

FORAGE FIRST®

SEED GUIDE I EDITION 14

Greater Potential. Good Move.

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MANAGING SUMMER ANNUALS & OTHER COVER CROPS FOR FORAGE

Placing an Order Has Never Been Easier:

Our Customer Support Center is your link to our team of Sales Support Specialists (SSS). They are ready and willing to support you in any way they can. Specifically, our team can answer any questions you may have about orders, shipping, invoicing or marketing support.



Phone: Call to talk with a Sales Support Specialist

<u>E-mail</u>: Send your orders to orders@laxseed.com and our team will confirm it with you before shipping.

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General questions can also be sent to info@laxseed.com

M DLF SEEDS & SCIENCE BY DESIGN

You may notice a new look, and a shortened name. What you will soon see is that we are also designing a new way to work - unifying our brand as our North American companies come together as DLF - the global leader in forage and turf.

Building on what we have created over the last century, we look forward to what is ahead, and helping your business grow.



About Forage First®

GREATER VALUE. GOOD MOVE.

Yield and quality matter. But there's more. Our goal is to provide a higher standard of forage to maximize ROI – while keeping your wallet in mind. We take pride in delivering proven products that increase the bottom line at a good price.

ALWAYS INNOVATING

As a forage leader for many years, we've always worked hard to improve. Continual research and development of new varieties ensures the right balance of protein and feed quality, recovery and grazability to suit each animal and operation. Every top-performing variety is tested in many trials before being put to use. From the latest genetics to new treatments and technologies, we have you covered.

FORAGE WITH MORE PROFIT POTENTIAL

Walk into a field planted with Forage First[®] forage seed and you'll instantly notice lush, productive fields. That means healthy gains for your animals and land that lives up to its potential.

MAXIMUM FLEXIBILITY

We provide a diverse selection of products for producing high quality forage for your livestock and dairy operation. Our versatile portfolio offers a variety of proven products to fit each unique operation and was created with flexibility and ease of management in mind.

La Crosse Seed + DLF: Seeds & Science, Delivered

Since 2018, La Crosse Seed has been an operating company within DLF, the global leader in research, development, production and distribution of turfgrass and other seed.

Still the La Crosse Seed you know and love, we are now part of a worldwide organization with a tremendous passion for innovation and a commitment to helping us deliver the absolute best forage products.

As disease, climate and weather patterns continue to change, new genetics are needed to succeed. DLF leads the industry in developing products with useful forage traits found throughout our Forage First[®] lineup:

- Festulolium
- US bred orchardgrass
- High fiber digestibility
- Grasshance[®]
- More Milk with DLF

La Crosse Seed Acquired Deer Creek Seed!

In October 2022, La Crosse Seed, a division of DLF USA Inc., acquired Deer Creek Seed, Inc. headquartered in Windsor, Wisconsin.

Deer Creek Seed has served forage, turf, cover crop, and food plot customers since 1980.

Customers will continue to have access to the great Deer Creek Seed service, staff and products that they've come to appreciate. Now part of the La Crosse Seed family, they will have access to a full portfolio of products, including the Forage First[®] brand.

Important Forage Considerations

There are many aspects to consider to ensure the highest potential and productivity for your land and your animals. Our team has significant experience in the forage industry, and many agronomic resources on hand to increase your opportunity for success.

Visit lacrosseseed.com for more information on important forage considerations including:

- Importance of fertility
- Herbicide interactions
- Livestock safety
- Nutritional information
- And much more!

Custom Mixes & Private Label

La Crosse Seed offers custom mixing capabilities and private label opportunities to meet your specific needs. Contact us to learn more.





DLF



Forage First® species that will include CrosseCoat™ are denoted throughout this guide with the CrosseCoat™ symbol.



The XL symbol throughout the guide represents branded products that meet the Forage First® promise. XL brands contain one or more improved varieties.

M DLF

GROWING WITH DLF

Our customers demand a lot from their seed: yield, forage quality, winterhardiness and disease resistance. That is why we invest heavily in global research and development and our research plots. Roughly 11% (1 in 9) of DLF's over 2,000 worldwide employees are involved in breeding programs and product development. For more than 30 years, DLF breeding and product development has optimized forage and grass varieties ideal to local climatic and environmental conditions to seed the green future. We aim to deliver sustainable solutions with the potential to increase productivity of land and livestock, sequester carbon and reduce emissions in the supply chain.

Lindsay, Ontario Canada





Bangor, Wisconsin USA







TESTING

- DLF head-to-head comparisons test current products against competitor check and experimental varieties
- This rigorous testing gives an ability to identify varieties with superior yield, persistence, faster regrowth, exceptional forage quality and superior disease resistance

DLF's Research trials provide the ability to select varieties that have improved disease resistance, superior yield, improved winterhardiness, faster regrowth and high forage quality based on true head to head comparisons!

DLF is the proven leader in developing forage grass and clover varieties that are adapted to diverse climatic and soil conditions. Our intensive breeding program is constantly developing new varieties of grass and clover species that will out-perform older generation genetics in yield, palatability, and forage quality.







La Crosse Seed + NEXGROW: Premium Alfalfa Technologies

HarvXtra[®] Alfalfa with Roundup Ready[®] Technology

FORAGE FIRST[®] and NEXGROW[®] alfalfa offers HarvXtra[®] alfalfa with Roundup Ready[®] Technology. The HarvXtra[®] Alfalfa with Roundup Ready Technology trait puts you back in charge of your cutting schedule. A flexible cutting window makes it easier to manage your operation, but that isn't all it does for you. Maintain a normal harvest schedule and achieve higher forage quality than with conventional varieties at the same stage of maturity or delay harvest up to 10 days for higher yield potential without sacrificing quality.

Roundup Ready[®] Alfalfa Varieties

A critical component to a strong crop is a weed-free field. Along with conventional varieties, FORAGE FIRST[®] and NEXGROW[®] alfalfa offers one of the industry's leading portfolios of alfalfa varieties with Roundup Ready[®] technology. Look for trusted varieties like FF 4319.A2 RR, 6424R and 6516R for help achieving a weed-free field.

Disease Protection

Select FORAGE FIRST[®] and NEXGROW[®] varieties include the UltraCut[™] alfalfa disease package, helping growers produce a healthy alfalfa crop in field conditions susceptible to evolving Aphanomyces and Anthracnose disease strains. Its protection can help deliver an advantage through improved agronomic performance and yield potential. Look for UltraCut[™] enhanced varieties like FF 42.A3, 6439HVXR and 64530.

Includes race 1 and race 2 protection. In addition, Forage Genetics International, LLC (FGI) has identified a novel source of Aphanomyces resistance in the greenhouse and field that visibly outperforms unrelated varieties on the market when grown under natural or artificial disease pressure. FGI researchers have been working cooperatively with universities collecting and testing the most virulent strains of Aphanomyces to help determine the level of resistance to this novel source.

Includes Anthracnose Race 1 protection, along with Anthracnose Race 5 protection, which is patented by FGI.

Seed Enhancement & Treatment

La Crosse Seed's portfolio of elite alfalfas include seed enhancement and treatment options to optimize germination, nodulation and promote early-season health and root development – allowing more seedlings to survive and reach their full genetic potential.











FF 4215.HVX RR

Cutting System: 3 - 5

- Manage yield without quality trade-off
- Greater flexibility with wide cutting windows
- Less lignin with higher NDFD*
- Fast recovery in frequent harvest schedules
- Excellent winter hardiness
- Superb yield potential maximizes feed value
- High multileaf expression

DISEASE & PEST CONTROL

Phytophthora Root Rot	HR	Aphanomyces Race 1	HR
Verticillium Wilt	HR	Aphanomyces Race 2	R
Anthracnose	HR	Pea Aphid	R
Bacterial Wilt	HR	Potato Leafhopper	NR
Fusarium Wilt	HR	Spotted Alfalfa Aphid	R
		Stem Nematode	R
Fall Dormancy	4.2		
Winter Survival	1.5	with Roundup Ready [®] Technology	CROSSECOAT™
Total DRI	34/35		

FF 4319.A2 RR

Cutting System: 3 - 5

- Higher Aphanomyces 2 resistance with Roundup Ready® technology
- Disease resistance package promotes stand establishment in wet soils
- Even greater winter survival & persistence
- High multileaf expression
- · Long stand life in adverse weather & soil conditions

DISEASE & PEST CONTROL

Phytophthora Root Rot	HR	Aphanomyces Race 1	HR
Verticillium Wilt	HR	Aphanomyces Race 2	HR
Anthracnose	HR	Pea Aphid	R
Bacterial Wilt	HR	Potato Leafhopper	NR
Fusarium Wilt	HR		
Fall Dormancy	4.3	5	
Winter Survival	1.0	Roundup Ready	CROSSECOAT™
Total DRI	35/35	ALFALFA	

* Neutral Detergent Fiber Digestibility

** Includes race 1 protection, along with Anthracnose Race 5 protection, which is patented by FGI.

*** Includes race 1 and race 2 protection. In addition, Forage Genetics International, LLC (FGI) has identified a novel source of Aphanomyces resistance in the greenhouse and field that visibly outperforms unrelated varieties on the market when grown under natural or artificial disease pressure. FGI researchers have been working cooperatively with universities collecting and testing the most virulent strains of Aphanomyces to help determine the level of resistance to this novel source.

HARVXTRA® ALFALFA / ROUNDUP READY® ALFALFA GEOGRAPHICAL LIMITATIONSIn the following states, purchase and use of HarvXtra® Alfalfa with Roundup Ready® Technology is subject to a Seed and Feed Use Agreement, requiring that products of this technology can only be used on farm or otherwise be used in the United States: Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington and Wyoming. In addition, due to the unique cropping practices do not plant HarvXtra® Alfalfa with Roundup Ready® Technology in Imperial County, California, pending import approval and until Forage Genetics International, LLC (FGI) grants express permission for such planting.

HARVXTRA® ALFALFA / ROUNDUP READY® ALFALFA MARKETING STATEMENT Forage Genetics International, LLC ("FGI") is a member of Excellence Through Stewardship® (ETS). FGI products are commercialized in accordance with ETS Product Launch Stewardship Guidance, and in compliance with FGI's Policy for Commercialization of Biotechnology-Derived Plant Products in Commodity Crops. HarvXtra® Alfalfa with Roundup Ready® TecHNOLOGY Stewardship Boundup Ready® Alfalfa have pending import approvals. GROWERS MUST DIRECT ANY PRODUCT PRODUCT PRODUCT PARA ULT HAROUNDUP READY® TECHNOLOGY SEED OR CROPS (INCLUDING HAY AND HAY PRODUCTS) ONLY TO UNITED STATES DOMESTIC USE. Any crop or material produced from this product can only be exported to, or used, processed or sold in countries where all necessary regulatory approvals have been granted. It is a violation of national and international law to move material containing biotech traits across boundaries into nations where import is not permitted. Growers should talk to their grain handler or product purchaser to confirm their buying position for this product. Growers should refer to http://www.biotradestatus.com/ for any updated information on import country approvals. Excellence Through Stewardship® is a registered trademark of Biotechnology Industry Organization.

FF 42.A3

Cutting System: 3 - 5

- Industry leading UltraCut[™] disease package offers protection against evolving Aphanomyces & Anthracnose disease threats**
- Excellent forage yield with improved forage quality
- Patented Anthracnose*** technology, including Race 5
 7 years forward breeding disease resistance/cold
- tolerance from 42.A2Very high multifoliate leaf expression
- very high multilollate leaf express

DISEASE & PEST CONTROL

Phytophthora Root Rot	HR	Aphanomyces Race 1	HR
Verticillium Wilt	HR	Aphanomyces Race 2	HR
Anthracnose 1	HR	Aphanomyces Race EMR**	HR
Anthracnose 5***	HR	Potato Leafhopper	NR
Bacterial Wilt	HR	Spotted Alfalfa Aphid	R
Fusarium Wilt	HR	Stem Nematode	R
Fall Dormancy	4.4		
Winter Survival	1.5		CROSSECOAT TM
Total DRI	40/40		

FF 4022.LH

Cutting System: 3 - 5

- High yielding leafhopper alfalfa
- Latest generation of leafhopper resistance with improved leafhopper expression
- · Resistant to both pea aphids & stem nematode
- High multileaf expression
- · Widely adapted across the Midwest

DISEASE & PEST CONTROL

Phytophthora Root Rot	HR	Aphanomyces Race 1	HR
Verticillium Wilt	HR	Aphanomyces Race 2	R
Anthracnose	HR	Pea Aphid	R
Bacterial Wilt	HR	Potato Leafhopper	HR
Fusarium Wilt	HR	Stem Nematode	R
Fall Dormancy	4.0		
Winter Survival	2.2	LEAFHOPPER	CROSSECOAT™
Total DRI	34/35	PROTECTION	

FF 42.A2

Cutting System: 3 - 5

****LIMITED AVAILABITY****

- Highly resistant to Aphanomyces 2 Perfect disease resistance package
- Top forage yielder in trials
- · Better suited for establishment in heavy & wet soils
- · Fast recovery after cutting
- Even greater winter survival & persistence
- · High multileaf expression

DISEASE & PEST CONTROL

Phytophthora Root Ro	t HR	Aphanomyces Race 1	HR
Verticillium Wilt	HR	Aphanomyces Race 2	HR
Anthracnose	HR	Pea Aphid	R
Bacterial Wilt	HR	Potato Leafhopper	NR
Fusarium Wilt	HR	Stem Nematode	HR
Fall Dormancy	4.0		
Winter Survival	1.1		
Total DRI	35/35	i i	CROSSECOAT

FF PREMIUM Brand

Cutting System: 3 - 4

- · Solid performance at a modest price
- Improved disease resistance
- · Widely adapted

DISEASE & PEST CONTROL

Phytophthora Root Rot	HR	Aphanomyces Race 1	HR
Verticillium Wilt	HR	Aphanomyces Race 2	NR
Anthracnose	HR	Pea Aphid	NR
Bacterial Wilt	HR	Potato Leafhopper	NR
Fusarium Wilt	HR		
Fall Dormancy	4.0		
Winter Survival	2.0		CROSSECOAT™
Total DRI	30/30)	

RESISTANCE RATINGS:

- = Highly Resistant, 51% or more resistant plants HR
- = Resistant, 31 50% resistant plants R
- MR = Moderately Resistant, 15 30% resistant plants LR = Low Resistance, 6 - 14% resistant plants
- S = Susceptible, 0 5% resistant plants NR = Not Rated

TRADEMARK STATEMENT ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. ROUNDUP READY® TECHNOLOGY CONTAINS GENES THAT CONFER TOLERANCE TO GLYPHOSATE. GLYPHOSATE WILL KILL CROPS THAT ARE NOT TOLERANT TO GLYPHOSATE. Roundup Ready® is registered trademarks of Bayer Group, used under license by Forage Genetics International, LLC. HarvXtra® is a registered trademark of Forage Genetics International, LLC. HarvXtra® Alfalfa with Roundup Ready® technology is enabled with Technology from Noble Research Institute, LLC.

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FF 5020.FR

Cutting System: 4 - 5

- Fast recovery after cutting & later fall dormancy
- · Excellent forage yield potential combined with excellent winter hardiness
- Resistance to several important alfalfa pests including pea aphids & stem nematode

DISEASE & PEST CONTROL

Phytophthora Root Rot	HR	Aphanomyces Race 1	HR
Verticillium Wilt	HR	Aphanomyces Race 2	R
Anthracnose	HR	Pea Aphid	HR
Bacterial Wilt	HR	Potato Leafhopper	NR
Fusarium Wilt	HR	Stem Nematode	R
Fall Dormancy	4.9		
Winter Survival	2.0		CROSSECOAT™
Total DRI	34/35	5	

FF PRO Brand

Cutting System: 2 - 4

- · Consistent performance at a budget price
- · Widely adapted

DISE/	ASE &	PEST	CONTROL	

Phytophthora Root Rot	HR	Aphanomyces Race 1	R
Verticillium Wilt	R	Aphanomyces Race 2	NR
Anthracnose	R	Pea Aphid	NR
Bacterial Wilt	R	Potato Leafhopper	NR
Fusarium Wilt	R		
Fall Dormancy	3.0		
Winter Survival	2.4		CROSSECOAT™
Total DRI	25/30		

Alfalfa



We've been buying seed from La Crosse Seed for 25 years. This year we've added Forage First alfalfa to our product line. The product performance always meets our high expectations and my growers seem very satisfied."

