



2021 CROP MANUAL

CANADA'S FORAGE SEED INNOVATOR



1 877 COW CHOW (269 2469)
UNIONFORAGE.COM



A MESSAGE FROM UNION FORAGE

Bare soil grows no forage.

This statement is obvious, but it expresses a concept that every livestock-forage manager needs to keep in mind.

Leaves are like a solar panel that captures energy from the sun and the atmosphere. If there is no forage stand, or only a thin forage stand, little energy will be captured and carbon sequestered.

Practices that favor good stand establishment create potential for solar collection and photosynthesis. Subsequent grazing management that favors development and maintenance of ample leaf matter will result in high carbon sequestration and photosynthesis and more forage production.

Growing more leaves allows grazing more leaves. Change the approach. Remove the impediments to success. Get advice from people who are knowledgeable and who can provide additional information and a different perspective.

Forage and livestock production is an expensive endeavor, at every opportunity and in all areas of forage and livestock production management, one should stack the deck to favor ones success.

Keep calm and graze on.



unionforage.com



1 877 COW CHOW



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WHO IS UNION FORAGE?

The Directors of Union Forage own or operate 5 ranches on the prairies from short grass to parkland regions, where we run 4,000 cows on about 40,000 acres. We apply the principles we promote and grow the forages we market ensuring these principles and products will also perform for our customers.

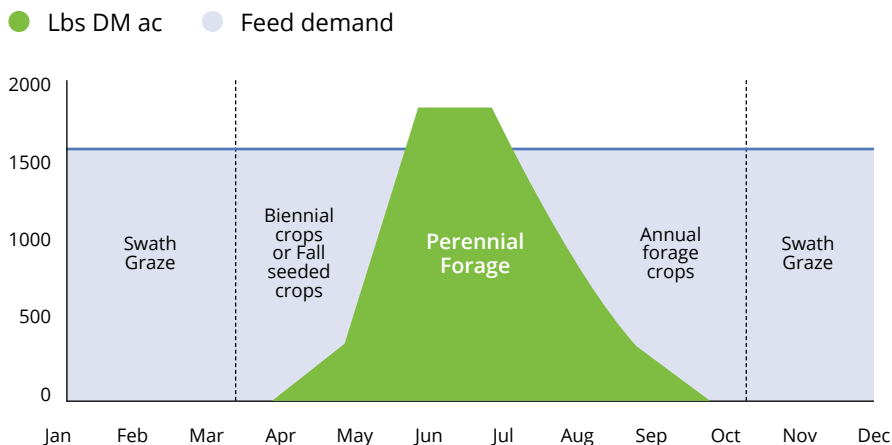
Union Forage was purchased by the current ownership in 2016 and has demonstrated steady growth over the last four years. Our focus on “Year Round Grazing” of Annual and Perennial forages has led us to expand our offer to our customer base to include:

- 2018** — AAC Glenview Sainfoin introduced to market.
- 2019** — Calgary office and warehouse opened.
- 2020** — Increased custom blending capacity.
Began offering grazing and green feed cereal seed (oats, tritcale, barley).
Expanded technical team with addition of Grant Lastiwka (formerly Alberta Agriculture)
- 2021** — Began offering grazing and silage corn seed in spring

A SYSTEMS APPROACH TO CATTLE GRAZING & MANAGEMENT

To effectively graze year round, it takes more than forage production. Summer and winter watering systems and use of electric fencing to manage stocking density are critical elements required to maximize the innate grazing ability of cattle. Then we can consider where we have excess feed that may be stockpiled and where we need to fill the feed demand gap with other forage options. Planning, creating flexible options, monitoring results, and management are key ingredients to successful outcomes to extended grazing.

LBS DM AC AND FEED DEMAND



An example

FOR A COW/CALF ENTERPRISE

Goal:

The average full year cost/cow/day for feed, pasture and water will be less than \$1.50 (includes calf with cow from May to November).

How:

- 1 Minimize use of equipment
- 2 Minimize hauling feed to cows
- 3 Maximize cow's ability to graze
- 4 Use annual and perennial forages, fall seeded crops, stubble grazing and biennial crops to help fill the early spring and late fall feed demand gap
- 5 Use combination of stockpiled perennials/annuals, bale grazing, silage, swath grazing or corn grazing in winter months

WHAT'S NEW?

In the spring of 2020, we started to offer certified and common spring and winter cereals (AC Morgan Oats, Oat/ Spring Triticale 50/50 Blend, Luoma Winter Triticale, Tyndal and Delight Spring Triticale, and 4010 Forage Peas).

These may be purchased in bulk, but are more typically delivered in totes, often with the small annual seeds blended into the mix. The demand for this service has been strong and we expect it to grow going forward.

Please place your custom blend orders as early as possible to help us streamline our production.



CUSTOM SILAGE BLEND

Image submitted by our
customer, Tyson Lowe





We all want to lead a healthy life, but few thrive for the reality of it. Regenerative Farming is the answer to many problems, and Union Forage has done a great part in helping with the understanding of it, not only with supplying quality seeds, but also with their knowledge and expertise.

BLAIN AT BIG ROSE COLONY



OUR PARTNERS



PGG Seeds is a distributor of top performing proprietary forage products. PGG Wrightson seeds, the parent of PGG Seeds, has been a world leader in development of cultivars for pastoral farming for over 150 years. This is proprietary certified seed encompassing brassicas, forbs, legumes, and grasses. Research and development is driven by animal performance. PGG Seeds Forage Brassicas are known throughout North America for their ease of establishment, biomass production, and palatability.



Union Forage is partnered with Barenbrug to bring you the best in perennials. Barenbrug has a century long history of forage breeding at its multiple breeding stations around the world. These breeding stations are strategically placed to cover various climatic zones in different parts of the world. Even more importantly, a large network of locations is established where forage germplasm is evaluated for performance.



Nutrisource, Dairytech and Bullseye focus on helping farmers feed people. Each business provides a tailored, full-farm approach to farmers within the dairy industry and beef industry in Western Canada. Each unit has a highly trained team of nutrition consultants, who cater to the farmers needs, including feed optimization and nutrition, forage management and animal health. Each team understands the importance and expense that comes with farm management, therefore maximizing return over feed cost is essential. Feeding high quality forages ensures optimal cow health, longevity and output which leads to maximum profits for the customer.



FP Genetics is owned by over 160 local seed growers. FP Genetics prides itself in bringing the best genetics and highest quality seed to produce the most profitable crops for the Canadian Farmer. FP Genetics is pleased to partner with Union Forage to bring a new and exciting technology of KWS Progas and Brasetto Hybrid Fall Rye to the forage business. Hybrid Fall Rye was developed by KWS in Germany and has been very successful in adoption throughout Europe. Through partnership with KWS, FP Genetics is able to bring this new Hybrid Fall Rye genetics to Canada to provide you with improved products for forages.



Our specialty is high-yield alfalfa varieties with a wide range of adaptation across many growing environments. Our non-dormant breeding program is focused on maximizing yield regardless of soil and water salinity. Our dormant alfalfa breeding emphasizes high yield and forage quality, developing hardy alfalfa varieties with plenty of resistance to disease and stress.



Take advantage of the Union Forage partnership with FCC. Book your seed early for discounts and our extended terms let you market your forage or livestock before the payment becomes due. Competitive rates and convenience make Farm Credit Canada your one stop shop to finance your crop inputs.

See page 13 for more details.

SOIL HEALTH

While housing millions of microbes in a nutrient cycling ecosystem, healthy soil filters and stores water. This reduces the impact of flooding and drought.

