



FORAGE FIRST®

BY DLF

SEED GUIDE | EDITION 15

WHEN YIELD AND QUALITY MATTER®

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NEW

DLF FIBER ENERGY

WHEN SUSTAINABLE FARMING GENERATES HIGHER PROFIT

Years of breeding and selection of only the best forage candidates have increased the overall digestibility of our forages, and only products with the highest fiber digestibility are honored with a DLF Fiber Energy badge.

- The global demand for meat and milk is high, and as the world's population increases exponentially, the demand of tomorrow will be even higher.
- Through our breeding program, we developed DLF varieties with high cell wall digestibility – we call them DLF Fiber Energy varieties. These perfected DLF varieties give you more forage energy and higher milk yield or meat production from your livestock.
- Each animal eats the same amount of grass but with a higher digestibility, the feed uptake increases, and provides more energy to the animal.
- 1% increase in fiber digestibility (dNDF) = +0.55 lbs milk per cow per day, or 0.053 lbs of live weight gain per day



HIGHER DIGESTIBILITY = HIGHER FEED INTAKE

- Livestock perform better under maximum forage yield, digestibility and protein content.
- Our top products improve dry matter intake and boost milk or meat yields.
- It is the surest way to maximize output without increasing input costs.

LOOKING FOR ALFALFA?

ASK TO SEE OUR ALFALFA SEED GUIDES!



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.

LA CROSSE SEED + DLF: SEEDS & SCIENCE, DELIVERED

DLF and La Crosse Seed have worked in synergy since 2018, when DLF acquired La Crosse Seed. DLF (Dansk Landbrugs Frøelskab), which translates to the "Danish Farmers Organization's Seed Supplier," was founded in 1872. DLF is owned by 3,000 growers specializing in growing and developing forage and turf seeds.

DLF is a global leader in the development of innovative forage products. DLF's US business is headquartered in Albany, Oregon together with a large portion of DLF's North American research and seed production activities. DLF operates a distribution focused division through La Crosse Seed which includes

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.

strategically placed warehouses across the United States.

With our synergistic approach, you are supported by a worldwide organization with a tremendous passion for innovation and commitment to helping deliver the absolute best forage products. As we move forward, our goal is to provide continuity to the alfalfa products you have been accustomed to sourcing along with all the other forage, cover crop, and other specialty seed products you may require.

WE ENHANCE OUR SEED

La Crosse Seed's portfolio of elite alfalfas and other legumes 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.

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



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 foragefirst.com for more information on important forage considerations including:

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

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.



WHAT FORAGES ARE SAFE FOR DIFFERENT ANIMALS

	Chickens	Goats	Sheep	Cattle	Horses	Swine	Small Ruminants	Deer	Wild Birds
Alfalfa	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Timothy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Orchardgrass	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
... (many more rows) ...									

This is only a guide. La Crosse Seed makes no claims or guarantees, or warranties regarding performance and function of forage/seed or their derivative effects.

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

GROWING WITH DLF

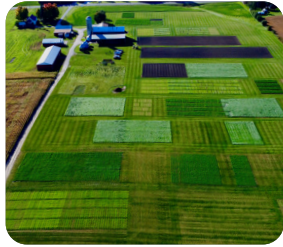
Our customers demand a lot from their seed: yield, forage quality, winterhardiness and disease resistance. That is why we invest heavily in global R&D and our field trials. Roughly 11% (1 in 9) of DLF's over 2,000 worldwide employees are involved in breeding programs and product development. For more than 30 years, DLF breeding and product development has optimized forage grass

and legume 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.

Touchet, Washington USA



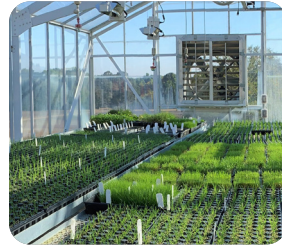
Port Hope, Ontario Canada



West Salem, Wisconsin USA



Philomath, Oregon USA

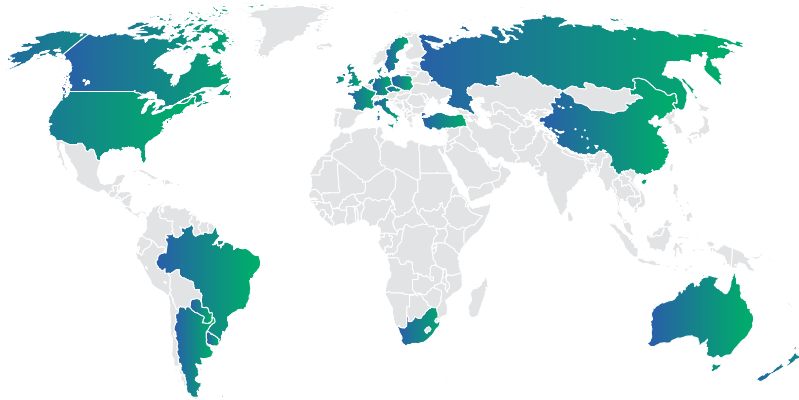


Berry, Kentucky USA



THE WORLD OF DLF

The presence of DLF breeding and testing facilities in the largest production and utilization areas ensures that our products are well adjusted, tried and tested in local climatic conditions.



850 EMPLOYEES work in DLF's Turf and Forage Division worldwide



11% OF DLF'S WORKFORCE is employed in research and development



1,600+ VARIETIES have been released and commercialized through this effort

OUR CUSTOMERS CAN

COUNT ON GROWTH

At DLF we research, develop and produce products to specifically meet the needs of your market and conditions.

DLF is the global leader in research, development, production and distribution of forage and other seed. **This makes us part of a worldwide organization with a passion for innovation and a commitment to helping us deliver the best forage products.**



World market leader **within temperate forage and turf seeds**. Supplying to more than 100 countries.



Leading research and development program in sustainable and green crops of the future



