

## SPECIES ADAPTATION AND COMPARISON

Forage Species	Preferred Climate and Growing Conditions	Growing Period	Positive Features	Negative Features	Plant Type
Alfalfa	Widely adapted to most prairie soils but will not tolerate areas that have periodic flooding.	Spring to Fall	Easy to establish. High yields, rapid regrowth. Highest nutrition of all forages.	Bloat hazard. Needs good drainage.	Tap, Branch, Rhizomatous, Creeping Rooted
Alsike Clover	Prefers low-lying moist areas.	Spring	Easy establishment. Tolerant to poor drainage and acid soils.	Bloat hazard. Short life span and low yield.	Branched
Birdsfoot Trefoil	Prefers moist areas.	Spring to Fall	Non bloating. Reseeds itself. Feed value similar to alfalfa.	Poor seedling vigour. Poor competitor and lower yielding.	Tap Rooted with Branches
Cicer Milkvetch	Widely adapted but exhibits its creeping habit best on more coarse textured soils.	Late Spring to Fall	Non bloating. Hardier than alfalfa. Very aggressive once established.	Slow to establish. Hard seeds. Slow regrowth after grazing.	Creeping Rooted
Red Clover	Best suited to humid areas with moderate temperatures.	Spring	Easy establishment. Tolerates wetter and more acid soils than alfalfa.	Bloat hazard. Short life span.	Tap Rooted with Side Branches
Sainfoin	Best on brown and dark brown soil areas. In very dry areas it yields poorly. Does well on thin gravelly soils.	Spring to Summer	Non bloating. More drought and cold tolerant than alfalfa.	Poor regrowth. Slow to establish.	Tap Rooted
Sweetclover	Especially productive on fertile soils.	Spring of Second Year	Widely adapted. Good for soil and drainage improvement.	Low palatability unless harvested early. Self seeds.	Tap Rooted

Forage Species	Preferred Climate and Growing Conditions	Growing Period	Positive Features	Negative Features	Plant Type
Green Needlegrass	Performs best on medium to heavy textured soils. Prefers moist sites with good drainage.	Late Spring to Mid Summer	Palatable and nutritious. Tolerant to drought and grasshopper damage.	Seed has high level of dormancy. Easily overgrazed.	Bunch Grass
Little Bluestem	Sandy, gravelly soils with shallow water table or where snow accumulates. Common on prairie upland.	Late Spring to Fall	Highly nutritious and palatable when grazed at early stages.	Light, fluffy seed. Becomes unpalatable in the fall.	Bunch Grass
Northern Wheatgrass	Prefers medium to coarse textured soil.	Mid Spring to Mid Summer	Suitable for erosion control. Easy to establish. Produces good ground cover.	Tends to get sod bound. Becomes wiry and unpalatable in the fall.	Sod Forming
Reed Canarygrass	Moist cool climate. Poorly drained areas subject to temporary flooding.	Spring to Summer	Grows well in wet areas. Withstands flooding for up to two months. Grows tall, good yield.	Slow to establish. Nutrition and palatability low when mature.	Sod Forming
Slender Wheatgrass	Adapted to wide range of soils but prefers sandy loams.	Mid Spring to Mid Summer	High salinity tolerance. Cures well on stem. Good seedling vigour and fast establishment.	Less competitive and persistent than other wheatgrasses. Not tolerant to close, heavy grazing.	Bunch Grass
Streambank Wheatgrass	Widely adapted. Tolerates periodic flooding but requires well drained soils.	Mid Spring to Mid Summer	Good for soil and water conservation. Can be used for lawns, playgrounds and parking lots.	Low in production. Unpalatable when mature.	Sod Forming
Switchgrass	It has potential for good summer pasture when enough moisture. Grows best on loam and sandy loams.	Late Spring to Fall	Warm season grass. Can be used for summer pasture when cool season grasses go dormant.	Slow to establish. Should not be cut or grazed the first year. Unpalatable after maturity.	Bunch Grass
Western Wheatgrass	Widely adapted. Prefers heavy somewhat alkaline soil.	Early Spring to Fall	Salt tolerant and long-lived. Nutritious and productive under moderate grazing. Suitable for erosion control.	Slow to establish. Sensitive to overgrazing.	Sod Forming

