

The background of the entire page is a photograph showing the silhouette of a person sitting in the driver's seat of a tractor. The person is facing forward, looking out of the windshield. The scene is backlit by a bright light source, likely the sun, which creates a strong glow and a lens flare effect. The tractor's interior, including the steering wheel and dashboard, is visible in silhouette. The overall color palette is dominated by warm, golden-brown tones from the backlighting.

# FORAGE AND TURF GUIDE

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WE'LL GROW YOU ONE BETTER

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## A NOTE ABOUT OUR COMPANY

Kitchen Seed Company, Inc. was founded in 1974 by Phillip Kitchen. Our main facility is in Arthur, Illinois in the heart of Amish Country. As an independent, family owned company, we have been in the Forage and Turf business for more than 40 years.

Kitchen Seed Company, Inc. is proud of the fact that we can offer you a full product line of pasture, turf, or wildlife seed. We buy only the highest quality seed direct from growers in the Northwest. We carefully pick genetics and seed traits best suited for the Midwest growing area.

Whether you're buying a bag of pasture mix or a bag of lawn mix, please take a minute to read the analysis tag. You'll see that our mixes are formulated to give you the highest quality product with the longest term growth for your dollar. We use NO "filler seed" or annuals in our formulas.

WE INTEND TO LIVE UP TO OUR MOTTO: **WE'LL GROW YOU ONE BETTER!**

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**WE'LL GROW YOU ONE BETTER!**

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## FORAGE GRASSES

Climax Timothy  
Summit Timothy  
Fawn Tall Fescue  
FSG 402TF Forage Fescue  
Extend Late Orchardgrass  
Potomac Orchardgrass  
Smooth Brome  
Elena Perennial Rye  
Marathon Reed Canarygrass (ctd)  
Red Top  
FSG 506OG Early (O.G.)

## SUMMER ANNUALS

Teff Grass  
Sorghum-Sudangrass  
Cow Peas

## LAWN GRASSES

Premium Kentucky Bluegrass  
Turf Perennial Ryegrass  
ASP Premium Per. Rye Grass  
Turf Type Fescue  
AST Premium Turf Fescue Varieties  
Creeping Red Fescue

## BRASSICAS & MISC.

Forage Turnips  
Purple Top Turnips  
Rape Seed  
Impact Forage Collards  
Eco-Till Radish  
Crown Vetch  
Hairy Vetch

## SEED OATS

Saber Seed Oats  
Reins Seed Oats

## ALFALFA

KSC Extender IV Alfalfa  
FSG 421LH Leaf Hopper Resistant  
FSG 524 Premium Alfalfa  
FSG 438RR Alfalfa  
Vernal Alfalfa

## CLOVER

Medium Red Clover (uncoated)  
FSG 402 - 3 Year Red Clover (ctd)  
Mammoth Clover  
Alsike White Clover  
Yellow Blossom Sweet Clover Ladino  
White Clover  
Pinnacle Or Will Ladino Clover (ctd)  
Crusade Intermediate White (ctd)  
Korean Lespedeza  
Birdsfoot Trefoil  
White Dutch or White Blossom Clover

## WILDLIFE

Sugar Beets (ctd)  
Chicory  
Hybrid Pearl Millet  
Japanese Millet  
Peredovic Sunflower  
Hybrid Grain Sorghum  
Buckwheat  
Spring Barley per 48 lb bag  
Egyptian Wheat  
Clearfield Sunflowers

## COVER CROPS

Cover Crop Wheat  
Winter Rye Grain  
DH3 Annual Ryegrass  
Tillage Radish  
Crimson Red Clover  
Austrian Winter Peas

## REAL WORLD WILDLIFE FOOD PLOT MIXES

Clover/Chicory Blend (1 acre bag or 1/2 acre jug)  
Upland Game Blend (1 acre bag)  
Whitetail Soybeans (1 acre bag)  
Whitetail Forage Oat Blend (1 acre bag)  
Whitetail Harvest Salad (1/2 acre bag)  
Bedding In A bag (1 acre bag)  
Real World Switchgrass (10 lb bag)  
Fall Plot Topper (1/2 Acre Jug)  
Deadly Dozen (1/4 Acre)  
Maximizer Mineral (10 lb or 40 lb bag)  
Maximizer Mineral Plus (10lb or 40lb bag)

## KSC FORAGE MIXES

**Horse-Mate Professional Pasture Mix**  
35% FSG 506OG Orchardgrass  
25% Forage Kentucky Bluegrass  
15% Summit Timothy  
10% Intermediate Ryegrass  
10% Elena Perennial Ryegrass  
5% Will Ladino Clover

## Professional Beef Pasture Mix - Inoculated

33.49% FSG 506OG Orchardgrass  
22.95% FSG 402 Red Clover  
9.98% Intermediate Ryegrass  
9.96% Elena Perennial Ryegrass  
4.97% Derby Timothy  
3.29% Pinnacle Ladino Clover

## KSC "Equine Elite" Pasture Mix

30% Elena Forage Perennial Ryegrass  
25% Potomac Orchardgrass  
20% Premium Kentucky Bluegrass  
20% Climax Timothy  
5% Smooth Brome  
**Packaged in 25 lb bags**

## KSC Pasture Mix #2 - Inoculated

60% Vernal Alfalfa  
25% Medium Red Clover  
10% Climax Timothy  
5% Benchmark Orchard Grass

## KSC Grasswaterway / Pasture Mix

35% Potomac Orchard Grass  
25% Fawn Tall Fescue  
20% Premium Perennial Ryegrass  
10% Premium Kentucky Bluegrass  
10% Climax Timothy  
**Packaged in 25 lb bags**

## KSC LAWN MIXES

### KSC Lawn Mix

65% Premium Kentucky Bluegrass  
35% Premium Turf Perennial Ryegrass  
*For a premium fine bladed, deep green turf. Excellent for new lawns or reseeding existing lawns.*

### Shaded Green Lawn Mix

30% Premium Kentucky Bluegrass  
25% Creeping Red Fescue  
20% Premium Turf Perennial Rye  
25% Turf Type Fescue  
*A superior mix for moderate to heavily shaded lawns or lawns with poor soil quality.*

### KSC 5-Way Fescue Blend

*For a hardy lawn with lush green color all season long. Rust resistant and drought tolerant. Excellent for parks and athletic fields.*

### Greenpathway Lawn Mix

50% Premium Kentucky Bluegrass  
25% Turf Type Fescue  
15% Premium Turf Perennial Ryegrass  
10% Creeping Red Fescue  
*For a durable lawn with heavy traffic.*

### Grow-All Lawn Mix

25% Premium Kentucky Bluegrass  
25% Creeping Red Fescue  
50% Premium Turf Perennial Ryegrass  
*An excellent lawn mix that grows well in all soil types and conditions. Comes up quicker than other mixes. A favorite among landscapers.*

### All Lawn Mixes Packaged In

**25 lb, 10 lb, 5 lb, or 3 lb BAGS**



Premium Alfalfa Varieties from KSC for those who plant the very best!

## ALFALFA

### Management

In general, graze or cut for hay when alfalfa is in early bloom. Graze or cut to about a 2-inch height. Successive cuttings for hay should occur at 1/4-inch bloom stage. Alfalfa can best withstand grazing if rotated frequently or grazed in small strips. The last cutting of alfalfa should be made 3 to 4 weeks before the first killing frost date. Alfalfa may cause livestock to bloat. Care should be used in managing such grazing to reduce the possibility of this hazard.

### Establishment

A seedbed should be smooth, firm, free of weeds and trash, and contain adequate moisture for germination and emergence. Land grading should be sufficient to ensure good surface drainage. Alfalfa should not be seeded as a first crop on newly leveled land where fill may settle and cause poor surface drainage.