Mycorrhizal fungi play an important role in soil health. These fungi seek out phosphates and other nutrients to bring back to the plants. They also connect plants together, allowing for a nutrient exchange among them. Mycorrhizal fungi protect plants from fungal diseases and other root-feeding micro organisms, all while producing glomalin, which is important in creating soil structure and increasing space for air and water.



The 5 Basic Principles of

Improving Soil Health

i.	ensure minimal to zero soil disturbance.
ii.	keep soil covered with soil armour.
iii.	keep roots growing in the soil as long as possible.
iv.	increase plant diversity and crop rotations.
v.	integrate livestock.

As world population and food production demands rise, keeping our soil healthy and productive is of paramount importance. By using soil health principles and systems in farming that include no-till, integration of livestock, cover cropping, and diverse rotations, more and more farmers are increasing their soil's organic matter and improving microbial activity. As a result, farmers are sequestering more carbon, increasing water infiltration, and improving wildlife and pollinator habitat - all while harvesting better profits and often better yields.

SEED COATINGS

Seed coatings like Yellow Jacket and Super G protect the seed and attract and hold moisture to ensure seedling establishment. These coatings also include micro nutrient packs to ensure early plant health. Colour is added to help you more easily establish seed depth.

Legumes in Union Forage seed blends are coated and inoculated with rhizobia, the nitrogen fixing organisms that live in a symbiotic relationship with the plant roots. Nitrogen fixing rhizobia increase soil fertility for future crop rotations and provide nutrients to support the grasses usually grown in combination with legume annual and perennial pasture mixtures.

Union Forage Super G coatings and Barenbrug Yellow Jacket coatings are also inoculated with mycorrhizal fungi which directly infects plant roots. 90% of plant species benefit from the symbiotic relationship with mycorrhizal fungi which provide them with soil derived nutrients like Phosphate and Zinc. The plant returns the favour by providing the fungi with its sole source of nutrition in the form of liquid carbon sugars.

continued on next page ▶



**GRAZEMASTER
& NITROMASTER
COMBINATION**

YELLOW JACKET COATINGS

Barenbrug is an international leader in innovative seed coatings. Its scientists are involved in research facilities world-wide to further enhance seed coating technology and bring solutions to the forage industry. Yellow Jacket seed coating is available exclusively on all Barenbrug products.

Yellow Jacket is a proprietary seed coating containing a totally natural product made from starch. This active ingredient in Yellow Jacket holds up to 600 times its weight in water and nutrients. Research at New Mexico State University, North Carolina State University, and Texas A&M has proven that seed coated with Yellow Jacket established faster under less water and produced more forage than uncoated seed. Yellow Jacket seed greatly increases seeding establishment under dry land conditions where irrigation is not available and provides higher yields while preserving our precious water resources.

Yellow Jacket is like having an absorbent sponge or water reservoir around each individual seed. Once water is applied or moisture is available from rain, the coating holds both moisture and nutrients around the seed, making it available as needed for germination and establishment. Without Yellow Jacket, raw seed can quickly dry out, resulting in a need for more frequent irrigation or reliable rains.



SUPER G COATINGS

Super G Seed Coating includes: a super absorbent to absorb moisture and aid in germination, micro nutrients including zinc to provide instant fertilizer which will be readily available for early growth, mycorrhizal fungi depending on the seed blend, nitrogen fixing rhizobia in the legume blends, and finally, a green colorant to aid in confirming proper seed depth.

The Dryland Seed Mix for Your Pasture



Barricade™

Barricade™ has been carefully formulated to be the perfect seed mixture for your range or dryland pastures in low rainfall or limited irrigation conditions. Containing new varieties of Meadow Brome and Smooth Brome developed in collaboration with USDA-ARS, Barricade also includes drought-tolerant varieties of Tall fescue and Intermediate wheatgrass. If you have limited irrigation or low rainfall, Barricade is the seed mixture for your pasture.



Learn more at: www.barusa.com

 **BARENBRUG®**

PERENNIAL BLENDS & VARIETIES

We recognize that the return on investment and productivity of a well managed perennial forage stand is difficult to beat. A perennial pasture requires a significant upfront investment, but when you amortize that investment over 10 or more years, it is an excellent option.

A good perennial pasture should include a mixture of nutrient dense grass varieties suited to your geography and soil type, plus a combination of legumes to fix nitrogen and improve the stand longevity.

The legumes should include sainfoin and vetch in the mix to reduce the risk of bloat from alfalfa. Ideally, you should rotate cattle through paddocks allowing rest periods after grazing.

Never over graze a perennial pasture going into fall, as this will kill most of your legumes and reduce the lifetime and productivity of the stand.

Please contact your local Union Forage Specialist regarding funding that may be available for perennial pasture establishment from your provincial government or Ducks Unlimited.





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Ducks Unlimited Canada
Conserving Canada's Wetlands

SEED BED PREPARATION

A proper seedbed is firm and free of competing vegetation. Correct firmness is when an adult footprint is only slightly visible on a prepared seed bed prior to the seeding operation. Seeding shallow can only occur if the seedbed is well packed prior to seeding. Packing after seeding may also be considered. Most species should be planted at a shallow depth of 1/4 to 1/2 an inch. Larger seeds can be planted up to 1 inch deep. Most seedings are too deep if you cannot see a few seeds on the soil surface.

AVERAGE % EMERGENCE FROM SAME # OF VIABLE SEED ON LOAM SOIL

SPECIES	DEPTH OF PLANTING BY INCHES						OPTIMUM DEPTH
	1/2	1	1 1/2	2	2 1/2	3	
BROMEGRASS	94	94	83	62	40	8	1/2-1"
INTERMEDIATE WHEATGRASS	92	98	90	77	38	6	1/2-1"
TALL WHEATGRASS	93	90	83	61	27	3	1/2-1"
REED CANARYGRASS	76	73	67	54	37	9	1/2-1"
CRESTED WHEATGRASS	87	79	44	6	0	0	1/2-1"
WESTERN WHEATGRASS	71	72	54	0	0	0	1/2-1"
SWITCHGRASS	75	65	45	0	0	0	1/2-1"
BIG BLUESTEM	65	59	38	0	0	0	1/2-1"
SIDEOATS GRAMA	62	39	0	0	0	0	1/2"
BLUE GRAMA	61	33	0	0	0	0	1/2"
ALFALFA	74	40	N/A	7	N/A	0	1/2"
SWEET CLOVER	62	30	N/A	4	N/A	1	1/2"

Note: Data on introduced grasses from Canada, Scientific Ag., 26:9 September 1946. Data on native grasses from SCS Nursery, Mandan, ND, June 1949. Data on legumes from University of Minnesota reproduced in the Journal of American Society of Agronomy.



CUSTOM PERENNIAL FORAGE BLEND

Image submitted in 2020 by our customer,
Tim Barns at CL Ranch

Nutrisource and Dairytech are proud to partner with Union Forage to bring global forage innovation to Canadian dairy producers.



nutri*source*

dairy*tech*

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ESTABLISHING FORAGES



1. CHOOSE THE RIGHT CROP

Find the correct forage species for your purpose and local conditions. For the best economic return, choose varieties that yield well for three to four years. For a long term stand, select good winter hardiness and disease resistance.

2. PREPARE THE SEED

Some forage crops, such as alfalfa or cicer milk vetch have hard seeds with waxy layers. These seeds do not absorb water well, and therefore must be scarified before planting. To be effective, legume seeds should be inoculated with nitrogen-fixing bacteria. This will produce healthier plants.

