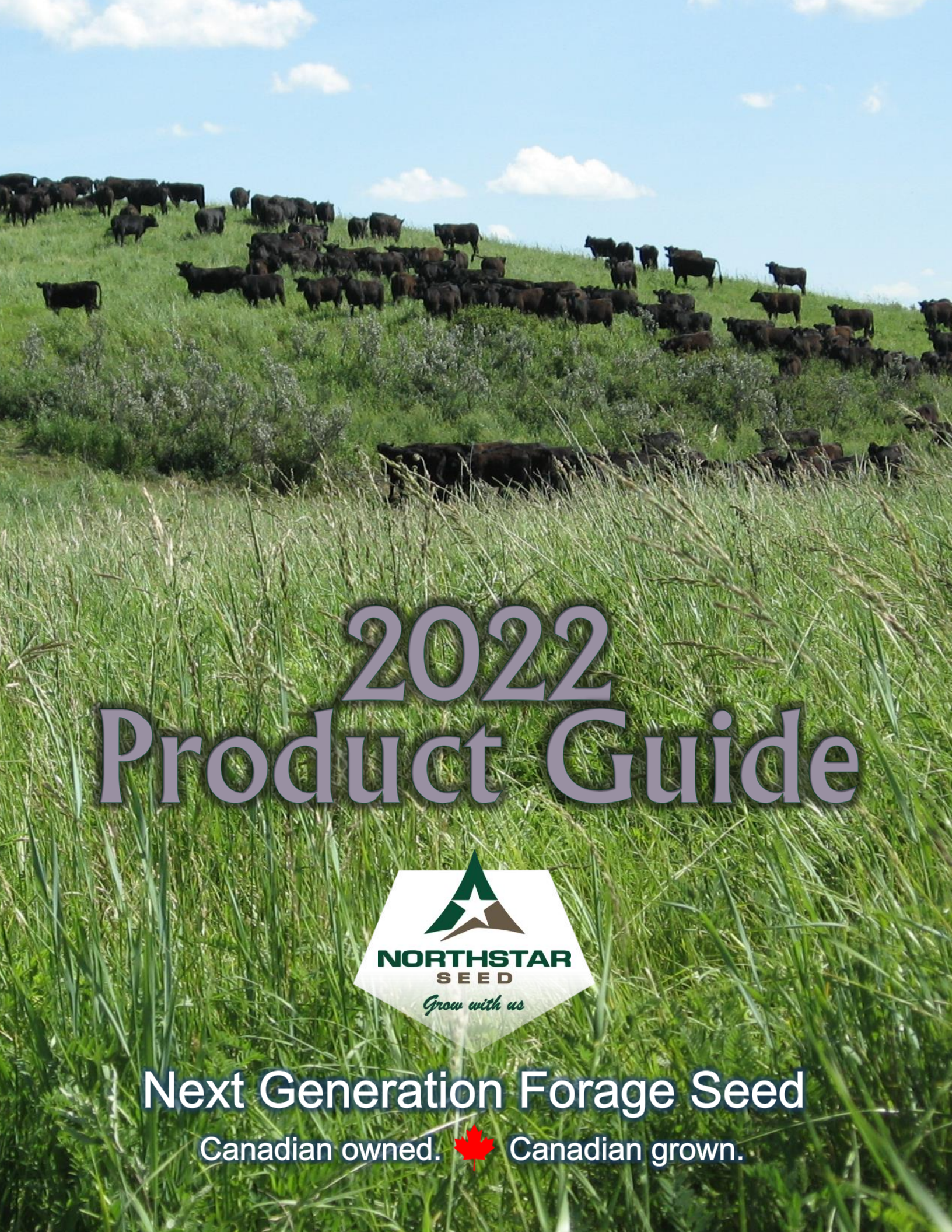


2022 Product Guide

NORTHSTAR SEED

Grow with us

Next Generation Forage Seed

Canadian owned. Canadian grown.

The best forage lineup for Western Canadian conditions

Northstar Seed is a proud supplier of high quality forage seed developed to perform under tough Western Canadian growing conditions. Our years of experience and focus on forage seed allow us to provide expert advice on how to maximize production on your land.

Our sales agronomists and dealers understand local growing conditions and challenges and are able to make custom recommendations for optimal production on your farm operation.

Fast turnaround on custom blends, even when they are ordered in season. We pride ourselves on getting your seed to you promptly, when you need it.

NORTHSTAR SEED

Grow with us

Seed quality that exceeds industry standards

Our seed quality standard is less than 10 total weed seeds/25 grams for all the certified varieties we sell. This standard exceeds the requirements for Certified #1 seed that has a tolerance of 50 weed seeds per 25 grams.