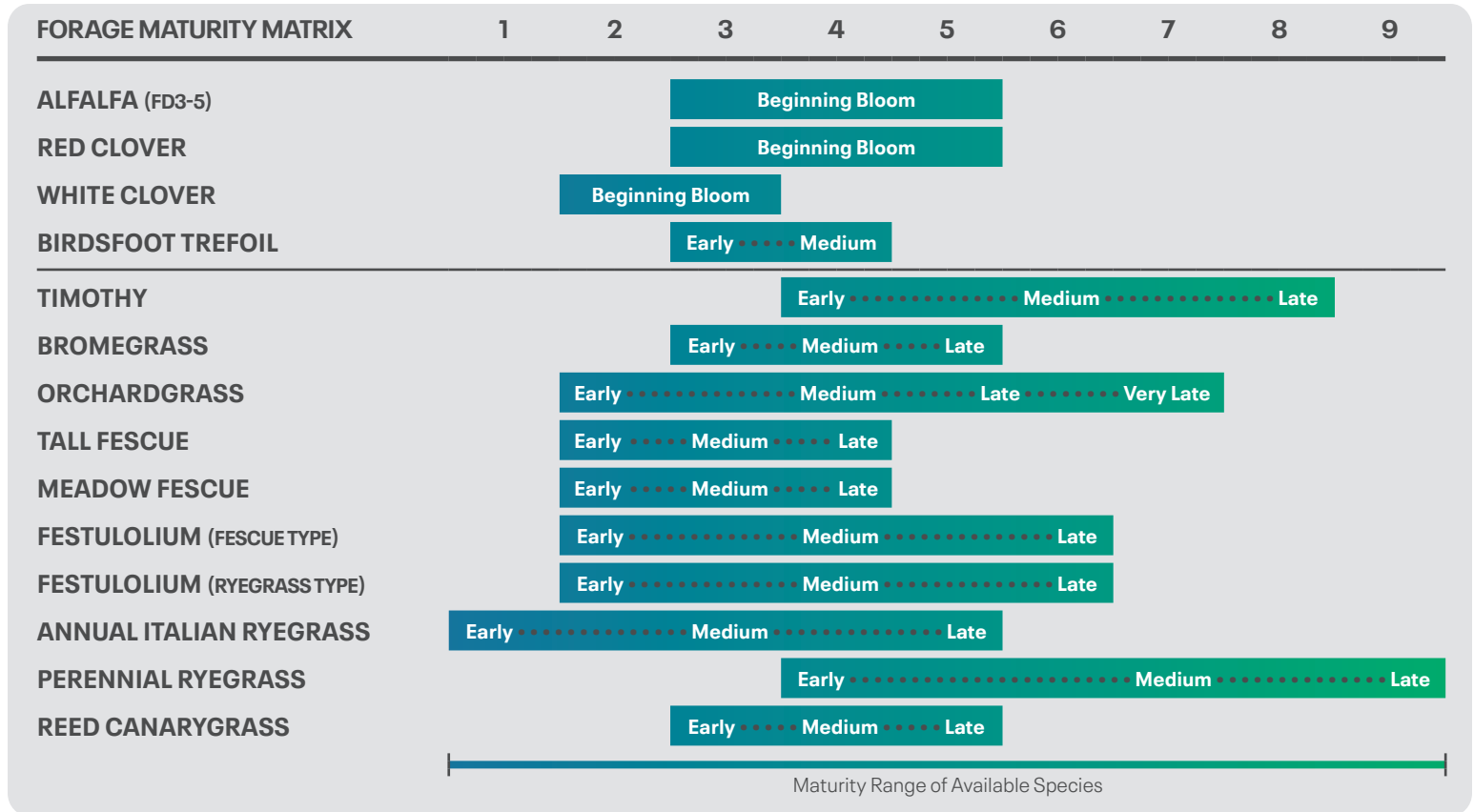
7th largest seed company in the world

FORAGE MATURITY MATRIX

DLF's Forage Maturity Index has been designed to accommodate the broader range of species and maturities utilized in the North American forage industry. It has a 9 point index with a maturity difference of approximately 3 days per unit, reflecting Oregon conditions. Variance with this index may occur in different regions since some cultivars are more temperature dependent, while others may be more day length dependent in maturity.

With all species using the same Maturity Index Rating System,

the maturity range of various forage species can now be directly compared on the same chronological maturity index (the grey index scale at the top of the matrix). The gradient blocks in the Forage Maturity Matrix Species reflect the maturity range of available varieties within the species. The respective maturity of public varieties using the traditional nomenclature of early/medium/late is superimposed on the index. A maturity index in one species corresponds to the same maturity in another forage species.



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 legumes, 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

COATING ABBREVIATIONS (as noted on La Crosse Seed pricelist and seed tags)*

CTD	Coated Only
CPF	Coated, Pre-Inoculated, and Fungicide
CP	Coated, Pre-Inoculated
PI	Pre-Inoculated, No Coating or Fungicide

34% COATED SEED - RECOMMENDED SEED RATES






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.


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.

REDKIN	  	<ul style="list-style-type: none"> • Selected for persistence & disease resistance • 3 year yield performance 	<ul style="list-style-type: none"> • High forage quality & yield potential
RED CARPET® XL 990	 	<ul style="list-style-type: none"> • Best utilized for silage or spring hay • Increased disease resistance to southern anthracnose & downy mildew 	<ul style="list-style-type: none"> • May produce 3 cuttings on second-year stands • Works well in rotational grazing programs

ALSIKE CLOVER

RADIUM XL	 	<ul style="list-style-type: none"> • Withstands heavy grazing pressure, but merits management for success (see "What Forages are Safe for Animals" at foragefirst.com) 	<ul style="list-style-type: none"> • Tolerant to poorly drained soils • Survives in poor pH soils
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BALANSA CLOVER

FIXATION		<ul style="list-style-type: none"> • High yield and quality potential • Excellent palatability and digestibility 	<ul style="list-style-type: none"> • Tolerant of a variety of soil types
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BERSEEM CLOVER

FROSTY		<ul style="list-style-type: none"> • Excellent companion to alfalfa • Quick establishment 	<ul style="list-style-type: none"> • High forage quality • Similar dry down to alfalfa
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RED CLOVER

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

SEEDING RATE (LBS/ACRE)

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

ICON KEY

 DLF ELITE VARIETY
 ELITE VARIETY
 XL BRAND
 DLF FIBER ENERGY
 CROSSECOAT™ TECHNOLOGY

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

INTERMEDIATE WHITE CLOVER

RIESLING



- High stolon density
- Medium to large leafed white clover

- Extended grazing potential during colder months
- Yield of ladino, persistence of intermediate

LADINO CLOVER

ORION XL



- Large white clover offering increased quality & protein digestibility
- Good regrowth following grazing
- Tolerates fall usage better than red clover

- Easy to establish
- Superior winter hardiness
- Tolerates low pH soils

NEW

HESLOP



- Selected for improved plant vigor and persistence
- Larger leaf size, and high stolon density

- Uniform plant type

BIRDSFOOT TREFOIL

LOTUS XL



- Tolerant of poorly drained, low pH soils
- High disease resistance

- Fast recovery after cutting
- Upright growth habit

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
Redkin 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



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™



- Suitable for grazing or silage in fall (&/or spring in areas where it overwinters)
- Heavy dry matter producer with outstanding quality
- Widely adapted for forage production in Upper Midwest through Transition Zone
- 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



- Tetraploid with high palatability
- Rapid establishment-ideal for green chop or silage, intensive grazing, renovating pastures & frost seeding
- Excellent for high-traffic or wet pastures
- High yielding & top feed quality

GRASSHANCER 200



- Blend of diploid & tetraploid Italian annual ryegrass
- Seeded in spring to boost season production
- Excellent establishment & improved persistence
- Rapid regrowth ability for green chop or silage

FIRKIN



- Improved disease resistance
- Tetraploid variety with high quality & digestibility
- 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



- 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



- High yields & rapid regrowth
- Excellent season-long forage quality
- Suitable for hay or pasture

ANNUAL RYEGRASS

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

PLANTING TIMES

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

SEEDING RATE (LBS/ACRE)

ALONE	20 - 40
MIXES	5 - 10
EMERGENCE (DAYS)	5 - 14

ROTATIONAL GRAZING (IN)

BEGIN	8 - 12
STOP	3 - 6
AVERAGE DAYS REST	25 - 30

HARVEST MANAGEMENT

Mechanical harvest should be made at boot to early heading stage. Graze during vegetative stage; removal during stem elongation will slow production until new tiller buds are available for regrowth.

BROMEGRASS

SMOOTH MEADOW

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

PLANTING TIMES

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

SEEDING RATE (LBS/ACRE)

ALONE	15 - 20
MIXES	5 - 10
EMERGENCE (DAYS)	14 - 21

ROTATIONAL GRAZING (IN)

BEGIN	10 - 12
STOP	4 - 6
AVERAGE DAYS REST	20 - 30

HARVEST MANAGEMENT



Bromegrass is tolerant of grazing in spring before the growing point emerges from below the ground; after jointing, frequent harvest can destroy stands. Mechanical harvest at boot to early bloom stage.

ICON KEY


- DLF ELITE VARIETY
- ELITE VARIETY
- XL BRAND
- DLF FIBER ENERGY
- CROSSECOAT™ 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		<ul style="list-style-type: none"> Italian Ryegrass x Meadow Fescue Ideal in winter-damaged alfalfa or where emergency forage is needed 	<ul style="list-style-type: none"> Increased summer performance & drought tolerance Fast germination & establishment High yielding & very palatable
FOJTAN		<ul style="list-style-type: none"> Italian Ryegrass x Tall Fescue Looks & grows like Tall Fescue Higher forage quality & very palatable 	<ul style="list-style-type: none"> Excellent for grazing, silage & dry hay Good rust resistance & winter hardiness

KENTUCKY BLUEGRASS

BALIN		<ul style="list-style-type: none"> Good disease resistance Suitable in mixes for intensive & extensive use 	<ul style="list-style-type: none"> Establishes fast with high yields Persistence & high yields in permanent pastures
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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.

NEW			
INAVALE		<ul style="list-style-type: none"> Medium maturity Improved disease resistance 	<ul style="list-style-type: none"> Very good summer production Well suited for grazing
HAYMATE XL		<ul style="list-style-type: none"> Medium-late maturity Great companion for alfalfa 	<ul style="list-style-type: none"> Improved disease resistance Maturity allows for more flexibility with first harvest in spring
ECHELON		<ul style="list-style-type: none"> Extremely late maturing, maintains forage quality longer between harvests Superior leaf disease resistance 	<ul style="list-style-type: none"> Perfect companion for alfalfa or clover mixes Excellent persistence & vigor Increased palatability & stand persistence
CAPTUR		<ul style="list-style-type: none"> Extremely late maturing (4 - 6 days later than Echelon), maintains forage quality longer between harvests High yield, improved rust resistance, high salt tolerance 	<ul style="list-style-type: none"> Perfect companion for alfalfa or clover mixes Excellent 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 - MAY
FALL PLANTING	AUG - SEP
LIFE CYCLE	PERENNIAL

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 grazing or fall stockpiling. Harvest for hay or haylage at boot to early heading stage.

