



SEEDS & SCIENCE

# NATIVE SEEDS & WILDFLOWERS

EDITION 1

# NATIVE SEED MIXES

## BUTTERFLY HUMMINGBIRD

UPLANDS & MEADOWS



SEEDING RATE: 22 - 25 KG/HECTARE, 21 - 23 LBS/ACRE

- Hardy perennials & self seeding annuals
- Lasting colour & high nectar producing
- Will grow to heights of 24" - 72"

Bigleaf Lupine  
Blackeyed Susan  
Butterfly Milkweed  
Canada Golden Rod  
Cosmos  
Lance Leaf Coreopsis  
Little Blue Stem  
Marsh (Dense) Blazing Star  
New England Aster  
Oats  
Purple Coneflower

Smooth Blue Aster  
Swamp Milkweed  
Tall White Beardtongue  
Virginia Wild Rye  
Wild Bergamot

## FLOOD PLAIN

RIPARIAN SITES



SEEDING RATE: 22 - 25 KG/HECTARE, 21 - 23 LBS/ACRE

- Habitat for pollinators in flooded areas
- Adds colour & visual texture to landscapes
- Will grow to heights of 24" - 48"

Awl Sedge  
Big Blue Stem  
Blue Vervain  
Blunt Broom Sedge  
Boneset  
Sneezeweed  
Fox Sedge  
Fringed Sedge  
Grassleaf Goldenrod  
Indian Grass  
Ox Eye Sunflower

Purplestem Aster  
Showy Tick Trefoil  
Spotted Joe Pye Weed  
Swamp Milkweed  
Switchgrass  
Virginia Wild Rye  
Wild Bergamot

## LOW NATIVE

UPLANDS & MEADOWS



SEEDING RATE: 22 - 25 KG/HECTARE, 21 - 23 LBS/ACRE

- Low growing native grass
- Drought tolerant
- Will grow to heights of 24" - 72"

Broom Sedge  
Little Blue Stem  
Sand Dropseed  
Side Oats Grama  
Slender Wheatgrass

## MARSH WETLAND

WET MEADOWS & WETLANDS



SEEDING RATE: 22 - 25 KG/HECTARE, 21 - 23 LBS/ACRE

- Ideal for saturated soils or standing water
- Grass-like species mix
- Will grow to heights of 24" - 48"

American Manna Grass  
Autumn Bentgrass  
Awl Sedge  
Cosmos  
Coated Common Creeping Red  
Fescue  
Fowl Bluegrass  
Fox Sedge  
Lurid Sedge  
Rice Cut Grass  
Tufted Hairgrass

Virginia Wild Rye

## PIPELINE SWITCHGRASS

DISTURBED SITES & SLOPES



SEEDING RATE: 22 - 25 KG/HECTARE, 21 - 23 LBS/ACRE

- Tall growing native mix
- Winter hardy
- Will grow to heights of 24" - 72"

Alsike Clover  
Annual Ryegrass No. 2  
Coated Common Creeping Red  
Fescue  
Common Red Top Bentgrass  
Common Timothy  
Switchgrass

## RETENTION AREA

STORM WATER SITES



SEEDING RATE: 22 - 25 KG/HECTARE, 21 - 23 LBS/ACRE

- Used to stabilize soils in retention basins
- Provides visual texture & wildlife habitat
- Will grow to heights of 24" - 48"

Autumn Bentgrass  
Deer Tongue  
Fox Sedge  
Path Rush  
Ticklegrass  
Virginia Wild Rye





In North America there is a wide variety of native and naturalized vegetation to replicate. Most planting objectives fall into the following categories;

- Erosion control, soil & water stabilization
- Beautification & enhancement of landscape
- Biodiversity & wildlife habitat enhancement & restoration
- Bioremediation to correct environmental problems
- Historical, cultural & ecological restoration

Look for icons below corresponding to the above categories! Use of environmentally friendly native plants saves time and money by reducing chemical, fertilizer and maintenance needs. Select a combination of species that creates the landscape you desire, but your goals should align with the site conditions.

