FORAGES

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Characteristics of Forages

	Regrowth Potential	Legume Compatibility	Winterhardiness	Ease of Establishment	Drought Tolerance	Flooding Tolerance	Persistence
Cool-Season Grasses							
Kentucky Bluegrass	Good	Poor	Excellent	Good	Fair	Fair	Good
Orchardgrass	Excellent	Good	Good	Good	Fair	Fair	Good
Perennial Ryegrass	Good	Fair	Fair	Excellent	Fair	Fair	Fair
Quackgrass	Excellent	Good	Excellent	N/A*	Good	Fair	Excellent
Reed Canarygrass	Good	Poor	Excellent	Poor	Good	Excellent	Excellent
Smooth Bromegrass	Fair	Good	Excellent	Good	Fair	Fair	Good
Tall Fescue	Excellent	Good	Good	Excellent	Good	Fair	Good
Timothy	Fair	Good	Excellent	Good	Poor	Poor	Poor
Warm Season Grasses							
Big Bluestem	Good	Poor	Good	Poor	Excellent	Poor	Good
Sorghum/Sudan	Good	Poor	N/A	Excellent	Excellent	Fair	N/A
Switchgrass	Good	Poor	Good	Poor	Excellent	Poor	Good
Alternative Forages							
Winter Rye	N/A	Good	Good	Good	Good	Poor	N/A
Oats	N/A	Good	Poor	Good	Good	Poor	N/A
Corn Stalks	N/A	Fair	N/A	N/A	N/A	N/A	N/A
Brassicas	Good	Good	N/A	Good	Fair	Poor	N/A

	Regrowth Potential	Bloat Problem	Winterhardiness	Ease of Establishment	Drought Tolerance	Flooding Tolerance	Persistence
Legumes							
Alfalfa	Good	Yes	Excellent	Good	Good	Poor	Good
Alsike	Poor	Yes	Good	Excellent	Poor	Good	Poor
Birdsfoot Trefoil	Fair	No	Excellent	Poor	Poor	Fair	Excellent
Ladino	Poor	Yes	Good	Excellent	Poor	Good	Poor
Red Clover	Fair	Yes	Good	Excellent	Poor	Fair	Fair
Sweet Clover	Fair	Yes	Good	Fair	Good	Fair	Poor

N/A=not applicable Winterhardiness assumes use of adapted varieties *No seed available

Smooth Bromegrass

Bromegrass is a cool season, sod-forming grass that performs well in various soil types. It does not tolerate frequent cutting (more than 2-3 times per season) and recovers slowly, making it an ideal companion for alfalfa, timothy, and tall fescue.

Bromegrass spreads by rhizomes (underground stems) and forms an excellent sod.

- Very winterhardy; extremely drought tolerant
- Slow to establish, may not be seen until the year after seeding
- Adapts to diverse soils
- Use for hay, pasture, waterways

Establishment:

Test soil and apply recommended lime and fertilizer prior to planting. May be seeded alone or in mixtures with legumes or other grasses. It should not be planted with aggressive grasses, such as rye grass and orchardgrass. Bromegrass needs time to recover after cutting.

Seeding Rate:

Drilled: 12-15 lbs./acre
Broadcast: 15-20 lbs./acre
In Mixtures: 4-7 lbs./acre

Seeding Depth:

1/4" - 1/2" deep in well prepared, firm seedbed

Soil Types:

Adapted to various soil types with a soil pH of 6.0-7.0. Bromegrass can withstand some drought conditions and works well on shallow soils.

Potomac Orchardgrass (early)

An excellent alternative grass to plant with alfalfa and clover. Matures earlier than alfalfa for those producers who cut pre-bloom.

Benefits:

- Aids in winter dormancy
- Adds good roughage to forage
- Aids in soil erosion because of growing in cluster
- Fast regrowth
- Disease resistant
- Very drought resistant
- Early maturing

Seeding Rate:

Alone: 10-15 lbs./acre
Mixture: 2-5 lbs./acre

Stampede Orchardgrass (medium)

Stampede represents a notable improvement in mid to late maturity orchardgrass varieties. When compared to such industry standards as Latar and Pennlate, Stampede's enhanced yield, forage quality, disease resistance and cold tolerance sets it apart as the superior orchardgrass. Stampede can be grazed or clipped for hay.