Independent seed quality testing

Quality Assurance Tested

Seed health and purity are the building blocks for proper establishment and clean fields.

Every lot of seed that is put in our bag has been analyzed by a fully independent and accredited seed lab. That means a third-party technician verifies the germination and purity of each lot of seed before a federally certified seed grader assigns a grade.

High Performance Alfalfa

PERFECTION Alfalfa

Maximize Yield and Quality

Perfection alfalfa is bred with StandFast™ technology. This trait provides rapid re-growth after cutting and can yield up to 3-4 cuts of silage in a season.

This rapid growth trait provides higher tonnage and is ideally suited for silage production.

REVOLUTION MD Alfalfa

Lower Fiber = Higher RFQ

Revolution MD's Max Digest technology provides increased forage digestibility and high RFQ (Relative Forage Quality).

Revolution has large leaves and a high leaf to stem ratio that reduces the fiber content in the forage. It is this leafy trait that provides higher protein content and increased forage digestibility.

Alfalfa Selection Guide

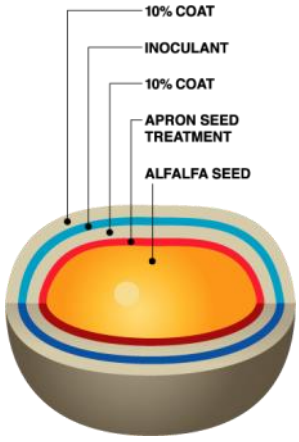
	Fall Dormancy	Winter Hardiness	Root Type	Key Features
Revolution MD **Maximum Digestibility**	3.7	1.7	Tap	**Exceptional forage quality** • High RFQ (Relative Forage Quality) rating and rate of digestion • Large leaf area with an increased leaf to stem ratio • Outstanding disease and pest resistance package • Excellent winter hardiness combined with high yield potential.
Perfection **Rapid Growth**	4	2	Tap	**The latest advancement in StandFast Technology** • Selected for high forage DM and NDF levels • High multifoliate expression and fast recovery • Well suited for silage production & dairy producers
Robust **High Yield, Low Dormancy**	2	1.5	Tap	**High performance synthetic variety** • Multifoliate with high leaf to stem ratio • High forage dry matter yield and RFV • Vigorous roots • Dense crowns
Rugged ST **Salt Tolerant**	3	2	Tap	**A very hardy variety** • Large, broad, deep-set crowns • Tolerance to increased salt levels

We can help you select the right alfalfa varieties for your unique soil conditions and production goals.

	Fall Dormancy	Winter Hardiness	Root Type	Key Features
Sidewinder Creeping Root	2	1.6	Creeping	**Selected for high forage yield with excellent winter hardiness and persistence** • Later maturity which adds value to a grass blend • Deep set crown with wheel traffic tolerance • Excellent disease resistance package • Multipurpose variety for forage hay or pasture
Response WT Wet Tolerant	4	2	Branching	**Performs well on medium to heavy soils. A high yielding variety that should be considered in areas of high water table.** • Excellent forage quality • High yielding branch rooted variety • Adjusts its root growth based on level of moisture stress
AAC Meadowview Acid Tolerant	2	Not Rated	Branching tap	**Acid tolerant variety ideally suited for the foothills of AB and Peace region of AB and BC** • Deep set crowns • Erect spring growth habit • Rapid regrowth after cutting
Haygrazer Grazing Tolerant	4	2	Fibrous	**A flexible variety that is bred for high hay yields as well as grazing tolerance** • Aggressive fibrous root system • Sunken crown stands up to grazing pressure and high traffic from equipment • Tolerant to defoliation by the Alfalfa Weevil
Alfalfa Blend 10-5 Adapted to Variable Conditions	Mix of 2-4	Mix of 1.5-2	Creeping, tap, branch and fibrous	**Premium certified blend of five varieties with unique traits that enhance plant population across variable field conditions** • Now contains Robust and Sidewinder alfalfas, as well as Response, Rugged, and Haygrazer alfalfa.
Ranchers Choice Brand Common #1 Blend	n/a	n/a	Combined creeping and tap	**Consistent performing alfalfa blend** • Blend of multifoliate, tri-foliate and creeping root varieties that are consistent performers.

Layers of protection with our STRATUM™ coating process

Our alfalfa coating process involves layers of protection between the inoculant and Apron® seed treatment. Separating the seed treatment with a 10% coating, then adding the inoculant, and a final 10% coating, will assist with improving germination and reducing seedling diseases.