Greg G., Eastern Wisconsin

FORAGE FIRST®			
✤ FF 4215.HVX RR	HARV	 Manage yield without quality trade-off Greater flexibility with wide cutting windows Less lignin with higher NDFD* Fast recovery in frequent harvest schedules 	 Excellent winter hardiness Superb yield potential maximizes feed value High multileaf expression
✤ FF 4319.A2 RR		 Higher Aphanomyces 2 resistance with Roundup Ready[®] technology Disease resistance package promotes stand establishment in wet soils 	 Even greater winter survival & persistence High multileaf expression Long stand life in adverse weather & soil conditions
☆ FF 42.A3	ULTRA <mark>//CUT</mark>	 Industry leading UltraCut[™] disease package protects against evolving Aphanomyces & Anthracnose threats** Excellent forage yield with improved forage quality Patented Anthracnose*** technology, including Race 5 	 7 years forward breeding disease resistance/cold tolerance from 42.A2 Very high multifoliate leaf expression
☆ FF 4022.LH	Ð	 High yielding leafhopper alfalfa Latest generation of leafhopper resistance with improved leafhopper expression 	 Resistant to both pea aphids & stem nematode High multileaf expression Widely adapted across the Midwest
☆ FF 42.A2		 Highly resistant to Aphanomyces 2 Perfect disease resistance package Top forage yielder in trials Better suited for establishment in heavy & wet soils 	 Fast recovery after cutting Even greater winter survival & persistence High multileaf expression
☆ FF 5020.FR		 Fast recovery after cutting & later fall dormancy Excellent forage yield potential combined with excellent winter hardiness 	Resistance to several important alfalfa pests including pea aphids & stem nematode
FF PREMIUM Brand	d	Solid performance at a modest priceImproved disease resistance	Widely adapted
FF PRO Brand		Consistent performance at a budget price	Widely adapted
NEXGROW (CONTACT LA	A CROSSE SEED F	OR A FULL LIST OF NEXGROW VARIETIES AVAILABLE)	
6439HVX.RR		Multi-race protection against Aphanomyces & Anthracnose Beduced light & increased NDED	 Excellent harvest flexibility for optimal balance of quality & yield

		Anthracnose • Reduced lignin & increased NDFD	quality & yield
6423R		 Multi-race protection against Aphanomyces/Anthracnose RR Trait provides optimal weed control 	Excellent winter hardiness-increase persistence
6424R Replaces 6497R	Ready Ready ALFALFA	 High Aph 2 resistance for heavy or satruated soils High multifoliate expression for maximum quality 	RR Trait provides optimal weed control
6516R	Ready AUAUA	 Excellent choice for aggressive harvest management Latest generation fall dormancy 5 variety 	RR Trait provides optimal weed control
NEXTECT RR		Economical RR alfalfa blended for dependable forage & quality potential	 Good winter hardiness & disease resistance to key diseases
6480H Brand		 Step change in yield potential with highest level of Leafhopper protection 	Outstanding winterhardiness for Leafhopper varietiesExcellent disease package
6401N		Tolerant to salt at germinationExcellent under high pH soils	High resistance to Stem Nematode
6422Q		 Very fast recovery for multiple cut systems Outstanding winterhardiness in full season variety 	 Six-time commercial hay champion at World Forage Analysis Superbowl
6453Q	ULTRA	 Multi-race protection against Aphanomyces & Anthracnose Excellent winter hardiness leading to increased persistance 	 High quality feed value levels highly desirable for dairy & cash hay producers
6585Q		 A leading fall dormancy 5 for maximum cuttings High yeild potential variety selected for top forage quality	 High quality feed value levels highly desirable for dairy & cash hay producers
SPREADOR 5		 5th generation spreador with creeping root system well suited to rangeland environments 	 Well adapted as legume for pasture renovation Tested & proven yields in salt-tolerant trials
ROUGHRIDER		 Economical blend with good forage yield & quality potential 	Good Disease resistanceRecommended for marginal conditions

								DISE	ASE &	PEST	CONT	ROL				
FALL DORMANCY	WINTER SURVIVAL	TOTAL DRI	CUTTING SYSTEM	PHYTOPHTHORA ROOT ROT	VERTICILLIUM WILT	ANTHRACNOSE 1**	ANTHRACNOSE 5**	BACTERIAL WILT	FUSARIUM WILT	APHANOMYCES Race 1	APHANOMYCES Race 2	APHANOMYCES*** (EVOLVING STRAINS)	PEA APHID	SPOTTED Alfalfa Aphid	POTATO LEAFHOPPER	STEM NEMATODE
4.2	1.5	34/35	3 - 5	HR	HR	HR	0	HR	HR	HR	R	0	R	R	0	R
4.3	1.0	35/35	3 - 5	HR	HR	HR	0	HR	HR	HR	HR	0	R	0	0	0
4.4	1.5	40/40	3 - 5	HR	HR	HR	HR	HR	HR	HR	HR	HR	R	R	0	R
4.0	2.2	34/35	3 - 5	HR	HR	HR	0	HR	HR	HR	R	o	R	0	HR	R
4.0	1.1	35/35	3 - 5	HR	HR	HR	0	HR	HR	HR	HR	0	R	0	0	0
4.9	2.0	34/35	4 - 5	HR	HR	HR	0	HR	HR	HR	R	0	HR	0	0	R
4.0	2.0	30/30	3 - 4	HR	HR	HR	0	HR	HR	HR	0	0	0	0	0	0
3.0	2.4	25/30	2 - 4	HR	R	R	o	R	R	R	o	o	0	o	o	0
4.4	1.6	39/40	3 - 5	HR	HR	HR	R	HR	HR	HR	HR	HR	R	R	0	R
4.0	1.0	40/40	4+	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	R	0	R
4.2	1.8	35/35	4+	HR	HR	HR	0	HR	HR	HR	HR	0	R	MR	0	R
4.5	VH	30/30	5+	HR	HR	HR	0	HR	HR	HR	0	0	HR	HR	0	HR
4.0	2.0	28/30	3 - 5	HR	HR	R	0	HR	HR	R	0	0	0	0	0	0
3.9	2.0	34/35	4+	HR	HR	HR	0	HR	HR	HR	R	0	HR	MR	HR	0
4	VH	29/30	4+	HR	HR	HR	0	HR	HR	R	0	0	HR	R	0	HR
4.5	1.0	30/30	4 - 5	HR	HR	HR	0	HR	HR	HR	0	0	R	R	NR	R
4.4	1.6	40/40	4 - 5	HR	HR	HR	HR	HR	HR	HR	HR	HR	R	R	0	R
5	1.9	34/35	4 - 6	HR	HR	HR	0	HR	HR	HR	R	0	R	0	0	HR
1.9	1.0	34/35	1 - 2	HR	HR	HR	0	HR	HR	HR	R	0	R	R	0	R
4	2.0	30/30	3 - 4	HR	HR	HR	0	HR	HR	HR	0	0	R	R	0	0

GENERAL CHARACTERISTICS

ESTABLISHMENT FAS PERSISTENCE HIG DROUGHT TOLERANCE HIG WINTER HARDINESS VARIE PALATABILITY HIG
PERSISTENCEHIGDROUGHT TOLERANCEHIGWINTER HARDINESSVARIEPALATABILITYHIG
DROUGHT TOLERANCE HIG WINTER HARDINESS VARIE
WINTER HARDINESS VARIE
YIELD POTENTIAL HIG
GRAZING TOLERANCE VARIE

PLANTING TIMES

SPRING PLANTING	MAR - MAY
FALL PLANTING	AUG - SEP
LIFE CYCLE	PERENNIAL

SEEDING RATE (LBS/ACRE)

ALONE	15 - 20
MIXES	8 - 10
EMERGENCE (DAYS)	7- 14

HARVEST MANAGEMENT

ICON KEY:

Ð	LEAFHOPPER PROTECTION
	DURABLE ROOT STRUCTURE
\bigtriangleup	SALT TOLERANT
8	CROSSECOAT™ TECHNOLOGY

Neutral Detergent Fiber Digestibility

** Includes race 1 protection, along with Anthracnose Race 5 protection, which is patented by FGI.

*** Includes race 1 and race 2 protection. In addition, Forage Genetics International, LLC (FGI) has identified a novel source of Aphanomyces resistance in the greenhouse and field that visibly outperforms unrelated varieties on the market when grown under natural or artificial disease pressure. FGI researchers have been working cooperatively with universities collecting and testing the most virulent strains of Aphanomyces to help determine the level of resistance to this novel source.

RESISTANCE RATINGS: HR = Highly Resistant

- 51% or more resistant plants
- R = Resistant
- 31 50% resistant plants
- MR = Moderately Resistant
- 15 30% resistant plants **LR** = **Low Resistance**
- 6 14% resistant plants
- S = Susceptible
 - 0 5% resistant plants
- \circ = Not Rated

Alfalfa

FARM SCIENCE GENETICS®								
FSG 408DP		 Wide, deep-set crowns Stands up to wheel traffic pressure 	 Superior winter hardiness & persistence High yield potential - hay or graze 					
FSG 415BR	Æ	Branch rooting systemAphanomyces 2 resistanceStands up to wheel traffic pressure	High yield & quality potentialAdapted to variable soil conditions					
FSG 423ST		 Higher forage production in saline soil Fine-stemmed with superior forage quality 	 High resistance to stem & northern root-knot nematodes 					
FSG 431RRLH	ALFALFA	Highly resistant to potato leafhopperExcellent winter hardiness & persistence	Great forage yield potential & qualityHigh multifoliate leaf expression					
$W-L^{ extsf{8}}$ (contact la crosse	SEED FOR A FULL	LIST OF W-L VARIETIES AVAILABLE)						
WL 349HQ	ULTRA <mark>//CUT</mark>	 Enhanced disease package delivers yield advantage Dark green, fine-stemmed & highly palatable High resistance to Anthracnose Race 5 	 Great standability in intensive harvest situations Highly resistant to Aphanomyces 1, 2 & 3 					
WL 3451.RR Replaces WL 356HQ.RR		 Enhanced disease package delivers yield advantage Highly resistant to multiple races of Anthracnose for protection during warm a humid weather conditions 	 High resistance to multiple races of Aphanomyces for protection during establishment and early season cool and wet soils 					
WL 358LH	\mathbb{I}	8th generation potato leafhopper resistant	HopperShield - Over 90% leafhopper control					
WL 359LH.RR	Ready ALFALFA	- 8th generation potato leafhopper HopperShield resistant "stack" with Roundup Ready $^{\!\otimes}$	 Superb yielding fall dormancy coupled with excellent winter hardiness 					
WL 365HQ		 W-L's highest yielding conventional variety High forage quality for cash hay or dairy operations 	Outstanding winter hardiness					
WL 372HQ.RR		For aggressive & intensive managersHighly resistant to stem nematode	Unbeatable recovery after cutting					
WL 375HVX.RR		 Superb yield potential, agronomics & flexibility under 4, 5 & 6 cut systems 	 Multi-race resistance to anthracnose Highly resistant to Aphanomyces 1, 2 & 3 					



					_			DISE	ASE &	PESI	CONI	RUL				
FALL DORMANCY	WINTER SURVIVAL	TOTAL DRI	CUTTING SYSTEM	PHYTOPHTHORA ROOT ROT	VERTICILLIUM WILT	ANTHRACNOSE 1 **	ANTHRACNOSE 5***	BACTERIAL WILT	FUSARIUM WILT	APHANOMYCES RACE 1	APHANOMYCES RACE 2	APHANOMYCES** (EVOLVING STRAINS)	PEA APHID	SPOTTED Alfalfa Aphid	POTATO LEAFHOPPER	STEM NEMATODE
4.0	1.9	28/30	4 - 5	HR	R	HR	0	HR	HR	R	0	0	R	R	0	R
4.0	2.0	34/35	4 - 6	HR	HR	HR	0	HR	HR	HR	R	0	0	0	0	HR
4.0	2.0	28/30	4 - 5	HR	HR	R	0	HR	HR	R	0	0	R	0	0	HR
4.0	2.0	30/30	4 - 5	HR	HR	HR	0	HR	HR	HR	0	0	R	0	HR	MR
4.4	1.7	40/40	4 - 5	HR	HR	HR	HR	HR	HR	HR	HR	HR	R	0	0	R
4.4	1.4	40/40	3 - 5	HR	HR	HR	HR	HR	HR	HR	HR	HR	R	R	0	HR
4.1	2.0	34/35	3 - 5	HR	HR	HR	0	HR	HR	HR	R	0	R	0	HR	R
3.9	2.2	34/35	4 - 6	HR	HR	HR	0	HR	HR	HR	R	0	R	0	HR	R
4.9	1.1	34/35	4 - 6	HR	HR	HR	0	HR	HR	HR	R	0	HR	HR	0	R
4.8	1.8	34/35	4 - 6	HR	HR	HR	0	HR	HR	HR	R	0	HR	HR	0	HR
4.6	2.1	40/40	3 - 5	HR	HR	HR	R	HR	HR	HR	HR	HR	R	R	0	HR



GENERAL CHARACTERISTICS

ESTABLISHMENT	FAST
PERSISTENCE	HIGH
DROUGHT TOLERANCE	HIGH
WINTER HARDINESS	VARIES
PALATABILITY	HIGH
YIELD POTENTIAL	HIGH
GRAZING TOLERANCE	VARIES

PLANTING TIMES

SPRING PLANTING	MAR - MAY
FALL PLANTING	AUG - SEP
LIFE CYCLE	PERENNIAL

SEEDING RATE (LBS/ACRE)

ALONE	15 - 20
MIXES	8 - 10
EMERGENCE (DAYS)	7- 14

HARVEST MANAGEMENT

Cut at 1/4 bloom; last cutting of season should be 4 weeks before 1st killing frost

ICON KEY:

F	LEAFHOPPER PROTECTION
(5)	DURABLE ROOT STRUCTURE
\bigtriangleup	SALT TOLERANT
8	CROSSECOAT™ TECHNOLOGY

Neutral Detergent Fiber Digestibility

** Includes race 1 protection, along with Anthracnose Race 5 protection, which is patented by FGI.

*** Includes race 1 and race 2 protection. In addition, Forage Genetics International, LLC (FGI) has identified a novel source of Aphanomyces resistance in the greenhouse and field that visibly outperforms unrelated varieties on the market when grown under natural or artificial disease pressure. FGI researchers have been working cooperatively with universities collecting and testing the most virulent strains of Aphanomyces to help determine the level of resistance to this novel source.

RESISTANCE RATINGS:

- HR = Highly Resistant
 - 51% or more resistant plants
 - $\mathbf{R} = \mathbf{Resistant}$
- 31 50% resistant plants MR = Moderately Resistant
- 15 30% resistant plants LR = Low Resistance
- 6 14% resistant plants **S = Susceptible**
- 0 5% resistant plants
- NR = Not Rated

Clover & Other Legumes

3-YEAR RED CLOVER

FORAGE FIRST® FACTOR: Red clover resilience (or lack thereof) is typically triggered by diseases that affect crown health. Most common red clovers (medium red clover included) typically persist for a couple of years before they fall victim. In many cases, a 2-year stand of clover fits the cropping cycle, delivering forage in a brief timeframe and providing a valuable nurse or relay crop for the ensuing cash crop. However, when the rotation allows, it makes sense to incorporate a 3-year clover. 3-year clovers have a stronger resistance to crown diseases that enables persistence into a 3rd year (or 2 years removed from the seeding year). The additional year provides at least 1 spring cutting, if not multiple harvests to greater supplement hay stocks.