## RIPARIAN

### RIPARIAN SITES



Autumn Bentgrass  
Big Blue Stem  
Boneset  
Bottlebrush Grass  
Grassleaf Goldenrod  
Indian Grass  
Spotted Joe Pye Weed  
Switchgrass  
Virginia Wild Rye

SEEDING RATE: 22 - 25 KG/HECTARE, 21 - 23 LBS/ACRE

- Buffers waterways from run-off contaminants
- Reduces erosion of river & stream banks
- Will grow to heights of 24" - 48"

## STEEP SLOPE

### DISTURBED SITES & SLOPES



Annual Ryegrass No. 2  
Autumn Bentgrass  
Blackeyed Susan  
Canada Wild Rye  
Indian Grass  
Little Blue Stem  
Partridge Pea  
Switchgrass  
Ticklegrass  
Virginia Wild Rye

SEEDING RATE: 22 - 25 KG/HECTARE, 21 - 23 LBS/ACRE

- Stabilizes slopes greater than 3:1
- Texture, colour & habitat for wildlife
- Will grow to heights of 24" - 60"

## TALL NATIVE

### UPLANDS & MEADOWS



Big Blue Stem  
Canada Wild Rye  
Coated Fringed Brome  
Indian Grass  
Switchgrass

SEEDING RATE: 22 - 25 KG/HECTARE, 21 - 23 LBS/ACRE

- Winter hardy
- Attractive when stand reaches maturity
- Will grow to heights of 36" - 84"

## WET NATIVE

### WET MEADOWS & WETLANDS



Canada Bluejoint  
Fowl Mannagrass  
Prairie Cordgrass  
River Bank Wild Rye  
Switchgrass

SEEDING RATE: 22 - 25 KG/HECTARE, 21 - 23 LBS/ACRE

- Designed for damp soils that do not dry out
- Attractive ground cover at maturity
- Will grow to a heights of 30" - 60"

## WILDFLOWER

### POLLINATOR



Annual Baby's Breath  
Baby Blue Eyes  
Black Eyed Susan  
Blue Cornflower  
Blue Flax  
Calendula  
California Poppy  
Corn Poppy  
Gayfeather  
Iceland Poppy  
Lance Leaf Coreopsis

Perennial Gaillardia  
Perennial Lupine  
Perennial Sweet Pea  
Plains Coreopsis  
Prairie Coneflower  
Purple Prairie Clover  
Rocket Larkspur  
Siberian Wallflower  
Spurred Snapdragon  
White Yarrow

SEEDING RATE: 22 - 25 KG/HECTARE, 21 - 23 LBS/ACRE

- Flowers, pollen & nectar throughout season
- Hardy & self-seeding
- Mix with Sheeps/Spartan Hard Fescue (25 kg/ha)

## CUSTOM MIXING WITH DLF

The professional DLF team is ready to assist you in creating a custom mix to your specifications. Mix formulations are subject to change without notice depending on the availability of existing and new products. While the formula may change, the guiding philosophy and function of the mix will not. Native seed mixes are sold in 1 kg increments.



