttongrass		12-24	Native	Cool	Bunch	2-3	2,000,000	7-28
<i>Poa palustris</i>	Fowl Bluegrass		12-24	Introduced	Cool	Bunch/Sod	1-3	1,900,000	7-21
<i>Poa pratensis</i>	Kentucky Bluegrass	Troy, Ginger	18-24	Introduced	Cool	Sod	2-4	1,389,840	14-21
<i>Poa sandbergii</i>	Sandberg Bluegrass		24-48	Native	Cool	Bunch	2-4	1,046,960	7-21
<i>Poa trivialis</i>	Rough Bluegrass		6-12	Introduced	Cool	Sod	2-3	2,090,320	7-21
<i>Psathyrostachys juncea</i>	Russian Wildrye	Bozoisky, Swift, Vinal	24-48	Introduced	Cool	Bunch	12-15	162,600	14-21
<i>Pseudoroegneria spicata</i> ssp. <i>inermis</i>	Beardless Bluebunch Wheatgrass	Whitmar	12-30	Native	Cool	Sod	5-10	150,000	14-21
<i>Pseudoroegneria spicata</i> ssp. <i>spicata</i>	Bluebunch Wheatgrass	Anatone, Goldar, P-7, Secar	18-48	Native	Cool	Bunch	5-10	125,680	14-21
<i>Puccinellia distans</i>	Alkaligrass	Fults	12-18	Native	Cool	Bunch	3-4	2,000,000	10-14
<i>Schizachyrium scoparium</i>	Little Bluestem	Aldous, Camper, Blaze, Pastura, Cinarron	20-60	Native	Warm	Bunch	4-6	240,670	21-28
<i>Setaria vulpiseta</i>	Plains Bristlegrass		12-36	Native	Warm	Bunch	5-9	293,000	7-21
<i>Sorghastrum nutans</i>	Indiangrass	Cheyenne, Holt, Tomahawk, Llano, Osage	36-60	Native	Warm	Bunch	5-8	174,720	21-28
<i>Sporobolus airoides</i>	Alkali Sacaton	Salado	24-42	Native	Warm	Bunch	1-2	1,750,000	7-10
<i>Sporobolus cryptandrus</i>	Sand Dropseed		16-40	Native	Warm	Bunch	.5-1	5,600,000	14-21
<i>Sporobolus giganteus</i>	Giant Dropseed		24-60	Native	Warm	Bunch	2-3	1,723,000	7-14
<i>Triticum aestivum</i> x <i>Elytrigia elongata</i>	Regreen		18-24	Introduced	Cool	Bunch	10-20	12,000	3-7
<i>Triticum aestivum</i> x <i>Secale cereale</i>	Quickguard		18-24	Introduced	Cool	Bunch	10-20	14,000	3-7
<i>Vulpia octoflora</i>	Six Weeks Fescue		6-18	Native	Cool	Annual	2-3	965,000	7-21

Scientific Name	Common Name	Type	Native/ Introduced	Height (in)	Flower Color	Bloom Period	Cultural Requirements	Seeding Rate PLS#/Ac <sup>2</sup>	Seeds/Lb
<i>Achillea filipendulina</i>	Gold Yarrow	P	Introduced	36-60	Gold	Summer	Sun-Dry/Moist	1	2,790,000
<i>Achillea lanulosa</i>	Western Yarrow	P	Native	12-36	White	Summer	Sun/Dry	1	3,240,000
<i>Achillea millefolium</i>	White Yarrow	P	Introduced	12-36	White	Summer	Sun-Dry/Moist	1	2,790,000
<i>Allium cernuum</i>	Nodding Pink Onion	P	Native	12-18	Pink	Summer	Sun-Dry/Moist	19	138,000
<i>Alyssum saxatile</i>	Basket-of-Gold	P	Introduced	8-12	Yellow	Spring/Summer	Sun-Dry	4-6	567,000
<i>Amorpha canescens</i>	Leadplant	P	Native	24-40	Purple	Summer	Sun-Dry	5	277,000
<i>Aquilegia caerulea</i>	Blue Columbine	P	Native	24-36	Blue/White	Spring/Summer	Sun/Shade-Moist	3-6	431,000
<i>Aquilegia vulgaris</i>	Dwarf Columbine	P	Introduced	10-18	Red/Violet/Blue	Spring/Summer	P/Shade-Moist	3-5	315,000