Fifteen to twenty pounds of coated or non-coated inoculated seed per acre evenly drilled 1/4-inch-deep on adapted, properly prepared sites will produce adequate stands. A combination drill and packer is desirable. Cult packing soil before and after seeding is helpful to stand establishment. Seeding depth should be no greater than 1/4 inch on finer textured soils and no greater than 1/2 inch on sandy soils. Spring seedings can be made 30 days before the average date of the last killing frost. Alfalfa can also be successfully seeded during the late summer. Allow time for adequate growth prior to the first killing frost.

After several years of testing, Kitchen Seed Company is proud to offer these **PREMIUM** alfalfa varieties. We have carefully selected these genetics for their traits and yield potential in this area.

### FSG 438 RR

The newest genetics in Roundup Ready® Alfalfa

### KSC EXTENDER IV

Economically priced

### FSG 421LH

The newest Leaf Hopper Resistant genetics available

### FSG 524 PREMIUM

Very winterhardy, our best yielder!

## FSG 438RR ALFALFA

- Roundup Ready® Alfalfa
- High resistance to Aphanomyces Race 2
- Unsurpassed weed control
- Great forage yield potential
- Superior forage potential
- High multi-foliate leaf expression
- Excellent winterhardiness and persistence disease / insect / nematode ratings
- 4.0 fall dormancy
- 2.0 (Very Good) winter survival
- Very fast recovery after cutting



438RR alfalfa lets you produce cleaner, higher quality alfalfa for greater profit potential. The simplicity and improved crop safety of using one herbicide with the widest window of application available enables you to be in control instead of Mother Nature. 438RR alfalfa performs well over a wide range of environmental conditions and is adapted to all areas where 3, 4, and 5 fall dormancy varieties are planted. With high resistance to Aphanomyces Race 2, 438RR alfalfa features a Wisconsin disease index rating of 35/35 and is also resistant to stem nematodes. Whether it's for great forage yields, superior forage quality or very fast recovery after cutting, 438RR is the choice for commercial hay, beef, and dairy producers who want to take advantage of Roundup Ready® Alfalfa technology.

#### DISEASE/INSECT/NEMATODE RATINGS

<b>Bacterial Wilt</b>	Highly Resistant (HR)	5
<b>Fusarium Wilt</b>	Highly Resistant (HR)	5
<b>Verticillium Wilt</b>	Highly Resistant (HR)	5
<b>Anthracnose - Race 1</b>	Highly Resistant (HR)	5
<b>Phytophthora Root Rot</b>	Highly Resistant (HR)	5
<b>Aphanomyces - Race 1</b>	Highly Resistant (HR)	5
<b>Aphanomyces - Race 2</b>	Highly Resistant (HR)	5
<b>Wisconsin Disease Index</b>	35 out of 35	-
<b>Pea Aphid</b>	Highly Resistant (HR)	5
<b>Stem Nematode</b>	Moderately Resistant (MR)	-



*Premium Alfalfa Varieties from KSC for those who plant the very best!*

## KSC EXTENDER IV ALFALFA

- Resistant to Sclerotinia crown and stem rot
- Perfect 30 out of 30 on the Wisconsin disease index
- **EXCELLENT** hay yield and wide adaptability
- Newer genetics and higher yield potential than
- 4.0 fall dormancy
- 3.1 (Good) winter survival
- Very fast recovery after cutting

KSC EXTENDER IV is a new improved version of KSC extender III Alfalfa. This productive variety is highly resistant to all major disease pests and offers resistance to Sclerotinia crown and stem rot.

KSC EXTENDER IV also is resistant to Pea Aphid and Stem Nematode and displays excellent tolerance to Lepto Leaf Spot and Spring Black Stem. Adapted for hay, haylage, or grazing purposes, KSC EXTENDER IV delivers consistent performance under a wide range of climatic and soil conditions. Characteristics include superior establishment, excellent persistence, fast recovery after cutting, and exceptional winter hardiness.

### DISEASE/INSECT/NEMATODE RATINGS

<b>Bacterial Wilt</b>	Highly Resistant (HR)	5
<b>Fusarium Wilt</b>	Highly Resistant (HR)	5
<b>Verticillium Wilt</b>	Highly Resistant (HR)	5
<b>Anthrachnose - Race 1</b>	Highly Resistant (HR)	5
<b>Phytophthora Root Rot</b>	Highly Resistant (HR)	5
<b>Aphanomyces - Race 1</b>	Highly Resistant (HR)	5
<b>Wisconsin Disease Index</b>	30 out of 30	-
<b>Pea Aphid</b>	Highly Resistant (HR)	5
<b>Sclerotinia Crown and Stem Rot</b>	Resistant (R)	-
<b>Stem Nematode</b>	Moderately Resistant (MR)	-

## FSG 421LH ALFALFA

- Very high resistance to potato leafhoppers
- Superior yield potential
- Excellent forage with increased palatability
- High resistance to Aphanomyces Race 2
- A widely adapted glandular haired conventional alfalfa variety
- 4.0 fall dormancy
- 2.0 (Very Good) winter survival
- tap root type
- Very fast recovery after cutting

FSG 421LH alfalfa is Farm Science Genetics latest conventional potato leafhopper resistant variety. With very high leafhopper resistance, a Wisconsin disease index rating of 35/35 and a fall dormancy of 4, FSG 421LH is at the top when it comes to performance, adaptability and pest resistance. FSG 421LH tolerates a wide range of environmental and soil conditions with characteristics such as high resistance to Aphanomyces Race 2, excellent persistence, fast recovery after cutting and high relative feed quality in sprayed or unsprayed conditions. FSG 421LH is the perfect choice for areas where potato leafhoppers cause economic damage year after year.

### DISEASE/INSECT/NEMATODE RATINGS

<b>Bacterial Wilt</b>	Highly Resistant (HR)	5
<b>Fusarium Wilt</b>	Highly Resistant (HR)	5
<b>Verticillium Wilt</b>	Highly Resistant (HR)	5
<b>Anthrachnose - Race 1</b>	Highly Resistant (HR)	5
<b>Phytophthora Root Rot</b>	Highly Resistant (HR)	5
<b>Aphanomyces - Race 1</b>	Highly Resistant (HR)	5
<b>Aphanomyces - Race 2</b>	Highly Resistant (HR)	5
<b>Wisconsin Disease Index</b>	35 out of 35	-
<b>Pea Aphid</b>	Highly Resistant (HR)	-
<b>Sclerotinia Crown and Stem Rot</b>	Resistant (R)	-
<b>Stem Nematode</b>	Moderately Resistant (MR)	-

Ratings based on the Wisconsin Disease Rating Index. 1-5, 5 = best





*Premium Alfalfa Varieties from KSC for those who plant the very best!*

## FSG 524 ALFALFA

- Great forage yield potential
- Superb forage quality
- High multi-foliate leaf expression
- Very fast recovery after cutting
- Excellent winterhardiness and persistence
- Perfect 30 out of 30 on the Wisconsin disease rating index
- 5.0 fall dormancy
- 1.0 (SUPERIOR) winter survival
- Very fast recovery after cutting

FSG 524 alfalfa is at the top of its class with superior combination of winterhardiness, very fast recovery after cutting, high multi-foliate leaf expression for improved forage quality and great forage yield potential. FSG 524 alfalfa is ideal for the commercial hay grower or dairy producer using an intensive cutting management schedule or for those on a less intensive 3 cut management schedule.