Establishment:

Test soil and apply recommended lime and fertilizer prior to planting. Orchardgrass has a moderately deep root system, is easy to establish; however, is less winterhardy than timothy or bromegrass. May be seeded alone or with a legume and/or other grasses.

Seeding Rate:

Drilled: 8-10 lbs./acre
Broadcast: 10-14 lbs./acre
In Mixtures: 3-5 lbs./acre

Seeding Depth:

1/4" - 1/2" deep in well prepared, firm seedbed

Soil Types:

Various soil types with a pH of 6.0-7.0. Orchardgrass can tolerate shade and can withstand some drought conditions.

Pizza Orchardgrass (late)

Pizza is an improved, late variety selected for increased yields and digestibility. Pizza is one of the most digestible orchardgrasses available. In orchardgrass, research has revealed a rapid decline in forage quality following seedhead emergence. Pizza was carefully selected for delayed seedhead emergence, to extend the grazing season providing additional high quality forage. This variety's moderately low growth habit, grazing season, and high forage quality make Pizza an excellent choice for your livestock.

Century Orchardgrass (early-medium)

Century orchardgrass is a long-lived. perennial bunchgrass, adapted to the northwest, midwest, and northeast regions of the United States. Properly manage, orchardgrass will provide a persistent, high yielding pasture with excellent quality forage. These characteristic of orchardgrass have resulted in widespread utilization for pasture, hay, green-chop and silage.

Benefits:

- High nutritive value of highly digestible forage
- Performs well in mono-stand or in mixtures with perennial grasses
- Greater heat and drought tolerance than bluegrass, ryegrass and timothy

Seeding Rate:

- Seeding rates for Century depend on the region, soil type, etc.
- In monoculture, a rate of 15-20 pounds per acre should be sufficient
- In mixtures this amount can be reduced to 50% or less of the total
- A seeder, seeding at the shallow depth of about 1/4 inch with press wheels, or the use of a culti-packer, ensures a good stand establishment

Kaitlyn Brand Timothy

Kaitlyn Brand Timothy is a blend of very hardy Timothys. It is similar to Comtal in its characteristics and ability to produce high quality forage. Kaitlyn Brand differs from Comtal in maturity.

- Intermediate maturity rate: good for 3-4 cut program
- High quality forage
- Suited for cooler climates; does not perform well in drought or heat-prone areas
- Use for hay, pasture, silage and waterways.
- Upright growing plant with new growth from tillers and corms

Varieties may or may not remain the same as listed. This is dependent upon these varieties all surviving the growing season and passing germination and quality testing. As of this publication going to press, some areas of the west are experiencing dry growing conditions.

Kaitlyn Brand Timothy Continued

Establishment:
Test soil and apply recommended lime and fertilizer prior to planting. It has a shallow, fibrous root system that does not allow Timothy to compete well. It may be seeded alone or with a legume and/or other grasses.

Seeding Rate:
Drilled: 4-6 lbs./acre
Broadcast: 6-10 lbs./acre
In Mixtures: 2-3 lbs./acre

Seeding Depth:
1/4" - 1/2" deep in well prepared, firm seedbed

Soil Types:
Best adapted to loam and clay soils; pH 6.0-7.0.

Red Clover
Red Clovers are perennials that act as biennials. They have high palatability, good winterhardiness, and fair tolerance to drought. This is a good choice for short-term goals since it persists from two to three years. It is high yielding and the easiest and fastest legume to establish. Great for frost seeding and interseeding to strengthen a stand in pasture or hay fields. For hay, it will add tonnage of good quality feed, but will add difficulty to the dry-down process. Grows 12" to 36" high. Has potential to cause bloat in cattle. Two year Red Clover usually allows two cuttings per year while three year Red Clovers add an additional cutting per year with its longer stand persistence.

Kalli II Red Clover
Medium Red Clover is the most widely grown. It ranks next to alfalfa in hay value. It is an excellent soil fertility builder. Two hay cuttings can usually be taken per season.

