

GREEN NEEDLEGRASS

(Nassella viridula) (Stipa viridula)

Adaptation & Use

An erect bunchgrass with a dense root system extending to two to three metres, green needlegrass is widely distributed throughout the Prairies although it seldom occurs in dense stands. It most commonly grows on clay soils in association with western wheatgrass, blue grama and needle-and-thread. Germinating seedlings establish rapidly, are disease-resistant and moderately resistant to drought and grasshopper damage. As a result, green needlegrass is an important constituent of many planting mixtures. It is highly palatable.

A relatively high level of seed dormancy characterizes the species. Even in a cultivar selected for dormancy rates lower than those occurring naturally, it is not uncommon for only 40 per cent of the viable seed to emerge in the planting year. More seedlings emerge in subsequent years, improving the amount of ground cover.

Key Field Identification Features

Green needlegrass leaves are prominently veined and rough to the touch on the upper surface, with a prominent midrib on the underside. There are white hairs at the junction of the leaf blade and sheath and along the edge of the sheath. Seed heads are erect to slightly nodding with small, hairy black seeds and awns that are seldom more than three centimetres long.

Preferred Environmental Conditions

Precipitation	>35 cm annually	Fertility Requirement	High
Soil Texture	Moderately coarse to moderately fine	Salt Tolerance	Conductivity (mmhos/cm) <4
Soil Drainage	Moderately to well drained, water table >90 cm	Flood Tolerance	Fair
Soil pH	Neutral to weakly basic	Drought Tolerance	Moderate

Availability

- ‘Lodorm’, a cultivar selected for lower seed dormancy by the USDA Agricultural Research Service (ARS) from North Dakota sources.
- ‘Mallard’, an Ecovar™ developed by Agriculture and Agri-Food Canada (AAFC) (Brandon) from southwest Manitoba sources.
- ‘Big Valley’, an Alberta origin Ecovar™ is under development by Ducks Unlimited Canada (DUC)

Forage Values

	Vegetative	Flower	Late
% Crude Protein	9.2-20	9-17.1	4.8-8.1
% NDF	63.4	67.8-68.2	
% ADF	34.1		

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JUNE GRASS

(*Koeleria gracillis*)

Adaptation & Use

June grass is one of the most common and abundant species on the Prairies, although it seldom occurs in dense stands. It is a shallow but densely rooted bunchgrass which usually grows as single plants within a mixed plant community. On thin upland sites, it is often associated with blue grama and needlegrass, with fescues in the Foothills and with little bluestem in Manitoba's Interlake.

With its short growth form and adaptability to a wide range of conditions, June grass could be a valuable component in revegetation plantings.

Key Field Identification Features

June grass is a short (10-60 cm) bunchgrass with short, ribbed basal leaves. The seed head is a closed panicle (spike) which opens somewhat at flowering time in mid-June.

Preferred Environmental Conditions

Precipitation	>35 cm annually	Fertility Requirement	Low
Soil Texture	Coarse to moderately fine	Salt Tolerance	Conductivity (mmhos/cm) <4
Soil Drainage	Well to poorly drained, water table 15-90 cm	Flood Tolerance	Fair
Soil pH	Neutral to weakly basic	Drought Tolerance	Good

Availability

- 'Keystone', eastern prairies Ecovar™ developed by University of Manitoba (U of M) and DUC.
- 'Battle River', western prairies Ecovar™ developed by DUC.

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NEEDLE-AND-THREAD

(*Stipa comata*)

Adaptation & Use

An erect, densely tufted bunchgrass, needle-and-thread is the most widely distributed of the *Stipa* species. It occurs in greatest abundance on dry sites where it is frequently associated with western wheatgrass and blue grama. Very drought-tolerant, it requires well drained soils and will not tolerate extremes in soil pH.

Because of its adaptability to harsh growing conditions, particularly droughty and/or eroded soils, needle-and-thread is a very important species in revegetation plantings on those sites.