DISEASE/INSECT/NEMATODE RATINGS		
<b>Bacterial Wilt</b>	Highly Resistant (HR)	5
<b>Fusarium Wilt</b>	Highly Resistant (HR)	5
<b>Verticillium Wilt</b>	Highly Resistant (HR)	5
<b>Anthrachnose - Race 1</b>	Highly Resistant (HR)	5
<b>Phytophthora Root Rot</b>	Highly Resistant (HR)	5
<b>Aphanomyces - Race 1</b>	Highly Resistant (HR)	5
<b>Wisconsin Disease Index</b>	30 out of 30	-
<b>Pea Aphid</b>	Resistant (R)	-
<b>Stem Nematode</b>	Resistant (R)	-



Due to the unique cropping practices do not plant Roundup Ready® Alfalfa in Imperial County, California, pending import approvals and until Forage Genetics International, LLC (FGI) grants express permission for such planting.

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. Roundup Ready® Alfalfa has pending import approvals. 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 Excellence Through Stewardship.

ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. Roundup Ready® crops contain genes that confer tolerance to glyphosate. Glyphosate herbicides 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.



## Red and White Clovers

## FSG 402 RED CLOVER

- High yield potential
- Excellent forage quality
- Longer stand persistence
- Superior disease resistance

FSG 402 is an elite new-generation diploid medium red clover developed for higher yields and longer stand persistence; three or more years under good management. FSG 402 is at 50% bloom at approximately the same time as Arlington in the spring and performs extremely well over a wide geographic area and under variable growing conditions.

**Whether it's for hay, pasture, or silage, FSG 402 is hard to beat when it comes to yield, persistence, and disease resistance.**

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## WILL LADINO WHITE CLOVER

- Increased forage quality
- Fixation of atmospheric nitrogen by Rhizobium bacteria in root nodules results in reduction of up to 70% of fertilizer cost
- Excellent regrowth following grazing
- Superior winterhardiness

Will Ladino White Clover is persistent in hot climates, has superior winterhardiness, and offers high yield potential. Developed jointly by the USDA and North Carolina State University, Will Ladino White Clover is excellent for pastures and hay, and is widely adapted to different climates. This variety is known for excellent stolon development and establishment and competes well against weeds. Will Ladino White Clover's large leaves are highly nutritious.

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## RED CLOVER

## ESTABLISHMENT

Red clover may be seeded in pure stands, but it is often mixed with grain or grass. Spring or late summer seedings are satisfactory. It may be over-seeded in the spring or fall. Red clover seed should be inoculated. Phosphorus and potash are the fertilizer elements needed most by red clover. Apply as recommended by soil tests. Seeding may be done with a drill or broadcaster. A firm, weed-free seedbed is essential. Plant seeds 1/4 to 1/2 inch deep. Seeding rates are 12 to 15 lbs/A broadcast and 6 to 8 lbs/A when drilled. For renovating pastures, the recommended seeding rate is 8 lbs/A.

## MANAGEMENT

Graze or cut for hay when the red clover is 1/4 to 1/2 bloom. A second cutting or successive grazing should occur when red clover is 1/4 in bloom. Leave at least 2 to 3 inches of growth after each harvest. Care should be taken to eliminate or appreciably reduce bloating of livestock when grazing. Keep lime and fertilizers (phosphorus and potash) at the proper level.

## WHITE CLOVER

## ESTABLISHMENT

The standard seeding rate is 2 to 4 pounds per acre, planted at a depth of 1/4 to 1/2 inch. For pasture establishment, seeds are drilled into a well-prepared seedbed that has been plowed, harrowed and compacted to produce a firm seedbed. The seeds are inoculated before seeding. For stabilization use, seeds are broadcast on roadside cuts and fills by cyclone seeders, hydro-seeders, or blower-type equipment. The proper time of seeding is determined by seasonal and moisture conditions. This may vary from April to May. Late summer and fall seedings should be conducted while adequate moisture is still in the soil to assure establishment before freezing.

## MANAGEMENT

Management for forage is aimed at maintaining 40% to 50% clover. Close grazing (2-inch stubble height) favors clover, whereas light grazing favors grass. Well-fertilized grass will outgrow clover in fall and winter and could smother the clover. Spring applications of nitrogen will stimulate grass and provide early feed, but excessive rates are detrimental to the clover stand. Phosphate applications are broadcast in fall or spring according to soil tests. Sulfur, boron, or magnesium may be needed for maximum production on some soils in the western part of white clover's range.



*Timothy Grass and Tall Fescue***TIMOTHY****ESTABLISHMENT**

Timothy is usually seeded in mixtures with legumes. This mixture may be drilled with a small grain drill. If planted with a winter grain, the Timothy is seeded with it, and the legume is planted early the following spring. Seeding depth of timothy should be 1/2 inch. A firm, weed-free seedbed is a key to a successful planting. Common seeding rates are 6 to 12 pounds per acre when seeded alone and 2 to 6 pounds per acre when seeded in mixtures.

**MANAGEMENT**

Timothy is highly responsive to fertilizers, which should be applied frequently in ample quantities. Fertilizer, especially nitrogen, is important when legumes have almost disappeared from the hay or pasture mixture. Timothy stands become weak under close and continuous grazing. A fundamental reason for the decline of timothy under poor grazing practices is injury to the culms. These culms form in the spring at the same time the stem elongates. Food materials are stored in them, and they may be destroyed by trampling of grazing animals. Timothy can be initially grazed before jointing and again between early head to full head. Second and successive grazing should also occur before jointing and when basal sprouts appear at the soil surface. After the second grazing, plants usually do not joint. Timothy should be cut for hay or silage from early to full head. Make successive harvests for hay and silage when basal sprouts appear at the soil surface. Sterile seed-heads may be 15 to 20 inches up the stems when sprouts appear at the time of second cutting. Growing points stay below ground after a second cutting. Graze or cut to a minimum height of 3 inches or more.

**TALL FESCUE****ESTABLISHMENT**

Tall fescue is easy to establish due to its rapid germination and good seedling vigor. It may be planted by any common method such as grass seeders, hydro-seeding and broadcasting. Seeding rates are 15 to 20 pounds per acre if drilled and 20 to 25 pounds per acre if broadcast. The seeding depth is 1/2 inch.

**MANAGEMENT**

While tall fescue is tolerant of abuse and low fertility, it does respond to fertilizer inputs. Follow the soil test recommendations. Endophyte-infected tall fescue will tolerate grazing abuse better than most cool season grasses. If the tall fescue is an endophyte-free variety, it should not be grazed closer than 3 inches, and will not tolerate overgrazing. Tall fescue can be grown with white clover, red clover and alfalfa. First cutting for hay should be at the late boot stage with further cuttings as regrowth allows. Tall fescue is one of the best grasses for stockpiling in the fall.

**SUMMIT II TIMOTHY**

- Superior for hay or grazing
- Early maturity
- Great palatability
- Perfect for pure stands or with legumes and
- Other grasses
- Improved summer regrowth
- Excellent spring vigor
- Superior leafiness
- Very winterhardy

Summit II is a new early-type timothy with maturity similar to Clair and 10 days earlier than Climax. Summit II was bred for higher yields, faster spring green up and better summer regrowth. Summit II is ideally suited for pasture mixes, especially when used with alfalfa. Summit II can tolerate moderate continuous grazing, but does best under rotational grazing. Summit II is the hay and pasture grass of choice for horse owners and others who demand high quality forage.