3. SEED EARLY

The earlier you seed in spring, the better the stand. If forage is seeded early, you can average three tons of alfalfa in the first year.

4. SEED PURE FORAGE STANDS

Don't plant cereal or canola as a companion crop. These vigorously compete with forage crops for nutrients, water, and sunlight. This is particularly important in the southern and central prairies where moisture is frequently the key limiting factor to forage stand establishment.

5. SEED SHALLOW

Forage seeds are small and should be planted 1/4 to 1/2 an inch deep. On irrigated land, the seedbed should be irrigated three to four days before seeding. On dry land, seed the field, then cover and pack the seed as well.

6. MOW THE CROP FOR WEED CONTROL

When the seedlings are about 1ft high, mow the forage crop to a 4 inch or greater height. This reduces competition from weeds and can help the crop to stool out and quickly cover the ground. If weeds are mowed, herbicides should be unnecessary.

SW4107 HIGH YIELD ALFALFA

+ COATED

SW4107 is a dormancy 4 alfalfa with high yield potential, good forage quality and agronomic character. It is unmatched in the industry. It is a broadly adapted seed with a wide germplasm base and well-suited to fields with variable drainage where root rot resistance is needed. It is highly resistant to seven major alfalfa pests and has an above-average performance and forage quality. It can be planted on a wide range of soils to extend farm production of hay.

- Suggested seeding rate is 5 - 20 lbs / acre depending on blend or straight stand and irrigation or dryland for dairy hay or silage production
- DRI Score – 35
- Fall Dormancy – 4
- Winter Hardiness – Very Hardy

SW 4107



Source: S&W Seed Company - SW4107 Product Bulletin, February 2017

SW4412Y HIGH YIELD ALFALFA

+ COATED

SW4412Y is a lodging resistant variety with strong agronomic character and excellent disease resistance. Heavy rain and wind, manure application, or harvest delays can all cause alfalfa stems to lay over in the field before harvest. For every 6 inches of un-harvested stems left in the field you can lose up to ½ ton of yield per acre. Unharvested stems that remain in the field can become tough and will reduce forage quality if harvested in subsequent cuttings. The lodging resistant characteristic in SW4412Y can reduce or avoid these problems. It is a great all-around variety.

- Suggested seeding rate is 5 - 20 lbs / acre depending on blend or straight stand and irrigation or dryland for dairy hay or silage production
- DRI Score – 35/35
 - Fall Dormancy – 4
- Winter Hardiness – Very Hardy



SW 4412Y

Source: S&W Seed Company - SW4412Y, September 2019

SW3407 **HIGH YIELD ALFALFA**

+ COATED SEED



SW3407 is a dormancy 3 alfalfa. It is a high-yielding, high-quality variety with excellent pest resistance. Grow this FD3 variety in wet soils because of its exceptional resistance to both races of *Aphanomyces* root rot. Expect consistent top yields of quality hay. This variety has excellent forage quality, and when coupled with moderate lodging tolerance not only improves yield, cutability, and quality but also improves timing of each cut to ensure a good quality crop is obtained.

- Suggested seeding rate is 5 - 20 lbs / acre depending on blend or straight stand and irrigation or dryland for dairy hay or silage production
- DRI Score – 35/35
- Fall Dormancy – 3
- Winter Hardiness – Very Hardy



Alfalfa Partners™
A BRAND OF S&W SEED COMPANY



“With the recent drought and the difficult times our area has faced, Union Forage has provided us with support. Had it not been for them, we would not be where we are at now.”

BLYTH AND MITCH ZELLER

IRVINE, ALBERTA

ALGONQUIN ALFALFA

+ COATED

Algonquin Alfalfa is a cultivar of alfalfa developed at the Agriculture Canada Research Station, Ottawa, Ontario. It is tap rooted, winter hardy, and resistant to bacterial wilt. Algonquin plants have wide crowns and fine stems. It performs well in and has been evaluated in all regions of Western Canada and persists in pastures and hay land.

- Suggested Seeding rate is 4-10 lbs per acre depending on blend and irrigation or dryland
- Primary use is for mixed pastures or legumes and grasses for grazing or hay in longer term stands

AAC GLENVIEW SAINFOIN

+ YELLOW JACKET COATING

AAC Glenview Sainfoin is a non-bloating legume that may be used for either grazing or hay production. A 15% plant population with Alfalfa can prevent bloat when grazed. AAC Glenview has higher yields than Nova and grazing tolerance than other sainfoin cultivars. AAC Glenview Sainfoin delivers on the breeding goals of a 10 year development project to:

- i. increase survival in mixed stands vs. older varieties
- ii. adaptable to frequent cutting
- iii. improved regrowth over older varieties
- iv. improved forage yield

Research on AAC Glenview Sainfoin concluded that it can produce higher biomass yields than Nova and sometimes produce as much yield as high yielding alfalfa cultivars. It can also stay in alfalfa pasture in higher proportions than Nova for 3-4 years and the mixed stands out-yield pure alfalfa stands. Unlike alfalfa, AAC Glenview Sainfoin will hold onto its leaves and nutritional value post freeze up. Periodically leave AAC Glenview to mature for some seed set to guarantee greatest longevity.

- Suggested sowing rate is 10-20 lbs per acre
- Sow with other grasses and legume blends
- Use as a perennial pasture legume for haying or grazing

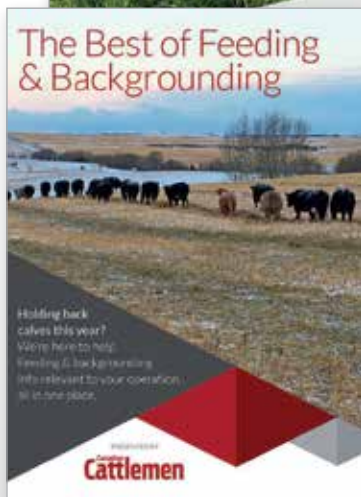
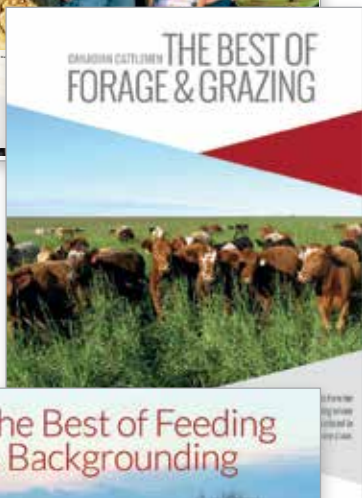
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NITROMASTER V

+ YELLOW JACKET COATING

The Sainfoin and Cicer in Nitromaster are non-bloating legumes that fix Nitrogen like alfalfa, and allow extended grazing because they hold their leaves after freezing. It is a mixture of perennial drought tolerant legumes that improve the protein production in the pasture and also fix nitrogen in the soil to reduce the need for nitrogen fertilization. The species contained in Nitromaster V are alfalfa and legumes selected to be low- or non-bloating.

- Suggested seeding rate is 5-8 lbs per acre
- Seed with a grass mix, usually 8-10 lbs of Barricade or Grazemaster

55% AAC Glenview Sainfoin

35% Algonquin Alfalfa

10% Cicer Milk Vetch

NITROMASTER SA

+ YELLOW JACKET COATING

Nitromaster SA may be used, like Nitromaster V, as a mixture with grass blends in order to establish an excellent perennial pasture, or to improve an existing pasture (by adding more legumes into the mix). Another option with this mixture would be to establish a pure legume stand for hay or grazing/feeding. The combination of AAC Glenview Sainfoin and Alfalfa is an effective method for managing bloat when grazing legumes. Higher seeding rates would be required for a pure legume stand.