# FORAGES

## LEGUMES

### Forage Adaptation & Comparison Guide

Forage Species	Use	Longevity	Winter-hardiness	Drought Tolerance	Flooding Tolerance	Salinity Tolerance	Alkalinity Tolerance	Acidity Tolerance	# Seeds per kg	# Seeds per lb
Alfalfa	Hay & Pasture	Long	Good	Good	Low	Low to Moderate	Moderate to High	Low	440,000	200,000
Alsike Clover	Hay & Pasture	Short	Fair	Poor	Moderate	Low	Low to Moderate	Moderate	1,540,000	700,000
Birdsfoot Trefoil	Pasture	Long	Good	Moderate	High	Low to Moderate	Moderate	Moderate to High	825,000	375,000
Cicer Milkvech	Pasture	Long	Good	Moderate to High	Low	Moderate	Moderate	Moderate	286,000	130,000
Red Clover	Hay & Pasture	Short	Poor	Low	High	Low	Moderate	Moderate	605,000	275,000
Sainfoin	Pasture	Long	Fair	High	Low	Low	High	Low	66,000	30,000
Sweetclover	Hay & Silage	2 Years	Fair	Moderate to High	Low	Moderate	Moderate	Low	572,000	260,000

## NATIVE GRASSES

### Forage Adaptation & Comparison Guide

Forage Species	Use	Longevity	Winter-hardiness	Drought Tolerance	Flooding Tolerance	Salinity Tolerance	Alkalinity Tolerance	Acidity Tolerance	# Seeds per kg	# Seeds per lb
Green Needlegrass	Pasture	Long	Good	High	Moderate	Moderate to Low	Moderate	Moderate	375,000	170,000
Little Bluestem	Pasture	Long	Good	High	Low	Moderate	Moderate	Moderate	529,000	240,000
Northern Wheatgrass	Pasture	Long	Good	Very High	Moderate	Moderate	Moderate	Low	341,000	155,000
Reed Canarygrass	Hay & Pasture	Long	Good	Moderate	Very High	Low	Moderate	Moderate	1,175,000	534,000
Slender Wheatgrass	Hay & Pasture	Short	Good	Moderate	Low	High	High	Low	352,000	160,000
Streambank Wheatgrass	Hay & Pasture	Long	Good	Very High	Moderate +	Low to Moderate	Moderate	Low	344,000	156,000
Switchgrass	Pasture	Medium	Fair	Low	Moderate	Moderate	Low	Low	716,000	325,000
Western Wheatgrass	Hay & Pasture	Long	Excellent	High	Moderate to High	High	High	Moderate	254,000	115,000

These grasses are indigenous to North America. Available varieties have been improved through plant breeding programs.  
(Source: Manitoba Agriculture & Food)

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## TAME GRASSES

### Forage Adaptation & Comparison Guide

Forage Species	Use	Longevity	Winter-hardiness	Drought Tolerance	Flooding Tolerance	Salinity Tolerance	Alkalinity Tolerance	Acidity Tolerance	# Seeds per kg	# Seeds per lb
Annual (Italian) Ryegrass	Hay & Pasture	Short Annual 1 Year	Poor	Low	High	Low	Moderate	Moderate	507,000	230,000
Creeping Foxtail	Pasture	Long	Good	Low	High	Moderate	Moderate	Moderate	1,657,000	753,000
Creeping Red Fescue	Pasture Lawn	Long	Excellent	Moderate	Moderate	Low	Moderate	Moderate	1,353,000	615,000
Crested Wheatgrass	Pasture & Hay	Long	Excellent	Moderate to High	Low	Low to Moderate	Moderate to High	Low	485,000	220,000
Dahurian Wildrye	Pasture	Short	Good	Moderate	Low	High	Moderate	Low	175,000	80,000
Intermediate Wheatgrass	Hay & Pasture	Short to Medium	Good	Moderate	Low to High	Low to Moderate	Moderate	Low	194,000	88,000
Kentucky Bluegrass	Pasture Lawn	Long	Excellent	Moderate	Moderate	Low	Low	Low	4,800,000	2,182,000
Meadow Bromegrass	Hay & Pasture	Long	Good	High	Low	Low	Moderate	Moderate	176,000	80,000
Meadow Fescue	Pasture	Short to Medium	Good	Moderate	High	Low to Moderate	Low	Moderate	506,000	230,000
Meadow Foxtail	Pasture	Long	Good	Low	High	Low	Moderate	High	1,270,000	577,000
Orchardgrass	Hay & Pasture	Short	Fair	Moderate	Low to Moderate	Low	Low	Moderate	1,439,000	654,000
Pubescent Wheatgrass	Hay & Pasture	Medium	Good	Moderate to High	Low	Low to Moderate	Moderate	Low	220,000	100,000
Russian Wildrye	Pasture	Long	Excellent	Very High	Low	Very High	High	Moderate	385,000	175,000
Smooth Bromegrass	Hay & Pasture	Long	Excellent	Moderate	Moderate	Low to Moderate	Moderate	Moderate	300,000	136,000
Tall Fescue	Pasture	Long	Good	Moderate to High	Moderate to High	High	High	Very High	500,000	227,000
Tall Wheatgrass	Pasture & Hay	Long	Excellent	Low	High	High +	Low to Moderate	Low to Moderate	174,000	79,000
Timothy	Hay & Pasture	Medium	Good	Low	High	Low	Low	High	2,710,000	1,232,000