SUMMIT II TIMOTHY DRY MATTER YIELDS		
Variety	Total % Yield*	Loc./Yrs.
Summit	105.1	27
Clair	102.8	29
Climax	91.8	29

\*All test locations

**FSG 402TF TALL FESCUE**

- High yielding
- Superior summer regrowth
- Excellent disease resistance
- Great for winter stockpiling
- Excellent persistence and drought tolerance
- Wide area of adaptation

FSG 402TF is an endophyte free, medium maturing tall fescue variety which eliminates concerns about fescue foot, bovine fat necrosis or fescue toxicosis in cattle. With excellent summer regrowth, superior disease resistance, high forage yield potential and a wide area of adaptation, FSG 402TF will easily outperform other currently available tall fescue varieties.



## Orchardgrasses

## FSG 5060G ORCHARDGRASS

- Early - medium maturing
- Excellent foliar disease resistance
- Great forage yield potential
- Improved stand persistence
- Selected for seedling vigor
- Quick recovery
- Excellent color

## FFR PERFORMANCE DATA KENTUCKY AND VIRGINIA

Entry	% Mean	Foliar Disease*
<b>FSG 5060G</b>	106	3.4
<b>Benchmark Plus</b>	101	6.1
<b>Persist</b>	98	5.5
<b>Prairie</b>	101	6.8

\*Rating: 1=little or no disease, 9=90%+ infection; mean of 6 field ratings

## EXTEND ORCHARDGRASS

- Superior yield
- Late maturity
- Stem Rust resistance
- Great palatability
- Perfect for alfalfa or clover mixes
- Increased stand persistence
- Excellent plant vigor
- Responds to irrigation

## PLANTING SUGGESTIONS

<b>Planting Rate (pure stand)</b>	10-20 lbs/A
<b>Planting Rate (alfalfa mix)</b>	3-6 lbs/A
<b>Planting Rate (clover mix)</b>	10 lbs/A
<b>Planting Depth</b>	1/4 to 1/2 inch deep
<b>Seeding (Spring)</b>	March 1 to May 15
<b>Seeding (Summer)</b>	August 1 to September 15
<b>Soil Type</b>	Moderate to well-drained
<b>Minimum Soil pH</b>	5.5

## Orchardgrass Yields

Summarized over years and 15 locations throughout: IL, KY, MI, OH, PA, TN, VA and WI.

ENTRY	% MEAN	ENTRY	% MEAN
<b>Extend</b>	104.6	<b>Hayday</b>	95.5
<b>Haymate</b>	104.2	<b>Profile</b>	95.2
<b>Warrior</b>	101.3	<b>Duke</b>	94.6
<b>Benchmark</b>	100.6	<b>Pennlate</b>	92.9
<b>Progress</b>	99.2	<b>Kay</b>	92.5
<b>Potomac</b>	96.4	<b>Test Mean</b>	100.0

(Total Tons Dry Matter/Acre)

## ORCHARDGRASS

## ESTABLISHMENT

A clean, firm, weed-free seedbed is recommended. Range and erosion control seedings should be made in the late fall or very early spring. Do not seed after the spring moisture period is well advanced or a failure may occur because of drought and hot summer conditions before the grass is well established. A deep furrow or range drill with press wheels may be used. Orchardgrass is easily established with grain drills or by broadcast seeding. The seeding rate is 8 to 12 pounds per acre. For range and critical area treatment, a seeding rate of 3 to 4 pounds per acre is recommended. If broadcast, double the seeding rate. Adjustments in seeding rate should be made when seeding in mixtures. Seeding depth should not be more than 1/2 inch.

## MANAGEMENT

Under irrigation and higher rainfall areas, orchardgrass should be cut at boot stage for the first cutting and then at 4 to 6-week intervals depending on regrowth. Rotational grazing is best for production, persistence and quality. Fields should be grazed heavily and frequently during the spring, but do not overgraze. Leave a 3 to 4-inch stubble so plants can recover quickly. Heavy grazing during the late fall should be avoided to prevent depletion of root reserves. Under dry land conditions, orchardgrass should not be grazed until late summer or fall of the second growing season. The plants may be severely damaged by overgrazing especially in the seedling year. Use no more than 60% of the annual growth during the winter season or 50% during the growing season. This plant responds well to rotational grazing systems. Orchardgrass responds to good fertility management. One strategy, to even out the forage production, is to fertilize the stand after the first and second cutting or grazing to boost late spring and summer production. Apply fertilizer based upon soil tests.

## Planting Suggestions

**Seeding (Spring)**..... March 1st to May 15th  
**Seeding (Summer)**..... August 1st to September 15th  
**Soil Type**..... Moderate to well-drained  
**Minimum Soil pH**..... 5.5

## NEBRASKA

North Platte, West Central Research and Extension Center  
 Irrigated-2002 Seeding 2 Year Total Production.

ENTRY	DRY MATTER TONS/ACRE
<b>Extend Orchardgrass</b>	16.60
<b>Pizza Orchardgrass</b>	15.67
<b>Latar Orchardgrass</b>	15.65
<b>Paiute Orchardgrass</b>	15.30
<b>Persist Orchardgrass</b>	14.98
<b>Potomac Orchardgrass</b>	14.78
<b>Baridana Orchardgrass</b>	14.67
<b>Experiment Mean</b>	14.91
<b>CV(%)</b>	7.0
<b>LSD (0.05)</b>	1.49



*Perennial Ryegrasses and Reed Canarygrass***REED CANARYGRASS****ESTABLISHMENT**

A firm, moist, clean seedbed is needed for good emergence. The seed germinates readily but is somewhat slow to establish. Seed pure stands at a rate of 8 to 10 pounds/A and 4 to 8 pounds/A for mixtures. Seeding should be done in late fall or early spring. Plant shallow, no deeper than 1/2 inch. If necessary, irrigate to maintain surface moisture until plants are well established.

**MANAGEMENT**

New seedlings should not be grazed until fully established. It is best to harvest for hay 1 to 2 times before grazing. To maintain plant vigor and promote rapid regrowth, leave a stubble of 3 to 4 inches after mowing or grazing. Start spring grazing after plants reach a height of 10 to 12 inches. Maintain grass height below 12 inches during rapid spring growth. Harvest hay when the first seed-heads appear. Reed canarygrass will persist under close, frequent use, but yield will be greatly reduced. Its persistence under heavy use makes it well suited for calving, lambing, holding areas or special-use pastures. To maintain good yields, an annual application of fertilizer will be required on most fields depending on soil test results.

**PERENNIAL RYEGRASS****ESTABLISHMENT**

Seed should be planted 1/4 to 1/2-inch-deep in a well-prepared seedbed. Spring seedlings of ryegrass may occur in March, April, or May. Perennial ryegrass may also be seeded mid-August to early September.

Generally, a rate of 30 to 40 pounds per acre is used if ryegrass is seeded alone. In mixtures, 6 to 10 pounds per acre is recommended, depending upon uses and companion species. In general, the perennial ryegrass component of a mix should be 20% or less since it is very competitive, due to rapid germination and good seedling vigor.

**MANAGEMENT**

Ryegrass is generally cut for hay when seed heads start to emerge. Established perennial rye grass-clover pastures should be rotationally grazed when spring growth is 3 to 6 inches high. Allowing 7 to 10 inches of regrowth between grazing will benefit yield and persistence. On new seedlings, harvest or grazing should be delayed until plants are 10 to 12 inches tall. Ryegrass responds well to good management, such as intensive rotational grazing and fertilizer applications.