Forage Grass Selection Guide

	Hay	Pasture	Saline Tolerance	Flood Tolerance	Drought Tolerance	Key Features
AAC Maximus Meadow Bromegrass	★	★			★	• Taller than Fleet Meadow Bromegrass • More upright growth habit than Fleet
Carlton Smooth Bromegrass	★	★	★	★	★	• Widely adaptable • Sod forming • Moderate saline, moisture and drought tolerance
AC Knowles Hybrid Bromegrass	★	★	★	★	★	• Smooth and meadow bromegrass hybrid • Yields like smooth brome with a longer growing season similar to meadow brome • Improved leaf expression compared to smooth brome
Early Arctic Orchardgrass	★	★	★	★		• Exceptional orchardgrass that demonstrates above average winterhardiness • Excellent companion when blended with alfalfa • Moderate drought and flooding tolerance • Selected for high quality (leafy)
Elunaria Annual Ryegrass	★	★		★		• Westerwold type • Suitable for hay, haylage or pasture • High yield opportunity • Very good quality with broad leaves
Nabucco Italian Ryegrass	★	★		★		• Tetraploid variety that delivers improved quality over annual ryegrass. • Quick regrowth • Wider and more succulent leaves than diploid annual ryegrass • Excellent palatability/digestibility
Fabio Italian Ryegrass	★	★		★		• Tetraploid variety • Very high yield, especially first cut.
Tetrasweet Perennial Ryegrass	★	★		★		• Tetraploid variety • Highly digestible • High energy • Excellent regrowth and high yield
Toronto Perennial Ryegrass	★	★				• For short term pasture with excellent yield and digestibility • Very high levels of sugar

Selection of grass species depends on soil and climate conditions, season of use, and compatibility with other forage species.

	Hay	Pasture	Saline Tolerance	Flood Tolerance	Drought Tolerance	Key Features
NEW Satin Soft Leaf Tall Fescue	★	★	★	★	★	• Satin provides excellent forage quality combined with a strong disease package. • Very compatible in a stand with other legumes. • Very adaptable to high moisture stress and early signs of salinity.
Courtney Tall Fescue	★	★	★	★	★	• Good flood and saline tolerance • Large basal leaves, high quality • Exceptional yield potential • Improved winter hardiness
Preval Meadow Fescue	★	★		★		• Tolerates wet soils • Withstands close grazing, excellent for rotational grazing • Use in hay and pasture blends
Boreal Creeping Red Fescue		★		★		• Great performance in pastures under high moisture conditions • Tolerates close grazing • Good quality in fall to freeze up
Express Timothy	★	★		★		• Excellent winter survivability • Medium maturity • Very good regrowth • Great leafy variety for domestic hay production
Novio Timothy	★	★		★		• Export quality with medium maturity • Large soft leaves • Extremely winterhardy
Kirk Crested Wheatgrass	★	★			★	• Fibrous root system provides good drought tolerance and winterhardiness • Excellent early spring pasture grass • Great fit for high traffic areas
Spring Green Festulolium	★	★		★	★	• Meadow Fescue x Perennial Ryegrass cross • Improved tolerance to dry conditions and cold stress due to its deep root system • Very good winter hardiness for a festulolium

Northstar Seed carries a complete line of certified and common grasses. See our Forage Adaptation Guide for a more detailed list of species available.

Max Seed Blends

Hay

Premium Hay Max

A very hardy mixture that includes Express Timothy, our high quality leafy timothy and Alfalfa Blend 10-5, our premium alfalfa blend. This blend delivers a multi-cut hay stand under good management and variable soil conditions.

- 65% Alfalfa Blend 10-5
- 30% Fleet Meadow Bromegrass
- 5% Express Timothy

Maxi

High production blend for producers wanting a high quality alfalfa and timothy hay. Express Timothy performs well in low lying areas, and will assist in holding up the swath.

- 90% Alfalfa Blend 10-5
- 10% Express Timothy

Saline Hay Max

Suited for productive soils that are demonstrating early signs of salt stress. Has tolerance to increased salinity levels.

- 40% Courtenay Tall Fescue
- 40% Rugged ST Alfalfa
- 20% Carlton Smooth Bromegrass

Rancher's Hay Max

Very adaptable. A blend that will deliver high yield potential under good fertility and moisture conditions.

- 50% Rancher's Choice Brand Alfalfa
- 30% Fleet Meadow Bromegrass
- 20% Carlton Smooth Bromegrass

Lowland Max

Ideally used for hay or pasture in areas with poor drainage. Has tolerance to increased moisture conditions.