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 advantage of its early production. Because of 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

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		<ul style="list-style-type: none"> Well adapted for the Midwest, Mid-Atlantic & Northeast Suitable for both pastures or hay production 	<ul style="list-style-type: none"> Slightly earlier maturing than KY31 Good yielder with excellent persistence
TOWER TALL FESCUE		<ul style="list-style-type: none"> Broadly adapted with improved tolerance to extreme conditions Late maturing variety suitable for intense grazing & hay environments 	<ul style="list-style-type: none"> Improved disease resistance (rust & other leaf diseases) Maturity helps maintain higher RFQ at harvest
LAURA MEADOW FESCUE		<ul style="list-style-type: none"> Very quick to establish & very aggressive Excellent for cold & wet areas 	<ul style="list-style-type: none"> High yielding first cuts with excellent regrowth Very good winter hardiness & persistence
NEW HYPERBOLA MEADOW FESCUE	 	<ul style="list-style-type: none"> Increased disease tolerance Increased persistence between cuttings & year over year 	<ul style="list-style-type: none"> Very quick to establish & very aggressive High yielding first cuts with excellent regrowth

REED CANARYGRASS

DEFIANT XL		<ul style="list-style-type: none"> Performs well on poorly-drained soils & overly wet environments Low alkaloid 	<ul style="list-style-type: none"> Can be used for hay, silage or pasture Performs well on low pH soils Widely adapted & extremely drought tolerant
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BERMUDAGRASS & MORE

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

FESCUE	TALL	MEADOW
ESTABLISHMENT	MED	MED
PERSISTENCE	MED HIGH	MED HIGH
DROUGHT TOLERANCE	HIGH	MED LOW
WINTER HARDINESS	MED	HIGH
PALATABILITY	MED	HIGH
YIELD POTENTIAL	HIGH	LOW
GRAZING TOLERANCE	HIGH	HIGH

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

SEEDING RATE (LBS/ACRE)	
ALONE	25 - 30
MIXES	5 - 15
EMERGENCE (DAYS)	14 - 21

ROTATIONAL GRAZING (IN)		
BEGIN	4 - 8	8 - 10
STOP		3 - 6
AVERAGE DAYS REST	25 - 35	15 - 25

ROTATIONAL GRAZING (IN)
Harvest at boot stage in spring; pure stands work well when stockpiled in fall.

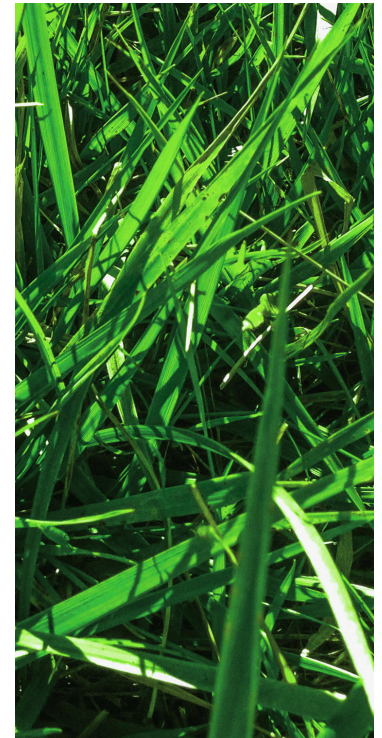
REED CANARYGRASS	
ESTABLISHMENT	SLOW
PERSISTENCE	HIGH
DROUGHT TOLERANCE	HIGH
WINTER HARDINESS	HIGH
PALATABILITY	MED
YIELD POTENTIAL	HIGH
GRAZING TOLERANCE	HIGH

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 yields; most annual growth occurs before July - rotate pastures often; top growth will desiccate at frost so manage accordingly.








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 varieties 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		<ul style="list-style-type: none"> • High-yielding with rapid establishment • Excellent high quality forage in spring & fall 	<ul style="list-style-type: none"> • Extremely palatable
DEXTER 1	 	<ul style="list-style-type: none"> • Early spring growth with high dry matter yield • Very high yield with extremely fast recovery • High cold tolerance 	<ul style="list-style-type: none"> • Very high leaf to stem ratio • Tolerates intensive grazing
KENTAUR		<ul style="list-style-type: none"> • Excellent resistance to leaf spot & crown rust • High sugar content • Excellent forage quality & consistency 	<ul style="list-style-type: none"> • Early spring growth with high dry matter yield • Good recovery after cutting • Cold & heat tolerant

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		<ul style="list-style-type: none"> • Early maturity blend • Excellent with clover or alfalfa for hay or pasture 	<ul style="list-style-type: none"> • 1 - 2 weeks earlier to boot stage than Climax in most environments
ERECTA		<ul style="list-style-type: none"> • Late maturing • Very winter-hardy 	<ul style="list-style-type: none"> • Known for its palatability & digestibility
RICHMOND		<ul style="list-style-type: none"> • Early maturing with excellent early spring vigor 	<ul style="list-style-type: none"> • Very winter-hardy
NEW VALOR DT	 	<ul style="list-style-type: none"> • Early maturing with excellent early spring vigor • Very winter-hardy 	<ul style="list-style-type: none"> • Excellent drought tolerance

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.

TIMOTHY

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

PLANTING TIMES

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

SEEDING RATE (LBS/ACRE)

ALONE	8 - 15
MIXES	2 - 6
EMERGENCE (DAYS)	14 - 21






HARVEST MANAGEMENT

Because of timothy's lack of basal leaves to support regrowth, as well as its limited energy storage, frequent cutting or grazing greatly weakens stands. Harvest in spring at boot stage.

“ We choose to sell premium brands like Forage First because it helps differentiate our business in the marketplace. The way to compete with big box companies is to offer premium varieties and brands that you can't find in many of those mainstream stores.”

Jeff G.,
Northeastern Missouri

ICON KEY

	DLF ELITE VARIETY
	ELITE VARIETY
	XL BRAND
	DLF FIBER ENERGY
	CROSSECOAT™ TECHNOLOGY

FORAGE FIRST® GRASS & LEGUME MIXES

We provide a diverse set of mixes to produce high quality forage for your unique operation. Our versatile pasture mix portfolio offers a variety of proven products to fit any need, created with flexibility and ease of management in mind.

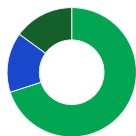
SEEDING RATE (LBS/ACRE)

SEEDING RATE (LBS/ACRE)

ALFALFA BASED MIX

NEW FORMULA 18 - 20

Suited for traditional hay production & increased management environments. Good winter hardiness. Replaces 715 Forage Mix.



- 70%** FF 42.A2 Brand Alfalfa
- 15%** Red Carpet® XL 990 Red Clover
- 15%** Top Tim XL Timothy

ALFALFA HAY & PASTURE MIX

18 - 20

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

ALL PURPOSE MIX

25 - 30

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%** Tetrabana XL Italian Ryegrass
- 5%** Orion XL Ladino Clover

BEEF MIX

30 - 40

High protein for maximum daily gain. Strong persistence & regrowth that withstands grazing pressure/hay production. Contains endophyte free tall fescue.

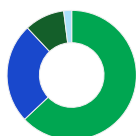


- 35%** Endo-Graze XL Perennial Ryegrass
- 20%** FF Premium Alfalfa
- 15%** Big Ton XL Smooth Bromegrass
- 15%** Stargrazer XL Tall Fescue
- 10%** Fusion XL Festulolium
- 5%** Top Tim XL Timothy

CLOVER-BASED MIX

16 - 18

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%** FF Premium Alfalfa
- 10%** Radium XL Alsike Clover
- 2%** Orion XL Ladino Clover

TRIPLE CROWN MIX

30 - 40

Excellent yields of high-energy feed. Excellent for active horses.



- 35%** Endo-Graze XL Perennial Ryegrass
- 20%** FF Premium Alfalfa
- 20%** Top Tim XL Timothy
- 15%** Balin/Ginger Kentucky Bluegrass
- 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

Excellent for waterways, terraces, ditches, banks & headlands. Great for permanent pastures and companion crop for hay production.



- 25% Big Ton XL Smooth Bromegrass
- 25% Endo-Graze XL Perennial Ryegrass
- 25% Haymate XL Orchardgrass
- 25% Top Tim XL Timothy

SPECIAL WATERWAY MIX

25 - 30

Performs well in hay systems. Contains endophyte-free tall fescue, persistence retains quality for many years. Great for waterways.



- 65% Big Ton XL Smooth Bromegrass
- 20% Stargrazer XL Tall Fescue
- 15% Endo-Graze XL Perennial Ryegrass

BLM #4 MIX

30 - 40

Versatile mix, establishes quickly. Endophyte-free tall fescue extends productivity into hot, dry summer.