<i>Argemone polyanthemus</i>	Prickly Poppy	P	Native	12-48	White-Yellow	Summer/Fall	Sun-Dry	1	1,576,000
<i>Asclepias incarnata</i>	Swamp Milkweed	P	Native	36-60	Pink	Summer	Sun-Moist	8-12	102,000
<i>Asclepias speciosa</i>	Showy Milkweed	P	Native	24-40	Pink	Summer	Sun-Dry/Moist	7-10	87,000
<i>Asclepias tuberosa</i>	Butterfly Milkweed	P	Native	24-36	Orange	Summer	Sun-Dry	7-10	87,000
<i>Aster laevis</i>	Smooth Aster	P	Native	30-48	Violet	Fall	Sun-Dry/Moist	2-3	1,014,000
<i>Aster novae-angliae</i>	New England Aster	P	Native	24-72	Pink/Violet/Purple	Fall	P/Sun-Dry/Moist	1-2	1,305,000
<i>Aster ptarmicoides</i>	White Upland Aster	P	Native	18-24	White	Summer/Fall	Sun-Dry	4	1,000,000
<i>Baileya multiradiata</i>	Desert Marigold	A/P	Native	18-24	Yellow	Spring/Summer	Sun-Dry	1-2	43,000
<i>Balsamorhiza sagittata</i>	Arrowleaf Balsamroot	P	Native	16-30	Yellow	Spring/Summer	Sun-Dry/Moist	10-15	5,670,000
<i>Campanula carpatica</i>	Tussock Bellflower	P	Introduced	8-18	Lavender-Blue	Summer	P/Sun-Dry/Moist	.25-.50	56,700
<i>Cassia fasciculata</i>	Partridge Pea	A	Native	6-24	Yellow	Summer/Fall	Sun-Dry	15-18	4,000,000
<i>Castilleja chromosa</i>	Indian Paintbrush	P	Native	8-24	Scarlet/Rose/Yellow	Summer/Fall	P/Sun-Dry/Moist	.75-1	89,000
<i>Centaurea cyanus</i>	Cornflower	A	Introduced	12-36	Blue	Summer	P/Sun-Dry	10-14	1,112,000
<i>Cerastium biebersteinii</i>	Snow-in-Summer	P	Introduced	6-12	White	Spring/Summer	P/Sun-Dry/Moist	2-3	346,000
<i>Cheiranthus allionii</i>	Siberian Wallflower	B/P	Introduced	10-18	Orange	Spring	P/Sun-Dry/Moist	4-6	436,000
<i>Chrysanthemum maximum</i>	Shasta Daisy	P	Introduced	16-24	White	Summer	P/Sun-Moist	4-6	436,000
<i>Cleome serrulata</i>	Rocky Mountain Beeplant	A	Native	12-48	Pink/Lavender	Summer	Sun-Dry	10-16	62,000
<i>Coreopsis lanceolata</i>	Lance-Leaved Coreopsis	P	Native	18-36	Yellow	Summer/Fall	P/Sun-Dry/Moist	5-8	202,000
<i>Coreopsis tinctoria</i>	Plains Coreopsis	A	Native	18-36	Yellow-Maroon	Summer/Fall	P/Sun-Dry	1-2	1,666,000

**KEY**  
**TYPE:** A = Annual B = Biennial P = Perennial TP = Tender Perennial (grown as an annual in cold climates)  
**CULTURAL REQUIREMENTS:** Sun = Full Sun P/Sun = Full or Partial Sun P/Shade = Partial Sun or Shade Sun/Shade = Sun or Shade  
 Dry = 10-30 inches rainfall per year or sandy, well-drained soil Moist = Over 30 inches rainfall per year or regular irrigation

Scientific Name	Common Name	Type	Native/ Introduced	Height (in)	Flower Color	Bloom Period	Cultural Requirements	Seeding Rate PLS#/Acre	Seeds/Lb
Cosmos bipinnatus	Cosmos	A	Introduced	36-60	White/Pink/Crimson	Summer/Fall	P/Sun-Dry	10-14	80,800
Dalea candida	White Prairie Clover	P	Native	18-36	White	Summer/Fall	Sun/Dry	5-7	259,000
Delphinium ajacis	Rocket Larkspur	A	Introduced	12-36	White/Pink/Blue/Violet	Summer	P/Sun-Moist	10-15	142,000