Key Field Identification Features

Needle-and-thread has a characteristic long (to 4 mm), membranous, notched and often frayed ligule. The seed has a very sharp point and a 20-25 mm awn which, when mature, is twisted and resembles a piece of fine thread-hence the plant's common name.

Preferred Environmental Conditions

Precipitation	>25 cm annually	Fertility Requirement	Low
Soil Texture	Moderately coarse to moderately fine	Salt Tolerance	Conductivity (mmhos/cm) <6
Soil Drainage	Well to moderately drained, water table >90 cm	Flood Tolerance	Poor
Soil pH	Neutral to weakly basic	Drought Tolerance	Excellent

Availability

- AC 'Sharptail' developed by AAFC and DUC selected from western Canadian Prairie collection.

Forage Values

	Vegetative	Flower	Late
% Crude Protein	10.5-18.9	7.1	7.2
% NDF		68.7	
% ADF			

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PLAINS ROUGH FESCUE

(*Festuca hallii*)

Adaptation & Use

Plains rough fescue is a densely tufted perennial with mostly basal leaves and weakly rhizomatous roots.

Rough fescue is associated with moist black soil throughout the Prairies and grows throughout the Parkland areas of Saskatchewan, Alberta and eastern Cypress Hills. This coincides with the northern fringe of the mixed grass prairie.

It is a productive and highly palatable grass that declines when grazed during the growing season.

Key Field Identification Features

Rough fescue grows 20-60 cm tall with crowns between 7-10 cm in diameter. Leaf blades are grey-green, scabrous and measure 1-1.5 mm wide (folded) and up to 30 cm long and 5 nerved.

Preferred Environmental Conditions

Precipitation	>40 cm	Fertility Requirement	Moderate
Soil Texture	Medium to fine	Salt Tolerance	Conductivity (mmhos/cm) <4
Soil Drainage	Moderate to well drained	Flood Tolerance	Fair
Soil pH	Neutral to weakly basic	Drought Tolerance	Poor

Availability

- Two Ecovars™ are currently in the development stage and soon to be released by AAFC and DUC. Original plant material from Alberta and Saskatchewan.

Forage Values

	Vegetative	Flower	Late
% Crude Protein	15.1	11.2	8.7
% NDF		69	
% ADF			

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AWNED WHEATGRASS

(*Elymus trachycaulus* sub. *subsecundus*)
(*Agropyron trachycaulum* var. *unilaterale*)

Adaptation & Use

Awned wheatgrass is an erect, loosely tufted bunchgrass with dense fibrous roots extending to a depth of 50 cm. Although it does not have rhizomes, young (2 to 3 year old) plants may produce tillers to increase their basal area. Occurring throughout the Canadian Prairies, awned wheatgrass prefers well drained, non-alkaline loam soils. It is more common on moist Prairie and Parkland sites than in drier regions.

Awned wheatgrass is longer-lived than slender wheatgrass, although it is not as tolerant of saline soil conditions and thus should not be used in areas subject to high levels of salinity.

Key Field Identification Features

Awned wheatgrass is similar in growth habit to slender wheatgrass. The leaf sheaths are densely pubescent in young plants. Seed heads are erect to slightly nodding with awns 10-30 mm long.

Preferred Environmental Conditions

Precipitation	>35 cm annually	Fertility requirement	Moderate
Soil Texture	Moderately coarse to medium	Salt Tolerance	Conductivity (mmhos/cm) <4
Soil Drainage	Well drained, water table >90 cm	Flood Tolerance	Moderate to good
Soil pH	Neutral to weakly acidic	Drought Tolerance	Moderate to good

Availability

- AEC 'Hillcrest', released by the Alberta Environment Centre at Vegreville in 1994
- 'Sprig', Southern prairies Ecovar™ developed by AAFC and DUC
- 'Pintail', Parkland prairie Ecovar™ developed by AAFC and DUC

Forage Values

	Vegetative	Flower	Late
% Crude Protein	13.7-20.3	10.0	6.7
% NDF	38.4	58.8-67.2	
% ADF		27.0-36.2	

NORTHERN WHEATGRASS

(*Elymus lanceolatus*) (*Agropyron dasystachyum*)

Adaptation & Use

The most widely distributed native grass on the prairies, northern wheatgrass is an erect, rhizomatous plant which reaches a height of 40-70 cm. Because of its three-way root system – rhizomes for vegetative spreading, very dense shallow roots to 25 cm and a few deep feeder roots to 60 cm – northern wheatgrass is adapted to a wide range of soil and moisture conditions. It occurs in mixed stands with western wheatgrass and the needlegrasses on clay and loam soils, and occasionally in pure stands on sandy soils.