FF 9615	ی	 Developed in & ADAPTED for the upper Midwest & Northeast 	High forage qualityExcellent stand persistence
	🛚 DLF 🗞	Selected for persistence & disease resistance3 year yield performance	High forage quality & yield potential
RED CARPET® XL 990	XI 🕉	 Best utilized for silage or spring hay Increased disease resistance to southern anthracnose & downy mildew 	 May produce 3 cuttings on second-year stands Works well in rotational grazing programs
ALSIKE CLOVER			
RADIUM XL	X. 🌣	 Withstands heavy grazing pressure, but merits management for success (see "What Forages are Safe for Animals" at lacrosseseed.com) 	Tolerant to poorly drained soilsSurvives in poor pH soils
BALANSA CLOVE	R		
FIXATION	۲	High yield and quality potentialExcellent palatability and digestability	 Tolerant of a variety of soil types
BERSEEM CLOVE	ER		
FROSTY	۲	Excellent companion to alfalfaQuick Establishment	High Forage QualitySimilar dry down to alfalfa

RED	CL	OVE	R

ESTABLISHMENT	FAST	
PERSISTENCE	LOW	
DROUGHT TOLERANCE	MED LOW	
WINTER HARDINESS	MED HIGH	
PALATABILITY	MED	
YIELD POTENTIAL	HIGH	
GRAZING TOLERANCE	MED	

PLANTING TIMES

SPRING PLANTING	FEB - MAY
FALL PLANTING	AUG - OCT
LIFE CYCLE	PERENNIAL

ALONE	8 - 12
MIXES	4 - 8

HARVEST MANAGEMENT

Harvest at 1/4 - 1/2 bloom; leave at least 3-4" of growth after each harvest

ALSIKE CLOVER

ESTABLISHMENT	FAST
PERSISTENCE	MED
DROUGHT TOLERANCE	LOW
WINTER HARDINESS	HIGH
PALATABILITY	HIGH
YIELD POTENTIAL	HIGH
GRAZING TOLERANCE	HIGH

PLANTING TIMES

SPRING PLANTING	MAR - MAY
FALL PLANTING	AUG - OCT
LIFE CYCLE	PERENNIAL

SEEDING RATE (LBS/ACRE)

ALONE	6 - 8
MIXES	2 - 4

BALANSA & BERSEEM CLOVER

ESTABLISHMENT	MED FAST
PERSISTENCE	MED
DROUGHT TOLERANCE	MED LOW
WINTER HARDINESS	LOW
PALATABILITY	HIGH
YIELD POTENTIAL	HIGH
GRAZING TOLERANCE	MED

PLANTING TIMES

SPRING PLANTING		MAR - MAY
FALL PLANTING		AUG - OCT
LIFE CYCLE		ANNUAL
SEEDING RATE (LBS/ACRE)	BALANSA	BERSEEM
ALONE	5 - 8	15 - 25
MIXES	3 - 5	7 - 12

DIFFERENCES BETWEEN 3-YEAR RED CLOVERS & COMMON MEDIUM RED								
VARIETY	APPROX. Cost/lb	LBS PLANTED/ACRE (OVERSEEDING)	SEED Cost	3-YEAR TONNAGE Estimation*	YIELD VALUE†	N FIXATION & VALUE‡	TOTAL VALUE	NET Return/acre
FF 9615 3-Year Red Clover	\$3.80	12	\$45.60	1.25 tons/year = 3.75	\$543.75	\$43.20	\$586.95	\$541.35
FF Red Carpet 3-Year Red Clover	\$2.50	12	\$30.00	1.0 tons/year = 3.0	\$435.00	\$43.20	\$478.20	\$448.20
Medium Red Clover	\$1.90	12	\$22.80	0.75 tons/year = 1.5**	\$326.25	\$28.80	\$355.05	\$332.25
*With better disease tolerance and crown health, one could easily assume 3-year clovers will outyield medium red in years 1 & 2 as well **Medium Red Clover only has 2 years of production in a 3-year period								

[†]Based on \$145/ton

[‡]Based on Commercial Nitrogen @ \$.48/LB

INTERMEDIATE WHITE CLOVER • High stolon density RIESLING • Extended grazing potential during colder months M DLF · Medium to large leafed white clover • Yield of ladino, persistence of intermediate **LADINO CLOVER ORION XL** • Large white clover offering increased quality & · Easy to establish XL • Superior winter hardiness protein digestibility Good regrowth following grazing · Tolerates low pH soils • Tolerates fall usage better than red clover **BIRDSFOOT TREFOIL** XL 🛪

LOTUS XL

- Tolerant of poorly drained, low pH soils • High disease resistance
- Fast recovery after cutting
- Upright growth habit

INTERMEDIATE WHITE / LADINO CLOVER

ESTABLISHMENT	FAST
PERSISTENCE	MED
DROUGHT TOLERANCE	MED LOW
WINTER HARDINESS	MED HIGH
PALATABILITY	MED HIGH
YIELD POTENTIAL	HIGH
GRAZING TOLERANCE	MED

PLANTING TIMES

SPRING PLANTING	MAR - MAY
FALL PLANTING	AUG - OCT
LIFE CYCLE	PERENNIAL

SEEDING RATE (LBS/ACRE)	
ALONE	4 - 6
MIXES	2 - 4

BIRDSFOOT TREFOIL

ESTABLISHMENT	SLOW
PERSISTENCE	HIGH
DROUGHT TOLERANCE	HIGH
WINTER HARDINESS	HIGH
PALATABILITY	HIGH
YIELD POTENTIAL	MED
GRAZING TOLERANCE	HIGH

PLANTING TIMES	
SPRING PLANTING	MAR - MAY
FALL PLANTING	AUG - OCT
LIFE CYCLE	PERENNIAL

SEEDING RATE (LBS/ACRE)

ALONE	8 - 10
MIXES	4 - 5

ICON KEY





Forage Grasses

ANNUAL RYEGRASS

FORAGE FIRST® FACTOR: Integrating annual ryegrass in the forage system requires the understanding that spring management will be paramount, depending on forage utilization. Dozens of annual ryegrass varieties exist, so make 100% sure the selection matches the goal and management style of the producer. Improved varieties offer greater winter tolerance and improved forage yields with added pest resistance.

COLDSNAP™	SET DOWAP	• Suitable for grazing or silage in fall (&/or spring in areas where it overwinters)	Widely adapted for fora through Transition Zone

- Heavy dry matter producer with outstanding quality
- age production in Upper Midwest e
- Great for extending legume stands or emergency forage

ITALIAN RYEGRASS

FORAGE FIRST® FACTOR: Greater persistence mixed with better forage flexibility are reasons growers use Italian Ryegrass. During the establishment year, Italian types remain vegetative, but will act as an annual after winter vernalization in year two and need to be managed as such. Italian ryegrass is highly palatable with high leaf to stem ratio, providing higher digestibility. Improved varieties bring better winter hardiness and greater forage yield.

TETRABANA XL	XL	 Tetraploid with high palatability Rapid establishment-ideal for green chop or silage, intensive grazing, renovating pastures & frost seeding 	Excellent for high-traffic or wet pasturesHigh yielding & top feed quality
GRASSHANCER 200	M DLF	Blend of diploid & tetraploid Italian annual ryegrassSeeded in spring to boost season production	Excellent establishment & improved persistenceRapid regrowth ability for green chop or silage
MAX 4N	M DLF	 Improved disease resistance Tetraploid variety with high quality & digestibility Top yield performer: 108% of checks 	 High vernalization requirement for no heading in seeding year

BROMEGRASS

FORAGE FIRST[®] FACTOR: Bromegrass can be challenging for many livestock and hay producers. Typically, this sod-forming grass has a shortened grazing or harvest window compared to other cool season grasses. Since bromegrass spreads rapidly by seeds and rhizomes, it can become increasingly dominant in pastures and paddocks. Boosting stocking rates in spring and fall, and either moderate use or rotating away from bromegrass during the summer, will help year-round utilization.

BIG TON XL Smooth Bromegrass	XI 🕉	 Vigorous, long-lived sod-forming perennial grass Excellent drought resistance Improved leaf disease/seedling blight resistance 	 VERY versatile, suited to grazing & haying Well-suited alongside alfalfa & in mixed stands
FLEET Meadow Bromegrass	۲	High yields & rapid regrowthExcellent season-long forage quality	Suitable for hay or pasture

ANNUAL RYEGRASS		HARVEST MANAGEMENT	BROMEGRASS	SMOOTH	MEADOW	HARVEST MANAGEMENT
ESTABLISHMENT	FAST	Mechanical harvest should	ESTABLISHMENT	SLOW	SLOW	Bromegrass is tolerant of
PERSISTENCE	LOW	be made at boot to early	PERSISTENCE	HIGH	HIGH	grazing in spring before
DROUGHT TOLERANCE	MED	vegetative stage: Graze during	DROUGHT TOLERANCE	MED	MED	from below the ground:
WINTER HARDINESS	MED	during stem elongation will	WINTER HARDINESS	MED	MED	after jointing, frequent
PALATABILITY	HIGH	slow production until new	PALATABILITY	HIGH	HIGH	harvest can destroy stands.
YIELD POTENTIAL	HIGH	regrowth.	YIELD POTENTIAL	HIGH	HIGH	to early bloom stage.
GRAZING TOLERANCE	HIGH		GRAZING TOLERANCE	HIGH	MED	
PLANTING TIMES			PLANTING TIMES			
SPRING PLANTING	MAR - MAY		SPRING PLANTING	Ν	MAR - MAY	
FALL PLANTING	AUG - SEP		FALL PLANTING	L	AUG - SEP	
LIFE CYCLE	ANNUAL		LIFE CYCLE	F	PERENNIAL	
SEEDING RATE (LBS/ACRE	.)		SEEDING RATE (LBS/ACRE)		
ALONE	20 - 40		ALONE		15 - 20	
MIXES	5 - 10		MIXES		5 - 10	ICON KEY
EMERGENCE (DAYS)	5 - 14		EMERGENCE (DAYS)		14 - 21	
ROTATIONAL GRAZING (IN)			ROTATIONAL GRAZING (IN))		
BEGIN	8 - 12		BEGIN		10 - 12	XL BRAND
STOP	3 - 6		STOP		4 - 6	CROSSECOAT™
AVERAGE DAYS REST	25 - 30		AVERAGE DAYS REST		20 - 30	TECHNOLOGY

FESTULOLIUM

FORAGE FIRST® FACTOR: Festulolium is a hybrid of fescue and ryegrass. Some varieties exhibit greater characteristics (both in appearance and agronomic performance) as fescue and some are more similar to ryegrass. Selecting the right festulolium is critical, depending on its use and environment.

FUSION XL	XL	 Italian Ryegrass x Meadow Fescue Ideal in winter-damaged alfalfa or where emergency forage is needed 	 Increased summer performance & drought tolerance Fast germination & establishment High yielding & very palatable
FOJTAN	M DLF	 Italian Ryegrass x Tall Fescue Looks & grows like tall fescue Higher forage quality & very palatable 	Excellent for grazing, silage & dry hayGood rust resistance & winter hardiness

KENTUCKY BLUEGRASS

DLF

BALIN

- Good disease resistance
 - Suitable in mixes for intensive & extensive use
- Establishes fast with high yields
- · Persistence & high yields in permanent pastures

ORCHARDGRASS

FORAGE FIRST® FACTOR: La Crosse Seed works hard to bring varieties forward that exhibit strong disease resistance and tolerate the vigorous management schemes that many producers utilize. Maturity should be considered whether matching this grass with legumes or in a mono-culture, as harvesting in the boot stage is the goal. Proper fertility and higher cutting/grazing heights also aid in persistence.

HAYMATE XL	KL 🗞	Medium-late maturityGreat companion for alfalfa	Improved disease resistanceMaturity allows for more flexibility with first harvest in spring
ECHELON	M DLF	 Extremely late maturing, maintains forage quality longer between harvests Superior leaf disease resistance 	 Perfect companion for alfalfa or clover mixes Excellent persistence & vigor Increased palatability & stand persistence
CAPTUR	M DLF	 Extremely late maturing (4 - 6 days later than Echelon), maintains forage quality longer between harvests High vield, improved rust resistance, high salt tolerance 	Perfect companion for alfalfa or clover mixesExcellent persistence & vigor

FESTULOLIUM	
ESTABLISHMENT	FAST
PERSISTENCE	MED
DROUGHT TOLERANCE	MED
WINTER HARDINESS	HIGH
PALATABILITY	HIGH
YIELD POTENTIAL	HIGH
GRAZING TOLERANCE	HIGH
PLANTING TIMES	
SPRING PLANTING	MAR - MA
FALL PLANTING	AUG - SEF
LIFE CYCLE	PERENNIA
SEEDING RATE (LBS/ACRE)	
ALONE	30 - 40
MIXES	10 - 15
EMERGENCE (DAYS)	7 - 14
ROTATIONAL GRAZING (IN)	
BEGIN	10 - 12
STOP	4 - 6
AVERAGE DAYS REST	25 - 35
HARVEST MANAGEMENT	
Mainly used in pastures for either g stockpiling. Harvest for hay or hayla to early heading stage.	razing or fall age at boot

KENTUCKY BLUEGRASS	
ESTABLISHMENT	SLOW
PERSISTENCE	HIGH
DROUGHT TOLERANCE	MED
WINTER HARDINESS	HIGH
PALATABILITY	HIGH
YIELD POTENTIAL	LOW
GRAZING TOLERANCE	HIGH
PLANTING TIMES	
SPRING PLANTING	MAR - MAY
FALL PLANTING	AUG - SEP
LIFE CYCLE	PERENNIAL
SEEDING RATE (LBS/ACRE)	
ALONE	10 - 15
MIXES	3 - 10
EMERGENCE (DAYS)	14 - 28
ROTATIONAL GRAZING (IN)	
BEGIN	4 - 6
STOP	2 - 3
AVERAGE DAYS REST	30 - 40
HARVEST MANAGEMENT	
High stocking rates in spring take an of its early production. Because of	dvantage its shorter

stature, bluegrass is perfectly suited for grazing

& tolerates close (or over) grazing.

ORCHARDGRASS	
ESTABLISHMENT	MED
PERSISTENCE	HIGH
DROUGHT TOLERANCE	MED
WINTER HARDINESS	HIGH
PALATABILITY	HIGH
YIELD POTENTIAL	HIGH
GRAZING TOLERANCE	MED
PLANTING TIMES	
SPRING PLANTING	MAR - MAY
FALL PLANTING	AUG - SEP
LIFE CYCLE	PERENNIAL
SEEDING RATE (LBS/ACRE)	
ALONE	15 - 25
MIXES	3 - 10
EMERGENCE (DAYS)	7 - 21
ROTATIONAL GRAZING (IN)	
BEGIN	8 - 12
STOP	4 - 6
AVERAGE DAYS REST	15 - 30
HARVEST MANAGEMENT	
Harvest at boot stage in spring; cut or graze frequently in spring & early	

summer (cutting frequency influenced by

temperature, soil moisture & fertility).

Forage Grasses

PERENNIAL RYEGRASS (TETRAPLOID)

FORAGE FIRST® FACTOR: Perennial ryegrass is best suited for milder climates, where drought and elevated temperatures aren't as common. Although improved varieties offer increased disease resistance, crown rust can easily overtake a population (even with varietals that offer some protection). Perennial ryegrass includes both diploid and tetraploid varieties. Tetraploid varieties are usually taller, with wider leaves and longer tillers – offering greater production consistently. Tetraploids are commonly less dense, which makes them a good option when mixed with legumes. They also tend to be more effective in grazing environments, however they typically don't persist as long as diploid options. While diploids often have deeper crowns, which make them more tolerant to stress and traffic, they also provide better sod coverage, which is valuable for quick establishment in multiple soil environments.

ENDO-GRAZE XL	XL	 High-yielding with rapid establishment Excellent high quality forage in spring & fall 	Extremely palatable
DEXTER 1	M DLF	 Early spring growth with high dry matter yield Very high yield with extremely fast recovery High cold tolerance 	Very high leaf to stem ratioTolerates intensive grazing
KENTAUR	M DLF	 Excellent resistance to leaf spot & crown rust High sugar content Excellent forage quality & consistency 	 Early spring growth with high dry matter yield Good recovery after cutting Cold & heat tolerant
REED CANARYGE	RASS		
DEFIANT XL	XU 🗞	 Performs well on poorly-drained soils & overly wet environments Low alkaloid 	 Can be used for hay, silage or pasture Performs well on low pH soils Widely adapted & extremely drought tolerant
BERMUDAGRAS	S & M()RF	

La Crosse Seed can access virtually any seed you need, including Bermudagrass & more. Contact us to learn more.

PERENNIAL RYEGRASS

ESTABLISHMENT	FAST
PERSISTENCE	MED
DROUGHT TOLERANCE	MED
WINTER HARDINESS	MED
PALATABILITY	HIGH
YIELD POTENTIAL	HIGH
GRAZING TOLERANCE	MED HIGH
PLANTING TIMES	
SPRING PLANTING	FEB - MAY
FALL PLANTING	AUG - SEP
LIFE CYCLE	PERENNIAL
SEEDING RATE (LBS/ACRE)	
ALONE	30 - 40
MIXES	6 - 10
EMERGENCE (DAYS)	5 - 14
ROTATIONAL GRAZING (IN)	
BEGIN	8 - 12
STOP	2 - 4
AVERAGE DAYS REST	15 - 30
HARVEST MANAGEMENT	

Once established, ryegrass can be grazed (even continually) as quick as 3-4" in height assuming wet conditions don't ruin stand. Less dm will require longer curing times relative to other cool season grasses.