Delphinium occidentale	Western Larkspur	P	Native	36-60	Blue/Purple	Summer	P/Sun-Moist	10-13	157,000
Desmanthus illinoensis	Illinois Bundleflower	P	Native	36-60	Cream	Summer	Sun-Dry	10-15	67,000
Dianthus barbatus	Sweet William Pinks	P	Introduced	12-24	White/Pink/Red	Summer	Sun-Dry/Moist	3-5	437,000
Dianthus deltoides	Maiden Pinks	P	Introduced	6-16	Pink	Summer	Sun-Dry/Moist	1	2,270,000
Digitalis purpurea	Foxglove	B/P	Introduced	24-48	Purple/Cream	Summer	P/Shade-Moist	0.5	4,753,000
Dimorphotheca aurantiaca	African Daisy	A	Introduced	8-12	Yellow/Orange	Spring/Summer	Sun-Dry/Moist	4-8	251,000
Echinacea angustifolia	Narrow-Leaf Purple Coneflower	P	Native	12-24	Violet	Summer	Sun-Dry	10-13	110,000
Echinacea pallida	Pale Purple Coneflower	P	Native	24-48	Lavender	Summer	P/Sun-Dry	9-12	106,000
Echinacea purpurea	Purple Coneflower	P	Native	24-36	Purple	Summer	P/Shade-Dry/Moist	7-12	117,000
Engelmannia pinnatifida	Engelmann Daisy	P	Native	24-36	Yellow	Spring/Summer	Sun-Dry	6-8	120,000
Epilobium angustifolium	Fireweed	P	Native	14-84	Pink	Summer/Fall	Sun-Dry/Moist	.25	8,500,000
Erigeron speciosus	Fleabane Daisy	P	Native	8-24	Violet	Spring/Summer	P/Sun-Dry/Moist	1	1,892,000
Eriogonum umbellatum	Sulfur Flower	P	Native	6-12	Yellow	Fall	P/Sun-Dry	4-7	140,500
Erysimum capitatum	Western Wallflower	B/P	Native	12-24	Yellow/Orange	Spring/Summer	Sun-Dry	2-3	856,000
Eschscholzia californica	California Poppy	TP	Native	12-18	Yellow/Orange	Spring/Summer	Sun-Dry/Moist	6-10	250,000
Gaillardia aristata	Perennial Gaillardia	P	Native	18-30	Yellow/Red	Summer	Sun-Dry	8-10	160,200
Gaillardia pulchella	Annual Gaillardia	A	Native	12-24	Yellow/Red	Summer	Sun-Dry	7-9	223,300
Geranium maculatum	Wild Geranium	P	Native	12-48	Pink/Lavender	Summer	P/Sun-Dry/Moist	6-12	52,000
Gilia tricolor	Bird's Eyes	A	Native	12-18	Lavender/White	Spring	Sun-Dry	1-2	1,024,000
Gypsophila elegans	Annual Baby's Breath	A	Introduced	8-18	White	Summer	P/Sun-Dry	3-5	378,000
Hedysarum boreale	Northern Sweetvetch	P	Native	10-24	Pink/Purple	Spring/Summer	Sun-Dry/Moist	15-25	33,600
Helianthus annuus	Annual Sunflower	A	Native	24-72	Yellow	Summer	Sun-Dry	18-20	59,800
Helianthus maximiliani	Maximilian Sunflower	P	Native	39-96	Yellow	Summer/Fall	Sun-Dry	4-8	182,000
Heliomeris multiflora	Showy Goldeneye	P	Native	12-36	Yellow	Summer/Fall	P/Sun-Dry/Moist	1	1,200,000

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Scientific Name	Common Name	Type	Native/ Introduced	Height (in)	Flower Color	Bloom Period	Cultural Requirements	Seeding Rate PLS#/Acre	Seeds/Lb
<i>Ipomopsis aggregata</i>	Scarlet Gilia	B	Native	12-36	Scarlet	Summer	Sun-Dry	3	488,000
<i>Iris missouriensis</i>	Wild Blue Iris	P	Native	12-24	Blue	Summer	Sun-Moist	25-30	26,400
<i>Liatris punctata</i>	Dotted Gayfeather	P	Native	10-16	Purple	Summer/Fall	Sun-Dry	8-10	197,000
