

General Species Information

Alfalfa (*Medicago sativa*)

Description - Considered to be the world's most valuable legume, alfalfa is commonly used for beef and dairy. Its high digestibility and feed value and ability to be stored make it ideal for hay and silage. Some varieties are also able to be used in a managed grazing system.

Strengths -High yields; good seedling vigor; deep roots; good summer growth; excellent drought tolerance; good persistence under mechanical harvesting; excellent forage quality and palatability.

Limitations - Requires deep, well-drained soils, high pH and high fertility; prone to alfalfa weevil and potato leafhopper damage; can cause bloat when grazed.*

Red Clover (*Trifolium pratense*)

Description - This quick establishing legume can provide high quality and forage quantity for two to three years. Red clover's tolerance to diverse soils allows it to be used in some areas where alfalfa will not grow.

Strengths - High yields; excellent seedling vigor; tolerates wet and acid soils better than alfalfa; fair summer regrowth; resistant to insects; excellent for renovation and overseeding.

Limitations - Susceptibility to crown and root diseases; not heat or drought tolerant; fair palatability; difficult to dry for hay; can cause bloat when grazed*; many varieties only persist 2-3 years.

Dutch White Clover (*Trifolium repens*)

Description - Due to its high leaf-to-stem ratio, white clover is very palatable. It persists well in pastures that are consistently grazed short and is adapted to a wide range of soil types.

Strengths - Low yields; Tolerates poorly drained soil; very palatable; tolerates close and continuous grazing.

Limitations - Its shallow root system limits production on excessively drained soils and during droughty periods; can cause bloat when grazed.*

White Clover, Ladino (*Ladino Trifolium repens*)

Description - Ladino white clover varieties are usually more productive than Dutch white clover varieties and will survive taller pasture situations.

Strengths - Tolerates poorly drained soil; very palatable; excellent adaptation to managed grazing systems.

Limitations - Its shallow root system limits production on excessively drained soils and during droughty periods; can cause bloat when grazed.*

Birdsfoot Trefoil (*Lotus corniculatus*)

Description - Birdsfoot trefoil is a long-lived., non-bloating perennial legume that can provide excellent nutritional value to pasture and additional summer production when grasses often go into a growth slump. It is tolerance to poorly-drained and somewhat acid soils.

Strengths -Medium yields; tolerates poor drainage and acid soils better than alfalfa; fair summer regrowth; tolerates drought; excellent forage quality; non-bloating.

Limitations - Slow to establish; less productive than alfalfa on well-drained, fertile soils; subject to invasion by weeds; slow recovery after hay harvest; fair palatability; intolerant to close cutting; susceptible to root and crown rot; must allow self reseeding for improved persistence.

General Species Information

Annual Ryegrass (*Lolium multiflorum*)

Description - Annual ryegrass will last between 1 to 2 years, depending on climate and variety, providing very high yields and high quality forage. Varieties may be either diploid or tetraploid. Tetraploid varieties are usually higher in sugar content, whereas diploid varieties tend to be more tolerant of traffic and continuous grazing.

Strengths - High yields; easy to establish; cost effective; able to uptake excess nitrogen; compatible with many legumes; excellent palatability, digestibility, and feed value; useful for overseeding warm-season and cool-season pastures.

Limitations - Short term; can dominate other grasses that don't grow as fast; performance is limited by water and nitrogen, due to shallow roots and rapid growth - highly demanding of nutrients; some varieties are susceptible to rusts and gray leaf spot.

Perennial Ryegrass (*Lolium perenne*)

Description - Perennial ryegrass is known to have excellent forage quality and digestibility. It establishes very easily and germinates rapidly, making it a good grass for repair and overseeding. Ryegrass responds rapidly to water and nitrogen, making it excellent for dairy applications where manure water is available. Like annual ryegrass, perennial ryegrasses are either diploid or tetraploid.

Strengths - Medium yields; vigorous establisher; high forage quality and palatability; high leaf-to-stem ration; compatible with legumes

Limitations - Less persistent than orchardgrass; lacks heat and drought tolerance; difficult to dry for hay; difficult to cut with sickle bar mower; poor summer regrowth.

Hybrid Ryegrass (*Lolium hybridum*)

Description - Hybrid ryegrass species are very similar to annual ryegrass, except their longevity can extend up to 3 years, depending on the variety and climate conditions. Depending on variety, they can be very fast to establish. Both diploid and tetraploid varieties exist.

Strengths - High yields; Similar to annual and perennial ryegrasses; cost effective for short-term, multi-year applications.

Limitations - Similar to annual and perennial ryegrasses.