- Suggested seeding rate of 6-10 lbs per acre
- Seed with grass mix, usually 8-10 lbs of Barricade or Grazemaster

80% AAC Glenview Sainfoin

20% Algonquin Alfalfa

**NITRO
MASTER SA**
Seeded in 2019, photo
taken May 19th 2020

BARRICADE

+ YELLOW JACKET COATING

Barricade can be used in low rainfall areas and is designed for new planting or inter-seeding into pastures. Barricade seed is coated with Yellow Jacket which absorbs nearly 600 times its weight in water (see page 5). Barricade is designed for use in combination with legumes on more marginal dryland. The grass varieties are selected for their deep roots and drought tolerance.

- Suggested sowing rate is 10 lbs/acre in combination with a legume blend like Nitromaster or alfalfa at 5 lbs/acre.

30% Armory Tall Fescue

20% Artillery Smooth Brome

20% Rush/Chief Intermediate Wheatgrass

10% Hakari Alaska Brome

"Union Forage has been a great resource and partner to Walter Farms. We have been able to access both products and advice to help support our efforts to improve both soil health and farm profitability!! Union Forage has stepped up to fill a void to provide a wide selection of both annual and perennial forages to work in diverse climate conditions.

The positive effects of Union Forages' concepts can be found in every corner of our operation!! Thanks Union Forage!"

ED LANGE, WALTER FARMS

CAMROSE, ALBERTA

GRAZEMASTER

+ YELLOW JACKET COATING

Grazemaster is a very adaptable pasture mix for Western Canada, incorporating a number of leading edge grass varieties from the world-class Barenbrug breeding program. These grasses provide excellent yield, digestibility, and longevity. Consider that many pastures in Western Canada need to be renovated or interseeded with pasture seed to capture higher returns. Grazemaster is formulated to provide high energy with STF 43 Soft Leaf Tall Fescue, Meadow Brome, HLR Orchard Grass and Slender Wheatgrass.

- Suggested sowing rate is 10 lbs/acre in combination with a legume blend like nitromaster or alfalfa.
- Use as a premium grass hay blend or for grazing.

40% Aresenal Meadow Brome

20% HLR Orchard Grass

30% STF 43 Soft Leaf Tall Fescue

10% San Luis Slender Wheat Grass

GRAZEMASTER HQ

+ YELLOW JACKET COATING

High Energy

Grazemaster HQ is a special formulation of forage grass for beef and dairy operations. Grazemaster HQ contains highly digestible STF 43 soft leaf tall fescue which increases over all dry matter intake compared to rough-leaf tall fescue. The HLR high leaf ratio orchard grass varieties maintain their productivity even under close grazing or haying programs with high relative forage quality. Highly productive, high energy forage varieties in grazemaster HQ provide rapid weight gain in beef cattle and lactating dairy cows. It also works well in situations where you need to reseed grass to extend an alfalfa hay stand. Mixed in with Glenview sainfoin it will provide a very high quality cattle feed to suit most operations. It should be grown in moderate to higher rain fall areas or is excellent under irrigation across Western Canada.

- Suggested seeding rate of 15-25 lbs/acre depending on whether in a monoculture or with legumes.

70% STF 43 Tall Fescue

30% HLR Orchard Grass

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fcc.ca/Inputs

18-MONTH CROP CYCLE





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ordering early can
more than cover
the cost of financing
until 2022!

We are pleased to offer Crop Input Financing through FCC.

Example 1

- Purchase \$10,000 of Union Forage seed at early program Rate of 10% Off prior to December 31st 2020.
- You Save \$1,000 vs regular Season Pricing.
- FCC does not have to be paid back until March 15, 2022 (over a year later).
- Cost of Financing for 14 months is \$630 (at current interest rate of 5.4%).
- You are still \$370 ahead after cost of financing.
- Pay off your FCC line of credit sooner and save even more.

Example 2

- Purchase \$10,000 of Union Forage seed at early program Rate of 7% Off prior to March 31, 2021.
- You Save \$700 vs regular Season Pricing.
- FCC does not have to be paid back until March 15, 2022.
- Cost of Financing for 12 months is \$540 (at current interest rate of 5.4%)
- You are still \$160 ahead after cost of financing.
- Pay off your FCC line of credit sooner and save even more.



Contact Union Forage for further information.
1 877 COW CHOW

SELF SEEDER BLEND

This is a blend of non-coated, non inoculated ACC Glenview Sainfoin and Cicer Milk Vetch. The idea is to allow the cows to distribute the seed on pasture land that is too rough for the use of conventional seeding equipment. For more information, check out the Article section on our website at **www.unionforage.com**: *"Cattle can be managed to produce calves, beef and milk, but can they also be put to work re-seeding pastures?"*

DORMANT SEEDING

Dormant seeding is the practice of broadcast seeding or sod seeding in the fall or early spring when the soil is already frozen or below 2 degrees C. To ensure the seed does not germinate before spring, there must be a constant soil temperature below 2 degrees Celsius. Winter chinooks may warm soil above this temperature allowing seed to germinate and subsequently freeze. The advantage of dormant seeding is the availability of spring moisture critical to germination and establishment. The alternative is to seed early in the spring and where grasses are already established, using glyphosate to suppress the grass. Legumes also germinate at lower temperatures and will begin growth early in the spring. Species such as birdsfoot trefoil, cicer milk vetch, Glenview sainfoin, alfalfa, and clovers tend to be successful because of their harder seed coat. However, dormant seeding sweet clover is not recommended. Sweet clover seed is scarified to improve germination, but this can cause it to die during winter. Legumes should still be inoculated prior to seeding.



- If dormant seeding into sod, the seed needs to be shallow or it will not survive
 - Fertility is critical, phosphate is usually deficient and should be banded vs. adding it with the seed
- Recommend increasing seeding rates by 25% when dormant seeding



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ANNUAL BLENDS & VARIETIES

"Pastoral Farming" integrates crops and livestock into a sustainable and profitable system. Annual grazing crop rotations are an important aspect of this system. Annuals or "short rotation" crops extend quality grazing, as they produce large amounts of biomass.

These crops also act as a "break crop," for interruption of disease and/or weed cycles in both conventional crops and perennial pasture.

These annual blends are made up of nutrient dense brassicas like Hunter Leaf Turnip, Winfred Forage Rape, Goliath Forage Rape, and Graza Fodder Radish, all of which have been selected for their rapid growth, grazing tolerance, and nutrient density. In addition, we include annual legumes like Hairy Vetch, Crimson Clover and others for their nitrogen fixing properties.

It should be noted that these mixes are recommended based on the experience of the our advisors and technical team. However, they are never limited. You can always include other seeds known to perform well in your area into the mix.

Always call us to discuss your objectives and your planned seeding rates.





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RELATIVE FEED VALUE

Relative Feed Value (RFV) is an index that combines the important nutritional factors of intake and digestibility. Higher RFV values indicate higher forage quality. An RFV rating of 100 is considered an average value. (Alberta Ag-Info Centre, 2006)

The 'RFV' of many brassicas is over 300, compared to oats and alfalfa, which are typically around 100 and 200 RFV.