Because of its wide range of adaptation and relatively good seedling vigour, northern wheatgrass is a valuable species in many revegetation plantings. When established, it is hardy, long-lived and more drought-tolerant than western wheatgrass.

Key Field Identification Features

Northern wheatgrass leaves are usually light green with prominent veins and an upper surface which is rough to the touch. The collar is light green, smooth and has clasping auricles to 2 mm long. Seed florets are usually hairy.

Preferred Environmental Conditions

Precipitation	>25 cm annually	Fertility Requirement	Low
Soil Texture	Moderately coarse to fine	Salt Tolerance	Conductivity (mmhos/cm) <8
Soil Drainage	Moderately to well drained, water table 15-90 cm	Flood Tolerance	Good
Soil pH	Weakly acidic to moderately alkaline	Drought Tolerance	Excellent

Availability

- ‘Polar’, an Ecovar™ developed by AAFC and DUC from a western prairies collection.
- ‘Critana’ was developed by the USDA/NRCS from a Montana source.
- ‘Elbee’ released by AAFC from a prairie Canadian source.

Forage Values

	Vegetative	Flower	Late
% Crude Protein	5.3-12.1	12.5-19.4	6.0-17.9
% NDF		62.4	
% ADF		42.0	

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SLENDER WHEATGRASS

(*Elymus trachycalulus sub trachycaulus*) (*Agropyron trachycaulum*)

Adaptation & Use

Slender wheatgrass is an erect bunchgrass with dense fibrous roots extending to a depth of 50 cm. Young (2-to-3-year-old) plants may develop tillers to increase their basal area. Unlike other native wheatgrasses, slender has a relatively short lifespan-usually not longer than five years.

It is, however, adaptable to a wide range of soil conditions provided moisture supplies are adequate, and is tolerant of relatively high salinity levels. In addition, slender wheatgrass seed usually has a high germination rate and excellent seedling emergence and vigour. As a result, it can be a valuable component in a seeding mixture with slower-developing, long-lived species. The slender wheatgrass will provide early ground cover in the planting and gradually decline in importance as the other species develop. It is particularly well suited for use in low areas having saline soils.

Key Field Identification Features

Slender wheatgrass stems are usually a reddish or purple colour near the base. The leaf collar is distinct, continuous and yellowish-green. Auricles are rudimentary or absent; frequently only one rudimentary auricle occurs.

Preferred Environmental Conditions

Precipitation	>35 cm annually	Fertility Requirement	Low
Soil Texture	Moderately coarse to moderately fine	Salt Tolerance	Conductivity (mmhos/cm) <16
Soil Drainage	Well drained, water table 15-90 cm	Flood Tolerance	Good
Soil pH	Weakly acidic to strongly basic	Drought Tolerance	Moderate

Availability

Slender wheatgrass was the first native grass species to be developed for cultivated production in Canada. As a result, seed supplies are usually abundant.

- ‘Revenue’, which was developed by AAFC, is the most commonly used cultivar on the Canadian Prairies.
- ‘Adanac’ is another variety developed by AAFC, originating from southern Saskatchewan.

Forage Values

	Vegetative	Flower	Late
% Crude Protein	11.1	8.1-16.0	5.1-11.5
% NDF			
% ADF			



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WESTERN WHEATGRASS

(*Pascopyrum smithii*) (*Agropyron smithii*)

Adaptation & Use

Western wheatgrass occurs widely throughout the Canadian Prairies. It grows with green needlegrass in fairly dense stands on clay soils, with salt-tolerant plants on alkali soils and in sparse stands on thin upland sites with blue grama and needlegrasses. It has a root system similar to northern wheatgrass: aggressive rhizomes for vegetative spreading, a dense shallow rooting system and some deeper feeding roots extending to 60 cm.