<i>Liatris pycnostachya</i>	Thickspike Gayfeather	P	Native	24-48	Purple	Summer	Sun-Dry/Moist	10-12	131,000
<i>Linanthus grandiflorus</i>	Mountain Phlox	A	Native	12-24	White/Lavender	Spring/Summer	Sun-Dry	1.5-3	969,000
<i>Linaria maroccana</i>	Spurred Snapdragon	A	Introduced	12-24	Pink/Yellow/Violet	Spring/Summer	P/Sun-Dry	0.5	6,632,000
<i>Linum grandiflorum/rubrum</i>	Scarlet Flax	A	Introduced	12-36	Scarlet	Summer	P/Sun-Dry/Moist	10-15	132,000
<i>Linum lewisii</i>	Blue Flax	P	Native	12-30	Blue	Spring/Summer	Sun-Dry	6-7	200,000
<i>Lobularia maritima</i>	Sweet Alyssum	TP	Introduced	8-16	White	Spring/Fall	P/Sun-Dry/Moist	1.5-2	1,115,000
<i>Lupinus alpestris</i>	Mountain Lupine	P	Native	18-24	Blue	Summer	P/Sun-Dry	25-35	21,000
<i>Lupinus argenteus</i>	Silver Lupine	P	Native	10-28	Blue	Summer	Sun-Dry/Moist	20-30	18,300
<i>Lupinus perennis</i>	Perennial Lupine	P	Native	12-36	Blue	Spring/Summer	Sun-Dry/Moist	25-35	21,300
<i>Lupinus polyphyllus</i>	Russell Lupine	P	Native	12-36	Pink/Blue/Red/Yellow	Spring/Summer	Sun-Dry/Moist	25-35	22,400
<i>Lupinus succulentus</i>	Arroyo Lupine	A	Native	24-48	Blue	Spring/Summer	Sun-Dry	35-45	15,600
<i>Lupinus texensis</i>	Texas Bluebonnet	A	Native	16-20	Blue/White	Summer	Sun-Dry/Moist	20-30	16,000
<i>Machaeranthera tanacetifolia</i>	Prairie Aster	B	Native	12-18	Violet	Summer/Fall	Sun-Dry	4-6	408,000
<i>Mirabilis jalapa</i>	Four O'Clocks	TP	Introduced	12-36	Red/Pink/Yellow/White	Summer/Fall	Sun-Dry/Moist	50-60	6,300
<i>Monarda fistulosa</i>	Bergamot	P	Native	36-48	Purple	Summer	P/Sun-Dry	1	1,463,000
<i>Myosotis sylvatica</i>	Forget-Me-Not	A/B	Introduced	10-18	Blue	Spring/Summer	Sun-Dry/Moist	2-3	732,000
<i>Nemophila maculata</i>	Five-Spot	A	Native	4-6	White-Purple	Spring/Summer	P/Sun-Dry/Moist	16-20	74,000
<i>Nemophila menziesii</i>	Baby Blue-Eyes	A	Native	4-12	Blue	Spring/Summer	P/Shade-Moist	5-8	243,000
<i>Oenothera biennis</i>	Common Evening Primrose	B/P	Introduced	24-60	Yellow	Summer	P/Shade-Moist	1.5	864,000
<i>Oenothera missouriensis</i>	Dwarf Evening Primrose	P	Native	8-12	Yellow	Summer	P/Shade-Moist	12-14	92,000
<i>Oenothera pallida</i>	Pale Evening Primrose	P	Native	8-20	White	Summer/Fall	Sun-Dry	1-2	653,000
<i>Oenothera speciosa</i>	Showy Evening Primrose	A/P	Native	12-24	Pink	Spring/Summer	P/Sun-Dry/Moist	1	3,024,000
<i>Papaver nudicaule</i>	Iceland Poppy	P	Native	12-24	Yellow/Orange/White	Spring/Summer	Sun-Dry/Moist	1	2,630,000
<i>Papaver rhoeas</i>	Corn Poppy	A	Introduced	12-30	White/Pink/Red	Summer	P/Sun-Dry	1	3,179,000

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Penstemon angustifolius	Narrow-Leaved Beardtongue	P	Native	9-12	Pink/Violet	Spring/Summer	Sun-Dry/Moist	8	270,000
Penstemon barbatus	Scarlet Bugler	P	Native	24	Red	Summer	Sun-Dry	2-4	550,000