# NATIVE GRASSES

## FORBS

<b>Bigleaf Lupine</b>	Lupinus polyphyllus	<b>Lacy Phacelia/Purple Tansy</b>	Phacelia tanacetifolia
<b>Blackeyed Susan</b>	Rudbeckia hirta	<b>Lance Leaf Coreopsis</b>	Coreopsis lanceolata
<b>Blanket Flower</b>	Gaillardia aristata	<b>Marsh (Dense) Blazing Star</b>	Liatris spicata
<b>Blue Flag Iris</b>	Iris versicolor	<b>New England Aster</b>	Aster novae-angliae
<b>Blue Vervain (Wild Hyssop)</b>	Verbena hastata	<b>Ox Eye Daisy</b>	Leucanthemum vulgare
<b>Boneset</b>	Eupatorium perfoliatum	<b>Ox Eye Sunflower</b>	Heliopsis helianthoides
<b>Browneyed Susan</b>	Rudbeckia triloba	<b>Partridge Pea</b>	Chamaecrista fasciculata
<b>Bur Marigold</b>	Bidens cernua	<b>Penngift Crown Vetch</b>	Securigera varia 'Penngift'
<b>Butterfly Milkweed</b>	Asclepias tuberosa	<b>Prairie Blazing Star</b>	Liatris pycnostachya
<b>Calico Aster</b>	Aster lateriflorus	<b>Purple Coneflower</b>	Echinacea purpurea
<b>California Poppy</b>	Eschscholzia californica	<b>Purple Prairie Clover</b>	Dalea purpurea
<b>Canada Golden Rod</b>	Solidago canadensis	<b>Purplestem Aster</b>	Aster puniceus
<b>Canadian Anemone</b>	Anemone canadensis	<b>Shasta Daisy</b>	Leucanthemum x superbum
<b>Common Milkweed</b>	Asclepias syriaca	<b>Showy Tick Trefoil</b>	Desmodium canadense
<b>Common Sunflower</b>	Helianthus annuus	<b>Smooth Blue Aster</b>	Aster laevis
<b>Cosmos</b>	Cosmos bipinnatus	<b>Sneezeweed</b>	Helenium autumnale
<b>Crown Vetch</b>	Securigera varia	<b>Spotted Joe Pye Weed</b>	Eupatorium maculatum
<b>Deer Tongue</b>	Panicum clandestinum	<b>Square Stemmed Monkey Flower</b>	Mimulus ringens
<b>Eastern Columbine</b>	Aquilegia canadensis	<b>Swamp Milkweed</b>	Asclepias incarnata
<b>Evening Primrose</b>	Oenothera biennis	<b>Tall Sunflower</b>	Helianthus giganteus
<b>Flat Topped White Aster</b>	Aster umbellatus	<b>Tall White Beardtongue</b>	Penstemon digitalis
<b>Golden Alexanders</b>	Zizia aurea	<b>Thimbleweed</b>	Anemone virginiana
<b>Grassleaf Goldenrod</b>	Euthamia graminifolia	<b>Turtlehead</b>	Chelone glabra
<b>Great Blue Lobelia</b>	Lobelia siphilitica	<b>Virgins Bower</b>	Clematis virginiana
<b>Heath Aster</b>	Aster pilosus	<b>White Avens</b>	Geum canadensis
<b>Illinois Bundle Flower</b>	Desmanthus illinoensis	<b>Wild Bergamot</b>	Monarda fistulosa
<b>Indian Hemp</b>	Apocynum cannabinum	<b>Yarrow</b>	Achillea millefolium