WET CHEMISTRY ANALYSIS



	% CRUDE PROTEIN	TDN ¹	RFV ²
OATS	13	59	99
SPRING TRITICALE	13.9	59	119
ALFALFA	32.1	65	209
YELLOW BLOSSOM SWEET CLOVER	24.9	63	176
GREEN SPIRIT ITALIAN RYE GRASS	14.9	71	159
GOLIATH FORAGE RAPE	23.4	68	297
HUNTER LEAF TURNIP	18	70	425
GREEN GLOBE TURNIP	22.8	67	n/a
SWATH GRAZING COCKTAIL MIX	25.9	69	367
CHOICE CHICORY	27.8	64	192
TONIC PLANTAIN	19.8	69	348

TOTAL DIGESTIBLE NUTRIENTS ¹ RELATIVE FEED VALUE ²

Activation Laboratories, Ancaster, Ontario.
This analysis was done on crops grown at Prairie Land and Cattle in mid to late August (crops analyzed were at various stages of maturity).



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Ryley Noble
Beef Advisor



Meet our Bullseye Team

Keeping your cattle healthy and profitable and providing the right nutrition means a great deal to us.

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www.bullseyefeeds.ca



ULTIMATE ANNUAL BLEND

+ SUPER G COATING

Our field trials show that these species work together to yield exceptional nutritional quality and agronomic benefits for grazing and soil health. This makes for very high quality annual grazing, where performance may be maximized using a rotational grazing system. Due to the nutrient dense nature of brassicas, it is recommended that they comprise a maximum of 50% of the forage intake for most production programs.

This mix may be seeded with cereal and peas and grazed 2-3 times through the summer. This should be followed by a total graze off in October and November. This is ideal for improving body condition on your cows going into winter. Examples of stocking rates in October/November on Ultimate include 96 pairs on 45 acres for 40 days at Sceptre, Sask in 2016 and 150 pairs on 50 acres for 19 days at Madden, Alta in 2015.

- Suggested sowing rate is 10-12 lbs/acre
- Add 30-40 lbs of cereal and 10 lbs 4010 or DL Delicious Forage Peas
- Use for multiple grazing mid to late summer, into fall

30% Crusader Italian Ryegrass

30% Hairy Vetch

10% Winfred/Goliath

10% Crimson Clover

10% Hunter Leaf Turnip

10% Graza Fodder Radish

ULTIMATE BLEND

From our customer,
Cody Cockwills

PINPOINT BLEND

+ YELLOW JACKET COATING

This is a highly diverse blend including warm season and cool season varieties specifically selected for higher energy and protein. It's an annual mix designed to fill the seasonal perennial grazing gaps and extend the grazing season. Pinpoint is a mixture of annual forage species that grow rapidly and accumulate dry matter for periods when the base perennial forage declines. This may be used as a swath grazing blend or along with cereals and peas for summer and late season grazing.

- Suggested sowing rate of 10-12 lbs per acre
- Add 30-40 lbs cereals and 10 lbs of 4010 or DL Delicious Forage Peas

45% Green Spirit Italian Ryegrass

7% T Raptor Hybrid Brassica

20% Hybrid Sorghum Sudan

5% Teff Grass

10% Super 10 Berseem Clover

5% Laser Persian Clover

8% Barsica Forage Rape



SWATH GRAZING BLEND

Photo taken August 21st 2020

From our customers at Pearson Farms

RELAY BLEND

+ SUPER G COATING

This blend is our most popular. It combines the nutrient dense brassica varieties of Hunter Leaf Turnip and Goliath or Winfred Forage Rape along with Crusader Italian Ryegrass. We have added hairy vetch as a soil building component and to provide additional, diverse feed.



This blend is well suited to use with oats or barley for silage, or in combination with a cereal for swath grazing. It is important to reduce the seeding rate of cereal to manage competition. We also recommend adding 10 lbs/acre of forage peas, whether the crop is to be harvested as silage or grazed. Improved silage quality and late season grazing (October/November) are both potential benefits of using Relay Mixes.

- Suggested sowing rate is 10-12 lbs/acre
- Add 40-50 lbs cereal and 10 lbs 4010 or DL Delicious Forage Peas
- Seed with silage for late season grazing and improved silage quality

50% Crusader Italian Ryegrass

15% Winfred/Goliath

20% Hairy Vetch

15% Hunter

GREEN FEED RELAY BLEND

+ SUPER G COATING

This blend has the potential to increase the quality of the green feed you are producing and to provide grazing post-harvest. In order to speed up the dry down of your green feed, we replaced the brassicas with annual Ryegrass, as compared to the standard Relay Blend used with silage crops.

- Suggested sowing rate is 12-15 lbs/acre
- Add 50 lbs cereal

40% Crusader Italian Ryegrass

30% Annual Ryegrass

30% Hairy Vetch

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KWS Progas and Brasetto

- Top forage yields
- Double cropping opportunity
- Earliest spring forage availability
- Flexibility for grazing



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did you know?

RELAY BLENDS

The idea of a relay crop is to seed something with the principal crop that will establish within or under its canopy. This will give you a rapid growing crop that covers the soil and provides late season grazing after harvesting silage or green feed hay.

There are many considerations that play into the decision of which relay crop and seeding rates to use. A relay blend that includes nutrient dense annual forage varieties may boost the nutrition profile of your principal green feed or silage crop while also providing late season grazing and soil armour.

It's usually not possible to use in-crop herbicides when growing a relay blend with your cereal, so we recommend seeding after a glyphosate burn off. Green Spirit or Crusader Italian Rye Grass may be seeded with a cereal that is expected to require an in-crop herbicide. Always consult with your Agronomist to be confident in your herbicide decisions.

Another consideration is whether you are able to seed the larger cereal seeds and the smaller relay blend seeds in one pass. In areas where rainfall is usually not an issue, you may choose to seed everything shallow. However, in other areas where it is desirable to seed the cereal into moisture at 2

inches and the relay mix at $\frac{1}{4}$ to $\frac{1}{2}$ inch, then two passes may be necessary for best results, but you run the risk of the cereal germinating first and outcompeting the small seeds. So, seeding everything shallow is an important consideration.

Anticipated moisture in your area is another consideration. Best results will be achieved when seeding the relay mix at the same time as the cereal crop. This is usually not an issue if you start with good soil moisture and are in an area where rainfall is decent or if it's growing under irrigation. In drought prone areas where spring moisture is poor, you can always wait until later and seed the relay crop after harvesting the silage or green feed (if moisture is adequate at that time).

Another option is to seed 2-3 lbs of a more drought tolerant brassica with the cereal to reduce the overall cost. Winfred, Goliath Forage Rape, and Barsica are good options in this scenario. If you are baling green feed and dry down is important, then the best options are the Green Feed Relay Blend or the Break Crop Blend. The Break Crop Blend is a good option if you're concerned about the Annual Rye Grass in the Green Feed Relay setting seed and becoming an issue in subsequent crops.



ALL BRASSICA BLEND

+ SUPER G COATING

This blend is designed as a combination of our four premium brassica varieties. It provides flexibility to be used in combination with cereals, annual grasses, forbs, annual legumes and even warm season grasses as required for your situation. Because of the nutrient dense nature of brassicas, it is recommended that they comprise a max of 50% of the forage intake for most production programs.