- 50% Courtenay Tall Fescue
- 30% Palaton Reed Canary Grass
- 20% Express Timothy

Dual Purpose: Hay or Pasture

Dual Max

High quality grasses that have very good regrowth habits. This blend is suited to most grazing or haying systems. Prefers medium to heavy soils.

- 50% Fleet Meadow Bromegrass
- 25% Carlton Smooth Bromegrass
- 20% High Arctic Brand Orchardgrass
- 5% Alfalfa Blend 10-5

Western Grass Max

High quality all grass blend. If properly managed can be a very productive hay and pasture blend. No concerns with bloat.

- 45% Fleet Meadow Bromegrass
- 25% High Arctic Brand Orchardgrass
- 15% Courtenay Tall Fescue
- 10% Express Timothy
- 5% Creeping Red Fescue

Equine Pasture Max

An all grass blend for horse owners providing a palatable grazing option from spring to late fall. This blend can also be used as baled forage to provide a nutritious feed source for all classes of horses.

- 40% ACC Maximus Meadow Bromegrass
- 20% Early Arctic Orchardgrass
- 10% Preval Meadow Fescue
- 10% Luscious Perennial Ryegrass
- 10% Boreal Creeping Red Fescue
- 10% Express Timothy

Bloat Free Max

Utilizes non-bloating legumes AAC Mountainview Sainfoin and Cicer Milkvetch combined with highly palatable grasses.

- 40% Fleet Meadow Bromegrass
- 25% AAC Mountainview Sainfoin
- 25% Cicer Milkvetch
- 10% Courtenay Tall Fescue

Dryland Dual Max

For dryland pasture production. Meadow Bromegrass offers a long grazing season with very good quality and regrowth. Crested Wheatgrass has excellent early season growth.

- 65% Fleet Meadow Bromegrass
- 15% Kirk Crested Wheatgrass
- 15% Pubescent Wheatgrass
- 5% Sidewinder Alfalfa

Saline Pasture Max

High quality all grass blend designed for saline areas in the low to mid EC levels.

- 30% Courtney Tall Fescue
- 30% Carlton Smooth Bromegrass
- 20% Slender Wheatgrass
- 20% Dahurian Wildrye

Forage Adaptation Guide

Legumes

Forage	Use	Longevity	Winter hardiness	Root	Seeds/lb.*	Growing Period
Alfalfa	Hay/Pasture	Long	Good	Tap, branch, creeping rooted and sunken crown	200,000	Spring-Fall
Alsike Clover	Hay/Pasture	Short	Fair	Branched	700,000	Spring
Birdsfoot Trefoil	Pasture	Long	Good	Tap rooted with branches	370,000	Spring-Fall
Cicer Milkvetch	Pasture	Long	Good	Creeping rooted	130,000	Late Spring-Fall
Red Clover	Hay/Pasture	Long	Poor	Tap rooted with side branches	275,000	Spring
Sainfoin	Pasture	Long	Fair	Tap rooted	18,000 unhulled	Spring-Summer
Sweet Clover	Hay/Silage	Short	Fair	Tap rooted	260,000	Spring of 2nd Year
White Clover	Pasture	Short/Long	Good	Rhizomatous	800,000	Spring-Fall

**Seeds/lb. may vary*

NEW Satin Soft-leaf Tall Fescue

Satin is a soft-leaf tall fescue that will provide improved palatability and excellent quality.

It is very compatible with other species in a mixed stand (mainly legumes).

Satin has good tolerance to high moisture conditions and great capacity to adapt to different environments.

With it`s outstanding disease package, including strong rust resistance, you can expect excellent forage yield and quality.