While plants develop somewhat slowly from seed, they usually spread rapidly in their second year and provide good ground cover from then on. Because of its tolerance for a wide range of soil, moisture and salinity conditions, western wheatgrass is an extremely valuable species for use in revegetation plantings. Due to its aggressively rhizomatous growth, it is usually included at a relatively low seeding rate with other species in a planting mixture.

Key Field Identification Features

Western wheatgrass plants have a very characteristic blue-green colour. The leaves are rigid, prominently veined and grow from the stem at a 45-degree angle.

Preferred Environmental Conditions

Precipitation	>35 cm annually	Fertility Requirement	Low
Soil Texture	Moderately coarse to moderately fine	Salt Tolerance	Conductivity (mmhos/cm) <16
Soil Drainage	Poor drained, water table 0-40 cm	Flood Tolerance	Good (50-60 days)
Soil pH	Neutral to strongly basic	Drought Tolerance	Good

Availability

- 'W.R. Poole', an Ecovar™ developed by DUC/AAFC for western Canada.
- 'Rosana', from a Montana source developed by USDA/NRCS.
- 'Rodan', from a North Dakota source developed by USDA/NRCS.
- 'Walsh', from a western Canadian assemblage developed by AAFC.

Forage Values

	Vegetative	Flower	Late
% Crude Protein	11.6-14.4	9.1-20.6	8.1-11.9
% NDF	58.9	56.3-61.4	
% ADF		32.4	



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CANADA WILDRYE

(*Elymus canadensis*)

Adaptation & Use

Canada wildrye is a tall, erect bunchgrass which may have short rhizomes when young. It is found throughout North America, usually growing as individual plants. In prairie Canada, it most frequently occurs on sandy soils, in wooded areas and on disturbed sites like riverbanks. Establishing quickly in disturbed areas, it could be an important early successional species in revegetation plantings. It has fair palatability if grazed or hayed before heading.

Key Field Identification Features

Canada wildrye has wide (to 20 mm), waxy-green pointed leaves borne from the base of the stems to the spike. The auricles are claw-like and clasping, arising from a broad yellowish or light green collar. Nodding awned seed heads about 15-20 cm long have two spikelets at each node.

Preferred Environmental Conditions

Precipitation	>25 cm annually	Fertility Requirement	Low
Soil Texture	Coarse to moderately fine	Salt Tolerance	Conductivity (mmhos/cm) <4
Soil Drainage	Moderately to well drained, water table 15-90 cm	Flood Tolerance	Moderate
Soil pH	Neutral to weakly basic	Drought Tolerance	Moderate

Availability

- 'Mandan', released by the USDA/ARS at Mandan, North Dakota from a plant assemblage from northern North Dakota.

Forage Values

	Vegetative	Flower	Late
% Crude Protein		7.0-14.0	
% NDF			
% ADF			

LITTLE BLUESTEM

(*Andropogon scoparius*)

Adaptation & Use

Little bluestem is one of the most widely distributed native grasses in North America. A bunchgrass with a dense root system reaching to 2.5 metres, it can spread by seed, tillers and short rhizomes. More drought-tolerant than big bluestem, it frequently occurs on the thin soils found on knolls and steep slopes as well as on gravelly or sandy soils and in swales and coulees. Palatability decreases rapidly after heading.

Because of its growth habit and adaptability to a wide range of soil conditions, little bluestem can be a valuable component in revegetation plantings. It is especially well suited for use on thin upland range sites.

Key Field Identification Features

Little bluestem produces many pith-filled stems from a densely tufted base. Basal shoots are flat and bluish-coloured. Vegetative parts of the plant turn a warm bronze colour in late summer or early fall. When mature, the densely hairy seed heads have a silvery appearance.