Festulolium (*Festulolium spp.*)

Description - Festulolium grass species are hybrids derived from crossings of the festuca family and the Lolium family species. While varieties are very diverse, the better varieties are similar to ryegrass in quality, palatability, and feed value, yet similar to fescues (meadow or tall, depending on parentage) in hardiness. Can be either diploid or tetraploid.

Strengths - High yielding under good fertility and moisture; quick establishing; better summer growth and winter hardiness than perennial ryegrass; grows especially well in the spring and produces palatable forage with high nutritive value similar to that of perennial ryegrass.

Limitations - Less heat tolerant than tall fescue and less winter hardy than other grasses; Lower yielding, less competitive with legumes, and later to mature than orchardgrass; difficult to cut with a sickle bar mower; slower to dry than other grasses.

General Species Information

Orchardgrass (*Dactylis glomerata*)

Description - Where it can be grown, orchardgrass is a versatile perennial tall-growing bunch grass that establishes rapidly and is suitable for hay, silage, or pasture. With its high quality and palatability, it is a preferred species for pastures and hay. Orchardgrass is very compatible to legumes and other grasses.

Strengths - High yield - especially under good fertility management; shade tolerant; well adapted for mixtures with legumes; rapid regrowth; good summer growth; good drought tolerance; fair flooding tolerance in summer; responsive to nitrogen.

Limitations - Early to mature; forage quality and palatability decline rapidly with heading; poor flooding tolerance in winter; aggressive toward legumes; bunchy growth; less tolerance to drought or winter hardiness as tall fescue and brome grass; poor winter flooding tolerance.

Tall Fescue (*Festuca arundinacea*)

Description - Tall fescue is known as the most heat tolerant cool-season forage species. Due to its deep-roots, it can tolerate dry and hot conditions better than most forages. Tall fescues wide adaptation to different soil types and fertility allows it to be used in many management practices including hay, silage, managed grazing, and continuous grazing.

Strengths - High yields; persistent; leafy regrowth; good seedling vigor; summer flood tolerance; excellent for fall/winter stockpiling; tolerates heavy traffic; widely adapted and persists on acidic, wet soils of shale origin; drought resistant; survives under low fertility.

Limitations - Poor palatability and quality in summer; low summer production; can become coarse; dominates non-vigorous legumes. Use of entophytic varieties can cause animal health problems.

Timothy (*Phleum pratense*)

Description - A favorite grass for horses and hay, timothy is a cold-hardy perennial bunchgrass that can be very productive grass on clay, silt, and sandy soils, provided that there is adequate moisture available. It produces most of its annual yield in the first crop.

Strengths - Medium spring yields; late maturity; winter hardy; easy to establish; leafy regrowth; good companion for non-vigorous legumes; popular for horses

Limitations - Poor palatability and forage quality in summer; not tolerant of frequent cutting - slow recovery; susceptible to damage when cut in the jointing stage; shallow root system - unsuitable for droughty soils; intolerance of hot and dry conditions.

Smooth Brome (*Bromus inermis* Leyss.)

Description - Smooth brome grass is a leafy, sod-forming perennial grass best suited for hay, silage, and early spring pasture, especially on well-drained soils. It spreads by underground rhizomes and through seed dispersal.

Strengths - High spring yield; winter hardy; sod-forming; leafy summer regrowth; good drought survival; best on fertile, well-drained soils.

Limitations - Difficult to drill unless mixed with something like oats; susceptible to damage when cut or grazed in jointing stage; not tolerant of frequent cutting; poor summer regrowth; susceptible to leaf diseases.