Forage Grasses

Forage	Use	Longevity	Winter hardiness	Root	Seeds/lb.*	Growing Period
Altai Wild Ryegrass	Pasture	Long	Excellent	Bunch grass	60,000	Early Spring-Mid Summer
Annual Ryegrass (Italian)	Hay/Pasture	Annual	Poor	Bunch grass	230,000	Spring-Fall
Creeping Foxtail	Pasture	Long	Good	Sod forming	750,000	Early Spring-Fall
Creeping Red Fescue	Pasture/Lawn	Long	Excellent	Sod forming	615,000	Spring-Fall
Crested Wheatgrass	Pasture/Hay	Long	Excellent	Bunch grass	175,000	Early Spring
Dahurian Wild Ryegrass	Pasture	Short	Good	Bunch grass	80,000	Spring-Fall
Intermediate Wheatgrass	Hay/Pasture	Short/Medium	Good	Sod forming	88,000	Late Spring-Mid Summer
Kentucky Bluegrass	Pasture/Lawn	Long	Excellent	Sod forming	2,180,000	Spring-Fall
Meadow Bromegrass	Hay/Pasture	Long	Good	Bunch grass	80,000	Early Spring-Late Summer
Meadow Fescue	Pasture	Short/Medium	Good	Bunch grass	230,000	Early Spring-Late Fall
Meadow Foxtail	Pasture	Long	Good	Bunch grass	575,000	Early Spring-Fall
Orchardgrass	Hay/Pasture	Short	Fair	Bunch grass	650,000	Spring-Fall
Perennial Ryegrass	Hay/Pasture	Short 2-3 yrs.	Poor	Bunch grass	330,000	Spring-Fall
Pubescent Wheatgrass	Hay/Pasture	Medium	Good	Sod forming	100,000	Early Spring-Mid Summer
Russian Wild Ryegrass	Pasture	Long	Excellent	Bunch grass	175,000	Early Spring-Mid Summer
Smooth Bromegrass	Hay/Pasture	Long	Excellent	Sod forming	136,000	Mid Spring-Mid Summer
Tall Fescue	Pasture	Medium	Good	Bunch grass	225,000	Late Spring-Fall
Tall Wheatgrass	Hay/Pasture	Long	Excellent	Bunch grass	79,000	Late Spring-Mid Summer
Timothy	Hay/Pasture	Medium	Good	Bunch grass	1,230,000	Spring-Summer
Western Wheatgrass	Hay/Pasture	Long	Excellent	Sod forming	110,000	Late spring - Summer

Lawn Seed Blends

	Components	Moisture Requirement	Key Features
Deluxe Blend	70% Kentucky Bluegrass 20% Creeping Red Fescue 10% Perennial Ryegrass	💧💧💧💧	• Contains the highest percentage of Kentucky Bluegrass • For homeowners wanting a lush, vibrant green lawn
Sun and Shade	50% Kentucky Bluegrass 30% Creeping Red Fescue 20% Perennial Ryegrass	💧💧💧	• Best suited for sunny areas and will tolerate partial shade
Instagreen	40% Kentucky Bluegrass 40% Creeping Red Fescue 20% Annual Ryegrass	💧💧💧	• Very quick to establish • Most economical blend for general use
Eco-Grow	25% Sheep's Fescue 25% Hard Fescue 20% Gibraltar Creeping Red Fescue 15% Boreal Creeping Red Fescue 15% Chewings Fescue	💧	• Low maintenance blend of premium fescues • Low-growing • Less mowing • Ideal for small acreages or for securing ground cover for livestock habitat.
Playground Blend	30% Creeping Red Fescue 30% Hard Fescue 20% Sheep`s Fescue 10% Corsair Kentucky Bluegrass 10% Turf Type Perennial Ryegrass	💧💧	• A low maintenance, easy to manage blend that will last for years. • Stands up to heavy foot traffic

Northstar Seed sells environmentally friendly, untreated lawn seed that is safe for the whole family.

Reclamation & Native Species

Available Native Species			
Awned Wheatgrass	Fringed Brome	Nodding Brome	Spike Trisetum
Alpine Bluegrass	Fults Alkaligrass	Prairie Cordgrass	Streambank Wheatgrass
Beaked Sedge	Green Needlegrass	Prairie Sandreed	Tall Mannagrass
Baltic Rush	Hairy Wildrye	Red Top	Ticklegrass
Big Bluestem	Idaho Fescue	Rocky Mountain Fescue	Tufted Hairgrass
Blue Grama	Indian Grass	Rough Fescue	Violet Wheatgrass
Bluebunch Wheatgrass	Indian Ricegrass	Sand Dropseed	Western Porcupine
Bluejoint Reedgrass	Inland Saltgrass	Sandberg Bluegrass	Western Wheatgrass
Canada Bluegrass	Junegrass	Side Oats Grama	American Vetch
Canada Wildrye	Little Bluestem	Sheeps Fescue	Canadian Milkvetch
Common Sedge	Mountain Brome	Slender Wheatgrass	Hairy Vetch
Fowl Bluegrass	Needle and Thread	Slough Grass	Lewis Blue Flax
	Northern Wheatgrass	Smooth Wildrye	Purple Prairie Clover

Northstar Seed is proud to offer a full line of high quality native cool and warm season grass species, legumes, and wetland grasses across Western Canada.

We provide native blends for all types of projects; from reclamation sites and wetland habitats to major infrastructure projects and national parks.

Our team of sales agronomists work closely with contractors, engineers and conservation districts to meet the specification requirements for purity and germination for projects, large or small.

Annual & Cover Crop Program

Northstar Seed has been involved in cover crops for over a decade, and have developed our product lineup to meet the demand of this diverse and growing market.