Preferred Environmental Conditions

Precipitation	>25 cm annually	Fertility Requirement	Moderate
Soil Texture	Moderately coarse to moderately fine	Salt Tolerance	Conductivity (mmhos/cm) <4
Soil Drainage	Well drained, water table >90 cm	Flood Tolerance	Fair to poor
Soil pH	Neutral to weakly basic	Drought Tolerance	Good

Availability

- 'ND-4115' Badlands, whose origin is an ecotype released by the USDA/NRCS from a North Dakota source, has been used successfully in Manitoba and Saskatchewan.
- 'Spirit' is an Ecovar™ from an Alberta and southern Saskatchewan assembly soon to be released by AAFC and DUC.
- 'Taylor' is an Ecovar™ originating from Manitoba and released by the U of M and DUC.

Forage Values

	Vegetative	Flower	Late
% Crude Protein	14.2	1.8	8.0
% NDF		67.7	
% ADF			

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BLUE GRAMA

(*Bouteloua gracilis*)

Adaptation & Use

Blue grama is commonly found throughout the Prairies, usually on thin upland sites in association with needle-and-thread and western wheatgrass. It is a low-growing bunchgrass which may also have very short rhizomes.

Because of its drought tolerance and persistence under harsh soil and climatic conditions, blue grama is especially well suited for use on thin upland sites.

Key Field Identification Features

Blue grama produces a dense mass of fine, greyish-green leaves which are often curled. The ligule is very short (<0.5 mm) and covered with fine hairs. Seeds are borne on one side of the spike and resemble the teeth on a comb.

Preferred Environmental Conditions

Precipitation	>25 cm annually	Fertility Requirement	Low
Soil Texture	Moderately coarse to moderately fine	Salt Tolerance	Conductivity (mmhos/cm) <4
Soil Drainage	Well to poorly drained, water table >90 cm	Flood Tolerance	Poor
Soil pH	Neutral to weakly basic	Drought Tolerance	Excellent

Availability

- Ecovar™ development work is presently underway from collections gathered in Alberta and Manitoba.
- 'Butte', an Ecovar™ from Manitoba originally developed by U of M and Ducks Unlimited Canada.
- 'Bad River', an ecotype, is an assemblage from South Dakota developed by USDA Plant Materials Center at Bismarck.

Forage Values

	Vegetative	Flower	Late
% Crude Protein	16.6	8.7-12.5	9.2
% NDF		65.6	
% ADF			

PURPLE PRAIRIE CLOVER

(Petalostemon purpureum) (Dalea purpurea)

Adaptation & Use

Purple prairie clover is a deep taprooted perennial legume. Multiple stems grow annually from a woody crown. It grows on a wide range of soil types, but most commonly inhabits well drained, shallow to thin upland sites on ridges and slopes.

As a legume, purple prairie clover has the ability to fix nitrogen from the air if its roots are nodulated by the appropriate bacterial species. In addition to its nitrogen-fixing capability, it adds diversity, beauty and a valuable feed source for mammals to revegetation plantings. This legume has important grazing potential during midsummer and fall.

Key Field Identification Features

Purple prairie clover has alternate pinnately compound leaves with three to seven linear leaflets. Its flower head is a compact cylinder which is a showy purple or rose colour.

Preferred Environmental Conditions

Precipitation	>35 cm annually	Fertility Requirement	Low
Soil Texture	Moderately coarse to moderately fine	Salt Tolerance	Conductivity (mmhos/cm) <4
Soil Drainage	Well to poorly drained, water table 15-90 cm	Flood Tolerance	Fair
Soil pH	Neutral	Drought Tolerance	Good

Availability

- 'Monarch', released by NRCS Bismarck, North Dakota, from material collected in the Dakotas.
- 'Larmour', an Ecovar™ developed by AAFC and DUC from the western Prairies.