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Forage Seed Guide



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	Longevity	Growth Habit	Primary Seasons of Growth	Plant Height in cm	Seeds per lb	Seedling Vigor	Heat/Drought	Cold	Wet Soil/ Poor Drainage	Salinity	High pH Alkalinity	Low pH Acidity		Optimum pH	Required Fertility Levels	Feed Value/ Quality	Palatability	Digestibility	Crude Protein	Tonnage (Yield)	Nitrogen fixation (lbs/a/year)	Continuous Grazing	Rotational Grazing	Hay	Silage	Pure Stand	Hay mixture with legumes	Hay mixture with grasses
Legumes													Legumes															
Alfalfa <i>Medicago sativa</i>	perennial	Bunch	Spring, Summer, early Fall	40 to 90	200,000	G-E	E	G-E	P	F	F	P	Alfalfa <i>Medicago sativa</i>	6.6-7.2	M-H	VH	E	E	VH	H	70-300	P	G	E	E	13.4 to 16.8	11.2	-
Birdsfoot Trefoil <i>Lotus corniculatus</i>	perennial	Bunch	Spring, Summer, early Fall	40 to 110	370,000	P	F-G	F	E	F	G	G-E	Birdsfoot Trefoil <i>Lotus corniculatus</i>	5.5-6.0	L-M	VH	F-G	E	H	M-H	50-150	P-G	G	E	E	4.5 to 6.7	1.1 to 7.8	1.1 to 7.8
Red Clover <i>Trifolium pratense</i>	2-3 years	Bunch	Spring, Summer, early Fall	30 to 90	275,000	G-E	P-F	F	F-G	F	P	F-G	Red Clover <i>Trifolium pratense</i>	6.0-6.5	M-H	VH	F	E	H	H	50-200	F	G	G	E	11.2 to 13.4	1.1 to 9	1.1 to 9
Dutch White Clover <i>Trifolium repens</i>	short-lived perennial	Stolons	Spring, Fall	8 to 25	800,000	F-G	P-F	P-F	G-E	F	P	F-G	Dutch White Clover <i>Trifolium repens</i>	6.0-7.0	L-H	VH	E	E	H	L	75-180	E	E	F	F	NR	1.1 to 4.5	1.1 to 4.5
White Clover, Ladino <i>Trifolium repens</i>	short-lived perennial	Stolons	Spring, early Summer, Fall	30 to 60	860,000	F-G	P-F	P-F	G-E	F	P	F-G	White Clover, Ladino <i>Trifolium repens</i>	6.0-7.0	L-H	VH	E	E	H	L	100-200	F	E	F	F	NR	2.2 to 4.5	1.1 to 4.5
Grasses													Grasses															
Annual Ryegrass <i>Lolium multiflorum</i>	1-2 years	Bunch	Spring, Fall	60 to 90	224,000	E	P	P-G	G	P	F	G	Annual Ryegrass <i>Lolium multiflorum</i>	6.0-7.0	M-H	VH	E	E	H	VH	-	G	E	G-E	E	28 to 39.2	2.2 to 4.5	11.2 to 28
Perennial Ryegrass <i>Lolium perenne</i>	perennial	Bunch	Spring, Fall	30 to 60	237,000	E	P	P-G	F-G	F	F	F	Perennial Ryegrass <i>Lolium perenne</i>	5.5-7.5	M-H	VH	E	E	H	M-H	-	G-E	E	G	E	28 to 39.2	3.4 to 5.6	11.2 to 28
Hybrid Ryegrass <i>Lolium hybridum</i>	short-lived perennial	Bunch	Spring, Fall	30 to 60	237,000	E	P	P-G	G	F	F	G	Hybrid Ryegrass <i>Lolium hybridum</i>	6.0-6.5	M-H	VH	E	E	H	H	-	G	E	G-E	E	28 to 39.2	3.4 to 5.6	11.2 to 28
Festulolium <i>Festulolium spp.</i>	3-5 years	Bunch	Spring, early Summer, Fall	30 to 60	227,000	E	F-G	G	G	G	F	F	Festulolium <i>Festulolium spp.</i>	6.0-6.5	M-H	VH	E	E	H	H	-	G	E	G-E	E	28 to 39.2	2.2 to 4.5	11.2 to 28
Orchardgrass <i>Dactylis glomerata</i>	perennial	Bunch	Spring, Summer, Fall	60 to 122	450,000	G	F-G	P-G	F-G	F	F	F	Orchardgrass <i>Dactylis glomerata</i>	6.0-7.0	L-H	H	G	G	M-H	H	-	G	E	E	E	11.2 to 16.8	2.2 to 4.5	9.0 to 11.2
Tall Fescue <i>Festuca arundinacea</i>	perennial	Bunch, short rhizomes	Spring, Summer, Fall	60 to 120	227,000	G	G	P-G	G	G-E	G-E	E	Tall Fescue <i>Festuca arundinacea</i>	5.5-6.0	L-H	M	F-G	G	M	H	-	G	E	E	G-E	16.8 to 22.4	9.0 to 11.2	9.0 to 11.2
Timothy <i>Phleum pratense</i>	perennial	Bunch	Spring, Fall	7 to 25	1,152,000	F	P	E	F	G	G	F	Timothy <i>Phleum pratense</i>	6.0-6.5	L-H	M-H	F-E	E	L	H	-	F	G	E	E	9.0 to 11.2	2.4 to 4.5	1.1 to 6.7
Smooth Brome <i>Bromus inermis</i> Leys.	perennial	Rhizomes	Spring, Summer, Fall	30 to 90	137,000	G	G	E	P-F	F	G	P	Smooth Brome <i>Bromus inermis</i> Leys.	6.5-7.0	M-H	H	E	G	H	M-H	-	P	G	E	E	13.4 to 20.2	5.6 to 7.8	2.2 to 13.4

E = Excellent, G = Good, F = Fair, P = Poor

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