**MARATHON REED CANARYGRASS**

- Leafy, high-yielding, perennial forage grass
- Widely adapted
- Performs well on wet, poorly-drained soils and soils with a pH below 6.0
- Very drought tolerant variety that can be used for hay, silage, or pasture
- Low alkaloid

Marathon has short rhizomes that spread, creating a dense sod. It has greater winterhardiness and is more resistant to foliar disease than other cool-season grasses. Use Marathon for hay, silage or pasture. When cut for hay or silage, quality is optimal before seed heads appear, and then rapidly declines. Forage yields are excellent in the spring and early summer and are fair to good in late summer and early fall. When used as pasture, grazing Marathon down to 3 to 4 inches above the ground will make the best utilization of the forage. Allow the grass to recover before re-grazing, always keeping the grass below 12 inches tall during rapid spring growth.

**SEEDING RATE**

8 to 10 lbs per acre when seeded alone. When seeding Marathon reed canarygrass in a mixture with legumes, decrease the seeding rate to 4 to 8 lbs per acre. Sow no deeper than 1/2 inch in a well-prepared, firm seedbed in the spring or late summer.

**ELENA FORAGE PERENNIAL RYEGRASS**

- Superior yields of high-quality forage
- Forage is highly palatable, digestible, and nutritious for all livestock
- Extremely high animal performance from pasture or silage
- Vigorous, dark green plants with high disease resistance
- Excellent seedling vigor for fast establishment of dense stands
- Endophyte free
- Winterhardy and persistent

Elena tetraploid perennial ryegrass is a medium maturing variety which has shown superior forage yield potential, excellent forage quality, and longer persistence in state trials throughout the United States.

With strong spring and fall forage production plus fast recovery after cutting or grazing, Elena is the ideal component for horse, dairy, or beef pasture mixes. Rapid germination and excellent seedling vigor makes this variety perfect for pasture renovation as well. Elena also has great rust and leaf disease resistance which helps maintain palatability and digestibility for improved animal performance.

When all of these varietal characteristics are added up, Elena is without a doubt the best choice for livestock and dairy producers looking for increased weight gains and milk production.



- New high yielding warm season annual forage grass variety
- Excellent palatability and forage quality
- Ideal for horses and other livestock

- Dessie Teff is a new warm season annual grass variety developed for high forage production and forage quality without the problems of other summer annual grasses such as prussic acid or nitrate buildup. Dessie makes the ideal hay for horses with great palatability, digestibility, a mineral content high in calcium and iron and an attractive green color which is important for the premium horse hay market. Dessie is widely adapted throughout the United States and will tolerate drought conditions as well as wet soils. Dessie is a low input crop that has very few disease or pest problems and does not require high amounts of fertilizer for optimum production. Remember, for profitable summer forage production, Dessie is the answer.



**NOTES**

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## PLANTING

- Plant after all risk of frost has passed. Typically late May through late July. Teff does not germinate well in cool soils

- FERTILIZER**

- Teff needs adequate phosphorous, potassium, and sulfur – SOIL TEST

- ## HARVEST

- For optimum quality, harvest in pre-boot to early boot stage, approximately 45 to 50 days after planting



*Sorghum Sudangrass***SORGHUM-SUDANGRASS****ESTABLISHMENT**

Planting rates vary from 20 to 40 pounds per acre depending on whether the seed is broadcast or planted in rows. Planting dates are usually from May to July but can be earlier in the deep South. Soil temperature needs to be a minimum of 60 degrees Fahrenheit for germination. Seeding depth should be 1 inch.

**MANAGEMENT**

For optimum forage production, moderate fertility is suggested although sorghum-sudangrass will grow on lower fertility soils with better results than corn. Fertilize using soil test recommendations. If a soil test is not available, fertilize at similar rates to other annual grass crops. Grazing sorghum-sudangrass should begin when the plants are between 18 to 30 inches tall and grazed down to 8 inches within 10 days. After grazing, the residue needs to be clipped to a minimum uniform height of 8 inches to ensure high quality forage production for the next grazing period in 3 to 4 weeks. Do not graze after a killing frost until the plants turn completely brown (7 days). If the plants are frost damaged, wait until the regrowth is at least 18 inches high before grazing again. Green chop harvesting should begin when the sorghum-sudangrass is 18 inches tall and should be completed before the plants head out. Silage should be harvested when the plants are 36 to 48 inches tall or in the boot to early head stage. At this stage, moisture is usually too high, and the plants should be allowed to partially dry in the field before ensiling. Harvesting for hay is recommended before head emergence or when the plants reach 48 inches in height. Rapid, uniform drying is critical for sorghum-sudangrass hay to prevent spoilage. Avoid possible nitrate and prussic acid poisoning by avoiding large applications of nitrogen prior to expected drought periods; do not harvest drought damaged plants within 4 days following a good rain; do not cut or graze within 7 days of a killing frost; cut at a higher stubble height if under stress since nitrates accumulate in the lower stalk, and delay feeding silage 6 to 8 weeks after ensiling to allow prussic acid to dissipate. Never feed sorghum-sudangrass to horses.

**GREENGRAZER V SORGHUM-SUDANGRASS  
(SORGHUM BICOLOR X SORGHUM BICOLOR)**

- Small seeded and thin stemmed type
- Dark green color with green top trait
- Anthracnose and downy mildew resistant

Greengrazer V is a new small seeded three way cross with thin stems that are highly palatable. Regrowth after cutting is very fast. Greengrazer V is a dark green color and also possesses the Green Top trait, which allows for further extension of the plant. Planting Greengrazer V at higher populations will result in a finer stemmed forage. Finer stems will allow the forage to dry faster for higher quality hay than is possible with thick stemmed types.

**SEEDING**

- Soil temperature should be at least 60° F
- Greengrazer V is usually planted between June 10 through July 10 in the North
- Can be no tilled into the stubble of winter and spring crops
- Planting depth should be 1 inch
- Do not plant in soils with pH greater than 7.5 to 8.0. Chlorosis will be a severe problem.

**HARVEST**

- Greengrazer V is usually harvested 63-65 days after seeding
- Protein will decline as harvest is delayed, but energy will increase upon heading due to continued sugar formation in the sorghum stalks and leaves, and carbohydrate deposition in the developing grains.

**STRENGTHS**

- High yield potential
- Thin stemmed plant type
- Small seeded type
- Dark green plant color
- Green top trait (further extension)
- Good overall disease resistance package
- Resistant to Anthracnose and Downy Mildew
- Sweet juicy midrib

**WEAKNESSES**

- Moderate drought tolerance
- Poor storage - juicy midrib favors bacteria

**AVOIDING NITRATE AND PRUSSIC ACID POISONING  
FROM SORGHUM**

- Avoid large nitrogen applications prior to expected drought periods.
- 2,4-D can increase Prussic Acid concentration for several weeks after application.
- Do not harvest drought-damaged plants within 4 days following a good rain. Do not green chop within 7 days of a killing frost.
- Cut at a higher stubble height, nitrates tend to accumulate in the lower stalk. Wait 1 month before feeding silage to give Prussic Acid enough time to escape.