Penstemon cyananthus	Wasatch Penstemon	P	Native	18	Blue	Spring/Summer	P/Sun-Dry/Moist	2-4	550,000
Penstemon eatonii	Eaton's Penstemon	P	Native	12-40	Scarlet/Rose/Salmon	Spring/Summer	Sun-Dry	2-4	600,000
Penstemon palmeri	Palmer Penstemon	P	Native	24-48	Pink	Summer	Sun-Dry	2-4	507,000
Penstemon strictus	Rocky Mountain Penstemon	P	Native	24-36	Blue	Summer	P/Sun-Dry	2-4	478,000
Petalostemon purpureum	Purple Prairie Clover	P	Native	12-36	Purple	Summer/Fall	Sun-Dry	6-8	293,000
Phacelia campanularia	California Bluebell	A	Native	8-20	Blue	Summer	Sun-Dry	8-10	259,000
Phlox drummondii	Annual Phlox	A	Native	8-20	White/Pink/Red/Purple	Summer/Fall	Sun-Dry	8-10	241,000
Ratibida columnifera	Prairie Coneflower	B/P	Native	12-36	Red/Yellow	Summer	P/Sun-Dry	1-2	832,000
Ratibida pinnata	Grey-Headed Coneflower	P	Native	36-48	Yellow	Summer	P/Sun-Dry/Moist	2-4	445,000
Rudbeckia amplexicaulis	Clasping Coneflower	A	Native	18-30	Yellow/Red	Summer/Fall	P/Sun-Dry/Moist	1.5-3	796,000
Rudbeckia hirta	Black-Eyed Susan	A/B/P	Native	12-36	Yellow	Summer/Fall	P/Sun-Dry/Moist	1-2	1,967,000
Sanguisorba minor	Small Burnet	P	Introduced	8-24	Pink	Summer	Sun-Dry	15-25	55,000
Sisyrinchium bellum	Blue-Eyed Grass	P	Native	6-18	Dark Blue	Spring	Sun-Moist	3-5	315,000
Solidago rigida	Rigid Goldenrod	P	Native	36-60	Gold	Summer/Fall	Sun-Dry/Moist	2-3	772,000
Sphaeralcea ambigua	Desert Globemallow	P	Native	20-38	Orange/Red	Spring	Sun-Dry	2-4	500,000
Sphaeralcea coccinea	Scarlet Globemallow	P	Native	6-14	Orange	Spring/Summer	Sun-Dry	2-4	500,000
Sphaeralcea grossularifolia	Gooseberryleaf Globemallow	P	Native	24-36	Orange-Red	Summer/Fall	Sun-Dry	2-4	335,000
Sphaeralcea munroana	Munro Globemallow	P	Native	24-48	Red-Orange	Summer	Sun-Dry	2-4	500,000
Thermopsis montana	Golden Banner	P	Native	12-48	Yellow	Summer	Sun-Moist	20-40	15,000
Thymus serpyllum	Creeping T yme	P	Introduced	3-6	Lavender	Summer	P/Sun-Dry	1.5	2,700,000
Tradescantia occidentalis	Prairie Spiderwort	P	Native	8-24	Blue/Purple	Spring/Summer	Sun-Dry	14-16	166,000
Verbena hastata	Blue Vervain	P	Native	24-48	Blue	Summer	Sun-Moist	1	1,793,000
Verbena stricta	Hoary Vervain	A/P	Native	24-36	Purple	Summer	Sun-Dry	2-4	527,000
Viola cornuta	Johnny Jump-Up	A/P	Introduced	4-12	Purple/Yellow/Blue	Spring/Fall	P/Sun-Moist	6-8	394,000

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<i>Ambrosia deltoidea</i>	Triangle-Leaf Bursage	Native	1-3	Inconspicuous	Spring	9,000
<i>Amelanchier alnifolia</i>	Saskatoon Serviceberry	Native	3-15	White/Blue-purple berries	Summer	25,800
<i>Amelanchier utahensis</i>	Utah Serviceberry	Native	3-12	White/Blue-purple berries	Spring/Summer	25,800
<i>Arctostaphylos uva-ursi</i>	Bearberry	Native	0.5-1	White to Pink; Pink to Red Drupes	Spring/Summer	37,900
<i>Artemisia cana</i>	Silver Sagebrush	Native	2-5	Inconspicuous	Fall	850,000