- 30% Endo-Graze XL Perennial Ryegrass
- 20% Tetrabana XL Italian Ryegrass
- 20% Stargrazer XL Tall Fescue
- 15% Balin/Ginger Kentucky Bluegrass
- 15% Top Tim XL Timothy

GRASS MASTER MIX

30 - 40

Endophyte-free, tall fescue & orchardgrass perform well in less-than-ideal summers. Good for grazing & hay production.



- 35% Stargrazer XL Tall Fescue
- 35% Haymate XL Orchardgrass
- 15% Endo-Graze XL Perennial Ryegrass
- 15% Fusion XL Festulolium

MARE & FOAL MIX

30 - 40

Ability to be productive under rotational grazing & hay production. Tolerant to heavy traffic.



- 50% Haymate XL Orchardgrass
- 25% Top Tim XL Timothy
- 15% Fusion XL Festulolium
- 10% Balin/Ginger Kentucky Bluegrass

JUMP START MIX

30 - 40

Excellent for overseeding existing hay stands or short/long-rotation pastures. Very responsive to fertilization.



- 50% Endo-Graze XL Perennial Ryegrass
- 25% Tetrabana XL Italian Ryegrass
- 25% Fusion XL Festulolium

FESCUE BASED MIX

NEW 30 - 40

Endophyte-free, fescue based pairs well with dairy quality alfalfa, or can be straight seeded for heifers.



- 40% Stargrazer XL Tall Fescue
- 30% Meadow Fescue
- 20% Fusion XL Festulolium
- 10% Endo-Graze XL Perennial Ryegrass

SILOBUSTER MIXES

*100-120 Nurse

SILOBUSTER PEA & BARLEY MIX*

100 - 150

Elite combination of forage peas & forage barley, ideal as nurse crop or straight forage.



- 50% LC6040 Forage Peas
- 50% Forage Spring Barley

SILOBUSTER PEA & OAT MIX*

100 - 150

Elite combination of forage peas & forage oats, ideal as nurse crop or straight forage.



- 50% LC6040 Forage Peas
- 50% Forage Oats

SILOBUSTER PEA & TRITICALE MIX*

100 - 150

Elite combination of forage peas & forage triticale, ideal as nurse crop or straight forage.



- 50% LC6040 Forage Peas
- 50% Forage Spring Triticale



ALL GRASS MIXES

VERSAGRASS™
SPECIAL WATERWAY
BLM #4
MARE & FOAL
GRASS MASTER
JUMP START
FESCUE BASED MIX

GRASS + LEGUME MIXES

ALFALFA BASED
ALFALFA HAY & PASTURE
ALL PURPOSE
BEEF
TRIPLE CROWN
CLOVER-BASED

CHARACTERISTICS

RATE FOR PURE STAND	15 - 20	10 - 15
RATE IN MIX	5 - 10	4 - 10
ESTABLISHMENT	SLOW	SLOW
PERSISTENCE	HIGH	HIGH
DROUGHT TOLERANCE	MED	MED
WINTER HARDINESS	HIGH	HIGH
PALATABILITY	HIGH	HIGH
YIELD POTENTIAL	HIGH	MED
GRAZING TOLERANCE	HIGH	HIGH

ADDITIONAL ELITE VARIETIES & OTHER FORAGE FIRST® PRODUCTS

SOD FORMING		COOL SEASON GRASSES					
SMOOTH BROME	KENTUCKY BLUEGRASS	NON-SOD FORMING		TALL FESCUE	MEADOW FESCUE	ORCHARD	TIMOTHY
BIG TON XL		STARGRAZER XL		HAYMATE XL		TOP TIM XL	
25%				25%		25%	
65%		20%					
	15%	20%					15%
	10%			50%		25%	
		35%		35%			
		40%	30%				
							15%
				20%		15%	
				15%		20%	
15%		15%				5%	
	15%					20%	
						25%	
		25 - 30	25 - 30	15 - 25		12 - 15	
		6 - 12	6 - 12	3 - 10		2 - 6	
		MED	MED	MED		SLOW	
		HIGH	HIGH	HIGH		MED	
		HIGH	HIGH	MED		LOW	
		MED	HIGH	HIGH		HIGH	
		MED	HIGH	HIGH		HIGH	
		HIGH	HIGH	HIGH		MED	
		HIGH	HIGH	HIGH		MED	
				INAVALE ECHELON CAPTUR		ERECTA RICHMOND VALOR DT	
	BALIN GINGER	TOWER	LAURA HYPERBOLA				
		9	9	8		10	

PAGE #

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SUMMER SELECT™
BY DLF

SUMMER ANNUALS

SPECIES	VARIETY	Maturity	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	MULTI-CUT SPECIES	
											BMR 6	BD
SORGHUM X SUDANGRASS	QUICKDRY BMR T/TS	MED LATE	14,000-15,000	20-25	35-50	4	4	3	2	3		
	DENSE TONNAGE BMR BD T	MED LATE	14,000-15,000	15-25	25-35	4	4	1	4	2		
	EVERGROW BMR PPS T	LATE	14,000-15,000	20-25	35-50	3	5	2	3	2		
	GREENSUGAR TR T	MED	16,000-20,000	20-25	50-60	3	3	2	2	2		
	GREENSUGAR MS T	MED LATE	16,000-20,000	20-25	50-60	3	4	1	2	2		
SUDANGRASS	BALEMORE	EARLY MED	35,000-40,000	15-25	20-35	3	3	1	2	4		
PEARL MILLET	HERCULES BMR BD T	MED	50,000-60,000	10-12	15-20	5	5	5	4	4		
	PERFORM T	MED	50,000-60,000	10-12	15-20	5	4	5	4	4		
TEFF GRASS	REPRIEVE XL	NA	650,000	8-10	8-10	4	3	5	NA	4		
FORAGE SORGHUM	94 MS TS	MS	17,000-19,000	4-6	10-15	3	4	2	3	4		
	95 BMR TS	85-95	16,000-18,000	5-7	NR	2	4	3	3	5		

SPECIES	VARIETY	PRIMARY FORAGE USE	PLANTING DATE	SEEDING RATE (LBS, BROADCAST - ADD 30%)	DAYS TO GRAIN MATURITY	SINGLE-CUT SPECIES	
						DAYS TO HARVEST (SOFT DOUGH STAGE)	APPROX. HARVEST HEIGHT (FT)
FOXTAIL	Common Foxtail Millet	Hay or silage	May - July	20 - 25	60 - 100		
	German Millet	Dry hay in 55 - 60 days	May - July	20 - 25	75 - 90		
	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		
GRAZING	Japanese Millet	Grazing; dry hay in 45 - 50 days	April - July	15 - 20	60 - 70		
	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

<ul style="list-style-type: none"> Widely adapted Traditional growth habit with wide, long leaves 	<ul style="list-style-type: none"> Increased sugar content = improved digestibility Fast establishment & regrowth = more productivity
<ul style="list-style-type: none"> Management friendly hybrid with greater harvest flexibility Dwarf hybrid = improved standability & higher leaf:stem ratio 	<ul style="list-style-type: none"> Suitable for grazing environments or 1-cut silage systems Increased sugar content = improved digestibility
<ul style="list-style-type: none"> Widely adapted with improved disease resistance PPS hybrids remain vegetative until mid-Sept (day length < 12h, 20m) 	<ul style="list-style-type: none"> PPS allows for wider window of harvest Build tonnage without sacrificing quality
<ul style="list-style-type: none"> Broad adaptation in a traditional, non-BMR package 	<ul style="list-style-type: none"> High yielding; increase population for improved quality
<ul style="list-style-type: none"> Higher levels of sugar/protein in vegetative portion of plant Increased disease resistance 	<ul style="list-style-type: none"> MS = no anthers, thus no pollen for self-fertilization Improved standability
<ul style="list-style-type: none"> Best summer annual option when dry hay production is planned Can also be used for grazing or green chop 	<ul style="list-style-type: none"> Strong emergence & quick regrowth
<ul style="list-style-type: none"> Versatile hybrid suitable for silage, grazing & dry hay Dwarf gene increases leaf:stem ratio & improves standability 	<ul style="list-style-type: none"> Enhanced palatability, digestibility & overall utilization No prussic acid or sugarcane aphid concerns
<ul style="list-style-type: none"> Versatile hybrid suitable for silage, grazing & dry hay Quicker regrowth compared to sorghum x sudangrass 	<ul style="list-style-type: none"> No prussic acid or sugarcane aphid concerns Shorter stature = improved standability
<ul style="list-style-type: none"> Great rotational crop between alfalfa & perennial stands Superior quality - ideal for horses & other livestock 	<ul style="list-style-type: none"> Well adapted to dry climates