- Suggested sowing rate is 4-6 lbs/acre
- Seed with 40 lbs cereal

40% Graza Fodder Radish **40%** Goliath/Winfred
20% Hunter Leaf Turnip

SWATH GRAZING BLEND

+ SUPER G COATING

Our swath grazing blend is an additive to your own cereal swath grazing. It is designed to increase protein, energy level, and digestibility, all while allowing you to graze more animals and to produce more lbs/acre. This blend, managed with break fencing, will also ensure a better swath clean up by the cattle. The root system left behind will add more organic matter to your soil.

- Suggested sowing rate is 5-7 lbs/acre
- Seed with 30-40 lbs of cereal or 40 lbs of cereal and 10 lbs of 4010 or DL Delicious Forage Peas

35% Goliath Forage Rape **35%** Hunter Leaf Turnip
30% Green Globe Turnip

**SWATH
GRAZING
BLEND**

Jim Bauer, July 2020



SWATH GRAZING NUMBERS

- 1 Chad Kellett at Chamberlain, Saskatchewan ran 360 cows for 143 days along with 160 heifer calves for 84 days on 220 acres with total cost per acre before labor of \$168 including rent, seed, fertilizer, herbicide, custom seeding and swathing.

Splitting out the costs based on an AUM calculation, estimated day cost per cow was \$0.62/ day and estimated calf cost per day was \$0.37/day. This was one of our best years for swath grazing in the last 4.

- 2 Sean McGrath at Vermillion, Alberta swath grazed cows and calves on 80 acres of at an average cost of \$0.69 per AUGD. (Animal Unit Grazing Day)

"On the cows (60 acres) our cost would have been a lot lower but we gave up 30+ days an acre due to snow cover (once it gets up to the Ford Symbol on the hood it is a bit of tough going). We would have gotten it back this spring, but our rental agreement changed on that piece of ground. We grazed through nearly 3 weeks of -40 in March with no supplemental feed and the cows gained roughly 100#."



**EACH OF THESE PLANTS COME FROM ONE SEED
AND EACH ADDS A DIFFERENT TYPE OF BIOMASS**



BREAK CROP BLEND

+ SUPER G COATING

Our Break Crop blend does not include brassica. This blend can be used to graze or to plow down and will also help to lower the risk of clubroot disease.

- Suggested sowing rate is 10-12 lbs/acre

50% Crusader Italian Ryegrass

25% Crimson Clover

25% Hairy Vetch

DRYLAND BLEND

+ SUPER G COATING

The Dryland Blend is designed with a higher percentage of warm season forages (C4's) and drought tolerant forage rape that are better adapted to hotter dryer areas. This blend can be used for summer multiple grazing or stockpiled forage. Fertility is important for best results.

- Suggested sowing rate is 10-12 lbs/acre
- Option to include 20-30 lbs of cereal and forage peas

30% Proso White Millet

30% Sorghum Sudan

15% Hairy Vetch

15% Barsica Rape

10% Barkant Turnip

5% Peredovik Sunflower

DRY LAND BLEND

Seeded early May, photo
taken July 20th 2020

ROOTMASTER BLEND

+ YELLOW JACKET COATING

This blend is a low cost combination of tillage radish and brassicas, intended for a plow down cover crop or grazing if applicable. These species have been selected to provide a protective canopy over the soil with the tall leafy forage rape in combination with turnip and tillage radish.

- Suggested sowing rate is 4-6 lbs/acre
- Seed with 40 lbs of cereal if desired
- Used as a plow down cover crop, adding organic matter and conserving moisture in soil

55%	Daikon Radish	15%	T Raptor Hybrid Brassica
15%	Barsica Forage Rape	15%	Barkant Turnip

"Over the years I have worked with Union Forage. They have been very mindful, informational, and helpful people to work with when it comes to livestock and forage management. [They] have always been a sounding board for me on the livestock side of the business."

IKE WIPF, ROSETOWN COLONY

DOUBLE DOWN 2 YEAR BLEND

+ SUPER G COATING

The idea of this blend is to seed two crops at once. The first year crop may be swath grazed or used for silage and the second crop will be up early the following spring for grazing.

- Suggested sowing rate is 15-20 lbs/acre
- Seed with 25 lbs winter cereal

30%	Sweet Clover	15%	Goliath Forage Rape	15%	Hairy Vetch
20%	Crusader	15%	Winfred Forage Rape	5%	Chicory

KWS PROGAS & BRASSETTO HYBRID FALL RYE

For superior silage yields

These crops will produce 20-30% higher yields than other cereal options and are ideal for both early silage at flag leaf or later silage at the milky grain stage. Take advantage of fall seeding, spring moisture and spread out your work load by including some Hybrid Fall Rye in your production plans. Early harvest in June presents an opportunity to seed a second annual forage for late season grazing, silage or green feed.

KWS hybrid technology demonstrates a significant advantage over other conventional cereal production. Hybrid Fall Rye is extremely competitive resulting in higher yields, improved water and fertilizer efficiency and less use of in-crop herbicides. The ideal seeding window is August 15 to September 15 to establish a good stand prior to winter.

why HYBRID FALL RYE?

- Higher biomass yield than any other
- Winter cereal
- More beef/acre
- Higher stocking rates/acre
- Earliest spring feed source
- Ability to double crop with a second forage
- Silage or grazing
- Soil cover in late fall & early spring
- Strong competitor to weeds
- Soil Health
- Improved ergot Resistance

**HYBRID
FALL RYE**
Seeded
fall 2019,
photographed
June 21 2020





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UNDER IRRIGATION**

With help from Union Forage

From our customers the Nelson Brothers



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SWATH GRAZING
BLEND**

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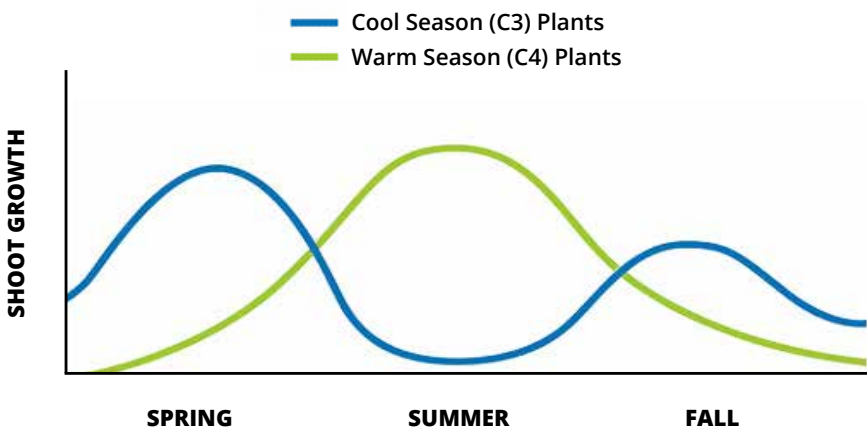
COOL SEASON VS. WARM SEASON PLANTS

Cool Season (C3) | Warm Season (C4)

Warm season (C4) plants have a competitive edge over cool season (C3) grasses like oats, wheat, barley plants in that they will use less water than C3 plants, but they are not as cold tolerant as the C3 plants and will be affected by early frosts and die off. They should not be used in cooler climates.

The C4 plants can normally stand high temps, drought and can be grazed multiple times. Prussic acid can be a concern so they should not be grazed under 2 feet tall (sunflowers are excluded from this rule). Prussic acid can inhibit the animal's ability to absorb oxygen in the blood.

SHOOT GROWTH VS. SEASON



Source: beefresearch.ca

Adapted from: North Dakota State University

C4 plants better adapt to hot weather and drought by eliminating photo respiration, while photosynthesis can continue to occur with the stomata closed resulting in higher efficiency (growth and moisture use) at high temperatures.