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Annual (Italian) Ryegrass	Produces best on soils of medium to high fertility and grows best with adequate moisture.	Spring to Fall	Easy to establish. Very palatable. Makes good hay or silage. Can be used for companion crop.	Does not withstand drought or hot weather.	Bunch Grass
Creeping Foxtail	Adapted to areas where Reed Canarygrass grows well and soil moisture is continually available.	Early Spring to Fall	Suitable for erosion control. Spreads rapidly once it is established.	Light, fluffy seed. Slow establishment. Poor competition during first six weeks.	Sod Forming
Creeping Red Fescue	Does best in high rainfall areas. Will grow in wide range of soil types.	Spring to Fall	Tolerates close grazing. Tolerates areas too dry for timothy. Grows well late summer to freeze up and retains good quality.	High moisture requirement. Vulnerable to Crown Rot, Root Rots and Snow Mold.	Sod Forming
Crested Wheatgrass	Adapted to dry areas with good soils but will also establish on lighter soils	Early Spring	Excellent for spring pasture. Easy to grow. Withstands close grazing and trampling.	Does not tolerate cool, wet soils. Poor quality after heading out.	Bunch Grass
Dahurian Wildrye	Adapted to all soil zones.	Spring to Fall	Highly competitive and quick to establish.	Short lived.	Bunch Grass
Intermediate Wheatgrass	Well drained soils with ample moisture.	Late Spring to Mid Summer	Easy to establish. Good haygrass with alfalfa. Out yields CWG and smooth brome grass.	Less winterhardy and drought tolerant than crested wheatgrass.	Sod Forming
Kentucky Bluegrass	Prefers cool and humid. Grows on most soils.	Spring to Fall	Tolerates close and frequent defoliation. Useful in erosion control.	Goes dormant in hot, dry weather. Slow to establish. High moisture requirement. Lower yielding.	Sod Forming
Meadow Bromegrass	Grows well on most soils where smooth bromegrass does well.	Early Spring to Late Summer	Very palatable. Good regrowth after grazing or cutting. Less aggressive than smooth bromegrass.	Mainly a pasture grass. Difficult to put up as hay when in pure stand.	Bunch Grass
Meadow Fescue	Prefers soil with good moisture and good drainage.	Early Spring to Late Fall	Best for pasture. Good fall pasture - stays green late in fall.	Susceptible to heavy grazing. Slow regrowth. Susceptible to leaf rust.	Bunch Grass
Meadow Foxtail	Prefers cool moist conditions. High water table.	Early Spring to Fall	Earliest grass to grow in spring. Very palatable when young. Seeds fall off and reseed itself.	Light, fluffy seed. Susceptible to drought. Seeds need to be coated for seeding.	Bunch Grass
Orchardgrass	Prefers moist conditions. Sandy soils are too dry for good growth unless in high rainfall areas.	Spring to Fall	Easy to establish. Very palatable. Fast regrowth. Makes good hay with alfalfa.	Needs high nitrogen for good production. Only moderate winterhardy. Subject to overgrazing.	Bunch Grass
Pubescent Wheatgrass	Widely adaptable with respect to precipitation, temperature, elevation and low fertility soil.	Spring to Mid Summer	Has the ability to stay green into the summer months. Hardier than intermediate wheatgrass.	Strong creeping roots get sod bound and result in unproductive stand after a few years.	Sod Forming
Russian Wildrye	Can be grown on a wide range of soils. Most productive on fertile loams.	Early Spring to Mid Summer	Salt tolerant, early growth and good for winter grazing.	Poor seedling vigour. Slow to establish.	Bunch Grass
Smooth Bromegrass	Well adapted to all soil zones.	Mid Spring to Mid Summer	Winterhardy. Good yield. Palatable even at mature growth stage.	Seed is long, light and difficult to sow due to bridging. Becomes sod bound. Slow regrowth.	Sod Forming
Tall Fescue	Variety of soils. Does well on wet, poorly drained soils.	Late Spring to Fall	Suitable for late fall grazing or stock piling. Easy to establish. Good regrowth. It is one of the more drought resistant grasses.	Slow to cure when used for hay. Starts growing later than many other grasses in spring.	Bunch Grass
Tall Wheatgrass	Adapted to saline and imperfectly drained alkali soils.	Late Spring to Mid Summer	Salt tolerant. High nutrition in early heading stage.	Slow to establish. Poor vigour and competitive ability. Coarse when mature.	Bunch Grass
Timothy	Cool moist areas with good drainage.	Spring to Summer	Low seed costs. Easily established. Excellent hay for horses. Goes well with alfalfa in blends. Suitable for hay export market.	Susceptible to heat and low moisture conditions. Low palatability at maturity.	Bunch Grass