YIELD FOR MATURITY	LEAF/DISEASE RESISTANCE		
4	3	<ul style="list-style-type: none"> Good disease resistance Excellent regrowth for a forage sorghum 	<ul style="list-style-type: none"> Male Sterile = increased sugar accumulation
5	5	<ul style="list-style-type: none"> Early maturing dwarf BMR High grain yield for maturity 	<ul style="list-style-type: none"> Excellent leaf disease resistance Widely adapted with excellent standability

*Refer to seeds per lb on seed tag

TYPICAL HEIGHT & STATURE	REGROWTH AFTER CUTTING/HARVEST	ATTRIBUTES
2 - 4'	Little to no regrowth	<ul style="list-style-type: none"> Forage type millets primarily Many so called "varieties" <ul style="list-style-type: none"> Pasture only before heads form (not ideal)
2 - 4'	Little regrowth	<ul style="list-style-type: none"> VERY fast growing Used primarily for hay production; seeds for wildlife <ul style="list-style-type: none"> Mid-late maturing Shallow rooted - not as drought tolerant
2 - 2½'	Little to no regrowth	<ul style="list-style-type: none"> VERY fast growing Earlier maturing <ul style="list-style-type: none"> Shorter stature Best suited in Northern Plains
3 - 4'	Poor at best	<ul style="list-style-type: none"> Dual purpose - hay & grain Late maturing <ul style="list-style-type: none"> Heavy stem & taller than most foxtail types
2 - 2½'	Poor at best	<ul style="list-style-type: none"> Usually grown for seed - bird seed or livestock feed <ul style="list-style-type: none"> Not tolerant of drought - keep off sandy soils
2 - 4'	Leave 6 - 8" for adequate regrowth	<ul style="list-style-type: none"> Grazing / hay potential on wet soils (no prussic acid) Ideal for waterfowl / wildlife feed <ul style="list-style-type: none"> Tolerant of waterlogged soils & flooding Also used for erosion control
3 - 6' (depending on variety)	Leave 8 - 10" for adequate regrowth	<ul style="list-style-type: none"> Very resilient - handles a variety of soil types No prussic acid concerns <ul style="list-style-type: none"> More drought tolerant than Japanese / foxtail millets Increased forage quality offered in BMR types
2 - 4'	Leave 6 - 8" for adequate regrowth	<ul style="list-style-type: none"> Fast growing for seed mostly - wildlife Seed shatters easily - reseed potential very high <ul style="list-style-type: none"> Best suited for Southeast US (needs adequate water) Tolerant of acidic soils & low fertility



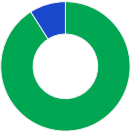
SOIL FIRST® 101 COVER STARTER

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®



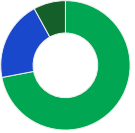
SOIL FIRST® 102 COVER STARTER +

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®



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 OATS
25% SPRING PEAS
20% BALANSA CLOVER
20% CRIMSON CLOVER
5% TILLAGE RADISH®



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® WINTER TRIT
38% WINTER PEAS
6% TILLAGE RADISH®
6% FORAGE BRASSICA



SOIL FIRST® 142 CLASSIC

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 Aerial: 20 - 25 Forage: 15 - 20

85% CRIMSON CLOVER
15% TILLAGE RADISH®



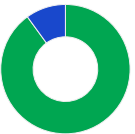
SOIL FIRST® 150 FIELD FIT

Straightforward & flexible mix with very minimal spring management.

- Winterkills in most northern climates
- Great for sequestering leftover nutrients

SEEDING RATE (LBS/ACRE) Drill: 30 - 35 Broadcast: 35 - 40 Aerial: 30 - 40 Forage: 40 - 50

90% DEFENDER OATS
10% TILLAGE RADISH®



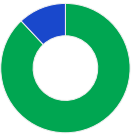
SOIL FIRST® 160 ROOTING

Blend of radish & ryegrass maximizes root mass and captures nutrients.

- Best for breaking up compaction & catching nutrients
- Perfect in manure systems

SEEDING 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 x 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



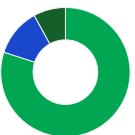
SOIL FIRST® 175 ACCUSPREAD

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 Forage: 25 - 30

80% ANNUAL RYEGRASS*
12% CRIMSON CLOVER*
8% TILLAGE RADISH®



*COATED

LA CROSSE SEED PROVIDES A FULL RANGE OF PRODUCTS TO MEET YOUR NEEDS:

 <p>EARTH CARPET® BY DLF</p> <p>TURF</p> <ul style="list-style-type: none"> • Turf seed • Turf mixes • Custom turf mixes • Conservation mixes • Erosion control 	 <p>SUMMER SELECT™ BY DLF</p> <p>SUMMER ANNUALS</p> <ul style="list-style-type: none"> • Sorghum x Sudan • Sudangrass • Forage Sorghum • Millets • Teffgrass
 <p>SOIL FIRST® BY DLF</p> <p>COVER CROPS</p> <ul style="list-style-type: none"> • Cover crop seed • Cover crop mixes • Custom cover crop mixes • Seed inoculants 	 <p>DEER CREEK® SEED BY DLF</p> <p>WILDLIFE</p> <ul style="list-style-type: none"> • Food plot seed • Food plot mixes • Custom wildlife mixes
<p>NATIVES & WILDFLOWERS</p> <ul style="list-style-type: none"> • Native grasses • Conservation seed mixes • Wildflowers/forbs • Custom conservation seed mixes » (NRCS, CRP, Pollinator) 	<p>SMALL GRAINS</p> <ul style="list-style-type: none"> • Spring cereals • Winter cereals • Pea mixes


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

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

CUSTOM SEED MIXING

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

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**
- **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

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.

SEEDING RATE (LBS/ACRE)	BAG SIZE (LBS)	BRASSICAS	LEGUMES	GRASSES	FORBS	ANNUAL/PERENNIAL	SEEDING RATE (LBS/ACRE)	BAG SIZE (LBS)	BRASSICAS	LEGUMES	GRASSES	FORBS
PERENNIAL & ANNUAL / PERENNIAL MIXES												

HORN HONEY												
PERENNIAL	8* (Drilled)	10 (Brdcast)	5 & 10									

- Spring/fall planted perennial mix offering year-round food source
- Performs well on medium to heavy soil types in light shade to full sun
- Includes high energy legumes that will thrive in various geographical locations
- Chicory will thrive during summer months
- Replaces DC Perennial Plus Clovers

- 25%** Orion XL Ladino White Clover
- 25%** Red Carpet XL 990 Red Clover
- 25%** Intermediate White Clover
- 15%** Radium XL Alsike White Clover
- 10%** Chicory

*Seed at 1/4" Depth



BEE'S N BUCKS												
PERENNIAL	10* (Drilled)	12 (Brdcast)	5 & 10									

- Spring/fall planted perennial dual purpose mix offering year-round food source
- Performs well on light to heavy soil types in light shade to full sun
- All purpose pollinator to create a bee and pollinator sanctuary if left to flower
- Replaces Deer Country Field and DC Bee Clover

- 25%** Premium Brand Alfalfa
- 20%** Orion XL Ladino White Clover
- 20%** Red Carpet XL 990 Red Clover
- 20%** Yellow Blossom Sweet Clover
- 15%** Radium XL Alsike White Clover

*Seed at 1/4" Depth



BUCK'S BANQUET												
ANNUAL/PERENNIAL	8* (Drilled)	10 (Brdcast)	5 & 10									

- Early fall planted annual & perennial species offering early/late fall food source
- For medium to heavy soil types in light shade to full sun
- Clover/chicory remain perennial after brassicas winterkill
- Portion remains green until air temps reach 10 - 15°F
- Optimally planted 6 - 8 weeks prior to killing frost
- Replaces Autumn Buffet

- 20%** Orion XL Ladino White Clover
- 20%** Rapeseed
- 15%** Purple Top Turnips
- 15%** Tillage Radish*
- 10%** Intermediate White Clover
- 10%** Radium XL Alsike White Clover
- 10%** Chicory

*Seed at 1/4" Depth



PERENNIAL HABITAT HIDE-A-WAY												
PERENNIAL	9*	9 & 50										

- Spring/fall planted native grass perennial mix offering year-round bedding/buffer source
- Performs well on light to heavy soil types in light shade to full sun
- Maintenance needed during slow establishment period; alternative to Annual Habitat Hide-A-Way
- Will reach heights up to 8 ft tall

- 34%** Switchgrass
- 33%** Indiangrass
- 33%** Big Bluestem

*Seed at 1/4" Depth



See Natives Guide for establishment guidelines





ONLINE RESOURCES

Go to lacrosseseed.com for planting windows and other useful information.