<i>Artemisia filifolia</i>	Sand Sagebrush	Native	2-4	Inconspicuous	Fall	2,000,000
<i>Artemisia frigida</i>	Fringed Sagebrush	Native	0.5-1.5	Inconspicuous	Fall	4,536,000
<i>Artemisia ludoviciana</i>	Prairie Sage	Native	1-2	Inconspicuous	Fall	4,500,000
<i>Artemisia nova</i>	Black Sagebrush	Native	0.5-2	Inconspicuous	Fall	907,200
<i>Artemisia tridentata</i> ssp. <i>tridentata</i>	Basin Big Sagebrush	Native	3-12	Inconspicuous	Fall	2,500,000
<i>Artemisia tridentata</i> ssp. <i>vaseyana</i>	Mountain Big Sagebrush	Native	2-5	Inconspicuous	Fall	2,500,000
<i>Artemisia tridentata</i> ssp. <i>wyomingensis</i>	Wyoming Big Sagebrush	Native	1-3	Inconspicuous	Fall	2,500,000
<i>Atriplex canescens</i>	Four-wing Saltbush	Native	2-7	Inconspicuous	Summer	52,000
<i>Atriplex confertifolia</i>	Shadscale Saltbush	Native	1-3	Inconspicuous	Spring/Summer	64,900
<i>Atriplex corrugata</i>	Mat Saltbush	Native	<1	Inconspicuous	Spring	60,000
<i>Atriplex cuneata</i>	Castle Valley Clover Saltbush	Native	0.5-1	Inconspicuous	Spring/Summer	30,300
<i>Atriplex gardneri</i>	Gardner Saltbush	Native	0.5-1	Inconspicuous	Summer	111,500
<i>Atriplex polycarpa</i>	Desert Saltbush	Native	1-4	Inconspicuous	Spring/Summer	800,000
<i>Ceanothus velutinus</i>	Snowbrush Ceanothus	Native	3-10	White	Summer	124,275
<i>Cercocarpus ledifolius</i>	Curl-leaf Mountain Mahogany	Native	8-30	Pale Yellow	Spring/Summer	30,000
<i>Cercocarpus montanus</i>	Birch-leaf Mountain Mahogany	Native	3-15	Pale Yellow	Spring/Summer	59,000
<i>Chilopsis linearis</i>	Desert Willow	Native	20-30	Lavender to Pink	Spring/Fall	75,000
<i>Chrysothamnus viscidiflorus</i>	Douglas Rabbitbrush	Native	1-2.5	Yellow	Summer/Fall	782,000
<i>Coleogyne ramosissima</i>	Blackbrush	Native	2-4	Yellow	Spring	22,400
<i>Cornus sericea</i> ssp. <i>sericea</i>	Redosier Dogwood	Native	3-9	White/White Berries	Spring/Summer	173,000
<i>Encelia farinosa</i>	Brittlebush	Native	1-3	Yellow	Spring	175,000
<i>Ephedra nevadensis</i>	Nevada Mormon Tea	Native	2-5	Inconspicuous	Spring	19,900



Scientific Name	Common Name	Native/ Introduced	Height (ft)	Color of Bloom, Berries or fruit	Bloom Period	Seeds/Lb
<i>Ephedra viridis</i>	Green Mormon Tea	Native	2-4	Inconspicuous	Spring	25,000
<i>Ericameria nauseosa</i> ssp. <i>nauseosa</i>	Rubber Rabbitbrush	Native	2-7	Yellow	Fall	400,000
<i>Fallugia paradoxa</i>	Apache Plume	Native	3-6	White-Rose	Spring/Summer	420,000
<i>Grayia spinosa</i>	Spiny Hopsage	Native	2-4	Inconspicuous	Spring	166,800
<i>Juniperus scopulorum</i>	Rocky Mountain Juniper	Native	15-40	Inconspicuous/Blue-Purple Berries	Spring	27,000
<i>Kochia prostrata</i>	Prostrate Summer Cypress	Introduced	1-3	Inconspicuous	Summer/Fall	407,700
<i>Krascheninnikovia lanata</i>	Winterfat	Native	1-3	Inconspicuous	Spring	56,700
<i>Larrea tridentata</i>	Creosote Bush	Native	3-10	Yellow	Spring/Summer/Fall	80,000