REED CANARYGRASS

ESTABLISHMENT	SLOW				
PERSISTENCE	HIGH				
DROUGHT TOLERANCE	HIGH				
WINTER HARDINESS	HIGH				
PALATABILITY	MED				
YIELD POTENTIAL	HIGH				
GRAZING TOLERANCE	HIGH				
PLANTING TIMES					
SPRING PLANTING	MAR - MAY				
FALL PLANTING	AUG - SEP				
LIFE CYCLE	PERENNIAL				
SEEDING RATE (LBS/ACRE)					
ALONE	12 - 14				
MIXES	6 - 8				
EMERGENCE (DAYS)	14 - 28				
ROTATIONAL GRAZING (IN)					
BEGIN	10 - 12				
STOP	4 - 6				
AVERAGE DAYS REST	20 - 30				
HARVEST MANAGEMENT					
Mechanical harvest at heading stage for highest					

Mechanical harvest at heading stage for highest yields; most annual growth occurs before July rotate pastures often; top growth will desiccate at frost so manage accordingly.

TALL FESCUE & MEADOW FESCUE

FORAGE FIRST® FACTOR: Various levels of endophyte toxicity are common in the majority of US tall fescue fields. Unless KY31 is requested, La Crosse Seed is focused on offering only varieties that are free of any endophytes. Improved tall fescue varieties demonstrate better cold tolerance across the Midwest while animal performance trials show enhanced grazing preference and palatability compared to older genetics. If renovating endophyte-infected fescue, it's best to rotate out for a period of 1-2 years until infected seed populations diminish and a new stand can establish without competition. If the goal is to improve existing pasture, adding legumes (like red clover) makes sense by helping production and quality. USDA research has shown that clover reduces some of the negative effects cattle see when consuming the infected plants.

STARGRAZER XL Tall Fescue	XL	 Well adapted for the Midwest, Mid-Atlantic & Northeast Suitable for both pastures or hay production 	Slightly earlier maturing than KY31Good yielder with excellent persistence
TOWER Tall Fescue	M DLF	 Broadly adapted with improved tolerance to extreme conditions Late maturing variety suitable for intense grazing & hay environments 	 Improved disease resistance (rust & other leaf diseases) Maturity helps maintain higher RFQ at harvest
LAURA Meadow Fescue	M DLF	Very quick to establish & very aggressiveExcellent for cold & wet areas	 High yielding first cuts with excellent regrowth Very good winter hardiness & persistence

TIMOTHY

FORAGE FIRST® FACTOR: Improved varieties of timothy are about improving its faults. Early maturing varieties align more closely when paired with alfalfa's harvest schedules. Timothy's shallow root system can struggle in warm and droughty environments. Increasing seeding rates can compensate for timothy's slow establishment, increasing stand density and weed suppression. What it lacks in seedling vigor, it makes up in winter hardiness.

TOP TIM XL	• Early • Excel	maturity blend lent with clover	or alfalfa for hay or pasture	 1 - 2 weeks ea environments 	rlier to boot stage than Climax in most
ERECTA	M DLF • Late I • Very v	maturing vinter-hardy		• Known for its p	palatability & digestibility
RICHMOND	DLFEarlyExcel	maturing lent early sprin	g vigor	 Very good wint 	ter hardiness
FESCUE	TALL	MEADOW	ТІМОТНҮ		
ESTABLISHMENT	MED	MED	ESTABLISHMENT	SLOW	
PERSISTENCE	MED HIGH	MED HIGH	PERSISTENCE	MED	we choose to sell
DROUGHT TOLERANCE	HIGH	MED LOW	DROUGHT TOLERANCE	MED	Eorage Eirst because
WINTER HARDINESS	MED	HIGH	WINTER HARDINESS	HIGH	it holns differentiate
PALATABILITY	MED	HIGH	PALATABILITY	HIGH	our business in the
YIELD POTENTIAL	HIGH	LOW	YIELD POTENTIAL	MED	marketplace. The way
GRAZING TOLERANCE	HIGH	HIGH	GRAZING TOLERANCE	LOW	to compete with big box
PLANTING TIMES			PLANTING TIMES		companies is to offer
SPRING PLANTING	MAR - MAY	APR - MAY	SPRING PLANTING	MAR - MAY	premium varieties and
FALL PLANTING		AUG - SEP	FALL PLANTING	AUG - SEP	brands that you can't
LIFE CYCLE		PERENNIAL	LIFE CYCLE	PERENNIAL	find in many of those
SEEDING RATE (LBS/ACRE))		SEEDING RATE (LBS/ACRE)		mainstream stores."
ALONE		25 - 30	ALONE	8 - 15	Jeff G.,
MIXES		5 - 15	MIXES	2 - 6	Northeastern Missouri
EMERGENCE (DAYS)		14 - 21	EMERGENCE (DAYS)	14 - 21	
ROTATIONAL GRAZING (IN)			HARVEST MANAGEMENT		
BEGIN	4 - 8	8 - 10	Because of timothy's lack of	basal leaves to	
STOP		3 - 6	support regrowth, as well as	its limited energy	
AVERAGE DAYS REST	25 - 35	15 - 25	weakens stands. Harvest in	spring at boot	ICON KEY
HARVEST MANAGEMENT			stage.		M DLF ELITE VARIETY
Harvest at boot stage in spr	ing; pure stands wor	k well when			XL BRAND
stockpiled in fall.					CROSSEC0AT™

TECHNOLOGY

Forage First[®] Grass & Legume Mixes

SEEDING RATE (LBS/ACRE)	SEEDING RATE (LBS/ACRE
715 FORAGE MIX 18 - 20	ALFALFA-BASED MIX 18-20
Suited for traditional hay production & increased management environments. Good winter hardiness. 70% FF 42.A2 Alfalfa 15% Red Carpet® XL 990 Red Clover 15% Top Tim XL Timothy	Especially suited for high quality forage environments. Best adapted to well- drained soils (pH 7.0-7.5). 50% FF 42.A2 Alfalfa 20% Red Carpet® XL 990 Red Clover 20% Top Tim XL Timothy 8% Radium XL Alsike Clover 2% Orion XL Ladino Clover
ALFALFA HAY & PASTURE MIX 18 - 20	ALL PURPOSE MIX 25-30
Maximum production per acre. Produces high quality balanced hay. 40% FF Premium Alfalfa 20% Endo-Graze XL Perennial Ryegrass 20% Haymate XL Orchardgrass 15% Top Tim XL Timothy 5% Orion XL Ladino Clover	 Flexible for hay & long-term pasture across a wide range of soils, but responds to better soils, irrigation & increased fertility. 22% FF Premium Alfalfa 20% Top Tim XL Timothy 15% Haymate XL Orchardgrass 13% Red Carpet® XL 990 Red Clover 12% Endo-Graze XL Perennial Ryegrass 8% Radium XL Alsike Clover 5% Orion XL Italian Ryegrass 5% Orion XL Ladino Clover
BEEF MIX 30 - 40	CLOVER-BASED MIX 16-18
High protein for maximum daily gain. Strong persistence & regrowth that withstands grazing pressure/hay production. Contains endophyte free tall fescue. 35% Endo-Graze XL Perennial Ryegrass 20% FF Premium Alfalfa 15% Big Ton XL Smooth Bromegrass 15% Stargrazer XL Tall Fescue 10% Fusion XL Festulolium 5% Top Tim XL Timothy	Formulated for wetter soils with a history of disease & fertility problems. Use in soils with low pH (below 6.5). 63% Red Carpet [®] XL 990 Red Clover 25% Top Tim XL Timothy 10% Radium XL Alsike Clover 2% Orion XL Ladino Clover
TRIPLE CROWN MIX	JIM'S MIDWEST MIX ECONOMY 25-30
Excellent yields of high-energy feed. Excellent for active horses.	Economy minded cool season grass and legume mix. Provides excellent spring and fall forage.
 35% Endo-Graze XL Perennial Ryegrass 20% FF Premium Alfalfa 20% Top Tim XL Timothy 15% Balin/Ginger Kentucky Bluegrass 	20% Med Red Clover 15% Orchardgrass 15% Timothy 15% 4N Perennial Ryegrass 15% Forage Fescue 10% Alfalfa

10% Alsike Clover

10% Fusion XL Festulolium

Forage First[®] Grass Mixes Our all grass mixes feature premium blends of elite performing forage grass varieties (sod-forming and non sod-forming), including endophyte

fungus free.	SEEDING RATE (LBS/ACRE)		SEEDING RATE (LBS/ACRE
VERSAGRASS [™] MIX	25 - 30	SPECIAL W	ATERWAY MIX	25 - 30
Excellent for waterways, terraces, ditches, l permanent pastures and companion crop f	banks & headlands. Great for for hay production.	Performs well in h persistence retain	nay systems. Contains endophyte-free tall fescue, ns quality for many years. Great for waterways.	
25% Big Ton XL Smooth 25% Endo-Graze XL Per 25% Haymate XL Orcha 25% Top Tim XL Timoth	n Bromegrass rennial Ryegrass ırdgrass y		65% Big Ton XL Smooth Bromegrass20% Stargrazer XL Tall Fescue15% Endo-Graze XL Perennial Ryegrass	
BLM #4 MIX	30 - 40	GRASS MA	STER MIX	30 - 40
Versatile mix, establishes quickly. Endophy productivity into hot, dry summer. 30% Endo-Graze XL Per 20% Tetrabana XL Italia 20% Stargrazer XL Tall F 15% Balin/Ginger Kent 15% Top Tim XL Timoth	rte-free tall fescue extends rennial Ryegrass an Ryegrass Fescue rucky Bluegrass y	Endophyte-free, t summers. Good f	 call fescue & orchardgrass perform well in less-that for grazing & hay production. 35% Stargrazer XL Tall Fescue 35% Haymate XL Orchardgrass 15% Endo-Graze XL Perennial Ryegrass 15% Fusion XL Festulolium 	ın-ideal
MARE & FOAL MIX	30 - 40	JUMP STAR		30 - 40
Ability to be productive under rotational grat to heavy traffic. 50% Haymate XL Orcha 25% Top Tim XL Timothy 15% Fusion XL Festulol 10% Balin/Ginger Kent	azing & hay production. Tolerant Irdgrass y ium ucky Bluegrass	Excellent for overs pastures. Very res	 seeding existing hay stands or short/long-rotation sponsive to fertilization. 50% Endo-Graze XL Perennial Ryegrass 25% Tetrabana XL Italian Ryegrass 25% Fusion XL Festulolium 	Ι
FESCUE BASED MIX	NEW FORMULA 30-40	#4 GRASS	MIX ECONOMY FORMULA	30 - 40
Endophyte-free, fescue based pairs well wi straight seeded for heifers. 40% 40% Stargrazer XL 30% 30% Meadow Fes 20% 20% Fusion XL Fes 10% 10% Endo-Graze X	th dairy quality alfalfa, or can be Tall Fescue cue stulolium KL Perennial Ryegrass	Economy quick to	 a establish versatile mix for short /long-rotation pa 30% Perennial Ryegrass 20% Annual Ryegrass 20% Forage Tall Fescue 15% Forage Kentucky Bluegrass 15% Timothy 	astures.
Silobuster Mixe	S		*100	-120 Nurs
SILOBUSTER PEA & BARLE	YMIX* 100 - 150	SILOBUSTE	R PEA & OAT MIX*	100 - 150
Elite combination of forage peas & forage straight forage.	barley, ideal as nurse crop or	Elite combination straight forage.	n of forage peas & forage oats, ideal as nurse crop) or
50% LC6040 Forage P 50% Forage Spring Bar	eas rley		50% LC6040 Forage Peas50% Forage Oats	
SILOBUSTER PEA & TRITIC	ALE MIX * 100 - 150	Silobuster Mixes	s: Harvest should be based on maturity of small	grain:
Elite combination of forage peas & forage straight forage.	triticale, ideal as nurse crop or	Late boot stagSoft dough stag	e for lactating dairy cows age for heifers, dry cows and beef cattle	



					0001		SEC			
		SUD F	DRIMING	NON-SOD FORMING						
								PERENNIAL		
		SMOOTH	KENTUCKY	TALL	MEADOW		τιμοτυν	RYEGRASS		
		BRUNIE	BLUEGRASS	FESCUE	FESCUE	UKCHARD		(IEIRAPLUID)		
	FUKAGE FIKSI	BIG TON XL	BALIN/GINGER	STARGRAZER XL		HAYMATE XL	TOP TIM XL	ENDO-GRAZE XL		
	VERSAGRASS ^{IM}	25%				25%	25%	25%		
ŝ	SPECIAL WATERWAY	65%		20%				15%		
×.	DITE // 4		4 = 0/	0.00/			4 = 0/			
SS	BLM #4		15%	20%			15%	30%		
SAS			4.00/			E00/	050/			
5	MARE & FUAL		10%			50%	25%			
ALI				050/		050/				
	GRASS MASTER			35%		35%		15%		
								E 00/		
	JUMP START							50%		
	715						15%			
	ALFALFA-BASED						20%			
ខ							4 = 0/			
¥	ALFALFA HAY & PASTURE					20%	15%	20%		
2						4 = 0 (100/		
S	ALL PURPOSE					15%	20%	12%		
Щ.	DEEE	4 50/		450/				050/		
Ŧ	BEEF	15%		15%			5%	35%		
ASS							0.00/	350/		
S.	IRIPLE CROWN		15%				20%	35%		
							<u>950/</u>			
	CLOVER-BASED						25%			
	EEGQUE DAGED MIX			40%	200/			100/		
	FESCUE DASED WITA			40 /0	30 /0			10 /0		
S	RATE FOR PURE STAND	15 - 20	10 -15	25 - 30	25 - 30	15 - 25	12 - 15	30 - 40		
ő	RATE IN MIX	5 - 10	4 - 10	6 - 12	6 - 12	3 - 10	2-6	6 - 10		
IS	ESTABLISHMENT	SLOW	SLOW	MED	MED	MED	SLOW	FAST		
E	PERSISTENCE DROUGHT TOLERANCE	MED	MED	HIGH	HIGH	MED	IOW	MED		
V CI	WINTER HARDINESS	HIGH	HIGH	MED	HIGH	HIGH	HIGH	MED		
AR/	PALATABILITY	HIGH	HIGH	MED	HIGH	HIGH	HIGH	HIGH		
H	YIELD POTENTIAL	HIGH	MED	HIGH	HIGH	HIGH	MED	HIGH		
	GRAZING TOLERANCE	HIGH	HIGH	HIGH	HIGH	HIGH	MED	HIGH		
	ADDITIONAL ELITE VARIETIES & Other Forage First® products			TOWER	LAURA	ECHELON CAPTUR	ERECTA RICHMOND	DEXTER 1 KENTAUR		
					45			<i>.</i> -		
	PAGE #	13	14	16	16	14	16	15		



Legumes will be

		SUA MER SUI	MM NUA	ER LS	M	IATURI	ГҮ	APPROX. SEEDS PER POUND*	DRYLAND Seeding LBS/Acre	IRRIGATION/ HI-RAIN SEEDING LBS/ACRE	RECOVERY AFTER CUTTING	LEAF DISEASE Resistance	SUGARCANE Aphid Tolerance	SINGLE SILAGE CUT Suitability	RAPID DRY DOWN
		QUICKDRY BMR T/TS	BMR 6		N	IED LA	E	14,000 - 15,000	20 - 25	35 - 50	4	4	3	2	3
		DENSE TONNAGE BMR BD T	BMR 6	BD	N	IED LA	IE .	14,000 - 15,000	15 - 25	25 - 35	4	4	1	4	2
	SORGHUM X SUDANGRASS	EVERGROW BMR PPS ^T	BMR 6	B PPS		LATE		14,000 - 15,000	20 - 25	35 - 50	3	5	2	3	2
CIES		GREENSUGAR TR ^T				MED		16,000 - 20,000	20 - 25	50 - 60	3	3	2	2	2
UT SPE		GREENSUGAR MS ^T		(Second Second S	N	IED LA	ΓE	16,000 - 20,000	20 - 25	50 - 60	3	4	1	2	2
MULTI-C	SUDANGRASS	BALEMORE			EA	ARLY M	ED	35,000 - 40,000	15 - 25	20 - 35	3	3	1	2	4
	PEARL	HERCULES BMR BD ^T	BMR 6	BD		MED		50,000 - 60,000	10 - 12	10 - 12	5	5	5	4	4
	MILLET	PERFORM [†]				MED		50,000 - 60,000	10 - 12	10 - 12	5	4	5	4	4
	TEFF GRASS	REPRIEVE XL		\$		NA		650,000	8 - 10	8 - 10	4	3	5	NA	4
					DAY HAR (SC DOU STA	S TO VEST DFT JGH GE)	APPROX. Harvest Height (FT)	APPROX. Seeds Per Pound*	SEEDING 30" Rows (LBS)	SEEDING NARROW (LBS)	RECOVERY AFTER CUTTING	STANDABILITY	SUGARCANE Aphid Tolerance	DOUBLE CROP	OVERALL Adaptability
ES	FORAGE	94 MS ^{TS}		S MS	Μ	IS	6 - 8	17,000 - 19,000	4 - 6	10 - 15	3	4	2	3	4
T SPEC	SORGHUM	95 BMR ^{TS}	BMR 12	DWARF	85 ·	- 95	5 - 7	16,000 - 18,000	5 - 7	NR	2	4	3	3	5
SINGLE-CUT			PANICLE TYPE	GRAIN COLOR	MID-BLOOM (DAYS)	GRAIN MATURITY (DAYS)	APPROX. HEIGHT (IN)	APPROX. Seeds Per Pound*	DRYLAND POPULATION / ACRE	IRRIGATED POPULATION / ACRE	HEAD EXERTION	STANDABILITY	SUGARCANE Aphid Tolerance	PRE-FLOWER Stress Tolerance	ANTHRACNOSE Tolerance
	GRAIN	79 B ^{TS}	OPEN	BRONZE/RED	48 - 51	80 - 85	36 - 42	13,000	25,000 - 40,000	60,000 - 75,000	5	4	4	5	2
	SORGHUM	94 R ^{TS}	SEMI- CLOSED	RED	68 - 71	110 - 115	50 - 56	16,000	25,000 - 40,000	60,000 - 75,000	5	4	5	4	3