## Sorghum Sudangrass and RyzUp SmartGrass® Plant Growth Regulator

## DISEASE/INSECT/NEMATODE RATINGS

Anthracnose	R
Downy Mildew	R

## AGRONOMIC TRAITS

Early Seedling Vigor	Excellent
Growth Habit	Upright
Recovery After Cutting	Excellent
Maturity	63 Days to Boot
Uniformity	Excellent
Plant Color	Purple
Midrib Type	Juicy

## ADAPTATION RATINGS

Photosynthetic Type	C4 - Warm Season
Soil Temperature	Warm (60° F)
Water Requirement	Very Low

## CROP USE INFORMATION

Life Cycle	Annual
Ease of Establishment	Good
Shade Tolerance	Poor - Fair
Drought Stress	Excellent
Wet Soil	Fair
Low pH Tolerance	Moderate
Minimum pH	6.0
Saline Soils (White Alkali)	Fair
Saline - Sodic Soils (Black Alkali)	Poor - Fair
Hay	Excellent
Silage	Excellent
Continuous Grazing	Do Not
Rotational Grazing	Excellent
Palatability	Excellent
Anti-Quality	Prussic Acid and Nitrates

## PLANTING RATES

Bushel Weight	56 lbs	-
Seeds/Pound	21,000	-
Rate (lbs)	Dryland	Irrigated
Pounds/Acre	10 - 30	35 - 100
Seeds/Sq. Ft.	5 - 14	17 - 48

## PLANT GROWTH STIMULATOR FOR FORAGE CROPS AND PASTURES

Ryzup Smartgrass® PGR is a naturally occurring plant growth regulator that promotes growth, maintains quality and improves forage yields when cool temperatures limit natural plant growth. Ryzup Smartgrass® is ideal for use on cool season perennial grasses and winter annual forage crops grown in conventional or organic operations.

- **Spring:** promotes growth for earlier grazing and hay cutting
- **Fall:** extends the grazing season and boosts fall stockpiling
- **Winter:** faster establishment and shorter rotational periods for winter annuals
- Use on forage crops grown for pasture, hay and silage production
- Approved for conventional or organic dairy, beef, equine, sheep and goat operations

## Other Important Information

- For best results, moisture levels and fertility must be adequate for pasture growth.
- Treatment response will diminish when:
  - Average daily temperatures favor natural pasture growth e.g., > 65°F
  - Maximum physiological growth/biomass has already occurred
  - Grass is subjected to drought stress conditions
- Foliage may appear lighter green in color due to accelerated growth rates following application. This does not affect grass nutritional quality or mineral content.

## HOW TO USE RYZUP SMARTGRASS®

<b>RATE TIMING</b>	0.3 - 1.0 oz per acre. Use higher rates when temperatures are < 45°F. Apply in late winter/early spring and mid fall when grass growth is limited by cool temperatures. Growth of cool season grasses slows down when average daily temperatures are between 40 - 65°F.  Spring: Apply at "green up" once grass breaks dormancy and new shoot growth starts to emerge, typically from late February to late March in the Southern US.  Fall: Apply to forages following grazing or cutting when grass regrowth is limited due to cool weather conditions, typically from early October to early November in the Southern US.
<b>METHOD</b>	Foliar spray: use flat fan or hollow cone nozzles
<b>SPRAY VOLUME</b>	10 to 20 gallons/acre
<b>APPLICATION TIPS</b>	Grass should be short (< 6") at the time of application. Grass must not be dormant and should have sufficient green foliage for uptake to occur.
<b>ADJUVANT</b>	Non-ionic surfactant; for tall fescue pastures a crop oil is suggested



*Horse-Mate Professional and Professional Beef*

## HORSE-MATE PROFESSIONAL PASTURE MIX

High-quality pastures can provide much of the feed needed by horses, while providing the most natural and healthy environment for exercise and rest. Establish this type of productive environment – a health, safe, and attractive pasture – for your horses by using the quality components in Professional Horse Pasture Mixture.

Farm Science Genetics Professional Horse Pasture Mixture is a forage blend specially formulated to meet the nutritional needs of horses, while withstanding their intense grazing pressure.

### Ingredients

- 35% FSG506 Orchardgrass
- 15% Summit Timothy
- 10% Intermediate Ryegrass
- 25% Forage Kentucky Bluegrass
- 10% Elena Perennial Ryegrass
- 5% Will Ladino Clover

### PLANTING SPECIFICATIONS

#### Seeding Rates

25 pounds per acre - new seedings  
15 pounds per acre - overseeding

#### Seeding Dates

March 15 to May 15  
September 1 to October 15



## PROFESSIONAL BEEF PASTURE MIXTURE

Professional Beef Pasture Mixture was created to meet the needs of producers who want to optimize animal performance and maximize per acre return. It's also a good choice for hay producers who want a high quality, balanced hay.

To meet these needs, we start with only the highest quality ingredients. These species are carefully chosen for their regional adaptability and combined in the proper ratios to assure maximum pasture production.

This premium mixture, along with good management practices, will provide you with the best opportunity to optimize the return on your management investment.

- Components are present in the proper ratios to provide optimum pasture
- Premium quality components elected for regional adaptation and performance
- Maximum production per acre
- Produces high-quality, balanced hay
- Good general pasture mixture

### Ingredients

- 33.49% FSG 506OG Orchardgrass
- 22.95% FSG 402 Red Clover
- 9.98% Intermediate Ryegrass
- 9.96% Elena Perennial Ryegrass
- 4.97% Derby Timothy
- 3.29% Pinnacle Ladino Clover

### PLANTING SPECIFICATIONS

#### Seeding Rates

20-25 pounds per acre - new seedings  
15 pounds per acre - overseeding

#### Seeding Dates

Fall or early spring



## NOTES

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## KSC LAWN MIXES

At Kitchen Seed, we carry only the premium varieties of Bluegrass, Ryegrass, and Fescue. Our turf seed products produce dense, dark green, wear tolerant lawns with excellent disease tolerance. We offer the following mixes of cool season turf grasses best suited for our area.

### KSC LAWN MIX

- 65% Premium Kentucky Bluegrass
- 35% Premium Turf Perennial Ryegrass

An excellent choice for new lawns or reseeding existing lawns.

### SHADED GREEN LAWN MIX

- 45% Premium Kentucky Bluegrass
- 25% Creeping Red Fescue
- 20% Premium Turf Perennial Ryegrass
- 10% Turf Type Fescue

A superior mix for moderate to heavily shaded lawns or lawns with poor soil quality.

### GREENPATHWAY LAWN MIX

- 50% Premium Kentucky Bluegrass
- 25% Turf Type Fescue
- 15% Premium Turf Perennial Ryegrass
- 10% Creeping Red Fescue

For a durable lawn with heavy traffic. Good choice for schools, parks, or any area that gets a lot of wear.

### KSC 5-WAY TURF FESCUE BLEND

For a hardy lawn with lush green color all season long. Rust resistant and drought tolerant. Excellent for parks and athletic fields.

### GROW-ALL LAWN MIX

- 25% Premium Kentucky Bluegrass
- 25% Creeping Red Fescue
- 50% Premium Turf Perennial Ryegrass

An excellent lawn mix that grows well in all soil types and conditions. This is a favorite among landscapers.





## Real World Wildlife Seed

**REAL WORLD WILDLIFE SEED** is a joint venture between Kitchen Seed Co. and Real World Whitetails, Inc. Our seed blends are the best money can buy. They were developed and tested on our own hunting properties under real world conditions. We do not use any cheap filler seed to keep down our costs but instead strive to have the very best seed blends possible and sell them at a fair price. We challenge you to plant our blends side by side with any other brand and feel confident that our blends will blow away the competition, either in attractiveness to wildlife, price, or more likely BOTH!