Sorghum and millets are examples of C4 grazing and forage species that perform better under hot conditions. C4 plants produce large biomass and can add high fiber to a cover crop blend for better rumen digestion for summer grazing.

Unless you're in those conditions where hot temperatures or dry climate are something you regularly experience, there's no real advantage to the C4 plants but they do add a large fibrous root system into the soil which will add a large amount of organic matter to the soil profile.

Other C4 species include weeds like Kochia and red root pigweed and important native grass species like blue grama, buffalograss and bluestems.

Warm season C4 plants have applications in some western Canada grazing programs. They are not typically included in our standard blends because they may not perform well in parkland areas and at higher elevations. They are available to be purchased separately to add when you seed or may be included in a custom blend.



**HYBRID SORGHUM
WITH 4" OF RAIN**

CHOICE CHICORY

+ SUPER G COATING

Choice Chicory is a nutrient dense perennial herb that generates high dry matter production. The tap root provides a drought tolerant plant that is highly productive in the summer months. These deep roots extract nutrients from the sub soil that other plants or species cannot. Choice chicory has proven to be an exceptional pasture plant for animal performance and feed quality.

- Suggested sowing rate is 1-2 lbs/acre
- Seed with Union Forage annual or perennial pasture blends

TONIC PLANTAIN

+ SUPER G COATING

Tonic plantain is a mineral rich grazing herb that is highly digestible and high in metabolisable energy. It has a similar yield potential and suits similar management systems to perennial Ryegrass.

- Suggested sowing rate is 2-3 lbs/acre
- Seed with Union Forage annual or perennial pasture blends

CRUSADER ITALIAN RYEGRASS

+ SUPER G COATING

Crusader's rapid establishment and vigorous early growth is invaluable for providing early grazing opportunities and achieving maximum yield potential. It produces more dry matter than most other short rotation ryegrasses. It is densely tillered for tolerance and rapid recovery from close grazing. It will remain vegetative much longer than annual ryegrasses.

- Suggested sowing rate is 15-20 lbs/acre with adequate moisture
- Italian ryegrass requires moderate to high rain fall
- Suitable for multiple summer grazing passes or silage

"We've been able to extend the grazing season using multi-species crops in both annual and perennial forage varieties. We like their innovative approach to finding what works on our place."

**ARNO DOERKSEN,
GEMSTONE CATTLE COMPANY**



CRUSADER REGROWTH UNDER IRRIGATION

Photographed October 15, 2020 after high moisture barley was taken off in August. Both were seeded together in May 2020.
Photo from Arno Doerksen at Gemstone Cattle Co.

GREEN SPIRIT ITALIAN RYEGRASS

+ SUPER G COATING

Due to its quick regrowth, very early development in spring and prolonged growing period in the fall, this species usually has greater overall productivity than other cool season grasses. When planted in the spring it will not go to seed, but remain vegetative through the summer. Recently, it has been recognized as the perfect rotation crop for plow down or emergency feed.

- Suggested sowing rate is 15-35 lbs/acre with adequate moisture
- Requires moderate to high rain fall
- Suitable for multiple summer grazing passes or silage

WINFRED FORAGE RAPE

+ SUPER G COATING

Winfred is a unique forage brassica comprised of a cross between kale and turnip. It is a drought and frost tolerant cultivar useful in a broad range of regions. It is suited to multiple grazings for summer and early autumn. It is also a stockpile winter feed complementary to winter cereals. It reaches maturity (as a stockpiled feed) in 90 days. It is capable of surviving significant summer drought without loss of forage quality.

- Sow in spring to end of summer at 2-4 lbs/acre with adequate moisture
- Time until first grazing is 6 weeks
- Sow with 10 lbs Italian Ryegrass for extended grazing, summer through fall
- 2-3 lbs of Winfred Forage Rape with 40-50 lbs of cereal is a good swath grazing option for dryer conditions

GOLIATH FORAGE RAPE

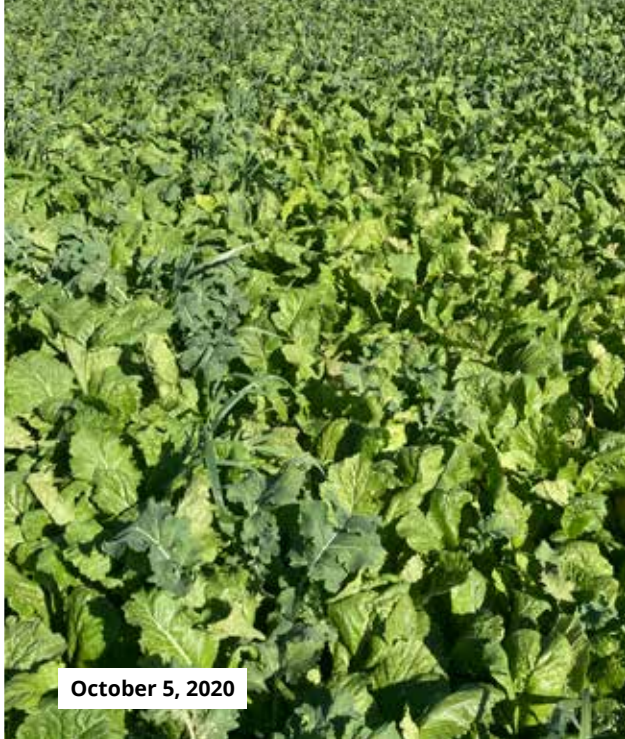
+ SUPER G COATING

Goliath is a new generation of rape x kale interspecies cross. Its high yielding and multi-graze characteristics make it an excellent choice for annual grazing blends that will be multi-grazed through the summer or fall, and winter grazed either standing or in a swath. It exhibits superior regrowth potential.

- Sow in spring or early summer at 2-4 lbs per acre
- Time until first grazing is 60 days
 - May be combined with Italian Ryegrass for extended grazing
 - 2-3 lbs of Goliath with 40-50 lbs of cereal is a good swath grazing option for dryer conditions



Seeded after silage
August 2, 2020



October 5, 2020

HUNTER & GOLIATH

From our customers at White Lake Colony. Under irrigation, seeded after silage at end of July.

HUNTER LEAF TURNIP

+ SUPER G COATING

Hunter is a quick-growing leafy turnip with minimal bulb development. It is best suited to multiple grazings for summer and early autumn. It reaches its growth potential in summer under irrigation and matures quickly with the first grazing possible at 6-8 weeks. It is a high quality forage, providing extreme weight gain in animals and was bred for tolerance to turnip and cauliflower mosaic virus. This, combined with vigorous regrowth selection, has provided a variety with fast recovery from grazing and an ability to yield in the second, third, and sometimes fourth regrowth. Hunter is best suited to heavier soil conditions with periodic summer moisture or irrigation.

- Sow in spring to end of summer at 1-4 lbs/acre with moisture.
- Time until first grazing is 6 weeks.
- Sow with 10 lbs Italian Ryegrass for extended grazing, summer through fall.



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T RAPTOR FORAGE BRASSICA

+ YELLOW JACKET COATING

T-Raptor is an early maturing hybrid brassica, a cross between a forage turnip and a forage rape. It exhibits a leafy growth habit (higher leaf to bulb ratio) and is well suited to grazing. It is suitable for multiple grazing passes and is an excellent late summer feed source. T-Raptor may be sown in spring or summer for late season grazing.