Forage Values

	Vegetative	Flower	Late
% Crude Protein	19.9	12.6	13.9
% NDF	27.7	42.5	44.7
% ADF	27.7	35.1	

STREAMBANK WHEATGRASS

(*Elymus lanceolatus ssp lanceolatus*) (*Agropyron riparium*)

Adaptation & Use

Despite its name, streambank wheatgrass is not restricted to riparian sites since it has good drought tolerance. It has numerous slender rhizomes which quickly produce a dense, smooth sod. Top growth is relatively short and fine-leaved and bears some resemblance to northern wheatgrass. Seed germinates quickly, even under dry conditions, and plants will spread rapidly to form a good ground cover. While it will stand periodic flooding, streambank wheatgrass does require well drained soils. It will tolerate moderate salinity levels as long as the soils are not waterlogged.

Key Field Identification Features

Streambank wheatgrass plants are relatively short with fine, light greyish-green leaves that are usually somewhat curled at the margins. Seed florets are smooth rather than pubescent (hairy).

Preferred Environmental Conditions

Precipitation	>25 cm annually	Fertility Requirement	Moderate
Soil Texture	Moderate coarse to moderate fine	Salt Tolerance	Conductivity (mmhos/cm) <6
Soil Drainage	Well to moderately drained	Flood Tolerance	Good
Soil pH	Neutral to weakly basic	Drought Tolerance	Good

Availability

- ‘Sodar’, released by the USDA/NRCS from a Washington state assemblage, is the only available cultivar suitable for use on the Canadian Prairies.

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WHITETOP

(*Scolochloa festucacca*)

Adaptation & Use

Whitetop's erect stems grow from white, succulent rhizomes. It is very well adapted to flourish in shallow wetlands and wet meadows. Whitetop occurs across Western Canada from Manitoba to British Columbia. For optimum production of seed and vegetative growth, whitetop requires a continuously moist soil early in the growing season. Shallow flooding from snowmelt until about mid-June represents an ideal condition for whitetop production.

Because of its adaptation to those conditions and its tolerance to moderate salinity levels, whitetop is well suited for use in plantings to provide erosion protection and wildlife cover on floodplains and on wetland, wet meadow and saline lowland sites in upland areas.

Key Field Identification Features

Whitetop's ligule is membranous, flat-topped and the edge often appears tattered. Seeds shatter readily from the seed head at or just before maturity, leaving the characteristic whitish colour of the empty heads.

Preferred Environmental Conditions

Precipitation	>35 cm annually	Soil pH	Neutral to moderately basic
Soil Texture	Moderately coarse to moderately fine, prefers organic overlay	Fertility Requirement	Moderate
Soil Drainage	Poorly drained, water table 0-15 cm	Salt Tolerance	Conductivity (mmhos/cm) <12
		Flood Tolerance	Excellent
		Drought Tolerance	Fair to poor

Availability

- Local capture harvest seed is occasionally available.

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BIG BLUESTEM

(Andropogon gerardi)

Adaptation & Use

Big bluestem is an erect, tall bunchgrass with short scaly rhizomes. A major component of the tall grass prairie of the eastern Great Plains, its major range in Western Canada extended westward from the Red River Valley to the Manitoba Escarpment. It also occurs on favourable sites as far west as the Qu'Appelle Valley in Saskatchewan. Forage is highly palatable and nutritious before maturity. Big bluestem is most abundant on moist, well drained, fertile loams, where its roots may reach deeper than three metres.

With its warm season growth habit and adaptation to management by fire, big bluestem can be a valuable component in revegetation plantings in areas receiving >50 cm of annual precipitation and on sites receiving run-on moisture.

Key Field Identification Features

Stems are solid and pithy rather than hollow as in most grasses. They are often purplish at the base and exhibit a bluish to bronze colour in late summer and fall. The seed head is a characteristic "turkey foot" shape with numerous white hairs between the seeds.

Preferred Environmental Conditions

Precipitation	>50 cm annually	Fertility Requirement	Moderate
Soil Texture	Moderately coarse to moderately fine	Salt Tolerance	Conductivity (mmhos/cm) <4
Soil Drainage	Well drained, water table >90 cm	Flood Tolerance	Moderate
Soil pH	Neutral to weakly basic	Drought Tolerance	Moderate to fair

Availability

- 'Bison', a cultivar released from a North Dakota source by the USDA/NRCS, has been used successfully in plantings in Manitoba and on suitable sites in eastern Saskatchewan.
- 'Boundary', an Ecovar™ soon to be released from a Manitoba source by DUC.