We can provide various cover crop blends for double cropping under irrigation, summer/fall grazing, stored forage, nitrogen fixation, and soil health improvements. We have also used annual legumes as a part of intercropping with cereal grain production.

Please contact your Northstar Seed sales agronomist or Northstar Seed dealer, and let us assist you in your perennial and annual forage planning.

Available annual and cover crop species and varieties:

- Berseem Clover
- Crimson Clover
- Collards
- Jumbo Ladino Clover
- Driller brand Radish
- Vivant Hybrid Forage Brassica
- Gorilla Forage Rape
- Kale
- Purple Top Turnips
- Appin Turnips
- Sugar Beets
- Hairy Vetch
- Chicory
- Austrian Winter Peas
- Forage Peas
- Plantain
- Beehappy Phacelia
- Buckwheat
- Sunflowers
- NS Brand Sorghum Sudangrass
- NS Drystalk brand BMR Sorghum Sudangrass
- Golden German Millet
- Japanese Millet
- Proso Millet
- Nabucco Italian Ryegrass
- Fabio Italian Ryegrass
- Elunaria Annual Ryegrass

Annual Forage Selection

The use of annual forages as cover crops continues to grow with a strong focus on improving soil health. The integration of livestock into a cover cropping system assists in the efficiency of the nutrient cycling ecosystem.

As we explore the benefits of Regenerative Agriculture, the use of cover cropping with annual forages combined with the use of perennial forages are key to improving soil health. The focus of regenerative agriculture is to increase biodiversity, improve the water cycle, and strengthen the health and vitality of the soil. This means protecting the soil with armour, and keeping root activity alive for an extended period.

COOL SEASON					WARM SEASON	
GRASS	BROADLEAF					GRASS
Barley			LEGUMES			Pearl Millet
Oats			Jumbo Ladino Clover			Japanese Millet
Ryegrass	Phacelia	Turnip	Forage peas			Golden German Millet
Wheat	Kale	Radish	Berseem Clover		Buckwheat	Proso Millet
Cereal Rye	Canola	Beets	Sweet Clover	Soybeans	Sunflowers	Sorghum Sudangrasss
Triticale	Mustard	Forage Brassica	Hairy Vetch	Chickpeas	Chicory	Corn

The use of Annual forages in your rotational program allows you to increase biodiversity within your cropping systems. The overall goal is to increase soil carbon through vegetative growth with moisture being the caveat.

Producers use many different prescriptions to achieve biodiversity and their ability to affect soil health on their operation. Regenerative Agriculture is most often unique to an individual operation requiring site specific recommendations.

Improving soil health will require using the Five basic principles of Regenerative Agriculture:

- Create soil armor by keeping the soil covered, with no bare ground.
- Minimize soil disturbance by utilizing reduced/no till practices on cropland and adaptive grazing strategies on grazing lands.
- Increase plant diversity; rotate crops and include warm and cool-season grasses and forbs in pastures.
- Keep living roots in the ground all year.
- Integrate livestock grazing.

How well are your pastures or hay fields producing lately?

Your winter forage program and pasture productivity contribute to the highest percentage of annual costs on a cow calf operation. Yield and quality can be decreased when desirable species are replaced by weeds, or bare ground in a perennial forage system.

Here is a chart to help you evaluate your current forage stand, and management strategies to use depending on your situation:

Determining the Condition of Pasture/hayland

	Excellent	Good	Fair	Poor
Yield as a % of potential yield for your area	75-100%	60-75%	50-60%	Less than 50%
Production from desirable species	95%	75-95%	50-75%	Less than 50%
Production from undesirable species/weeds	5%	5-25%	25-50%	More than 50%
Suggested management	Maintain current management.	Maintain current management.	Change management. May be able to rejuvenate by fertilizing, mowing, herbicide use, rest periods. Consider adding new species.	Change management. Add new species and improve grazing management.

Adapted from SAFRR (2002b) and G. Ehlert, Alberta Agriculture (1990).

Rejuvenation is an option

Due to the drought conditions that were widespread across the Prairies in the past 2-3 years, pastures and hayland have become increasingly damaged and unproductive. The dry conditions also make the process of tillage difficult, and protecting soil moisture as much as possible needs to be considered as well. One possible management strategy is to rejuvenate existing stands to help improve quality and productivity.

The traditional method of seeding a new forage stand is to terminate the existing stand, using glyphosate and/or tillage. Then you should control any weed issues, and utilize a break crop the year before seeding the new stand into a firm, well prepared seedbed. This is a two year process, and can cause loss of valuable soil moisture.