## GRAMINOID (GRASS/SEDGE/RUSH)

<b>American Manna Grass</b>	Glyceria grandis	<b>Junegrass</b>	Koeleria macrantha
<b>Autumn Bentgrass</b>	Agrostis perennans	<b>Little Blue Stem</b>	Schizachyrium scoparium
<b>Awl Sedge</b>	Carex stipata	<b>Lurid Sedge</b>	Carex lurida
<b>Crested Wheatgrass</b>	Agropyron cristatum	<b>Panic Grass</b>	Panicum amarum
<b>Big Blue Stem</b>	Andropogon gerardii	<b>Path Rush</b>	Juncus tenuis
<b>Blue Grama</b>	Bouteloua gracilis	<b>Prairie Cordgrass</b>	Spartina pectinata
<b>Blunt Broom Sedge</b>	Carex scoparia	<b>Prairie Dropseed</b>	Sporobolus heterolepis
<b>Bottlebrush Grass</b>	Elymus hystrix	<b>Rice Cut Grass</b>	Leersia oryzoides
<b>Broom Sedge</b>	Andropogon virginicus	<b>River Bank Wild Rye</b>	Elymus riparius
<b>Buffalo Grass</b>	Buchloe dactyloides	<b>Rocky Mountain Fescue</b>	Festuca saximontana
<b>Canada Bluejoint</b>	Calamagrostis canadensis	<b>Rough Fescue</b>	Festuca scabrella
<b>Canada Wild Rye</b>	Elymus canadensis	<b>Sand Dropseed</b>	Sporobolus cryptandrus
<b>Coated Alpine Bluegrass</b>	Poa alpina	<b>Side Oats Grama</b>	Bouteloua curtipendula
<b>Coated Fringed Brome</b>	Bromus ciliatus	<b>Slender Wheatgrass</b>	Elymus trachycaulus
<b>Coated Mountain Brome</b>	Bromus marginatus	<b>Soft Rush</b>	Juncus effusus
<b>Fowl Bluegrass</b>	Poa palustris	<b>Soft Stem Bulrush</b>	Scirpus validus
<b>Fowl Mannagrass</b>	Glyceria striata	<b>Streambank Wheatgrass</b>	Elymus lanceolatus ssp. lanceolatus
<b>Fox Sedge</b>	Carex vulpinoidea	<b>Switchgrass</b>	Panicum virgatum
<b>Fringed Sedge</b>	Carex crinita	<b>Tall Mannagrass</b>	Glyceria grandis
<b>Green Bulrush</b>	Scirpus atrovirens	<b>Ticklegrass</b>	Agrostis scabra
<b>Green Needlegrass</b>	Nassella viridula	<b>Tufted Hairgrass</b>	Deschampsia cespitosa
<b>Hard Stemmed Bulrush</b>	Schoenoplectus acutus	<b>Virginia Wild Rye</b>	Elymus virginicus
<b>Hop Sedge</b>	Carex lupulina	<b>Winter Bentgrass</b>	Agrostis hyemalis
<b>Idaho Fescue</b>	Festuca idahoensis	<b>Woolgrass</b>	Scirpus cyperinus
<b>Indian Grass</b>	Sorghastrum nutans		

# COVER/NURSE CROPS

A cover crop application may be required to provide soil stabilization and erosion control. When applied with native seed mixes, cover crops may also act as a nurse crop. Use the table below to determine the best timing and application for your project.

<b>Barley</b>	Hordeum vulgare	<b>Oats</b>	Avena sativa
<b>Canada Wild Rye</b>	Elymus canadensis	<b>Winter Wheat</b>	Triticum aestivum

## RECOMMENDED NURSE/COVER CROP SELECTION AND TIMING

PURPOSE	STABILIZATION	COVER CROP SPECIES/MIX	APP. RATE
PURPOSE	Stabilization (Stockpile or temporary site stabilization without native seed mix)	May - Sep 0 - 2 Yrs 50% Oats (Avena sativa) 50% Barley (Hordeum vulgare)	60 kg/ha (52 lbs/ac)
		Oct - Nov 1 - 2 Yrs 100% Winter Wheat (Triticum aestivum)	60 kg/ha (52 lbs/ac)
	Restoration or Enhancement (Planted with native seed mix)	May - Sep Immediate 40% Oats (Avena sativa) 45% Barley (Hordeum vulgare) 15% Canada Wild Rye (Elymus canadensis)	15 kg/ha (13 lbs/ac)
		Oct - Nov Immediate 100% Winter Wheat (Triticum aestivum)	15 kg/ha (13 lbs/ac)



# SPRING VS. FALL SEEDING

Traditionally, seeding is thought of as a spring activity. Many restoration projects are completed in the summer and require fall seeding. There are some noteworthy advantages to fall seeding. So remember, you have the option of seeding in spring or fall.

## SPRING SEEDING

- Cool season species germinate soon after seeding
- Warm season species germinate within three weeks of soil temperatures reaching 15°C
- Seed-to-soil contact should be accomplished by working seed into the soil
- Seeding can be delayed until weed control can be accomplished to improve establishment
- Irrigation during periods of dry weather is needed for proper germination

## FALL SEEDING

- Some cool season species will establish during winter
- Warm season grass & most forbs will germinate in the spring
- Fall seeding imitates natural reseeding
- Moisture and seed-to-soil contact is critical to initiate the germination process. Precipitation & frost action can assist with seed-to-soil contact in the projects early stages
- Some natural stratification occurs; i.e. natural changes occur to the seed & the seed coat during the winter that enhances germination