Forage Values

	Vegetative	Flower	Late
% Crude Protein	9.3-15.0	9.2-10.4	4.5-7.5
% NDF		68.9	
% ADF			

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SIDE-OATS GRAMA

(*Bouteloua curtipendula*)

Adaptation & Use

Side-oats grama is an erect, tufted grass with short, scaly rhizomes. Not as widely distributed as blue grama on the Canadian Prairies, it is most commonly found in southwestern Manitoba and southeastern Saskatchewan. It is often associated with western wheatgrass, blue grama, needle-and-thread and sometimes little bluestem on thin upland sites. Highly palatable forage.

While side-oats seedlings are vigorous, the plants are only weakly rhizomatous so they do not usually provide solid ground cover until the second year after planting.

Key Field Identification Features

Side-oats grama leaves are normally flat with a few long hairs on both surfaces and on the margins. The oat-like seeds are borne in two rows which hang down from the spike.

Preferred Environmental Conditions

Precipitation	>30 cm	Fertility Requirement	Moderate to low
Soil Texture	Moderately coarse to moderately fine	Salt Tolerance	Conductivity (mmhos/cm)<4
Soil Drainage	Well to poorly drained, water table >90 cm	Flood Tolerance	Poor
Soil pH	Neutral to weakly basic	Drought Tolerance	Good

Availability

- ‘Killdeer’, a cultivar released by the USDA/NRCS from a North Dakota assemblage, has been used successfully in plantings on the Canadian Prairies.
- A Canadian Ecovar™ is under development by DUC.

Forage Values

	Vegetative	Flower	Late
% Crude Protein	15.1	11.2	8.7
% NDF		69	
% ADF			

INDIANGRASS

(*Sorghastrum nutans*)

Adaptation & Use

Indiangrass commonly occurs with big and little bluestem and switchgrass in tall grass prairie. In Canada, its primary range is east of the Manitoba Escarpment although the species does occur on favourable sites further to the west. Best suited to fertile, well drained soils, Indiangrass does have some tolerance to droughty conditions. It is not well adapted to saline soils.

Erect and rhizomatous, Indiangrass can be a useful component in planting mixtures for non-saline overflow and sub-irrigated range sites.

Key Field Identification Features

Indiangrass has a prominent ligule (to 5 mm long), the sides of which seem to be projections of the sheath margins. The ligule appears like a “rifle sight”. Seed heads are a characteristic shiny golden-yellow with long greyish hairs and twisted awns.

Preferred Environmental Conditions

Precipitation	>50 cm annually	Fertility Requirement	Moderate
Soil Texture	Moderately coarse to moderately fine	Salt Tolerance	Conductivity (mmhos/cm) <4
Soil Drainage	Medium to well drained, water table 15-90 cm	Flood Tolerance	Good
Soil pH	Neutral to slightly basic	Drought Tolerance	Moderate

Availability

- “Tomahawk”, a cultivar released co-operatively by the USDA/NRCS, USDA Agricultural Research Service, and the North Dakota, South Dakota and Minnesota Agricultural Stations from seed collections made in North and South Dakota, has been used with success in revegetation plantings in Manitoba.

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PRAIRIE CORDGRASS

(*Spartina pectinanta*)

Adaptation & Use

Prairie cordgrass is a tall, strongly rhizomatous robust plant well adapted to marsh edges and non-saline wet meadows where it often occurs in almost pure stands. It will also grow in mixed communities with other adapted plants on upland areas associated with fresh-water marshes. It occurs most commonly in Manitoba, although scattered stands are found as far west as Swift Current, Sask.

Key Field Identification Features

Prairie cordgrass leaves are very rough on the upper surface and margins, smooth and shiny green below. Seed heads are composed of 10-20 spikes attached to the main stem. Each spike has up to 40 spikelets, all growing in two rows on the side of the spike away from the main stem.