There are options to add new species into existing forage stands using a rejuvenation approach. One option is to broadcast onto existing sod and utilize some form of disturbance to get the seed in contact with the soil, then rolling after to help improve the seed-to-soil contact. Another option is to use a no-till drill or sod seeder. These options can help save costs vs. traditional tillage and re-seeding, as well as saves time as this approach normally takes two years.

The following are considerations that can help achieve the most successful outcome when seeding into an existing forage stand:

1. Suppression of the existing forage material is critical prior to seeding, either by using glyphosate, mowing or heavy grazing pressure.
2. Use seeding equipment such as a no-till drill to allow for proper opening of the sod and seed placement at the correct depth (shallow as possible).
3. Soil fertility is critical to establish new seedlings, and phosphorus can be applied with the seed at a rate of 25 lb/ac of actual P. Additional P can be applied immediately after seeding, based on soil requirements and fertilizer prices. Nitrogen need not be applied, as it may encourage competitive growth from the existing grasses.
4. Legumes such as alfalfa, birdsfoot trefoil, cicer milkvetch (bare seed) and red clover can improve yield and quality of the stand, while adding nitrogen to the soil.
5. Small seeded grasses, such as timothy, orchardgrass and perennial ryegrasses work best. Grasses typically do not establish as well as legumes.
6. Early spring is the optimal time to seed, providing there is adequate moisture for germination.
7. Consider rejuvenating different, small parcels of land each year, to continue to add productivity over several years.

Successful Forage Establishment

Careful planning and attention to detail are essential to ensure successful forage establishment. A successful forage stand depends on the selection of species and cultivars that are adapted to your environment and for the intended use of the forage. Your decision to plant a forage should be made with consideration of the following:

Weed Control: Consider the herbicides used in the last couple of years to ensure there are no herbicide residue issues as some products may inhibit or reduce seedling survival. Plan for a weed control program on the forages that you are seeding to control and reduce weed competition.

Seedbed Preparation: The seedbed should be firm and weed–free prior to seeding. It is important to achieve close seed to soil contact to allow for accurate seed placement which means a firm, solid seedbed. Walking or driving across a seedbed should only leave a faint imprint. A clean stubble field makes for a perfect environment.

Seeding Date: Spring seeding is ideal when soil temperatures have reached 8-10 degrees C and moisture levels are good for ideal germination to occur. Moisture deficiency is often a cause of poor stand establishment, so seeding with anticipated precipitation in the spring is most successful. If you choose to dormant seed, plant when the soil temperature is below 2 degrees C to prevent germination until the following spring.

Seeding Rate and Equipment: Seeding rates should be determined based on a combination of factors such as: the end use requirement, the predicted survival rate of the seedlings, moisture conditions, and most importantly the seeds per square foot in the field rather than percent by weight. Contact your Northstar Seed sales agronomist for the ideal seeds per square foot for the various soil zones.

Producers have used various equipment to successfully seed and establish forages. What is most important is the ability to control the seeding depth and accurately meter small amounts of seed and avoid bridging when using chaffy seeds. Having an agitator in the seed box or mixing in an inert carrier or phosphate fertilizer with a ratio of 1 to 3 by weight will eliminate bridging and result in good seed flow.

Using equipment such as double disc drills, hoe drills, or air seeders and drills provide for excellent seed to soil contact, the exception may be the use of a broadcast applicator. With a broadcast applicator, it is recommended that you increase seeding rate by 20% to adjust for seed that remains on the top of the ground following incorporation after seeding. Broadcast seedings are more reliant on rainfall for germination than any other seeding method.

Companion Crop Management: If you choose to use a companion crop, **seed the companion crop at 20-40% of normal rate** to reduce competition in your forage establishment. If possible, seed at right angles to reduce in–row competition with your forages, and under ideal conditions, harvest as a silage crop. The goal is to reduce the length of time the swath lays on the ground. Remember to use recommended herbicides to control weed growth and reduce competition. Avoid using a competitive crop such as barley or wheat and look to crops like flax, millet or oats as a companion crop.

Select the Correct Species: When selecting your forage species, plan for the length of time the stand will be in production. Longevity and the yield of your forage stand starts with choosing the correct species adapted to your soil and field conditions. Select a quality seed that has a high level of germination and has an excellent seed purity with modern genetics for high production levels.

Purchasing cheap seed may compromise yield and quality, and persistence of the stand due to lack of disease resistance and winterhardiness. Cost of the seed input in forage production accounts for less than 5%, so selection of the best species for your operation is critical to the success of your stands.