		MILLET	PRIMARY Forage USE	PLANTING DATE	SEEDING RATE (LBS, BROADCAST - ADD 30%)	DAYS TO GRAIN MATURITY
		Common Foxtail Millet	Hay or silage	May - July	20 - 25	60 - 100
	TAIL	German Millet	Dry hay in 55 - 60 days	May - July	20 - 25	75 - 90
	FOX	Siberian Millet	Dry hay in 40 - 50 days	May - July	20 - 25	60 - 80
		White Wonder Millet	Dry hay in 50 - 55 days	May - July	20	70 - 90
		White Proso Millet	NR	May - July	20 - 25	70 - 90
	SING	Japanese Millet Grazing; dry hay in 45 - 50 days		April - July	15 - 20	60 - 70
L V d S	GRA	Pearl Millet	Grazing in 35 - 40 days; dry hay in 40-50 days; can ensile or green-chop also	May - July	12 - 20	60 - 70
		Brown Top Millet	Thin stems make dry hay more suitable	May - July	20 - 25	60

BD = Brachytic Dwarf, BMR = Brown Mid-Rib, MS = Male Sterile, PPS = Photo Period Sensitive, T = Base Treatment, TS = Base Treatment/Safened

Unless otherwise indicated, a standard 5 point rating system is used. Ratings are based on comparison with other products of like maturity/product use.

1 = POOR, 5 = EXCELLENT ONLINE RESOURCES Widely adapted Increased sugar content = improved digestibility Fast establishment & regrowth = more productivity Traditional growth habit with wide, long leaves For more information Suitable for grazing environments or 1-cut silage systems Increased sugar content = improved digestibility Management friendly hybrid with greater harvest flexibility Dwarf hybrid = improved standability & higher leaf:stem ratio on summer annuals, or to request a Summer Select Summer Widely adapted with improved disease resistance PPS allows for wider window of harvest PPS hybrids remain vegetative until mid-Sept (day length < 12h, 20m) · Build tonnage without sacrificing quality Annuals Guide, visit lacrosseseed.com. · High yielding; increase population for improved quality · Broad adaptation in a traditional, non-BMR package Higher levels of sugar/protein in vegetative portion of plant • MS = no anthers, thus no pollen for self-fertilization Improved standability Increased disease resistance · Best summer annual option when dry hay production is planned · Strong emergence & quick regrowth · Can also be used for grazing or green chop • Versatile hybrid suitable for silage, grazing & dry hay · Enhanced palatability, digestibility & overall utilization Dwarf gene increases leaf:stem ratio & improves standability No prussic acid or sugarcane aphid concerns Versatile hybrid suitable for silage, grazing & dry hay · No prussic acid or sugarcane aphid concerns Quicker regrowth compared to sorghum x sudangrass Shorter stature = improved standability · Great rotational crop between alfalfa & perennial stands · Well adapted to dry climates · Superior quality - ideal for horses & other livestock

 A 3 C Good disease resistance Excellent regrowth for a forage sorghum Male Sterile = increased sugar accumulation E Early maturing dwarf BMR High grain yield for maturity Early maturing dwarf BMR High grain yield for maturity Early maturing dwarf BMR High grain yield for maturity Early maturing dwarf BMR Early maturing dwarf BMR<!--</th--><th>YIELD FOR Maturity</th><th>LEAF DISEASE Resistance</th><th></th><th></th><th></th><th></th>	YIELD FOR Maturity	LEAF DISEASE Resistance				
SEarly maturing dwarf BMR High grain yield for maturityExcellent leaf disease resistance Widely adapted with excellent standabilityImage: Barly maturing dwarf BMR Widely adapted for maturityExcellent leaf disease resistance Widely adapted with excellent standabilityImage: Barly maturing dwarf BMR Widely adapted for maturityExcellent leaf disease resistance Widely adapted with excellent standabilityImage: Barly maturing dwarf BMR 	4	3			Good disease resistanceExcellent regrowth for a forage sorghum	Male Sterile = increased sugar accumulation
Image: Normal big	5	5			Early maturing dwarf BMRHigh grain yield for maturity	Excellent leaf disease resistanceWidely adapted with excellent standability
 (5) (4) (5) (5) • Widely adapted hybrid that yields • Medium maturity • Excellent sugarcane aphid tolerance & disease resistance 	HEAD SMUT TOLERANCE	FUSARIUM TOLERANCE	MAIZE DWARF MOSAIC TOLERANCE	ω DOWNY MILDEW TOLERANCE	 Widely adapted - can go anywhere! Ultra early hybrid 	Exceptional drought tolerance
	5	4	5	5	Widely adapted hybrid that yieldsMedium maturity	Excellent sugarcane aphid tolerance & disease resistance

*Refer to seeds per lb on seed tag

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HEIGHT & STATURE	CUTTING/HARVEST	ATTRIBUTES	
2 - 4'	Little to no regrowth	Forage type millets primarilyMany so called "varieties"	Pasture only before heads form (not ideal)
2 - 4'	Little regrowth	 VERY fast growing Used primarily for hay production; seeds for wildlife 	 Mid-late maturing Shallow rooted – not as drought tolerant
2 - 21/2'	Little to no regrowth	VERY fast growingEarlier maturing	Shorter statureBest suited in Northern Plains
3 - 4'	Poor at best	 Dual purpose – hay & grain Late maturing 	Heavy stem & taller than most foxtail types
2 - 2½'	Poor at best	 Usually grown for seed – bird seed or livestock feed 	 Not tolerant of drought - keep off sandy soils
2 - 4'	Leave 6 - 8" for adequate regrowth	 Grazing / hay potential on wet soils (no prussic acid) Ideal for waterfowl / wildlife feed 	Tolerant of waterlogged soils & floodingAlso used for erosion control
3 - 6' (depending on variety)	Leave 8 - 10" for quickest regrowth	 Very resilient - handles a variety of soil types No prussic acid concerns 	 More drought tolerant than japanese / foxtail millets Increased forage quality offered in BMR types
2 - 4'	Leave 6 - 8" for adequate regrowth	 Fast growing for seed mostly – wildlife Seed shatters easily - reseed potential very high 	 Best suited for Southeast US (needs adequate water Tolerant of acidic soils & low fertility

Tips For Managing Summer Annuals & Other Cover Crops For Forage

When the opportunity exists to plant early, warm season annuals provide large amounts of biomass while improving soil tilth and absorbing excess nutrients left behind from cash crops. Summer annuals provide quality forage suitable for all classes of ruminants (usually during periods where traditional perennial crops are less effective). Although sometimes referred to as "emergency forage", summer annuals can be part of a planned cover crop program where the dual benefit of forage is the goal.

PRUSSIC ACID poisoning can occur when feeding forage sorghums after periods of drought or other stress, including frost. Toxic levels dissipate usually after 2 - 3 weeks and will further decrease when ensiled. Prussic acid is most concentrated in new growth, so sorghum forages should not be grazed until they are at least 18" tall. Storing hay or silage for at least 30 days generally dissipates the concern.

BRASSICA CROPS can cause animal health disorders if not grazed properly. Introduce grazing animals to brassica pastures slowly (usually over 3 - 5 days). With extremely high forage values, brassicas can cause problems if hungry animals are turned out into predominate brassica pastures. Even though traditional recommendations allow for 2/3, we recommend keeping brassicas to under 1/3 of the grazing animal's diet - always supplement brassicas with dry hay or other grasses (higher in fiber).

BLOAT can be an issue with most legume species. Reduce bloat by:

- 1. Utilizing grasses alongside the legumes
- 2. Pre-fill livestock with coarse hay prior to turning onto pasture, ensuring animals are not turned out to fresh pasture when hungry
- 3. Do not start grazing when the pastures are wet from dew or rain

GRASS TETANY can occur when grazing lush cereal grain crops in the spring or fall. Tetany risk can be lessened by adding legumes (which offset low magnesium levels that induce tetany) and by keeping livestock out of fields recently fertilized or manured.

NITRATE TOXICITY is common when fertility or manure applications are followed by a period of drought or stress. Cut plants do not lessen in their nitrate levels as they cure. If high levels are suspected, forage should be tested for a period of a few weeks until levels subside. Though often linked to summer annual grasses, increased nitrate levels can show up in most cover crops and forages.

- Nitrates are concentrated more in the lower stalk raising cutting height can reduce the risk
- 2. When a stressful drought precedes a moisture event, it is recommended to delay harvest by 1 - 2 weeks
- 3. Consider split applications of nitrogen (especially useful on summer annuals) to decrease nitrate accumulations

	REPOR	TED METHOD	(Dry Matt	er Basis)	NITRATE I EVELS IN FORAGE
	Nitrate Nitro	ogen (NO ₃ -N)	Nitrat	e (NO ₃)	REFERENCES: Univ. of Missouri, Univ. of Wisconsin, Univ. of Tennessee, North Carolina State Univ., South Dakota State Univ.
	% (lons)	ppm	% (lons)	ppm	COMMENTS
	<0.10	<1,000	<0.44	<4,400	Generally safe to feed. University of Missouri Extension states problems can already commence at 550 ppm NO3-N (2,500 ppm NO3), especially if feeding along with non-protein N sources.
	0.10-0.15	1,000 - 1,500	0.44-0.66	4,400 - 6,600	Safe for non-pregnant animals. Limit to 50% or less (DM basis) for pregnant animals. Some abortions possible at this level.
	0.15-0.20	1,500 - 2,000	0.66-0.88	6,600 - 8,800	Limit use to 50% total ration (DM basis) for all animals. Missouri Extension recommends limiting to only 25% of total ration between 1,100 - 3,400 ppm NO3-N (5,000 - 15,000 ppm NO3).
	0.20-0.35	2,000 - 3,500	0.88 - 1.54	8,800 - 15,400	Limit use to 35% or less of total ration (DM basis) for non-pregnant animals. DO NOT FEED to pregnant animals.
	0.35-0.40	3,500 - 4,000	1.54 - 1.76	15,400 - 17,600	Limit use to 25% or less of total ration (DM basis) for non-pregnant animals. DO NOT FEED to pregnant animals. Missouri Extension says anything over 3,400 ppm NO3-N (15,000 ppm NO3) should not be fed but if it must be fed, limit to less than 15% of total ration.
TOXIC	>0.40	>4,000	>1.76	17,600	Potentially toxic. DO NOT FEED.

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THIS IS ONLY A GUIDE. La Crosse Seed makes no claims and makes no guarantees/warranties regarding performance and function of feedstuffs or their detrimental effects. Test results will vary by testing lab and by method of sample collection, forage management, climate and other environmental factors.

Managing Small Grains For Forage

With a greater need for quality feed sources, cereal grain options are becoming increasingly popular as forage supplements to existing perennial hay and summer annual acres. Many forage benefits are consistent across all these cereal grain options but differences do exist in quality and tonnage based on proper management.

WINTER TRITICALE

Triticale is a cross between wheat and rye. This makes for a crop with higher yields than wheat, but lower quality. Triticale is best suited for grazing pasture. Because of its large stems, hay wilting and silage packing can be difficult.

BEST USE: Fall & Spring Pasture; Silage & Hay (boot to dough stage)

WINTER RYE

Rye offers the advantage of being the easiest cereal grain to establish in poor soils and having the greatest cold tolerance. Rye offers the greatest production for hay or pasture ground because of its quick growth both in the fall and spring.

BEST USE: Fall, Winter & Spring Pasture

SPRING OATS

Oats can be planted in the fall, as long as it's early enough to justify 60 - 90 day production.

BEST USE: Silage (milk to dough stage); Hay (boot to heading stage)

WINTER WHEAT

Wheat has good potential for forage and is usually higher in quality than rye, triticale and oats but not barley. However, wheat usually produces more dry matter than barley.

BEST USE: Fall & Spring Pasture; Silage (boot to dough stage); Hay (boot to milk stage)

WINTER BARLEY

Winter barley is the most susceptible to winterkill of the cereal grains. Consideration should be made when grazing late into the fall. Barley's value as a silage crop is the most comparable to whole-plant corn (90-100%).

BEST USE: Fall Pasture; Silage & Hay (boot to dough stage)

HAY PRODUCTION

Hay yields often average between 2 and 4 tons/acre. Moisture content should be between 15 - 20% moisture. Hay quality is more maturity-dependent at harvest than is silage.

The most efficient time to harvest small grain cereals for hay is at early-milk stage. This allows for the greatest compromise between forage yield and quality (quality would be greatest at the late-boot stage). To help speed up drying, a crimper is recommended when harvesting in the late-boot stage.

SILAGE PRODUCTION

Wheat, barley, oat and triticale silage yields are similar, 4 - 7 tons/acre of 35% dry matter forage in the boot stage and closer to 6 - 10 tons/acre when harvested in the late-boot stage. Small grains should be ensiled at between 62 – 68% moisture. Chop length should be set finer than when harvesting corn or forage sorghum.