## DETERMINING YOUR COVER CROPPING GOAL



FAST ESTABLISH



P&K CYCLING



POLLINATOR BENEFIT



COMPACTION ALLEVIATION



WEED SUPPRESSION



BIOMASS PRODUCTION



EROSION CONTROL



NITROGEN FIXER

Planting Time\*

Seeding (lbs/acre)

1 = Poor 2 = Average 3 = Good 4 = Very Good 5 = Excellent

	FAST ESTABLISH	P&K CYCLING	POLLINATOR BENEFIT	COMPACTION ALLEVIATION	WEED SUPPRESSION	BIOMASS PRODUCTION	EROSION CONTROL	NITROGEN FIXER	Planting Time*	Seeding (lbs/acre)
Winter (Cereal) Rye	4	4	1	4	5	4	5	SCAVENGER	LS,F	30 - 50
Winter Triticale	4	4	1	2	4	4	4	SCAVENGER	LS,F	30 - 50
Spring Oats	4	3	1	2	4	4	4	SCAVENGER	SG,LS	30 - 50
Buckwheat	5	5	5	3	5	4	2	SCAVENGER	SG,SR	40 - 55

\*SG = Spring SR = Summer LS = Late Summer F = Fall

# SEEDING NATIVE GRASS SPECIES FAQs

## WHAT ARE THE THREE KEYS FOR A SUCCESSFUL PLANTING?

**Key #1- Prepare a good seedbed.** Removing all invasive species, loosening the soil, and removing the thatch will allow sunlight to penetrate into the soil.

**Key #2- Plant shallow.** The rule of thumb is that seed should be no deeper than the thickness of the seed. Most seeds are less than 1/4" in size (one exception is Eastern Gamagrass, which can be planted 1" deep).

**Key #3- Firm the soil.** You have loosened the soil to allow for good air and moisture penetration, but you must firm it to achieve good seed-to-soil contact.

## MY SEED ISN'T COMING UP- WHAT CAN I EXPECT?

Many native seeds require long germination periods and ideal conditions (proper temperature, light or light period, moisture, and physiological conditions). Often, the seedlings of long-lived, deep-rooted perennials produce more root structure than top growth, making the plants hard to see. Usually a native establishment takes 2-3 years to become fully recognizable. Perennial plants do not produce flowers and seed heads until they have well established roots. During this period, vigilant weed control (mowing high and/or an herbicide application) is necessary to assist in establishment.

## WHY IS DIVERSITY IN A MIX IMPORTANT?

A mix of several species will increase the usefulness of the site for a variety of wildlife, and will be attractive during several periods of the year.

## WHEN IS IT NECESSARY TO USE AN HERBICIDE FOR WEED CONTROL?

The most important time to control weeds is before planting when complete vegetation control can be achieved (Roundup® or Vantage®). After seeding, a selective herbicide can be used to control certain groups of undesirable plants. Check with your local extension office.

## HOW DO I CONVERT U.S. SEEDING RATES TO METRIC?

- Acres to hectares- multiply total acres by .4047
- Hectares to acres- multiply total hectares by 2.4710
- Kilograms to pounds- multiply total kilograms by 2.2046
- Pounds to kilograms- multiply total pounds by .4536

Therefore, 10 lb (4.536kg) per acre (.4047 hectares) equals approximately 11.20 kg per hectare.

Examples of our typical seeding rates:

- 10 kg per hectare equates to approximately 8.922 per acre.
- 15 lb (6.80kg) per acre equates to approximately 16.82 kg per hectare

## SHOULD I FERTILIZE MY MEADOW MIXES?

We do not recommend using fertilizer when establishing native plant species. Natural fertility on sites being planted in native or wetland species is generally adequate. The use of fertilizers can promote the growth of weed species that can out compete your native plant species. Fertilizers can also lead to contamination of nearby wetland areas. We do recommend adding organic material to all sites when the topsoil has been removed or depleted, as this is the better way to improve soil fertility.