Seeding Depth: Seed your forages shallow with the maximum seeding depth on clay type soils at ¼ to ½ inch deep with some seed evident on top of the ground. If you are seeding into loam or sandy-type soil, depth may increase to a maximum of ¾ inch, keeping the importance of a firm seedbed in mind.

Fertility: Plan for a fertility program when seeding legumes and grasses. You may wish to bank your Phosphorus requirements for a period of 3-4 years as we understand that Phosphorus is not very mobile with annual applications.

Soil testing prior to seeding and fertilizing to the required nutrient levels is recommended.

Corn Grazing in winter – an option that may save money

There are many options for cattle producers to reduce feed costs throughout the year. Grazing corn is one method that can be used to lower winterfeed costs, in areas where corn production is feasible. There have been a number of trials done to demonstrate the cost benefits of grazing corn.

There are several important steps when preparing to graze corn:

1. Selection of your corn variety

- There are varieties that the cows will prefer and therefore clean up the field better.
- These tend to be silage varieties rather than grain varieties. Experimenting with different varieties is the key to see what works for you.

2. Managing the field

- Seed 1.5 - 2 inches deep as corn is a weak seedling and struggles if seeded too deep.
- Corn is a very poor competitor so the field needs to be kept free of weeds until the corn is in the 8 leaf stage, after the eight leaf stage the plant is better able to compete with weeds.
- Fertility is important for the development of your corn field. Suggested rates include 6 lbs. of N, 3.5 lbs. P and 8 lbs. of K for every ton of silage the field is expected to yield. In the prairie region your field should yield 8 to 15 tons per acre depending on rainfall and heat units. It is important to work with your local fertilizer agronomist to obtain a soil test and a recommendation for your soil type and crop nutrition needs.

3. Managing the cows when they are grazing is very important

- The cows will clean up and make better use of the field if you are grazing when the ground is frozen. They are reluctant to clean up if the material gets dirty and feed waste adds to the daily cost.
- Cows should be allowed to graze a paddock that they can clean up in 3 days.
- They will clean up the cobs the first day, the second day they will eat leaves and tassels and the third day they will be on stocks alone. Stocks alone are not enough nutrition for the cow but they will be back to cobs the next day when the fence is moved and they are on a new paddock. This will work for mature cows. If the cows have not cleaned up all cobs the first day, adjust your paddock size as the incidence of acidosis may be a concern. It is important to consult with your nutritionist and Veterinarian regarding mineral and protein nutrition.

4. Fencing the paddocks

- Use a quality fencer that can give you a 5.5 + reading on a digital fence tester. Because cows do not ground very well in the winter, adequate fence power is important. Cheap fencers DO NOT work. String a hot wire and a ground wire at first until the cows are trained.
- There can be cows that will not respect the fence. If a problem cow is left in the group she can train others to not respect the fence. The best option is to remove the cow from the group to be fed somewhere else.

Production Opportunities

Northstar Seed is known in the global forage and turf seed industry as a supplier of pure, clean, high quality seed. We are proud to export forage and turf seed, produced in Western Canada, around the world. Currently, Northstar Seed ships to countries within Europe, East Asia, Latin America, the United States, Africa and the Middle East.

As a forage or turf seed producer, you are an integral part in helping increase Canadian exports and developing our ability to be a primary source of quality seed production.

Northstar Seed is looking for leading-edge farmers to ***Grow with Us***. If you are interested in finding out about grower opportunities, please contact one of our local production agronomists.

Gerry Duynisveld
(204) 476-0644

Brett Wilson
(204) 476-6828

Darrel Theroux
(204) 212-0991

Grow with us

Our Dealers - Local Forage Experts

Who are Northstar Seed Dealers?

They are people from your community who are passionate about the forage and turf industry, and customer service. They are your local seed retailers based on-farm, independent farm supply companies with multiple sites, feed dealers, auction marts, landscape suppliers and many others!

What are the benefits to you?

Northstar Seed's sales agronomists work with your local retailer to combine information on cutting edge varieties and agricultural practices used across Western Canada, with knowledge of your local climate and soil conditions. Many of our dealers are also producers who have experience growing the varieties we offer.

Want to start a conversation?

Simply work with your local dealer — they can engage their Northstar Seed agronomist to help answer your questions and provide innovative ideas. Forage is our passion, and we would love to help improve your production.

New Dealer Opportunities

Northstar Seed is continuing to expand its presence in Manitoba, Saskatchewan, Alberta and B.C. If you are have a passion for forage, turf or native seed, speak to one of our sales agronomists about the possibility of becoming a dealer.

Call us today for more information: 1(800) 430-5955 **Email: info@northstarseed.com**

For additional information or to place an order please contact:

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