(Kansas State University)



	Soil First COVER OVER CROP SEED CROP MIXES		Soil First [®] Mixes Work Great for Food Plots!
	SOIL FIRST® 101 COVER STARTER Simple. Practical. A low-risk option for early adopters and growers looking for flexibility. • For multiple regions & marginal soil environments • Winter-hardy rye will sequester excess nitrogen SEEDING RATE (LBS/ACRE) Drill: 30 - 35 Broadcast: 35 - 40 Aerial: 30 - 40 Forage: 40 - 50	91% GUARDIAN® WINTER RYE 9% TILLAGE RADISH®	
SOLFER CONTRACTOR	SOIL FIRST® 102 COVER STARTER + Building nitrogen and root mass while improving soil tilth and biomass potential. • Perfect before both corn or soybeans • Ideal for Southern Corn Belt & beyond SEEDING RATE (LBS/ACRE) Drill: 30 - 35 Broadcast: 35 - 40 Aerial: 30 - 40 Forage: 40 - 50	72% GUARDIAN® WINTER RYE 20% CRIMSON CLOVER 8% TILLAGE RADISH®	
SCHEME IN THE SCHEME	SOIL FIRST® 121 BRASSICA BOOST Pairing with other species is great for forage or grazing and providing high biomass potential • Perfect supplement for cereal grains like rye & oats • Will scavenge for excess nutrients left in the soil SEEDING RATE (LBS/ACRE) Drill: 6 - 8 Broadcast: 8 - 10 Aerial: 10 - 15 Supplemental: 2 - 4	50% PURPLE TOP TURNIPS 50% TILLAGE RADISH®	
	SOIL FIRST® 125 N-HANCER Heavy legume mix intended for adding Nitrogen. • Strong nitrogen fixing mix • Ideal as fall forage mix SEEDING RATE (LBS/ACRE) Drill: 35 - 40 Broadcast: 40 - 50 Aerial: NR Forage: 40 - 50	30% DEFENDER OATS25% SPRING PEAS20% BALANSA20% CRIMSON20% CRIMSON5% TILLAGE5% TILLAGE	
	SOIL FIRST® 140 MULTI-PURPOSE For livestock grazers providing soil protection & biomass from fall through spring. • Early seeding/late fall silage opportunity • Ideal forage for beef/non-lactating dairy SEEDING RATE (LBS/ACRE) Drill: 35 - 40 Broadcast: 40 - 50 Aerial: NR Forage: 40 - 50	50% NITROUS® 38% WINTER TRIT 38% WINTER PEAS 6% TILLAGE 6% FORAGE 6% FORAGE BRASSICA	
SOL FIELD	SOIL FIRST® 142 CLASSIC - NEW FORMULA For early planting windows - double-crop, prevent plant, interseeding. • Ideal for acres going to corn or other grass crops • Plant early to maximize production SEEDING RATE (LBS/ACRE) Drill: 12 - 15 Broadcast: 15 - 20	85% CRIMSON CLOVER 15% TILLAGE RADISH®	
	SOIL FIRST® 150 FIELD FITStraightforward & flexible mix with very minimal spring management.• Winterkills in most northern climates• Great for sequestering leftover nutrientsSEEDING RATE (LBS/ACRE) Drill: 30 - 35 Broadcast: 35 - 40 Aerial: 30 - 40 Forage: 40 - 50	90% DEFENDER OATS 10% TILLAGE RADISH®	
SOLFIEST REVENUES	SOIL FIRST® 160 ROOTINGBlend of radish & ryegrass maximizes root mass and captures nutrients.• Best for breaking up compaction & catching nutrients• Perfect in manure systemsSEEDING RATE (LBS/ACRE) Drill: 15 - 20 Broadcast: 20 - 25 Aerial: 20 - 25 Forage: 20 - 25	88% ANNUAL RYEGRASS 12% TILLAGE RADISH®	
	 SOIL FIRST® 167 SUMMER BIOMASS Base of 50% warm-season annual grasses is optimized for biomass & is uniquely suited for grazing. Tolerates poor soil, low pH, & drought environments • Species diversity helps soil aggregate stability SEEDING RATE (LBS/ACRE) Drill: 15 - 20 Broadcast: 20 - 25 Aerial: NR Forage: 25 - 30 	25% SORGHUM×SUDANGRASS 20% IRON & CLAY COW PEAS 15% PEARL MILLET 10% GERMAN MILLET 10% DEFENDER OATS 5% SUNN HEMP 5% FORAGE COLLARDS 5% PEREDOVIK SUNFLOWER 5% HYBRID BRASSICA	
SOLUTION CONTRACTOR	SOIL FIRST® 175 ACCUSPREAD Coated clover and ryegrass creates spread patterns and broadcast germination. • Great compaction alleviation & nutrient scavenging • Facilitates more accurate broadcast seeding patterns SEEDING RATE (LBS/ACRE) Drill: 20 - 25 Broadcast: 25 - 30 Aerial: 25 - 30	80% ANNUAL RYEGRASS* 12% CRIMSON 12% CLOVER* 8% TILLAGE 8% TILLAGE *COATED	

Conservation Seed Solutions

CUSTOM SEED MIXING

La Crosse Seed offers custom mixing capabilities to meet any cover crop or conservation needs. Contact us at **info@laxseed.com** or visit our website to learn more.

Cover crops are one of many conservation tools on the farm to better protect our soil and water. There are many choices when it comes to conservation and environmental farming practices, and we provide a diverse selection of conservation seed solutions.

SEED OPTIONS

La Crosse Seed offers a vast portfolio of seed designed for many conservation applications. A partial list available through La Crosse Seed includes seed for:

- Conservation cover including CRP and pollinator habitat seeds
 Contour buffer strips
- Filter strips
- Fitter strips
 Field borders
- Forage and biomass plantings
- Grassed waterways
- Stream bank protection

CONSIDERATIONS WHEN

CREATING CUSTOM SEED MIXES:

- Think about seed sizes will the different size and shape of certain seeds prohibit specific application methods?
 - » Aerial: too large of seed might struggle to get adequate seed-to-soil contact
- » Drilling or Ground Seeding: seed size usually affects seeding depth. Different seeding depths become a real challenge with numerous species all in the same bag
- Different cover crops often perform best when planted at different times
- Not all crops are beneficial to the next crop in the rotation
- Select species carefully, making sure all species are adapted to the field's soil, drainage and crop rotation





NATIVES FIRST Native Grasses & Wildflowers



online RESOURCES For product & management information, visit lacrosseseed.com

- MIXES
- Midwest Wildflower Mix
- Color Iowa Wild Mix
- Knee-High Wildflower Mix
 North American Shade
- Wildflower Mix • Native Wildflower Mix for Pollinators
- All Perennial Wildflower Mix
- Upland Native Mix
- Lowland Native Mix (Tall)
- EcoGrass Short Mix

	SEEDING INFORMATION														
		P	SEA	NTIN ASOM	G N	1				Ŧ					TRURE Renheit)
				MER		=	ATE	ATE	(GE)	LL)		ME			ERA
l A	NNUAL COVER	5	ER	MI			VG R CRE	VG R CRE	VG R ORA CRE	VG D DRII	/LB	NG T	*≊	J D	EMP
	CROP FORAGE	RIN	MM	ΕS	Ξ		EDI S/A	EDI S/A	EDI S/A	EDI	EDS	Ē	ILK S/F	EDI TE*	EGR
		ß	su	P	FA	CA	B 9 8	E S S	SE B	SE (SE	SE	SE		RAE	<u> </u>
	Camelina (Winter)				\checkmark	20:1 - 30:1	4 - 6	1 - 2	0	1⁄4"	400,000	Oct-Nov	0	8-10	36°
B	Daikon Radish			\checkmark		Tops - 9:1	3 - 8	1-3	5 - 8	1⁄4"	30 - 40,000	Aug-Sep	44	3-8	45 °
JST/	Oilseed Radish			\checkmark		Tops - 9:1	8 - 12	3 - 8	8 - 12	1⁄4"	30 - 40,000	Aug-Sep	44	6-12	45°
M	Turnips (Top)			\checkmark		Tops - 9:1	2 - 6	2 - 4	3 - 8	1⁄4"	220,000	Aug-Sep	45	2-6	45°
SICA	Vivant Brassica		✓	\checkmark		10:1 - 15:1	4 - 6	2 - 3	5 - 6	1⁄4"	165,000	July-Sep	44	5-6	45 °
SASS	Forage Collards	\checkmark	V	V		15:1 - 25:1	5 - 12	1-4	10 - 12	1/4" - 1/2"	175,000	Mar-Apr; Aug-Oct	44	8-12	40 °
B	Rapeseed	\mathbf{V}		V		20:1-22:1	4-6	2-4	6-8	1/4" - 1/2"	145,000	Apr-May; Aug-Sep	45	5-8	41º
	Yellow/White Mustard	\checkmark				20:1 - 30:1	6 - 15	2-5	°	1/4" - 3/4"	100,000	Apr-May; Aug-Sep	46	10-15	40°
	Crimson Clover					15:1 - 20:1	10-15	4-8	6-15	'/ 4'' 1/-"	150,000	Feb-War; Aug-Sep	52	6-15 6-15	42°
	Balansa Clover					15:1 - 20:1	3.6	5.10	3.6	74 1/4"	500.000	Feb-Mar: Aug-Sep	56	3.6	40° 40°
	Winter Hairy Vetch	Ť			~	10:1 - 15:1	15-30	10-20	30-40	1"	16,000	Aug-Sen	52	NR	-10 60°
NES	Sunn Hemp		\checkmark			18:1 - 29:1	15 15	5-8	5 - 15	- ½" - 1"	15.000	July-Sep	0	NR	65°
GU	Austrian Winter Peas			\checkmark	\checkmark	15:1 - 20:1	30 - 80	10 - 30	40 - 60	1"	2,000	Aug-Sep	52	NR	41°
	Peas (Hay)	\checkmark		\checkmark		20:1 - 25:1	75 - 120	10 - 50	75 - 120	1"	3,000	Mar-Apr; Aug-Sep	50	NR	41 °
	Peas (Silage)	\checkmark		\checkmark		Pea Straw - 29:1	75 - 120	10 - 50	75 - 120	1"	3,000	Mar-Apr; Aug-Sep	0	NR	41 °
	Peas and Oat Mix	\checkmark	\checkmark	\checkmark	\checkmark	o	75 - 120	0	75 - 120	3⁄4" - 1 "	Varies	Mar-Apr; Aug-Sep	0	NR	41 °
	Medium Red Clover	\checkmark		\checkmark	\checkmark	12:1 - 16:1	8 - 12	6 - 8	8 - 12	1⁄4"	270,000	Feb-May; Aug-Oct	48	4-10	41 °
	Annual Ryegrass	\checkmark		\checkmark	\checkmark	Vegetative - 20:1	15 - 30	10 - 15	25 - 35	1⁄4"	215,000	Mar-Apr; Aug-Oct	32	15-35	40 °
	Spring Oats (Hay)	\checkmark		\checkmark		Vegetative - 20:1	30 - 50	20 - 40	80 - 120	³⁄4" - 1 "	15 - 18,000	Mar-Apr; Aug-Sep	38	20-60	38 º
	Spring Oats (Silage)	\checkmark		\checkmark		Straw - 80:1	30 - 50	20 - 40	80 - 120	³ ⁄4" - 1"	15 - 18,000	Mar-Apr; Aug-Sep	0	20-60	38°
	Winter Rye (Hay)			\checkmark	\checkmark	Vegetative - 20:1	30-50	20-40	80 - 120	³ /4" - 1"	16 - 18,000	Aug-Oct	50	20-60	34°
	Winter Rye (Sliage)			×		Straw - 70:1	30-50	20-40	80 - 120	%4" - 1" 34" - 1"	16 - 18,000	Aug-Oct	0	20-60	34°
	Triticale (Spring)					Straw - 80.1	30-50	20-40	80.120	74 · 1 3/4" - 1"	14 - 16,000	Mar-Anr: Aug-Sen	40	20-00 NR	380
	Barley (Winter)				~	Vegetative - 20:1	30 - 50	20 - 40	80 - 120	³ / ₄ " - 1"	14 - 16.000	Aug-Oct	40	20-60	38'
SES	Barley (Spring)	\checkmark		V		Straw - 80:1	30 - 50	20 - 40	80 - 120	³ ⁄4" - 1 "	14 - 16.000	Mar-Apr: Aug-Sep	0	NR	38°
RAS	Wheat (Hay)			\checkmark	\checkmark	Vegetative - 20:1	30 - 50	20 - 40	80 - 120	³ ⁄4" - 1 "	11 - 12,000	Aug-Oct	48	20-60	38°
9	Wheat (Silage)			\checkmark	\checkmark	Straw - 80:1	30 - 50	20 - 40	80 - 120	3⁄4" - 1 "	11 - 12,000	Aug-Oct	o	20-60	38º
	Forage Sorghum		\checkmark			Vegetative-20:1	6 - 20	0	6 - 20	3⁄4" - 1 1⁄2"	17,000	May-July	45	NR	65°
	Sorghum x Sudan		✓			Leftover Stalks-80:1	25 - 70	5 - 20	25 - 70	3⁄4" - 1 ½"	21,000	May-July	45	NR	65°
	Sudangrass		✓			0	20 - 45	0	20 - 45	½" - 1 "	43,000	May-July	40	NR	65°
	Teff Grass		✓			Vegetative - 20:1	8 - 12	0	8 - 12	1⁄4"	1,300,000	May-July	0	NR	65°
	Pearl Millet		\checkmark	\checkmark		12:1 - 20:1	20-30	5-20	20-30	½" - 1"	60,000	May-Aug	42	NR	65°
	German Millet		×	×		12:1 - 20:1	20-25	5-15	20-25	1″	220,000	May-Aug	0	NK	65°
-	SE 101 Cover Starter	-	V			12:1 - 20:1	20-30	<u> </u>	20-30	1/4" - 1"	80,000	May-Aug	31 48	NK 30-40	450
	SF 102 Cover Starter+					0	30-35	0	40-50	⁷⁴ - 1 ¹ / ₄ " - 1"	0	Aug-Sep	54	30-40	45°
5	SF 125 N-Hancer		\checkmark	V	V	0	35 - 40	0	40 - 50	¹ ⁄4" - 1 "	o	July-Sep	44	NR	45°
IXE	SF 121 Brassica Boost					0	6-8	2-4	10 - 15	¼" - ½"	o	July-Sep	44	10-15	45°
T [®] N	SF 140 Multi-Purpose		\checkmark	\checkmark	\checkmark	o	35 - 40	0	40 - 50	¼" - 1 "	o	July-Sep	50	NR	45°
IRS	SF 142 Classic		\checkmark	\checkmark		0	12 - 15	0	15 - 20	1/4" - 1/2"	0	Aug-Sep	52	20-25	45°
OL F	SF 150 Field Fit		\checkmark	\checkmark		o	30 - 35	0	40 - 50	¼" - 1 "	0	Aug-Sep	36	30-40	45°
S	SF 160 Rooting			\checkmark	\checkmark	0	15 - 20	0	20 - 25	1/4" - 1/2"	0	Aug-Sep	50	20-25	45°
	SF 167 Summer Biomass		\checkmark	\checkmark		0	15-20	0	0	1/2" - 3/4"	0	July-Sep	42	NR	65°
	SF 175 AccuSpread			V	\checkmark	0	20 - 25	•	25 - 30	1/4"- 1/2"	0	Aug-Sep	35	25-30	45°
~	Phacelia		V	V		12:1 - 18:1	8	1.2	8	¹ /4"	230,000	Jun-Sep	0	8-10	37º
H	Suntiower	1		V		10:1 - 19:1	3-5	5-20	3-5	9/4" - 1" 1/6" - 1"	8,000	May-Aug	28	ND	50°
°	Sugar Beet		~	~		Tops - 19:1	2-5	1-3	2-5	1/4"	10,000	May-July	24	NR	50°
	- Bui Boot				1.1				_		,				

Days to Harvest = Estimations based on average growing season to reach optimum quality

* +/- 5%. Bulk Density averages are only a guide. Moisture, humidity and seed quality all affect bulk density.

REFERENCES: Texas Tech University, Oklahoma State University, Iowa State University, Mississippi State University, North Dakota State University, Colorado State University, University of Florida, Michigan State University, University of Wisconsin, Kansas State University, NRCS/USDA