<i>Lycium andersonii</i>	Wolfberry	Native	1-4	Lavender/Red Berries	Spring/Summer	592,000
<i>Mahonia repens</i>	Creeping Oregon Grape	Native	0.5-1.5	Yellow/Purple Berries	Spring	54,000
<i>Parkinsonia florida</i>	Blue Palo Verde	Native	15-30	Yellow	Spring	3,000
<i>Parkinsonia microphylla</i>	Foothills Palo Verde	Native	10-25	Pale Yellow	Spring	4,500
<i>Pinus contorta</i> var. <i>latifolia</i>	Lodgepole Pine	Native	75-150	Inconspicuous	Summer	94,000
<i>Pinus ponderosa</i>	Ponderosa Pine	Native	75-150	Inconspicuous	Spring/Summer	12,000
<i>Prosopis velutina</i>	Velvet Mesquite	Native	8-30	Cream to White	Spring	13,500
<i>Prunus virginiana</i>	Chokecherry	Native	5-30	White/Purple to Black Berries	Spring	4,800
<i>Pseudotsuga menziesii</i>	Douglas Fir	Native	150-300	Inconspicuous	Spring/Summer	38,000
<i>Psilostrophe cooperi</i>	Paperflower	Native	1-2	Yellow	Spring/Fall	491,200
<i>Purshia glandulosa</i>	Desert Bitterbrush	Native	3-7	Yellow	Spring/Summer	20,800
<i>Purshia mexicana</i>	Mexican Cliffrose	Native	3-20	Pale Yellow	Spring/Summer	64,600
<i>Purshia tridentata</i>	Antelope Bitterbrush	Native	2-15	Yellow	Spring/Summer	15,000
<i>Quercus gambelii</i>	Gambel Oak	Native	15-30	Inconspicuous	Spring/Summer	250
<i>Rhus glabra</i>	Smooth Sumac	Native	4-7	White/Dark Red Berries	Spring	49,000
<i>Rhus trilobata</i>	Skunk Brush	Native	2-6	Yellow/Red Berries	Spring	20,300
<i>Ribes aureum</i>	Golden Currant	Native	3-8	Yellow/Yellow to Red Berries	Spring	356,200
<i>Ribes cereum</i>	Wax Currant	Native	3-5	White to Pink/Red Berries	Spring/Summer	350,000
<i>Ribes montigenum</i>	Mountain Gooseberry	Native	1-2	White to Rose/Red Berries	Summer	195,000

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<i>Rosa nutkana</i>	Nootka Rose	Native	2-10	Rose to Purple/Purple Hips	Spring	45,000
<i>Rosa woodsii</i>	Woods Rose	Native	2-6	Pink/Orange to Red Hips	Spring/Summer	45,300
<i>Sambucus racemosa</i>	Red Elderberry	Native	3-6	Cream to White/Red Berries	Spring/Summer	286,000
<i>Sarcobatus vermiculatus</i>	Black Greasewood	Native	2-8	Inconspicuous	Spring/Summer	210,000
<i>Shepherdia argentea</i>	Silver Buffaloberry	Native	6-13	Yellow/Gold or Scarlet Berries	Spring/Summer	45,000
<i>Shepherdia canadensis</i>	Russet Buffaloberry	Native	3-12	Cream to Yellow/Golden Berries	Spring/Summer	59,215
<i>Symphoricarpos albus</i>	Common Snowberry	Native	2-5	White to Pink/White Berries	Summer	76,000
<i>Symphoricarpos oreophilus</i>	Mountain Snowberry	Native	2-5	White to Pink/White Berries	Summer	75,000
<i>Xanthocephalum sarothrae</i>	Broom Snakeweed	Native	2	Yellow	Fall	1,600,000
<i>Yucca glauca</i>	Narrowleaf Yucca	Native	3-5	Cream to White	Spring/Summer	22,680
<i>Zinnia acerosa</i>	Desert Zinnia	Native	0.5-1.5	Cream	Spring	392,500