[WWW.REALWORLDWILDLIFEPRODUCTS.COM](http://WWW.REALWORLDWILDLIFEPRODUCTS.COM)

*Quality food-plot blends developed and tested under real world conditions.*

### CLOVER / CHICORY BLEND

**5 lb jug - Plants ½ acre**

**10 lb bag - Plants 1 acre**

30%	Real World Ladino Clover
30%	Will Ladino Clover
20%	FSG 402 3 Yr. Red Clover
17%	Real World White Clover
3%	Real World Chicory

### WHITETAIL SOYBEANS

(Glyphosate Tolerant Soybeans)

**50 lb bag of 4 varieties - Plants 1 acre**

50%	KSC 4017CRR
30%	KSC 4317CRR
10%	KSC 4817CRR
10%	KSC 5417CRR

### NORTHERN BLEND WHITETAIL SOYBEANS

(Glyphosate Tolerant Soybeans)

**50 lb bag of 4 varieties - Plants 1 acre**

20%	KSC 0918CRR
20%	KSC 1518CRR
40%	KSC 2318CRR
20%	KSC 3018CRR

### UPLAND GAME BLEND

**25 lb bag - Plants 1 acre**

55%	Real World Soybeans
20%	Real World Peredovik Sunflowers
20%	Real World Grain Sorghum
5%	Real World Japanese Millet

### WHITETAIL HARVEST SALAD

**25 lb bag - Plants ½ acre**

30%	Real World Winter Wheat
25%	Real World Austrian Winter Peas
25%	Real World Winter Oats
20%	Real World Winter Barley

### WHITETAIL FORAGE OAT BLEND

**50 lb bag - Plants 1 acre**

Winter oat varieties that have quick establishment and great palatability to deer. Stays green long into the winter.

### FALL PLOT TOPPER

**3 lb jug - Plants ½ acre**

12.5%	Eco-Till Radish
12.5%	Real World Crimson Clover
12.5%	Real World Purple Head Turnips
12.5%	Rape Plus
12.5%	Sugar Beets
12.5%	Real World Oil Seed Radish
12.5%	Real World Forage Collards
12.5%	Impact Forage Collards

### BEDDING IN A BAG

**7 lb (pure live seed) bag - Plants 1 acre**

2.5 lbs	Real World Big Bluestem
2.5 lbs	Real World Indian Grass
2.5 lbs	Real World Switchgrass

### REAL WORLD WILDLIFE SWITCHGRASS

**50 lb (pure live seed) bag - Plants 10-15 acres**

**10 lb (pure live seed) bag - Plants 2-3 acres**

Formulations may meet CRP requirements.  
Contact your local NRCS office for details.

### DEADLY DOZEN

**12.5 lb bag - Plants ¼ acre**

0.5%	Eco-Til Radish
0.5%	RW Crimson Clover
0.5%	RW Purple Head Turnips
0.5%	RW Rape Plus
28.8%	RW Winter Wheat
24.0%	RW Forage Oats
0.5%	RW Sugar Beets
0.5%	RW Oil Seed Radish
0.5%	RW Forage Collards
0.5%	Impact Forage Collards
24.0%	RW Winter Peas
19.2%	RW Winter Rye Grain



## Certified Varieties



## ILLINOIS OAT PERFORMANCE TRIALS

## 2018 UNIVERSITY OF ILLINOIS OAT DRILL PLOTS

## SABER SEED OATS

Saber is an early maturing variety with very good test weight. It is susceptible to loose smut and is moderately susceptible to crown rust. Saber has light yellow kernel color.

## REINS SEED OATS

Reins is an early maturing variety adapted to production in Illinois. Reins is resistant to loose smut and tolerant to barley yellow dwarf virus. It is an oat with plump, tan kernels.

## 2016-2018 DATA

	YIELD (BU/A)	RANK	TEST WEIGHT* (LBS/BU)	RANK	HEADING DATE (JULIAN)	HEIGHT (IN.)	LODGE (0-9)	BYD (0-9)
BAKER	117.8	14	28.8	14	155.2	39.8	3	4.6
BUCKSKIN	123.6	12	31.3	4	152.0	34.9	4.7	4.6
COLT	126.0	9	32.3	3	151.7	39.8	3.7	5.7
DEON	118.6	13	28.6	15	157.1	40.2	3.4	5.9
ESKER	134.1	7	29.1	11	155.3	40.6	4.5	6.1
EXCEL	146.4	1	29.7	10	153.8	39.2	1.5	3.9
HORSEPOWER	130.7	8	31.0	6	153.3	38.1	2.9	4.8
OGLE	125.6	10	28.8	13	154.2	40.2	3.0	5.2
REINS	146.2	2	32.8	2	152.6	35.0	1.0	4.4
SABER	144.7	3	30.5	7	152.5	38.4	3.4	4.7
SHELBY 427	137.6	5	33.0	1	150.6	43.1	2.9	4.6
SPURS	137.4	6	29.9	9	153.2	38.6	2.2	5.6
P02A17815	124.4	11	28.9	12	153.2	36.7	1.7	6.3
NATTY	115.9	15	30.0	8	154.3	43.6	1.7	4.7
HAYDEN	141.6	4	31.1	5	156.8	40.9	1.7	3.7
EXPT. MEAN	134.6	0	30.8	0	153.3	38.4	2.7	4.8

Data courtesy of Frederic Kolb, Olivia Jones, Elias Handal, and Deanna Michels.

\* Test weights very low due to hot, dry conditions during grain fill.





## Forage Turnips and Cover Crop Products

### FORAGE TURNIPS

Bulb less with 16 to 22-inch greens. Root is like a small carrot that is very fibrous. Firmly anchored for minimum wastage. Bred for fast, vigorous establishment and quick maturity (60-100 days). High leaf yield and improved regrowth potential over the Seven-Top Forage Turnip. At least 16% protein in foliage. Frost resistant. Sow 3 lbs per acre. For summer grazing, plant in spring as early as possible. For extended grazing, plant early to mid-summer. Apply 40 lb nitrogen after 1st grazing. Do not graze below 5 inches.

### PURPLE TOP TURNIPS

Produces a 4 to 6-inch globe turnip with a bright purple crown and white base. Turnip has a sweet flavor. Semi-erect prolific greens provide good forage. 50-day maturity. Sow 3 lbs per acre, April – October.

### ECO-TILL RADISH

- Superior, deep penetrating taproot
- Reduces soil compaction
- Builds organic matter
- Improves nutrient recycling
- Excellent weed suppression
- Enhances soil tilth

Eco-Till™ Radish is a new Daikon type forage radish specifically developed for fall/winter cover crop applications. These radishes offer impressive benefits to the soil and the environment including the reduction of soil compaction, improved nutrient recycling, increased organic matter, enhancement of soil tilth and suppression of weeds to name a few.

A superior, deep penetrating taproot is one characteristic that separates Eco-Till™ radishes from the competition. The thin, lower portion of the taproot can grow to a depth of six feet or more while the thick upper portion of the taproot can grow to a length of 24 inches. This taproot creates vertical holes in the soil profile that breaks up soil compaction and improves soil tilth. This process, known as "bio-drilling", improves water infiltration, aeration and fertilizer efficiency for succeeding crops. Equally important is the ability of these radishes to take up nutrients from the soil profile to be stored in the tissues near the soil surface and make them readily available for use by the following crop.

### NOTES





*Forage Turnips and Cover Crop Products***NOTES****DIXIE CRIMSON CLOVER**

- Adapted to low fertility soils with adequate drainage
- Excellent for reduced tillage farming systems
- Great winter cover crop in annual rotations

Use as winter cover crop in annual rotations and self-seeding cover in perennial systems to smother spring weeds, fix N, and improve soil tilth. Often over seeded into warm-season grass pastures to provide winter and spring grazing. Needs moist soil to germinate and seedlings do not tolerate drought. Can become a weed in the following crop.

**DH-3 ANNUAL RYEGRASS**

- Quick establishment
- High forage yield
- Excellent for overseeding
- Improved cold tolerance
- Good crown rust resistance
- Excellent palatability

DH-3 diploid annual ryegrass is the result of a polycross between Marshall, Ribeye, and TAM90 annual ryegrasses. DH-3 combines the quick establishment and forage yield of Ribeye, the crown rust resistance of TAM90 and the frost tolerance and consistent yield of Marshall. Tested throughout the South, DH-3 annual ryegrass is proving to be a real contender among new forage annual ryegrasses. DH-3 exhibits high forage yield, excellent seedling vigor, and medium maturity, allowing consistency in forage yield throughout the season with good transition back into warm-season forage grasses.