	NON-FORAGE BENEFITS											NUTRITIONAL VALUE INFORMATION (VALUES VARY GREATLY DEPENDING ON MATURITY)									
					NON- (5 = F)			FITS													
USDA Hardiness Zone	DAYS TO Emergence	NITROGEN FIXES OR SCAVENGES	COMPACTION	WEED	BIOMASS PRODUCTION	EROSION CONTROL	DISEASE/PEST CONTROL	POLLINATOR/ BENEFICIALS	P & K CYCLING	EASE OF Establishment	CRUDE PROTEIN	NEL T MCAL/LB	ADF% ‡	NDF% \diamond	TDN	DM TONS PER ACRE	DAYS TO 1ST HARVEST	DAYS TO NEXT HARVEST	GRAZE	BALEAGE	CHOP
		T - Net Energy for L	actation =	Energy av	allable att	er subtra	cting dige:	stive and m	ietabolic	losses	‡ - Acia Dete	ergent Fiber =	Low values	mean more d	igestible	◇ - Neutral L	etergent Fib	er = Low valu	es mean co	iws can ear	t more
3	7 - 10	Scavenger	4	(5) (5)	3	4	3	(5)	(5)	(5)	0	°	0	0	° 70	•	0 4E	0	•	•	•
9	3-5	Scavenger	5	5	4	4	3	2	4	5	18	0.73	26	21	70	2-4	45	0	++++	•	+
6-7	4 - 10	Scavenger	3	5	4	3	3	3	3	5	16	0.70	23	20	69	2-5	60-80	0	+++	0	+
7	4 - 6	Scavenger	3	4	4	3	3	3	3	5	14	o	23	22	78	2-5	35-40	25-30	+++	++	+
5	4 - 10	Scavenger	3	4	4	4	3	3	3	5	20	0.74	25	21	70	2-4	35-40	25-30	+++	0	+
5	4 - 10	Scavenger	5	3	4	4	4	4	4	5	14	TBD	28	41	57	1.5-4	60-80	0	+	++	+++
7	5-7	Scavenger	4	3	4	3	(4)	(5)	3	(5)	0	0	0	0	0	0	0	0	0	0	•
/ 9	7-10	Fixer	2	4	3	3	3	3	3	4	1/	0.56	31	42	59	.5-2	60	0	++	++++	+
5	14	Fixer	2	4	3 (4)	4	3	5	3	4	16	TBD	31	45	65	1-2.5	40-50	0	++	+	+++
3-4	14	Fixer	3	4	4	3	3	(5)	4	3	26	0.58	33	48	64	1-3	Spring	o	+++	0	+
Frost	3 - 7	Fixer	2	4	5	3	3	4	3	3	25		Varies	Greatly -		1-5	40-45	o	+++	+	++
6+	9	Fixer	2	4	3	3	3	4	2	4	28	0.60	38	54	70	0.5-2	Spring	0	++	+	+++
Frost	9	Fixer	2	4	3	3	3	4	2	4	10	0.60	52	62	60	1.5-3	60-80	0	++	+	+++
Frost	9	Fixer	2	4	3	3	3	4	2	4	16	0.58	44	55	58	1.5-3	60-80	0	0	+	+++
Frost	5-9	Both	2	4	4	4	3	3	3	4	17	0.57	30	57	59	3-5	60 Spring	° 40	++	+	+++
6	7 - 10	Scavenger	5	5	3	5	2	2	3	5	9	0.58	38	40 65	58	-5-2	90	4U 0	++	+	++++
7	- 5 - 8	Scavenger	2	4	5	4	3	1	3	4	10	0.54	39	63	54	3-6	60-70	o	++	+	+++
7	5 - 8	Scavenger	2	4	4	4	3	1	3	4	12	0.60	39	59	60	1.5-3.5	80	o	0	+	+++
3	5 - 8	Scavenger	4	5	4	5	3	1	4	4	10	0.58	38	65	58	3-5	Spring	0	+	++	+++
3	5 - 8	Scavenger	4	5	4	5	3	1	4	4	14	0.59	37	59	59	2.5-4	Spring	0	0	+	+++
3	6-8	Scavenger	2	4	5	4	3	1	4	4	12	0.58	41	69	56	2.5-4	Spring	0	+	++	+++
3	6-8	Scavenger	2	4	5	4	3	1	4	4	12	0.58	39	56	58	3-4	50-60	0	++	+	+++
6	6-8	Scavenger	1	4	5	4	3	2	3	4	12	0.57	37	58	57	2-4	50	0	++	+	+++
3	6 - 10	Scavenger	3	4	4	5	3	1	4	4	9	0.57	38	66	59	2-3	Spring	o	++	+++	+
3	6 - 10	Scavenger	3	4	4	5	3	1	4	4	12	0.59	37	62	59	2-3	Spring	o	0	+	+++
Frost	10	Scavenger	4	5	5	4	4	3	3	4	9	0.59	38	59	59	6-9	80-105	o	++	+	+++
Frost	10	Scavenger	4	5	5	4	4	3	3	4	16	0.70	29	55	55	5-8	45-70	30	+	++	+++
Frost	3-5 2 E	Scavenger	4	(5) 2	(5) 2	4	(4)	3	3	4	9	0.57	43	67 57	57	2-6	50	30	+	++	+++
Frost	3.5	Scavenger	3	5	5	4	3 (1)	2	3	4	16	0.60	39	57 48	52	3-5	35 45	25	++	+	+++
Frost	3-5	Scavenger	3	3	4	5	3	1	3	4	14	N/A	34	60	60	2-4	50	0	+++	0	0
Frost	3 - 5	Scavenger	3	3	4	5	3	1	3	4	12	N/A	39	72	62	1.5-2.5	50	0	+++	0	0
0	Varies	Scavenger	5	5	5	4	3	2	4	4	10-13					2-5	45-50	Spring	+++	+	++
0	Varies	Both	5	5	4	5	3	2	4	4	12-15	ſ	Nutrition v	alues var	у	2-5	45-50	Spring	+++	+	++
0	Varies	Fixer	4	4	4	(5)	2	3	4	4	14-18	C	lue to diff	erences II	n ¢	2-5	45-50	0	++++	+	++
0	Varies	Scavenger	5	4	4	3	3	3	4	5	10-18		the mix co	mnonent	1 2	1-3	45-50	25	+++	•	•
0	Varies	Both	4	3	3	3	3	3	4	4	16-18		and diffe	rences in	5	2-4	45-60	Spring	+++	+	++
0	Varies	Scavenger	5	5	4	3	3	2	3	5	13-17		how and v	vhen each	1	2-4	45-50	0	+++	0	+
o	Varies	Scavenger	5	4	4	4	4	3	4	4	10-14	CO	mponent	is harvest	ed	2-4	45-50	Spring	+++	+	++
o	Varies	Both	4	5	5	4	3	5	4	3	12-18	(gi	razed vers	us baleag	ge)	3-6	45-50	30-40	+++	++	++
0	Varies	Both	5	4	4	4	4	3	4	4	10-16					2-5	45-50	Spring	+++	+	++
8 Front	10 - 14	Scavenger	2	(5) 2	3	3	4	5	2	4	•	° TPD	° 26	0	°	°	Varias	0	°	0	+
Frost	3-5	Scavenger	3	5	3	2	3 1	5	4 5	5	12	0.68	33	42	65	1.5-4	60	0	++	0	+
8	7 - 14	Scavenger	4	4	4	3	3	2	3	4	14	0.58	14	25	58	2-4	60-80	0	+++	o	+
So	me Benefit	= +	Not	Recom	mended	= Ø	0	Al	falfa (S	ilage)	18	0.55	37	49	55	3-8	o	30	0	0	+++
M	More Benefit = ++ Not Applicable = • Alfalfa (Hay)					19	0.59	35	45	59	3-8	0	30	+	++	+++					
В	est Benefit	= +++							Corn (S	ilage)	8	0.74	27	46	72	7-10	120	0	0	0	+++
_	Best Benefit = +++ Com(Shage) 8 0.74 27 46 72 7-10 120 ° ° ° +++																				



Brier Ridge® and Deer Creek Seed products have been formulated to provide superior performance in establishing, attracting and keeping those trophy bucks, turkeys and upland birds on your property.



BF RI Food	DCD Plot Seed	®								f	Go to planting	LINE SOURCES o lacrosse g windows useful inf	seed.com and other ormation.
	SEEDING RATE (LBS/ACRE)	BAG Size (LBS)	BRASSICAS	LEGUMES	GRASSES	FORBS	ANNUAL/ Perennial	SEEDING RATE (LBS/ACRE)	BAG Size (LBS)	BRASSICAS	LEGUMES	GRASSES	FORBS
ANNUA	L MIXES												
ANNUA	L HABITAT HID	E-A-WA	Y				AUTUN	IN ENERGY					
ANNUAL	10* 12 (Drilled) (Brdcast)	10				۲	ANNUAL	40* 50 (Drilled) (Brdcast)	25	•			
 Summe beddin Perform heavy s shade t Quick t 60 - 65 plantin alterna <i>Hide-A</i> Can rea 	 Summer annual mix planted as bedding/buffer source Performs well on light to heavy soil types in light shade to full sun Quick to establish, requires 60 - 65°F soil temps for planting/germination, annual alternative to Perennial Habitat Hide-A-Way Can reach heights up to 8 ft tall 						 Early fall planted annual species offering early/late fall food source Performs well on light to heavy soil types in light shade to full sun Portion remains green until air temps reach 10 - 15°F Optimally planted 6 - 8 weeks prior to killing frost 						
			*Seed at 1"	Depth						*Seed at 1/4'	' Depth		
ANNUAL	6* 8 (Drilled) (Brdcast)	4 & 8	•										
 Early fa early/la For ligh light sh Brassic temps i Optima prior to vegetat appeali Brassic after kil 	Il planted annual ate fall food sourd t to heavy soil typ ade to full sun cas remain green reach 10 - 15°F Ily planted 6 - 8 w killing frost, sugar ive growth after fro ing food source as attract deer ea ling frost	ls offer ce oes in until air eeks s flush ost for rly fall &	30% Tilla 20% Rap 20% Purp 10% Fora 10% Viva 10% Fora	ge Radish [®] eseed ole Top Turr ge Kale nt Brassica ge Collard 7 Depth	nips a s		-						









SEED Co	Э.	s				L.			AS			
SEEDING RATE (LBS/ACRE)	BAG SIZE (LBS)	BRASSIC	LEGUMES	GRASSES	FORBS	ANNUAL/ Perenni <i>k</i>	SEEDING RATE (LBS/ACRE)	BAG SIZE (LBS)	BRASSIC	LEGUMES	GRASSES	FORBS
ANNUAL/PERENNIAL												
AUTUMN BUFFET						SPRIN	G GREENS ELIT	ΪE				
ANNUAL/ 8* 12 PERENNIAL (Drilled) (Brdcast)	5 & 25					ANNUAL/ PERENNIAL	40* 50 (Drilled) (Brdcast)	5 & 25				
 Early fall planted annual/ perennial mix offering multi-year food source Performs well on medium to heavy soil types in light shade to full sun Multiple species for maximum grazing tolerance into late fall & clovers will overwinter 20% Elite Forage Brassica 20% Trophy Rapeseed 15% Forage Turnip 10% Ladino White Clover 10% Red Carpet XL 990 Red Clover 						 Late Spring/Summer/fall planted annual/perennial mix offering multi-year food source Performs well on light to heavy soil types in light shade to full sun Multiple species for maximum grazing quality & protects soil from nutrient loss 10% Balansa Clover 10% Buckwheat 10% Trophy Rapeseed 10% Forage Soybean 10% Med Red Clover 10% Sorghum Sudangrass 10% Italian Ryegrass 						
		*Seed at ¼"	Depth			_			*Seed at ¼'	' Depth		
ANNUAL												
QUAD PRO BEAN						SANDY	SURE SHOT					
ANNUAL 40* 50 (Drilled) (Brdcast)	5 & 25					ANNUAL	25* 35 (Drilled) (Brdcast)	5 & 25				
 Spring/Fall planted annu Performs well on light to soil types in light shade t full sun Fast growing, high protei with forage and vining so Matures in approximately days 	ual heavy to n mix tybeans y 60	70% 2 For 15% Labla 15% Cowp	rage Soybe ab pea	ean Varieties	s	 Late S plante Formu light sa condit Attract wildlife 	pring/Summer/F d annual lated to persist in andy and dryland ions ts deer and other e	all soil avian	35% Pere 30% Fora 20% Buc 10% Bers 5% Wint	edovik Blacl ge Soybear kwheat seem Clove fred Forage	k Sunflower n Brassica	r

*Seed at 1" Depth



*Seed at ½" Depth









Deer Creek Species Offered in Small Packs (5 Lb)

Legumes	Grasses	Broadleaves
Med Red Clover	Egyptian Wheat	Buckwheat
Alsike Clover	Deer Field Corn	Chicory
Berseem Clover	Japanese Millet	Forage Kale
Ladino Clover	Pearl Millet	Tillage Radish
Reisling Intermediate White Clover	High Sugar Perennial Ryegrass	Rapeseed
Alfalfa PI	Wildlife Grain Soghum (Dwarf)	Rutabaga
Birdsfoot Trefoil	Sweet Corn (Deer)	Swiss Chard
Yellow Blossom Sweet Clover	Winter Rye	Forage Soybean
		Sugar Beet
		Peredovik Black Oilseed Sunflower
		Purple Top Turnip

Seven Top Turnip

MIX PERCENTAGES														
Earth Carpet	EITE	LXQ	ELITE	LXQ	LXQ	ELITE	LXQ	EITE				SEEI LBS/:	DING 1,000 FT	
THE SCIENCE IS IN THE SEED®	Kent	tucky grass	Perei Rveg	nnial Tass	Annual Rvegrass	Cree Red F	ping escue	Chewings Fescue	Hard Fescue	Sheep Fescue	Tall Fescue	NEW	OVER	
PROFESSIONAL LANDSCAPE	MIX	ES	.,		.,									
choice sun & shade 🏾 *	40		30			15		15				4 - 6	2 - 4	ldeal for establishing premium lawns or upgrading existing turf
madison parks [®]	50		25			25						4 - 6	2 - 4	ldeal for establishing premium lawns or upgrading existing turf
spartan [®] GRADE A 🏾 🏾 🕈	40		20			20		20				4 - 6	2 - 4	Ideal for establishing premium lawns or upgrading existing turf
wear-n-tear® *	40		40			10		10				4 - 6	2 - 4	Ideal for establishing premium lawns or upgrading existing turf
GENERAL LANDSCAPE MIXES														
park place [®]	5	50		25			25					4 - 6	2 - 4	ldeal for home lawns, parks & school grounds
sunny place $^{\circ}$		33		34			33					4 - 6	2 - 4	Ideal for home lawns & commercial landscapes
quick-2-gro		25		25	25		25					4 - 6	2 - 4	ldeal for areas needing quick establishment
michigan green $^{\circ}$		15		15	35		35					4 - 6	2 - 4	Ideal for the Great Lakes Region & easy on your budget
speedy green		25		25	25		25					4 - 6	2 - 4	ldeal for areas needing quick establishment
KENTUCKY BLUEGRASS & PERENNIAL RYEGRASS BASED MIXES														
blue carpet $^{\circ}$	100											2 - 4	1 - 3	ldeal for golf course tees, fairways & fine home lawns
pro-sports [®]	80		20									3 - 5	2 - 3	ldeal for sports fields & other high performance areas
sports park OS	50		50									3 - 5	2 - 3	ldeal for renovating athletic fields & playgrounds
champion			100									6 - 8	3 - 5	ldeal for renovating athletic fields & high traffic areas
SLOPE & SHADE MIXES														
care-free 👫 🗞						20		20	50	10		6 - 8	3 - 4	ldeal for hillsides, deep roughs, RV parks & cabin sites
shady place® *	10		10			30		30	20			5 - 8	3 - 4	Ideal for home lawns with moderate to densely shaded areas
low grow fescue 🔹 *							35	25	25	15		4 - 6	2 - 4	ldeal for hillsides, deep roughs, RV parks & cabin sites
TALL FESCUE BASED MIXES														
green resistor [®] 5-way											100	8-10	4-8	Ideal for home lawns, athletic fields & golf course roughs
tuff-stuff°		10									90	8-10	4-8	ldeal for high traffic, athletic fields & golf course roughs
survivor	15		15			15		15			40	8-10	4-8	Ideal for low maintenance sites
sandy soil		20		15			20				45	8-10	4-8	Ideal for low maintenance sites
athletic tz overseeder	5		15								80	8-10	4-8	Ideal for low maintenance sites

Sweet Corn

Some varieties are sweeter than others, depending on whether one or both of their parents were sugary enhanced. Varieties that get the 'se' gene from both their parents are homozygous for that trait, or 'double se,' and all of their kernels have the se characteristics. Typically a homozygous se will have better eating quality than a heterozygous se.

Sweet corn comes in three colors: yellow, white and bicolor (yellow and white). Cross pollination of yellow kernel varieties with white kernel varieties will result in production of bicolor corn. If a bicolor is cross pollinated with a yellow variety, kernel color will be mostly yellow. Although there are regional preferences for certain kernel colors, there is no relationship between color and sweetness.

CONVENTIONAL VARIETIES COLOR **MATURITY DAYS** Trinity 70 bicolor Sugar Buns 72 yellow Ambrosia 75 bicolor 75 **Bodacious** yellow 84 Delectable bicolor Incredible 85 yellow





Premium Seed Enhancement + Quality Seed = Best Possible Seedling Establishment

CrosseCoat™ is an elite platform of proven seed treatments to enhance germination, establishment and survival of the top varietals, blends and mixes offered within the Forage First[®] portfolio.

CrosseCoat[™] Benefits Include:

- Improves seeding distribution
- Improves seed-to-soil contact
- Improves water intake
- Protects against fungal attacks
- Enhances nutrient uptake
- Enhances nodulation to provide superior nitrogen fixation

Inoculants



NOVOZYMES OUr goal is to offer c

Our goal is to offer our customers the best the inoculant industry has to offer. La Crosse Seed has selected Novozymes, Verdesian and Visjon Biologics as our preferred inoculant partners. These companies provide cutting edge inoculant technologies with elite performance, ease of application and excellent technical support.