SEEDING RATE (LBS/ACRE)	BAG SIZE (LBS)	BRASSICAS	LEGUMES	GRASSES	FORBS	ANNUAL/ PERENNIAL	SEEDING RATE (LBS/ACRE)	BAG SIZE (LBS)	BRASSICAS	LEGUMES	GRASSES	FORBS
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ANNUAL MIXES

RUT N READY					
ANNUAL	6* (Drilled)	8 (Brdcast)	4 & 8		

- Early fall planted annuals offer early/late fall food source
- For light to heavy soil types in light shade to full sun
- Brassicas remain green until air temps reach 10 - 15°F
- Optimally planted 6 - 8 weeks prior to killing frost, sugars flush vegetative growth after frost for appealing food source
- Brassicas attract deer early fall & after killing frost
- Replaces DC Brassica Blend & DC Prime Time Brassica

30% Tillage Radish*
20% Rapeseed
20% Purple Top Turnips
10% Forage Kale
10% Vivant Brassica
10% Forage Collards

*Seed at 1/4" Depth

HARVEST MOON					
ANNUAL	40* (Drilled)	50 (Brdcast)	25		

- 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
- Replaces DC Succulent Succotash/ Autumn Energy

90% Arctic Brand Forage Oats
6% Tillage Radish*
4% Purple Top Turnips

*Seed at 1/4" Depth

ANNUAL HABITAT HIDE-A-WAY NEW FORMULA

ANNUAL	10* (Drilled)	10 (Brdcast)	10		
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- 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
- Replaces DC Silver Screen

34% Summer Select* Forage Sorghum
33% Wildlife Grain Sorghum
33% Egyptian Wheat

*Seed at 1" Depth



DEER CREEK SPECIES OFFERED IN SMALL PACKS (5 LB)

LEGUMES	GRASSES	BROADLEAVES
Med Red Clover	Egyptian Wheat	Buckwheat
Alsike Clover		Chicory
Berseem Clover		Tillage Radish
Ladino Clover		Rapeseed
Alfalfa PI		Rutabaga
		Sugar Beet
		Peredovik Black Oilseed Sunflower
		Purple Top Turnip



**DEER CREEK®
SEED**
BY DLF

SEEDING RATE (LBS/ACRE)	BAG SIZE (LBS)	BRASSICAS	LEGUMES	GRASSES	FORBS	ANNUAL/ PERENNIAL	SEEDING RATE (LBS/ACRE)	BAG SIZE (LBS)	BRASSICAS	LEGUMES	GRASSES	FORBS
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PERENNIAL & ANNUAL / PERENNIAL MIXES

PREMIUM WHITE CLOVERS

PERENNIAL	8" (Drilled)	10 (Brdcast)	5 & 10
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- Spring/fall/frost planted perennial mix offering year-round food source
- Performs well on medium to heavy soil types in moderate shade to full sun
- Includes high energy legumes that will thrive in various geographical locations
- White clovers will fill in areas of overgraze due to stolon root system

- 25%** Radium XL Alsike White Clover
- 25%** Dutch White Clover
- 25%** Orion XL Ladino White Clover
- 25%** Intermediate White Clover

*Seed at 1/4" Depth



NO-TILL WILDLIFE CLOVER

PERENNIAL	15" (Drilled)	20 - 25 (Brdcast)	5 & 10
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- Spring/fall/frost planted perennial mix offering year-round food source
- Performs well on medium to heavy soil types in light shade to full sun
- Balance of high energy grasses/legumes that will thrive in various geographical locations
- Easy to establish with minimal preparation
- Replaces DC Wildlife Clover Mix/ Point Bulider Plus

- 15%** Intermediate White Clover
- 15%** Radium XL Alsike White Clover
- 15%** Med Red Clover
- 15%** Orion XL Ladino White Clover
- 15%** Dutch White Clover
- 15%** Coldsnap® Annual Ryegrass
- 10%** High Sugar Perennial Ryegrass

*Seed at 1/4" Depth



LOGGERS TRAIL MIX

PERENNIAL	20" (Drilled)	25 (Brdcast)	25
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- Spring/fall planted perennial mix quick to establish and produce cover
- Performs well on light to heavy soil types in light shade to full sun
- Will persist in low-fertility, acidic, or wet soils and areas with minimal sunlight
- Replaces Deer Country Trail Mix

- 30%** Stargrazer XL Tall Fescue
- 15%** Coldsnap® Annual Ryegrass
- 15%** Orion XL Ladino White Clover
- 10%** Radium XL Alsike White Clover
- 10%** Creeping Red Fescue
- 10%** Intermediate White Clover
- 10%** High Sugar Perennial Ryegrass

*Seed at 1/4" Depth



SPRING GREENS ELITE

ANNUAL/ PERENNIAL	40" (Drilled)	50 (Brdcast)	25
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- 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%** Rapeseed
- 10%** Forage Soybean
- 10%** Intermediate White Clover
- 10%** Med Red Clover
- 10%** Peredovik Black Sunflower
- 10%** Sunn Hemp
- 10%** Green Sugar Sorghum Sudangrass
- 10%** Tetrabana XL Italian Ryegrass

*Seed at 1/4" Depth



ANNUAL MIXES

QUAD PRO BEAN

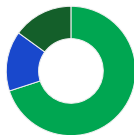
ANNUAL	40" (Drilled)	50 (Brdcast)	25
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- Spring/fall planted annual
- Performs well on light to heavy soil types in light shade to full sun
- Fast growing, high protein mix with forage and vining soybeans
- Matures in approximately 60 days

- 70%** 2 Forage Soybean Varieties
- 15%** Lablab
- 15%** Cowpea

*Seed at 1" Depth



SANDY SURE SHOT

ANNUAL	25" (Drilled)	35 (Brdcast)	25
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- Late spring/summer/fall planted annual
- Formulated to persist in light sandy and dryland soil conditions
- Attracts deer and other avian wildlife

- 35%** Peredovik Black Sunflower
- 30%** Forage Soybean
- 20%** Buckwheat
- 10%** Berseem Clover
- 5%** Winfred Forage Brassica

*Seed at 1/2" Depth



SEEDING RATE (LBS/ACRE)

BAG SIZE (LBS)

BRASSICAS

LEGUMES

GRASSES

WILD FLOWERS

ANNUAL/ PERENNIAL

SEEDING RATE (LBS/ACRE)

BAG SIZE (LBS)

BRASSICAS

LEGUMES

GRASSES

FORBS

ANNUAL MIXES

TRIPLE TREAT

ANNUAL	8* (Drilled)	10 (Brdcast)	5
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- Spring/fall planted annual clover blend
- Performs well on medium to heavy soil types in light shade to full sun
- Nitrogen fixing and biomass producing mix excellent for plot rotation
- Triple purpose food source, soil health, nitrogen building

- 40%** Balansa Clover
- 40%** Berseem Clover
- 20%** Crimson Clover

*Seed at 1/4" Depth



WETLAND WATERFOWL

NEW FORMULA

ANNUAL	15* (Drilled)	20-25 (Brdcast)	25
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- Late spring/summer planted annual and perennial blend
- 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
- Ideal attractant for waterfowl and other avian species

- 35%** Japanese Millet
- 20%** Wildlife Grain Sorghum
- 20%** Defender 265 Brand Spring Oat
- 10%** Buckwheat
- 10%** Proso Millet
- 5%** Radium XL Alsike Clover

*Seed at 1/4-1/2" Depth



GAME BIRD MIX

ANNUAL	15* (Drilled)	20-25 (Brdcast)	25
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- Late spring/summer planted annual
- 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
- Ideal attractant for upland game birds and other avian species

- 25%** Peredovik Black Sunflower
- 25%** Wildlife Grain Sorghum
- 15%** Forage Soybean
- 10%** Buckwheat
- 10%** Japanese Millet
- 10%** Pearl Millet
- 5%** Proso Millet

*Seed at 1/2" Depth



BEET & SWEETS

ANNUAL	8* (Drilled)	10 (Brdcast)	5 & 10
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- Early fall planted annuals offer early/late fall high sugar food source
- Performs well on light to heavy soil types in light shade to full sun
- Quick to establish brassicas remain green until air temps reach 10 - 15° F
- Optimally planted 6 - 8 weeks prior to killing frost, sugars flush vegetative growth after frost for appealing food source early and into late fall/winter