## WHAT IS THE DIFFERENCE BETWEEN A COVER CROP AND A COMPANION CROP?

A cover crop is a fast-growing species that is used to protect soil and water resources. A companion crop grows rapidly and provides protection for the desired long-term plants.

## CAN SEEDS FROM ONE REGION BE GROWN IN ANOTHER?

Our recommendation is to use species that are currently found in the eco-region in which you are planting. These ecoregions are regions of similar climates and elevations. Political boundaries; i.e., state lines, have no bearing on the effectiveness of a plant's ability to grow.

## WHY INOCULATE LEGUMES?

Inoculation involves adding a specific bacterium called rhizobia to legume seeds. Rhizobia have a beneficial relationship with legumes. When root nodules develop, these bacteria convert nitrogen gas from the air to chemical nitrogen, which is required for plant growth.

## HOW DO I CALIBRATE A DRILL FOR SEEDING?

Calibrating a drill or broadcast seeder is dependent upon seed bulk density and required application rates. Many native and naturalized seed mixes contain a mix of large fluffy seeds and small dense seeds. Some drills have special seed boxes that can meter long fluffy seed. Many native seed mixes are planted at 10-20 lb per acre (1/4-1/2 lb per 1,000 sq ft).





# NATIVES YEAR OVER YEAR

## YEAR ONE

Don't expect your native planting to look great after the first year. During this time, native seedlings put most of their energy into root development, and will most likely not grow more than a few inches. Invasive species will continue to grow quickly and will need to be mowed an average of three times in the first year whenever they reach a height of 18 inches. This will prevent the fast-growing weeds from dropping seed and from shading out the native seedlings. The first mowing (late June - early July) should be to a height of 4 inches, the second mowing (late July - early August) should be to a height of 8 inches, and the final mowing (late August - early September) should be to a height of 12 inches. It's important to gradually increase the mowing height so the new native seedlings are not harmed. Abstain from hand pulling weeds in the first year. Native seedlings may accidentally be pulled out and new weed seeds can be brought up to the soil surface.

## YEAR THREE

If there is enough fuel to carry a fire, plan on a prescribed burn in March or April of the third year. This will stimulate growth of new wildflowers as well as warm season grasses like Big Bluestem, Indiangrass, Switchgrass, and Sideoats Grama. These species should take the place of most of the early emerging species from the previous years. Always use extreme caution when burning. Prairie fires burn very quickly and can get out of control in no time. As a safety precaution, plan on mowing a 10-15 foot firebreak around the perimeter of your prairie prior to burning if your site doesn't already have firebreaks such as roads, rivers, or agricultural fields. If you are not experienced, please don't try to conduct a prescribed burn on your own. There are several organizations and companies that can provide the personnel and equipment to make sure your burn is done safely. If burning is not an option, plan on mowing to a height of 6 inches and removing the thatch in the early spring. If not removed, the thatch layer can cause poor plant growth or even cause plants to die.



## YEAR TWO

In the second year, the planting should be dominated by cool season native grasses like Canada Wild Rye and early emerging wildflowers like Black-eyed Susan, Wild Bergamot, and Yellow Coneflower. If weeds begin to grow, mow them once to a height of 12 inches early in the spring. Make sure to time your mowing before weeds begin to flower. Common weeds like Curly Dock, Burdock, Canada Thistle, Wild Parsnip, or Sweet Clover can also be eliminated by spot spraying with glyphosate or hand pulling.

## YEAR FOUR & BEYOND

Additional species will continue to appear over the next several years. Some species can take as long as ten years to emerge. Continue to utilize controlled burn every 2 - 3 years if possible. It may be beneficial to implement a burn rotation in which only a section of the prairie is burned at a time. This will provide steady habitat for early nesting birds as well as protection for overwintering butterflies. If you wish to add diversity, wildflowers can be interseeded in the late fall. Continue to spot spray or hand pull weeds if they are still a problem. As your prairie continues to mature, the weed population should dissipate.



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