SOYBEANS

TAGTEAM® LCO XC	MultiAction [®] phosphate-solubilizing, nitrogen fixing liquid inoculant with LCO Promoter Technology [®] for retail application
OPTIMIZE [®] FXC	Nitrogen fixing liquid inoculant with LCO Promoter Technology $^{\mbox{\tiny D}}$ for retail application
CELL-TECH [®] LIQUID	Liquid seed applied single-action nitrogen fixing inoculant for grower application
EXCEED [®] SAR	Nitrogen fixing liquid inoculant. Systemic Acquired Resistance (SAR) is a mechanism of plant defense that provides broad spectrum protection against multiple pathogens including both disease and nematodes. For retail application.
EXCEED® TRADITIONAL	Liquid seed applied single-action nitrogen fixing inoculant for grower application
EXCEED [®] PEAT	Peat based, seed applied nitrogen fixing inoculant for soybeans

OTHER FORAGE AND COVER CROP LEGUMES

EXCEED [®] PEAT	Peat based seed applied nitrogen fixing inoculants for
	alfalfa, all clovers, birdsfoot trefoil, pea, vetches, lentils
	cowpeas and sunn hemp

CrosseCoat[™] Coating Details*

CrosseCoat (XC1 Options)	Code	Coating %	Inoculant	Fungicide	Additional Treatments
FF 4215.HVX RR	XC1-CPF	34%	Nitragin Gold	Stamina + Apron XL	
FF 42.A2 Alfalfa	XC1-CPF	34%	Nitragin Gold	Stamina + Apron XL	
FF 4319.A2 RR Alfalfa	XC1-CPF	34%	Nitragin Gold	Stamina + Apron XL	
FF 4022.LH Alfalfa	XC1-CPF	34%	Nitragin Gold	Stamina + Apron XL	
FF 5020.FR Alfalfa	XC1-CPF	34%	Nitragin Gold	Stamina + Apron XL	
FF Premium Alfalfa	XC1-CPF	34%	Nitragin Gold	Allegiance-FL or Apron XL	
FF Pro Alfalfa	XC1-CPF	34%	Nitragin Gold	Allegiance-FL or Apron XL	
FF 9615 Red Clover	XC1-CPF	34%	Nitragin Gold	Allegiance-FL	
Red Carpet XL Red Clover	XC1-CP	34%	Nitragin Gold		
Duration Red Clover	XC1-CP	34%	Nitragin Gold		
Orion XL Ladino Clover	XC1-CP	34%	Nitragin Gold		
Radium XL Alsike Clover	XC1-CP	34%	N-Dure		
Lotus XL Birdsfoot Trefoil	XC1-CP	34%	N-Dure		
Big Ton XL Smooth Brome	XC1-CTD	34%			Hydroloc
Haymate XL Orchardgrass	XC1-CTD	34%			Hydroloc
Reprieve XL Teff Grass	XC1-CTD	50%			

Additional Coated Products We Offer

Medium Red Clover	СР	34%	Yes		
Crusade White Clover	CP	34%	Yes		
Frosty Berseem Clover	CP	34%	Yes		
Common Orchardgrass	CTD	34%			
Common Smooth Brome	CTD	34%			
WL Alfalfas - HVX/RR	CPF	34%	Yes	Stamina + Apron XL	Gold Treatment Plus
WL Alfalfas - Other	CPF	34%	Yes	Stamina + Apron XL	Gold Treatment Plus
FSG Alfalfas - HVX/RR	CPF	34%	Yes	Allegiance-FL	AquaBond with Nutri-Start
FSG Alfalfas - Other	CPF	34%	Yes	Allegiance-FL	

*Coatings are comprised of calcium carbonate, commonly described as lime

Descriptions

Hydroloc	Branded name for XC1 hydration component. Natural, mineral-based material. Absorbs 3x more water than regular limestone coating.
Nitragin Gold®	Nitrogen-fixing inoculant for alfalfa and clover promotes seed adhesion & maximum yield; Apron XL/Allegiance FL compatible
Stamina®	Fungicide seed treatment providing robust disease control & more rapid/increased emergence under certain cold conditions
Apron XL [®]	Seed treatment product for protection against Pythium and Phytophthora causing damping-off, seed rot, and systemic downy mildew diseases of certain crops
Allegiance-FL®	Seed treatment chemical for control of seed rot and damping-off diseases of certain crops
AquaBond [®] _{with} Nutri-Start [®] (FSG)	Plant/environment-friendly seed treatment combining water absorbing polymer & micro-nutrient fertilizer package for improved germination & emergence
Gold Treatment Plus™	W-L's Gold Treatment Plus™ features 34% coating with Optimize® Gold LCO Promoter, Stamina® fungicide, Nitragin Gold® inoculant, Apron XL® fungicide and a micro-nutrient package (Mo/Mn)

Coating Abbreviations (as noted on La Crosse Seed pricelist and seed tags)*

34% COATED SEED – RECOMMENDED SEED RATES				
PI	Pre-Inoculated, no Coating or Fungicide			
СР	Coated, Pre-Inoculated			
CPF	Coated, Pre-Inoculated, and Fungicide			
CTD	Coated Only			

Coated seed items or mixes with coated seed have same recommended seeding rates as they would if non-coated *Lot number abbreviations may differ from above. Refer to tag for specific seed treatments.

Drill Calibration Suggestions



Seed or sowing charts provided by drill manufacturers are a great place to start to ensure the correct LBS get seeded. However, some drills may not be as accurate due to age and/or wear and tear. In most cases, only a few species are listed on the chart, leading to questions about calibrating the drill for seeds not listed or when mixes are used. **The above graphic is only a suggestion, helping identify seeds with like size and density.** Besides wheel slippage, other variables can affect seed flow and seeding rates – like seed treatments and coatings.

Seed delivery systems in drills are not as precise as planters that meter seed through singulation. For this reason, it makes sense to regularly calibrate drills and seeders. One method is to seed a known area and weigh the amount of seed used. This takes vacuuming the drill afterwards to calculate LBS of seed sown. Another way is by simulating actual seeding, but with the drill stationary and raised to collect LBS of seeds falling through the seed delivery tubes (with buckets, small bags, or tarps).

Note: native seeds, forbs, and wildflowers work best when placed in the "native grass" box where applicable. PLS rates will need to be calculated using the germination and purity % on the seed tag.

This method calls for totaling the amount of drive wheel rotations needed to cover the fixed area (and then replicating those rotations to produce the amount of seed) that would be sown if it was actually sowing seed. The second exercise also detects if any drop tubes are plugged or not working properly.

When planting two or more species per planter box, calibrate each species individually OR add the index settings for the quantity of each seed being sown. Keep in mind, mixtures usually pack denser so start with the index setting for the largest seed in the mix and adjust accordingly.

34% coated legume seeds will weigh approximately 1/3 more than uncoated seed. Several Midwestern universities and equipment manufacturers have published research showing that coated seed flows faster through seeding equipment versus uncoated, with several findings showing significant variability (> 40% higher seeding rates). Coated grass seed (used primarily on "fluffy" grasses) typically increases the bulk density, resulting in seed moving through equipment faster (but not as variable as with legumes). Increased density = quicker seed movement.

Monitor seeding depth, especially when plantings first begin. Seeding depth should be approximately 3-5 times the diameter of the seeds being sown.

OTHER RESOURCES THAT MAY HELP:

- From Purdue: https://www.extension.purdue.edu/extmedia/ABE/ABE-126-W.pdf
- From Virginia Tech: http://pubs.ext.vt.edu/418/418-121/418-121.html
- From Penn State: https://extension.psu.edu/calibration-of-grain-seed-drills
- From Arkansas: https://www.uaex.edu/publications/pdf/FSA-3111.pdf
- From NRCS: https://www.nrcs.usda.gov/Internet/FSE_ PLANTMATERIALS/publications/wapmctn6331.pdf

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Planting Information Chart

KIND OF SEED	APPROX. SEEDS/LB	LBS/ BU	PLANTING RATE LBS/ ACRE	PLANTING RATE LBS/ACRE IN MIXES	SEEDING DEPTH	SUGGESTED PLANTING DATES	EMERGENCE TIME (DAYS)	PRIMARY USE	LIFE
Alfalfa	227,000	60	15 - 20	8 - 10	1/4" - 1/2"	Mar - May, Aug - Sep	7	Hay, Silage, Pasture	Perennial
Barley	14,000	48	30 - 100	20 - 40	3⁄4" - 1"	Mar - Apr, Aug - Oct	6 - 8	Pasture, Silage	Annual
Bermudagrass (Hulled)	2,071,000	40	5 - 10	N/A	1⁄8"	Apr - Jun, Aug - Sep	21	Hay, Pasture	Perennial
Birdsfoot Trefoil	370,000	60	8 - 10	4 - 5	1/4 "	Feb - May, Aug - Sep	7	Pasture	Perennial
Bluegrass, Kentucky	2,177,000	14	10 - 15	4 - 10	1/4 "	Feb - May, Aug - Sep	28	Pasture	Perennial
Brassicas, Hybrid	165,000	N/A	4 - 6	2 - 3	1/4 "	Jul - Sep	4 - 6	Cover Crop	Annual
Brome, Meadow	93,000	N/A	12 - 20	5 - 10	1/4" - 1/2"	Mar - May, Aug - Sep	14	Hay, Pasture	Perennial
Brome, Smooth	138,000	14	15 - 20	5 - 10	1⁄4" - 1⁄2"	Mar - May, Aug - Sep	14	Hay, Pasture	Perennial
Buckwheat	15,000	52	40 - 55	5 - 20	½" - 1"	Jun - Jul	7	Cover Crop	Annual
Cereal Rye	18,000	56	30 - 80	20 - 40	3⁄4″ - 1″	Mar - Apr, Aug - Oct	5-8	Cover Crop, Silage, Pasture	Annual
Chicory	426,000	N/A	4-5	2-3	1/8″ - 1/4″	Apr - May, Aug - Sep	7-21	Pasture, Wildlife	Perennial
Clover, Alsike	128,000	60	7-8	1-3 N/A	$\frac{1}{4}$ - $\frac{1}{2}$	Feb - May, Aug - Oct	7	Hay, Pasture	Perenniai
Clover, Arrowlean	400,000	60	5-10	N/A	+/8 - +/2	Aug - Oct	14	Hay, Pasture	Annual
Clover, Balansa	500,000	00	3-6	1-4	1/4	Feb - Mar, Aug - Sep	14	Cover Crop, Hay	Annual
Clover, Berseem	207,000	60	8-20	5-10	¹ /4	May - Jun, Aug - Oct	D-8 7 10	Cover Grop, Hay	Annual
Clover, Chinson	150,000	60	10-15	4-0	74 1/." 1/."	Aug-Oci	7 - 10	Llow Docture	Annual
Clover, Kurd	227,000	60	10	4-0	74 - 72 14 " 14 "	Api - Widy, Aug	7 10	Hay, Pasture	Perennial
Clover, Laurio Write	272,000	60	4-0	2-4	78 - 74 14" 14"	Feb - May, Aug - Oct	7 - 10	Hay Silago Pasturo	Pereninidi
Clover, Madium Pad	272,000	60	8 - 12	6.9	74 - 72	Feb - May, Aug - Oct	7	Hay Silage Pasture	Bionnial
Clover, New Zeeland White	272,000	60	0-12	0-0	74 - 72	Feb - May, Aug - Oct	7 10	Desture	Dieminia
Clover, New Zealand White	768,000	60	4-0	2-4	78 - 74 16" 14"	Feb - May, Aug - Oct	7 - 10	Pasture	Perennial
Crowpyetch	138,000	60	20-40	2-4	78 - 74 16"	Mar - May, Aug - Oct	14	Frasiun Control	Perennial
Fascue Hard	592,000	N/A	5 - 10	0-10 N/A	72 1/4" - 1/6"	Feb - May, Aug - Sep	14	Erosion Control	Perennial
	227,000	25	25 20	6 12	74 - 72	Mar May Aug Sop	14	Hay Pasture Fresion Control	Perennial
Festulolium	227,000	2.5 N/A	20-30	15 - 20	74 - 72	Mar - May, Aug - Sep	14	Hay Pasture	Biennial
Hairy Vetch	16,000	60	15 - 30	10-20	1"	Aug - Oct	14	Cover Crop	
Kalo	200.000	N/A	35-4	2-3	16"	May - Jul	7	Cover Crop	Annual
Lespedeza Korean (Hulled)	238,000	25	25 - 35	2-3 N/A	1/4" = 1/5"	Mar - Apr	14	Hav Pasture Frosion Control	Annual
Lespedeza, Norean (nancu)	200,000	25	25-35	N/A	1/4 72 1/4" - 1/5"	Mar - Apr	14	Hay, Pasture, Erosion Control	Annual
Millet Brownton	142 000	50	10 - 30	N/A	1/2" - 1"	May - Jul	10	Hay Pasture	Annual
Millet, Foxtail (German)	220,000	50	20-25	N/A	1"	May Jul May - Jul	10	Hay	Annual
Millet Japanese	143 000	35	15-30	8-12	1"	Apr - Jul	10	Hay Wildlife Frosion Control	Annual
Millet Pearl	60,000	52	10 - 30	5-20	- 1⁄2" - 1"	May - Jul	3-5	Pasture Silage	Annual
Millet. Proso	80.000	56	20-30	5-20	1"	May - Jul	3-5	Grain, Wildlife	Annual
Oats. Spring. Fall	16.000	32	30 - 50	20 - 40	3⁄4" - 1"	Mar - Apr. Aug - Sep	5 - 8	Cover Crop. Silage, Hay	Annual
Orchardgrass	416.000	14	20 - 30	3 - 10	1/4" - 1/2"	Mar - May, Aug - Sep	18	Hav. Pasture	Perennial
Peas, Austrian Winter	2,000	60	30 - 80	10 - 30	1" - 1 ½"	Aug - Sep	9	Cover Crop	Annual
Peas, Cow	3,000	60	75 - 120	N/A	1/4" - 1/2"	May - Jul	8	Cover Crop, Silage	Annual
Phacelia	230,000	N/A	8	1 - 2	1/4 "	Jun - Sep	10 - 14	Cover Crop	Annual
Radish	35,000	N/A	3 - 8	1 - 3	1/4" - 1/3"	Aug - Sep	14	Cover Crop	Annual
Rapeseed	145,000	50	4 - 6	2 - 4	1/4" - 1/2"	Apr - May, Aug - Sep	4 - 10	Cover Crop	Annual
Red Top	4,990,000	14	4 - 5	1 - 2	1/4 "	Mar - May, Aug - Sep	10	Pasture, Erosion Control	Perennial
Reed Canarygrass	480,000	47	5 - 10	3 - 5	1/4" - 1/2"	Mar - May, Aug - Sep	21	Hay, Pasture	Perennial
Ryegrass, Annual	227,000	24	15 - 30	10 - 15	1/4 "	Mar - Apr, Aug - Oct	7	Cover Crop, Silage, Pasture	Annual
Ryegrass, Perennial	227,000	24	30 - 40	6 - 10	1⁄4" - 1⁄2"	Feb - May, Aug - Sep	14	Hay, Pasture	Perennial
Sainfoin	30,000	55	20	15	1⁄2" - 3⁄4"	Mar - Apr	10	Hay, Pasture, Wildlife	Perennial
Sorghum, Forage	17,000	56	6 - 15	N/A	3⁄4" - 1 ½"	May - Jul	10	Silage	Annual
Sorghum, Forage BMR	17,000	56	4 - 6	N/A	1"	May - Jul	10	Silage	Annual
Sorghum, Grain	15,000	50	3 - 10	N/A	1"	May - Jul	10	Grain, Wildlife	Annual
Sorghum x Sudangrass	21,000	56	25 - 50	5 - 20	3⁄4" - 1 1⁄2"	May - Jul	10	Silage	Annual
Sorghum x Sudangrass BMR	21,000	56	15 - 35	N/A	1"	May - Jul	10	Silage	Annual
Sudangrass	43,000	40	20 - 45	N/A	½" - 1"	May - Jul	10	Hay, Pasture	Annual
Sunn Hemp	15,000	N/A	15	5 - 8	½" - 1"	Jul - Sep	3 - 7	Cover Crop	Annual
Sunflower	7,000	32	8 - 5	1 - 2	3⁄4" - 1"	May - Aug	4 - 10	Wildlife	Annual
Sweetclover	259,000	60	12 - 15	6 - 8	1⁄4" - 1⁄2"	Feb - May, Aug - Oct	7	Pasture, Wildlife	Biennial
Switchgrass	389,000	55	5 - 8 PLS	N/A	1/2 "	Apr - May	21	Hay, Pasture, CRP	Perennial
Timothy	1,152,000	45	12 - 15	2 - 6	1⁄4" - 1⁄2"	Mar - May, Aug - Sep	10	Hay, Pasture	Perennial
Teffgrass	1,300,000	N/A	8 - 12	N/A	1/4 "	May - Jul	3 - 5	Hay, Pasture	Annual
Triticale	15,000	48	30 - 100	20 - 40	3⁄4" - 1"	Mar - Apr, Aug - Oct	6 - 8	Hay, Pasture	Annual
Turnips	220,000	55	2 - 6	1 - 4	1/4 "	Aug - Sep	4 - 10	Cover Crop	Annual
Weeping Lovegrass	1,482,320	60	3 - 5	1 - 2	1/2"	May - Jun	7	Hay, Pasture	Perennial
Wheat	11,000	60	90 - 120	60 - 90	3⁄4" - 1 1⁄2"	Mar - Apr, Aug - Oct	7	Pasture, Silage	Annual

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