- 45%** Sugar Beet
- 20%** Swiss Chard
- 15%** Forage Turnip
- 10%** Forage Kale
- 10%** Berseem Clover

*Seed at 1/4" Depth



ALL SEASON MIX

ANNUAL	50*	25
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- Early fall planted annuals offer early/late fall food source
- Performs well on light to heavy soil types in light shade to full sun
- Winter Rye will overwinter providing additional food source the following spring
- Optimally planted 6-8 weeks prior to killing frost, large biomass production for food source early and into late fall/winter for areas of heavy feeding pressure

- 35%** Guardian® Winter Rye
- 15%** Barley
- 15%** Buckwheat
- 15%** Forage Pea
- 15%** Defender 265 Brand Spring Oats
- 2.5%** Rapeseed
- 2.5%** Forage Turnip

*Seed at 1/4" Depth



MIX PERCENTAGES

KENTUCKY BLUEGRASS	PERENNIAL RYEGRASS	ANNUAL RYEGRASS	CREeping RED FESCUE	CHEWINGS FESCUE	HARD FESCUE	SHEEP FESCUE	TALL FESCUE	SEEDING LBS/1,000 SQ FT							
														NEW	OVER

PROFESSIONAL LANDSCAPE MIXES

CHOICE SUN & SHADE	40	30		15	15				4-6	2-4
MADISON PARKS®	50	25		25					4-6	2-4
SPARTAN® GRADE A	40	20		20	20				4-6	2-4
WEAR-N-TEAR®	40	40		10	10				4-6	2-4

GENERAL LANDSCAPE MIXES

PARK PLACE®	50	25		25					4-6	2-4
SUNNY PLACE®	33	34		33					4-6	2-4
QUICK-2-GRO	25	25	25	25					4-6	2-4
MICHIGAN GREEN®	15	15	35	35					4-6	2-4

KENTUCKY BLUEGRASS & PERENNIAL RYEGRASS BASED MIXES

BLUE CARPET®	100								2-4	1-3
PRO-SPORTS®	80	20							3-5	2-3
SPORTS PARK OS	50	50							3-5	2-3
CHAMPION		100							6-8	3-5

SLOPE & SHADE MIXES

CARE-FREE				35	25	25	15		6-8	3-4
SHADY PLACE®	10	10		30	30	20			5-8	3-4

TALL FESCUE BASED MIXES

GREEN RESISTOR® 5-WAY								100	8-10	4-8
TUFF-STUFF®	10							90	8-10	4-8
SURVIVOR	15	15		15	15			40	8-10	4-8



Elite Varieties



A-List Approved



Shade Tolerant




























Spreading Technology



Extreme Rhizome Expression +

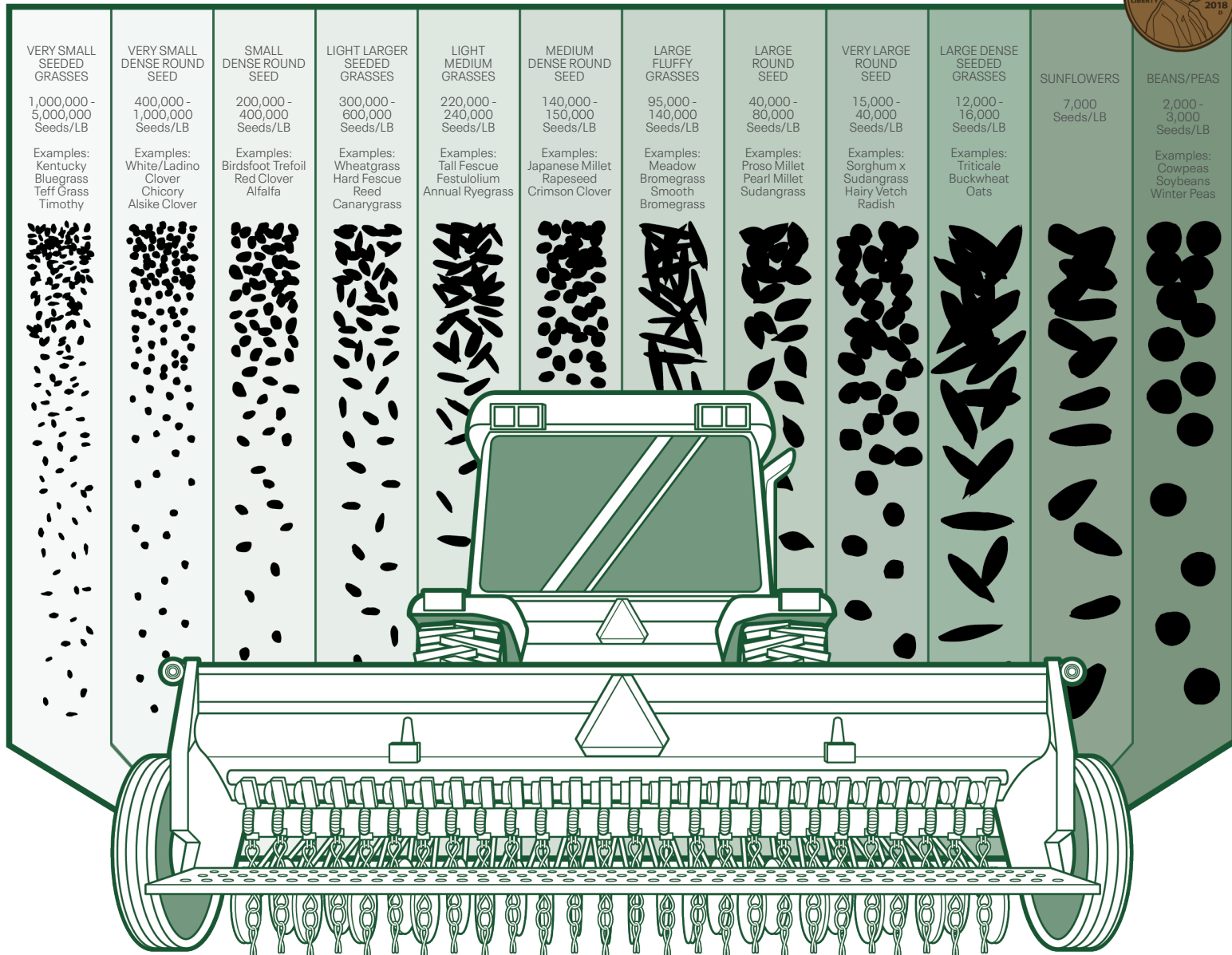


Branded Components

HEAT	WEAR	DROUGHT	TRAFFIC	SPREADING TECHNOLOGY	EXTREME RHIZOME EXPRESSION	SHADE TOLERANCE	GENETICS	A-LIST	IDEAL FOR:
4	4	3	4	ST					Establishing premium lawns or upgrading existing turf
4	4	3	4	ST					Establishing premium lawns or upgrading existing turf
4	4	3	4	ST					Establishing premium lawns or upgrading existing turf
4	4	3	4	ST					Establishing premium lawns or upgrading existing turf
4	4	3	3						Home lawns, parks & school grounds
3	3	3	3						Home lawns & commercial landscapes
3	3	3	3						Areas needing quick establishment
3	3	3	3						Areas needing quick establishment
4	5	3	5						Golf course tees, fairways & fine home lawns
4	5	3	5	ST					New installs or sports field renovation & other high performance areas
4	5	3	4	ST					Renovating & repairing athletic fields
4	5	3	4	ST					Renovating & repairing athletic fields
3	2	4	3						Cabin sites, hillsides or where minimal maintenance is desired
3	2	3	3	ST					Home lawns with moderate to densely shaded areas
5	5	5	5		XRE+				Home lawns, athletic fields & golf course roughs
5	5	5	5		XRE+				Low input sustainability, home lawns, high traffic, athletic fields & golf course roughs
4	4	5	5	ST	XRE+				All-around low input, sustainable turf

DRILL CALIBRATION SUGGESTIONS

The below graphic is only a suggestion, helping identify seeds with like size and density.



INOCULANTS



Our goal is to offer our customers the best the inoculant industry has to offer. La Crosse Seed has selected AgroVive, Novozymes 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.