Preferred Environmental Conditions

Precipitation	>50 cm annually	Fertility Requirement	Moderate
Soil Texture	Moderately coarse to moderately fine	Salt Tolerance	Conductivity (mmhos/cm) <4
Soil Drainage	Well to poorly drained, water table 15-90 cm	Flood Tolerance	Excellent
Soil pH	Neutral to slightly basic	Drought Tolerance	Fair

Availability

- 'Red River', an ecotype released by NRCS Plant Material Center at Bismarck, North Dakota.

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PRAIRIE SANDREED

(*Calamovilfa longifolia*)

Adaptation & Use

A tall, erect grass with long, scaly rhizomes, prairie sandreed grows on sandy Prairie and dune sand sites across the prairies. It may also occur along lakeshores and in open wooded areas on sandy soils. The dense root system is well adapted to stabilize sandy soils.

Prairie sandreed's primary role in revegetation plantings is to provide erosion protection and tall, erect cover on sandy soils. Early growth is nutritious, but forage value decreases after heading due to a high fibre and lignin content. Wildlife will also feed on the plant's seeds in autumn.

Key Field Identification Features

Stems and leaves are pale green, becoming straw yellow in autumn. The leaves are smooth with a distinct broad yellowish collar which has tufts of fine hairs at the edges.

Preferred Environmental Conditions

Precipitation	>25 cm annually	Fertility Requirement	Low to moderate
Soil Texture	Coarse to medium	Salt Tolerance	Conductivity (mmhos/cm) <4
Soil Drainage	Well drained, water table >90 cm	Flood Tolerance	Poor
Soil pH	Weakly acidic to weakly basic	Drought Tolerance	Excellent

Availability

- 'Goshen', released from the USDA/NRCS from Montana sources, has been used successfully in Western Canada.
- 'Badger' Ecovar™ development is underway from a southern prairie collection.

Forage Values

	Vegetative	Flower	Late
% Crude Protein	11.0-14.9	8.4-11.67	2.0-9.4
% NDF		60.0-70.8	
% ADF		37.8	

SWITCHGRASS

(Panicum virgatum)

Adaptation & Use

Switchgrass, with big bluestem and Indiangrass, is one of the major grasses in tall grass prairies. The species has a somewhat wider range of adaptation than the other major tall grasses, occurring across Manitoba and into southeastern Saskatchewan. It is a tall, erect plant with numerous short scaly rhizomes. Switchgrass is used for summer pasture on good moisture sites.

It is found in prairies, open woods and brackish marshes. Switchgrass produces well on sub-irrigated lowlands, or overflow sites on glacial till and on level swales, depressions and bottomlands along rivers and streams. It has some potential for use in warm season pastures and grassed waterways as well as in revegetative plantings. Song and upland birds will feed on switchgrass seeds.

Key Field Identification Features

Switchgrass has few basal leaves but long, somewhat bluish leaves occur only the stem from the base to the seed head. The leaves are distinctly veined with prominent mid-vein. There are long hairs on the upper surface of the leaf near the sheath.

Preferred Environmental Conditions

Precipitation	>45 cm annually	Fertility Requirement	Moderate to high
Soil Texture	Medium to fine	Salt Tolerance	Conductivity (mmhos/cm) <16
Soil Drainage	Well to poorly drained, water table 15-90 cm	Flood Tolerance	Good
Soil pH	Neutral to moderately basic	Drought Tolerance	Poor

Availability

- 'Dacotah', a cultivar selected for hardiness, improved drought tolerance, persistence and early maturity from a North Dakota source and released co-operatively by the USDA/NRCS and Agricultural Research Service and the North Dakota and Minnesota Agriculture Experiment Stations, has performed very well in revegetation plantings in Manitoba and Saskatchewan.

Forage Values

	Vegetative	Flower	Late
% Crude Protein	15.9-18.0	11.4	7.8
% NDF		65.8	
% ADF			

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