	PLANTING RATE (LBS/ACRE)	PLANTING RATE IN MIXTURES (LBS/ACRE)	SUGGESTED PLANTING DATE
ALFALFA	15-20	8-10	March-May, August-September
ALSIKE CLOVER	7-8	1-3	February-May, August-October
ANNUAL RYEGRASS	30-40	6-10	February-May, August-September
BARLEY	90-120	60-90	March-April, August-October
BIG BLUESTEM	5-12 PLS	-	May-June
BIRDSFOOT TREFOIL	8-10	4-8	February-May, August-September
BUCK FORAGE OATS	60-70	-	August-September
BUCKWHEAT	40-55	-	June-July
CHICORY	4-5	2-3	April-May, August-September
CROWN VETCH	20-40	5-10	March-May, August-September
DUO FESTULOLIUM	25-45	8-20	March-May, August-September
DWARF ESSEX RAPE	5-8	4-6	April-August
FOOD PLOT CORN	12 lbs	-	April-May
GRAIN SORGHUM	4-20	-	May-July (soil temp above 60°)
HAIRY VETCH	20-25	-	August-October
INDIANGRASS	6-12 PLS	-	May-June
JAPANESE MILLET	15-30	8-12	April-July
LADINO WHITE	4-6	2-4	February-May, August-October
LESPEDEZA, KOREAN	Hulled 25-35 Unhulled 25-30	15-25 15-20	March-April
LITTLE BLUESTEM	5-8 PLS	-	May-June
MAMMOTH RED	8-12	4-8	February-May, August-October
MEDIUM RED CLOVER	8-12	4-8	February-May, August-October
OATS FOR GRAIN/STRAW	64	-	March-May
OATS FOR COVER CROP	32	-	March-June, September-November



SEEDING DEPTH (INCHES)	EMERGENCE TIME (DAYS)	PRIMARY USE	LIFE CYCLE	APPROXIMATE SEEDS/LB
1/4 - 1/2	7	Hay, Silage, Pasture	Perennial	227,000
1/4 - 1/2	7	Hay, Pasture	Perennial	728,000
1/4 - 1/2	14	Hay, Pasture, Erosion Control	Annual	227,000
1 - 2	7	Pasture	Annual	14,000
1/4 - 1/2	28	Hay, Pasture, Wildlife	Perennial	165,000
1/4	7	Pasture	Perennial	370,000
1 ½ - 2	14	Wildlife	Annual	16,000
1/2 - 1	7	Hay, Grain, Wildlife	Annual	15,000
1/8 - 1/4	7-21	Pasture, Wildlife	Perennial	426,000
1/2	14	Erosion Control	Perennial	138,000
1/4	14	Hay, Pasture	Perennial	227,000
1/2	7	Pasture	Annual	145,000
1 ½	110 Days to Maturity	Wildlife	Annual	-
1	10	Grain, Wildlife	Annual	15,000
1	14	Hay, Pasture	Annual	16,000
1/2	28	Pasture, Wildlife	Perennial	200,000
1	10	Hay, Wildlife, Erosion Control	Annual	143,000
1/8 - 1/4	7-10	Hay, Pasture	Perennial	768,000
1/4 - 1/2	14	Hay, Pasture, Erosion Control	Annual	225,000 Unhulled 238,000 Hulled
1/4 - 1/2	28	Pasture	Perennial	237,000
1/4 - 1/2	7	Hay, Silage, Pasture	Perennial	272,000
1/4 - 1/2	7	Hay, Silage, Pasture	Perennial	272,000
1/8 - 1/2	7-10	Grain	Annual	16,000
1/8 - 1/2	7-10	Nurse Crop	Annual	16,000





	PLANTING RATE (LBS/ACRE)	PLANTING RATE IN MIXTURES (LBS/ACRE)	SUGGESTED PLANTING DATE
ORCHARDGRASS	10-20	3-6	March-May, August-September
PEARL MILLET	15-25	-	May-July (soil temp above 60°)
CLEARFIELD SUNFLOWERS	20,000 seeds/acre	-	May-July
PEREDOVIK SUNFLOWER	30-40 Broadcast 15 Drilled	-	May-July
PERENNIAL RYEGRASS	30-40	6-10	February-May, August-September
RED TOP	4-5	1-2	March-May, August-September
REED CANARYGRASS	8-10	4-8	March-May, August-September
RYE GRAIN	90-120	60-90	March-April, August-September
SIDEOATS GRAMA	6-12 PLS	-	May-June
SMOOTH BROME	15-20	3-10	March-May, August-September
SORGHUM-SUDANGRASS	20-40	-	May-July (soil temp above 60°)
SWITCHGRASS	4-8 PLS	-	April-May
TALL FESCUE	10-30	-	March-May, August-September
TIMOTHY	6-12	2-6	March-May, August-September
TRITICALE	90-120	60-90	March-April, August-October
WHEAT FOR COVER CROP	50	-	March-June, September-November
WHEAT FOR GRAIN/ STRAW	90-120	-	October 1st
WHITE DUTCH CLOVER	6-8	2-4	February-May, August-October
WHITE OR YELLOW BLOSSOM SWEET CLOVER	6-15	3-8	February-May, August-October
TURF GRASSES			
KENTUCKY BLUEGRASS	3-5 lbs per 1000 sq ft	-	February-May, August-October
TURF TYPE FESCUE	8-10 lbs per 1000 sq ft	-	February-April, August-October
CREEPING RED FESCUE	4-6 lbs per 1000 sq ft	-	March-May, August-October
PERENNIAL OR ANNUAL RYEGRASS	5-6 lbs per 1000 sq ft	-	February-June, August-October



SEEDING DEPTH (INCHES)	EMERGENCE TIME (DAYS)	PRIMARY USE	LIFE CYCLE	APPROXIMATE SEEDS/LB
1/4 - 1/2	18	Hay, Pasture	Perennial	416,000
1/2	7	Pasture, Silage	Annual	60,000
1	-	-	Annual	-
1	7 100-120 Days Maturity	Wildlife	Annual	7,000
1/4 - 1/2	14	Hay, Pasture	Perennial	227,000
1/4	10	Pasture, Erosion Control	Perennial	4,990,000
1/4 - 1/2	21	Hay, Pasture	Perennial	480,000
1 - 2	7	Hay, Pasture	Annual	18,000
1/2	28	Pasture	Perennial	160,000
1/4 - 1/2	14	Hay, Pasture	Perennial	138,000
1	10	Hay, Pasture	Annual	21,000
1/2	21	Hay, Pasture	Perennial	389,000
1/4 - 1/2	14	Hay, Pasture, Erosion Control	Perennial	227,000
1/4 - 1/2	10	Hay, Pasture	Perennial	1,152,000
1 - 2	7	Hay, Pasture	Annual	15,000
1/8 - 1/2	7-10	Nurse Crop	Annual	11,000
1/8 - 1/2	7-10	Grain	Annual	11,000
1/8 - 1/4	7-10	Pasture	Perennial	768,000
1/4 - 1/2	7	Pasture	Biennial	259,000
TURF GRASSES				
1/8 - 1/2	28	Lawn	Perennial	2,177,000
1/8 - 1/2	7	Lawn	Perennial	225,000
1/8 - 1/2	5	Lawn	Perennial	615,000
1/8 - 1/2	7	Lawn	Perennial/Annual	227,000





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