SILAGE, GRAIN CORN & FORAGE SORGHUM

SEED 2 RUMEN® ION_{EX}™ Dry, seed applied in-plant inoculant for corn and forage sorghum grown for silage

LEAF 2 RUMEN® ION_{EX}™ Liquid, foliar applied in-plant inoculant for corn and forage sorghum grown for silage

ALFALFA & CLOVER

SEED 2 RUMEN® ALPHAJOULE Liquid, seed applied in-plant inoculant for alfalfa and clover

LEAF 2 RUMEN® ALPHAJOULE Liquid, foliar applied in-plant inoculant for alfalfa and clover

CEREALS

SEED 2 RUMEN® CROWN_{EX}™ Liquid, seed applied in-plant inoculant for cereal crops and forage grasses grown for forage harvest

LEAF 2 RUMEN® CROWN_{EX}™ Liquid, foliar applied in-plant inoculant for cereal crops and forage grasses grown for forage harvest

GRAZE 2 RUMEN® CROWN_{EX}™ Liquid, foliar applied in-plant inoculant for cereal crops and forage grasses grown for forage harvest

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® 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

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	¾" - ½"	Mar - May, Aug - Sep	7	Hay, Silage, Pasture	Perennial
Barley	14,000	48	30 - 100	20 - 40	¾" - 1"	Mar - Apr, Aug - Oct	6 - 8	Pasture, Silage	Annual
Bermudagrass (Hulled)	2,071,000	40	5 - 10	N/A	½"	Apr - Jun, Aug - Sep	21	Hay, Pasture	Perennial
Birdsfoot Trefoil	370,000	60	8 - 10	4 - 5	¾"	Feb - May, Aug - Sep	7	Pasture	Perennial
Bluegrass, Kentucky	2,177,000	14	10 - 15	4 - 10	¾"	Feb - May, Aug - Sep	28	Pasture	Perennial
Brassicas, Hybrid	165,000	N/A	4 - 6	2 - 3	¾"	Jul - Sep	4 - 6	Cover Crop	Annual
Brome, Meadow	93,000	N/A	12 - 20	5 - 10	¾" - ½"	Mar - May, Aug - Sep	14	Hay, Pasture	Perennial
Brome, Smooth	138,000	14	15 - 20	5 - 10	¾" - ½"	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	¾" - 1"	Mar - Apr, Aug - Oct	5 - 8	Cover Crop, Silage, Pasture	Annual
Chicory	426,000	N/A	4 - 5	2 - 3	½" - ¾"	Apr - May, Aug - Sep	7 - 21	Pasture, Wildlife	Perennial
Clover, Alsike	728,000	60	7 - 8	1 - 3	¾" - ½"	Feb - May, Aug - Oct	7	Hay, Pasture	Perennial
Clover, Arrowleaf	400,000	60	5 - 10	N/A	½" - ¾"	Aug - Oct	7	Hay, Pasture	Annual
Clover, Balansa	500,000	3	3 - 6	1 - 4	¾"	Feb - Mar, Aug - Sep	14	Cover Crop, Hay	Annual
Clover, Berseem	207,000	60	8 - 20	5 - 10	¾"	May - Jun, Aug - Oct	5 - 8	Cover Crop, Hay	Annual
Clover, Crimson	150,000	60	10 - 15	4 - 8	¾"	Aug - Oct	7 - 10	Cover Crop, Hay	Annual
Clover, Kura	227,000	60	10	4 - 6	¾" - ½"	Apr - May, Aug	7	Hay, Pasture	Perennial
Clover, Ladino White	768,000	60	4 - 6	2 - 4	½" - ¾"	Feb - May, Aug - Oct	7 - 10	Hay, Pasture	Perennial
Clover, Mammoth Red	272,000	60	8 - 12	6 - 8	¾" - ½"	Feb - May, Aug - Oct	7	Hay, Silage, Pasture	Biennial
Clover, Medium Red	272,000	60	8 - 12	6 - 8	¾" - ½"	Feb - May, Aug - Oct	7	Hay, Silage, Pasture	Biennial
Clover, New Zealand White	768,000	60	4 - 6	2 - 4	½" - ¾"	Feb - May, Aug - Oct	7 - 10	Pasture	Perennial
Clover, White Dutch	768,000	60	6 - 8	2 - 4	½" - ¾"	Feb - May, Aug - Oct	7 - 10	Pasture	Perennial
Crownvetch	138,000	60	20 - 40	5 - 10	½"	Mar - May, Aug - Sep	14	Erosion Control	Perennial
Fescue, Hard	592,000	N/A	5 - 10	N/A	¾" - ½"	Feb - May, Aug - Sep	14	Erosion Control	Perennial
Fescue, Tall	227,000	25	25 - 30	6 - 12	¾" - ½"	Mar - May, Aug - Sep	14	Hay, Pasture, Erosion Control	Perennial
Festulolium	227,000	N/A	30 - 40	15 - 20	¾"	Mar - May, Aug - Sep	14	Hay, Pasture	Biennial
Hairy Vetch	16,000	60	15 - 30	10 - 20	1"	Aug - Oct	14	Cover Crop	Annual
Kale	200,000	N/A	3.5 - 4	2 - 3	½"	May - Jul	7	Cover Crop	Annual
Lespedeza, Korean (Hulled)	238,000	25	25 - 35	N/A	¾" - ½"	Mar - Apr	14	Hay, Pasture, Erosion Control	Annual
Lespedeza, Striate (Kobe)	200,000	25	25 - 35	N/A	¾" - ½"	Mar - Apr	14	Hay, Pasture, Erosion Control	Annual
Millet, Browntop	142,000	50	10 - 30	N/A	½" - 1"	May - Jul	10	Hay, Pasture	Annual
Millet, Foxtail (German)	220,000	50	20 - 25	N/A	1"	May - Jul	10	Hay	Annual
Millet, Japanese	143,000	35	15 - 30	8 - 12	1"	Apr - Jul	10	Hay, Wildlife, Erosion Control	Annual
Millet, Pearl	60,000	52	10 - 30	5 - 20	½" - 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	¾" - 1"	Mar - Apr, Aug - Sep	5 - 8	Cover Crop, Silage, Hay	Annual
Orchardgrass	416,000	14	20 - 30	3 - 10	¾" - ½"	Mar - May, Aug - Sep	18	Hay, 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	¾" - ½"	May - Jul	8	Cover Crop, Silage	Annual
Phacelia	230,000	N/A	8	1 - 2	¾"	Jun - Sep	10 - 14	Cover Crop	Annual
Radish	35,000	N/A	3 - 8	1 - 3	¾" - ½"	Aug - Sep	14	Cover Crop	Annual
Rapeseed	145,000	50	4 - 6	2 - 4	¾" - ½"	Apr - May, Aug - Sep	4 - 10	Cover Crop	Annual
Red Top	4,990,000	14	4 - 5	1 - 2	¾"	Mar - May, Aug - Sep	10	Pasture, Erosion Control	Perennial
Reed Canarygrass	480,000	47	5 - 10	3 - 5	¾" - ½"	Mar - May, Aug - Sep	21	Hay, Pasture	Perennial
Ryegrass, Annual	227,000	24	15 - 30	10 - 15	¾"	Mar - Apr, Aug - Oct	7	Cover Crop, Silage, Pasture	Annual
Ryegrass, Perennial	227,000	24	30 - 40	6 - 10	¾" - ½"	Feb - May, Aug - Sep	14	Hay, Pasture	Perennial
Sainfoin	30,000	55	20	15	½" - ¾"	Mar - Apr	10	Hay, Pasture, Wildlife	Perennial
Sorghum, Forage	17,000	56	6 - 15	N/A	¾" - 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	¾" - 1 ½"	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	¾" - 1"	May - Aug	4 - 10	Wildlife	Annual
Sweetclover	259,000	60	12 - 15	6 - 8	¾" - ½"	Feb - May, Aug - Oct	7	Pasture, Wildlife	Biennial
Switchgrass	389,000	55	5 - 8 PLS	N/A	¾"	Apr - May	21	Hay, Pasture, CRP	Perennial
Timothy	1,152,000	45	12 - 15	2 - 6	¾" - ½"	Mar - May, Aug - Sep	10	Hay, Pasture	Perennial
Teffgrass	1,300,000	N/A	8 - 12	N/A	¾"	May - Jul	3 - 5	Hay, Pasture	Annual
Triticale	15,000	48	30 - 100	20 - 40	¾" - 1"	Mar - Apr, Aug - Oct	6 - 8	Hay, Pasture	Annual
Turnips	220,000	55	2 - 6	1 - 4	¾"	Aug - Sep	4 - 10	Cover Crop	Annual
Weeping Lovegrass	1,482,320	60	3 - 5	1 - 2	½"	May - Jun	7	Hay, Pasture	Perennial
Wheat	11,000	60	90 - 120	60 - 90	¾" - 1 ½"	Mar - Apr, Aug - Oct	7	Pasture, Silage	Annual

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