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<i>Agrostis scabra</i>	Ticklegrass	16-24	1	5,400,000
<i>Beckmannia syzigachne</i>	Beckmann's or American Sloughgrass	8-24	3-5	1,150,000
<i>Bolboschoenus maritimus</i>	Alkali Bulrush	10-48	8	162,600
<i>Calamagrostis canadensis</i>	Bluejoint Reedgrass	20-48	2-4	2,270,000
<i>Calamagrostis stricta</i>	Northern Reedgrass	12-36	1-2	4,480,000
<i>Carex aquatilis</i>	Aquatic or Water Sedge	8-32	5	485,000
<i>Carex atrata</i>	Black Sedge	8-30	6-7	338,150
<i>Carex bebbii</i>	Bebb's Sedge	8-32	2	1,402,000
<i>Carex douglasii</i>	Douglas Sedge	4-12	4	944,550
<i>Carex hystericina</i>	Bottlebrush Sedge	4-40	6-7	379,210
<i>Carex intumescens</i>	Bladder Sedge	12-40	7	417,600
<i>Carex lanuginosa</i>	Woolly Sedge	12-40	5-8	312,075
<i>Carex microptera</i>	Popcorn or Small-Winged Sedge	6-20	2-3	846,700
<i>Carex nebrascensis</i>	Nebraska Sedge	10-30	5	534,100
<i>Carex obnupta</i>	Slough Sedge	12-36	4-6	567,000
<i>Carex praegracilis</i>	Meadow or Silver Sedge	8-30	3-4	664,900
<i>Carex rostrata</i>	Beaked Sedge	12-40	6-7	444,000
<i>Carex simulata</i>	Slender Sedge	6-20	4	971,560
<i>Carex vulpinoidea</i>	Fox Sedge	8-36	2	1,440,000
<i>Distichlis stricta</i>	Inland Saltgrass	4-16	4-10	520,000
<i>Eleocharis acicularis</i>	Needle Spikerush	1-8	2	1,250,000
<i>Eleocharis palustris</i>	Creeping Spikerush	4-40	2-4	620,000
<i>Glyceria grandis</i>	Giant or American Mannagrass	40-60	1-2	1,280,000
<i>Glyceria occidentalis</i>	Western Mannagrass	60-100	6-8	196,000
<i>Glyceria striata</i>	Fowl Mannagrass	8-40	7-12	180,000
<i>Juncus balticus</i>	Baltic Rush	8-32	1-2	10,900,000
<i>Juncus confusus</i>	Colorado Rush	12-20	.75	12,300,000

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Juncus effusus	Common Rush	8-36	.50	16,000,000
Juncus hallii	Hall's Rush	4-12	.50	16,000,000
Juncus mertensianus	Merten's Rush	4-16	.50	16,000,000
Juncus tenuis	Poverty or Path Rush	6-24	.50	51,300,000
Juncus torreyi	Torrey's Rush	16-40	.75	12,300,000
Puccinellia nuttalliana	Nuttall Alkaligrass	12-24	1-3	2,788,000
Schoenoplectus acutus	Hardstem Bulrush	10-120	5	377,000
Schoenoplectus americanus	America or Olney's Three Square Bulrush	8-40	4	300,000
Schoenoplectus tabernaemontani	Softstem Bulrush	40-80	2-4	550,000
Scirpus atrovirens	Dark Green Bulrush	12-60	4	460,000
Scirpus fluviatilis	River Bulrush	12-60	7-8	108,000
Scirpus microcarpus	Small-Fruited Bulrush	30-48	1-2	4,500,000
Scirpus pallidus	Pale Bulrush	30-40	.50-1	6,550,000
Scirpus pungens	Common Three Square Bulrush	10-48	4	400,000
Sparganium eurycarpum	Giant Bur Reed	30-60	7	227,000
Spartina gracilis	Alkali or Slender Cordgrass	12-40	7	250,000
Spartina pectinata	Prairie Cordgrass	40-80	6-8	197,000
Typha latifolia	Cattails	40-80	.50	10,000,000

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