- Suggested sowing rate is 1-4 lbs/acre
- 2-3 lbs of T-Raptor Hybrid Brassica with 40-50 lbs of cereal is a good swath grazing option for dryer conditions

BARSICA FORAGE RAPE

+ YELLOW JACKET COATING

Barsica is a forage rape suitable for either grazing or in a silage mix. It is high in energy and highly digestible. It grows tall and is high yielding.

- Suggested sowing rate is 2-4 lbs/acre

BARKANT TURNIP

+ YELLOW JACKET COATING

Barkant Turnip is a very vigorous diploid turnip variety with a purple tankard and root (50% of the bulb is on top of the ground).

Barkant has high bulb yield with good top growth. It also has high sugar content which provides increased palatability.

- Suggested sowing rate is 2-3 lbs/acre

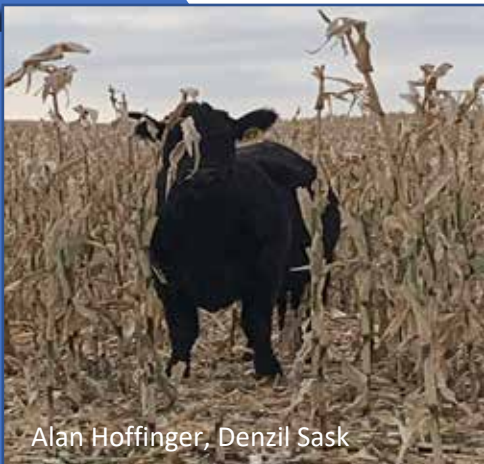


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compaction

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Alan Hoffinger, Denzil Sask

Our ranch has implemented year-round grazing for years now. High yielding continuous winter corn grazing has increased our fields organic matter fivefold. By adding annual forage blends to the rotation we have increased our farm's protein production and added to summer and fall pastures

Our spring silage bale grazing is the talk of the herd!
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corn varieties!

TH 4574, TH 7578, TH 4188

- Proven silage varieties as the heat units move north to south



KEEP IN MIND...



AGRONOMY

These are high performance plants that depend on and respond to adequate nutrients. Test soil before planting. If irrigated, maintain soil moisture during stand establishment; back off to promote deep rooting. Fertilize to meet crop needs. High nitrogen rates and manured soils can require additional management considerations to avoid potential nitrate toxicity, especially under fall grazing regimes. Work with your Agronomist to ensure adequate fertility. High production of nutrient dense forages, whether perennial or annual blends, requires adequate soil nutrition. There are herbicide options available to manage weeds in both annual and perennial forage stands. Consult with your local Agronomist to identify the best solution for your farm.

RIGHT CROP, RIGHT TIME, RIGHT CONDITION

Choose the crop type and variety to fit the type of livestock. Grazing brassicas are an essential component of high production annual grazing systems. Agronomically, be sure to rotate your brassica plantings to avoid disease considerations. Flea beetles can be a pest of forage brassica. Watch for damage for the first 3-4 weeks after planting. A pesticide may be required to prevent crop damage. Refer to product descriptions for best pairings and contact us for more info.

GRAZING: OFF TO A GOOD START

Acclimate cattle slowly to this high quality feed. Feed test and discuss with your Union Forage representative to maximize potential and manage any feeding issues.

SHAPE AND BALANCE TO MAXIMIZE VALUE

We can help you to develop a grazing strategy that optimizes cattle performance and crop production. Forage brassica provides exceptional nutritional quality. As a general rule, to optimize animal health, balance the brassica component of animal intake to a maximum of 50%.

BUILD SOIL PRODUCTIVITY.

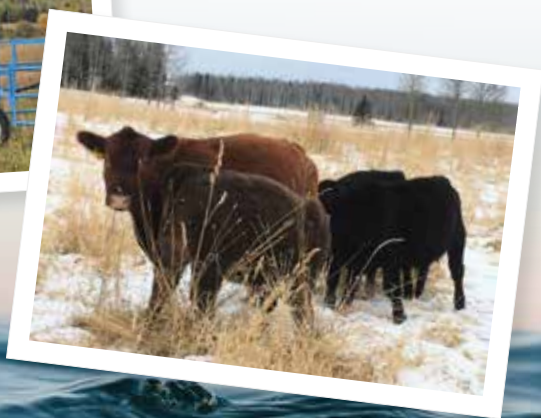
Brassica species require adequate crop rotation to avoid disease build up. Use best management practices/rotation as you would for canola.

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the details...

BRASSICA & HERBS

BRASSICA RAPA TURNIP, HARD TYPE



Hard, round, white-fleshed, leafy top, late maturing, very good keeping ability, single grazing.

CULTIVARS		Green Globe					
PLANTING		Spring, early summer					
GRAZING		From 120 days after sowing					
LEAF : BULB RATIO		56 : 44					
USE		Forage grazing, grazing cover crop					
FORAGE QUALITY		Average Green Globe					
DM%	MJ ME	DOMD	CP	ADF	NDF	WSC	
10.4	11.4	87.8	14.3	18.9	23.2	26.3	

BRASSICA RAPA TURNIP, LEAFY TYPE



Leafy top, early maturing, very good regrowth ability, multiple grazings.

CULTIVARS		Hunter					
PLANTING		Spring, summer, early fall					
GRAZING		From 42 days after sowing					
LEAF : BULB RATIO		76 : 24					
USE		Forage grazing, cattle, sheep, grazing cover crop					
FORAGE QUALITY		Average hunter 1st grazing					
DM%	MJ ME	DOMD	CP	ADF	NDF	WSC	
13.4	13/1	87.8	23	13.9	15.9	19.8	

BRASSICA NAPUS FORAGE RAPE



Leafy, fine stemmed, regrowth ability, tall type, multiple grazings.

CULTIVARS		Goliath (pictured), Winfred					
PLANTING		Spring, early summer					
GRAZING		From 90 days after sowing					
LEAF : BULB RATIO		70:30 (type dependent)					
USE		Late summer/fall grazing, swath grazing, grazing cover crop					
FORAGE QUALITY		Goliath					
DM%	MJ ME	DOMD	CP	ADF	NDF	WSC	
14.2	12.9	88	10.2	21.9	24.6	27.1	

Source: Nutritional Evaluation of Five Species of Forage Brassica.
C.T. Westwood, H. Mulcock, Proceedings of New Zealand Grasslands Association, 74, 2012

PLANTAGO IANCELOTA

PLANTAIN



Grazing herb, leafy, highly palatable, summer active, excellent forage quality.

CULTIVARS	Tonic
PLANTING	Late spring
GRAZING	From 42 days after sowing
USE	Forage grazing, food plot

CHICORIUM INTYBUS

CHICORY



Grazing herb, leafy, drought tolerant, highly palatable, summer active, excellent forage quality.

CULTIVARS	Choice
PLANTING	Spring
GRAZING	From 45 days after sowing
USE	Forage grazing, food plot

RAPHANUS SATIVUS

RADISH



Soft leafed, leafy regrowth type, typically non-tuber forming type, late bolting, palatable.

CULTIVARS	Graza fodder radish
PLANTING	Spring, summer
GRAZING	From 42 days after sowing
USE	Forage grazing, food plot, swath grazing

NOTES

[illegible]

TO-DO LIST

- 1.) Talk to Union Forage about my seed plan
- 2.) Fall soil testing
- 3.) Order forage seed to take advantage of Early Booking Discounts
- 4.) Order seed oats and trit
- 5.) Book Fertilizer for Early Discounts
- 6.)
- 7.)
- 8.)
- 9.)
- 10.)



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