Kalli III Red Clover
3 year Red Clover lets you add an extra cutting per year with longer stand persistence than medium Red Clover.

Ladino/White Clover
Ladino Clover and new, large, taller white clovers are short-lived perennials with a persistence of only 1-2 years. They can reseed themselves. Both plants are in the white clover family because, as the name implies, they have white blossoms. These two clovers are unique because they spread by stolons (above ground stems) and the leaves and flowers also originate from the stolons. Ladino clover is a large type of white clover and is more productive than white clover in hay or forage production. Ladino clover is also used in deer food plots. White clover may be used in pastures; however, it has been primarily used for lawns and low cover. These products have a shallow root system, no drought tolerance and do not persist very well on extremely sandy soil.

Establishment:
Test soil and apply recommended lime and fertilizer prior to planting. Ladino/White Clover has excellent seedling vigor and may be used for frost seeding or renovating existing pastures.

Seeding Rate:
Drilled: 3-4 lbs./acre
Broadcast: 4-6 lbs./acre

Seeding Depth:
1/4" - 1/2" deep in well prepared, firm seedbed

Soil Types:
Best adapted to fertile, moist soils; pH 5.5-6.5

Alsike Clover
A short-lived perennial with a 1-3 year growth life, that tends to act more like a biennial. Alsike has pink-white flowers on upright, hairless stems originating from a narrow crown. It has excellent seedling vigor, generally planted with grasses to reduce the risk of bloat and enhance hay drying.
- Can provide 50-70 lbs of nitrogen to surrounding grasses or can enhance next crop
- Adapted to moist, poorly drained soils; drought intolerant, used for hay, pasture, frost seeding or pasture renovation.

Establishment:
Test soil and apply recommended lime and fertilizer prior to planting.

Seeding Rate:
Drilled: 7-8 lbs./acre
Broadcast: 8-10 lbs./acre

Seeding Depth:
1/4" - 1/2" deep in well prepared, firm seedbed

Soil Types:
Best adapted to moist, poorly drained soils; tolerates waterlogged soils, spring flooding up to 6 weeks; intolerant of drought and sandy soils. It grows best between a soil pH of 5.7-7.2.

Disclaimer: These are general guidelines and descriptions about these forages and grasses. Performance could be different in different growing regions. Kussmaul Seed Co. makes no guarantees that everyone will see the same results.

Sudan Grass

Monarch V Hybrid Sudan Grass
- High yielding, fine stems for reliable summer forage
- 13% more forage and over 1.2 tons/acre than Piper
- Profuse tillering with rapid recovery after harvest
- Very high digestibility; big beef gains and more milk per acre
- Well adapted to humid, temperate climate
- Responds very well to fertilizer and irrigation
- Harvest at 45-50"

Seeding Rate:
Drilled: 15-20 lbs per acre
Broadcast: 25-30 lbs per acre

Sudan Grass Open Pollinated
- Offers cattle and dairy producers an excellent warm season forage
- Competes favorably with other summer grasses
- Can be mixed with corn for silage production on lighter soils
- Responds to hot weather and dry growing conditions
- Fits a one cut harvest system
- Produce best in hot, summer conditions
- Best suited for well drained, fertile soils

Seeding Rate:
Drilled or Broadcast: 20-25 lbs per acre
With corn: 2-5 lbs per acre for silage

Forage Sorghum (Sudan Grass)

Forage sorghums are often combined with corn for silage production on lighter soils. The seed is usually mixed with seed corn at the planter box at a rate of 2.5 lbs per acre. The tall plant height (7-9+ feet) has high forage yield potential, especially in drought conditions.

- Produce best in hot summer conditions, need hot summer temperatures to reach optimum yields.
- Best suited for well drained, fertile soils
- One cut system

PRECAUTIONS need to be taken against prussic acid poisoning when harvested too early after a frost. If harvested after frost and put in silo, bag or bunker, allow two weeks before feeding to lower prussic acid levels in feed.

Establishment:

Sterile (no seed head) plant with very good seedling vigor, high stalk sugars, tremendous tillering capacity; only a one cut system.

Fertilization:

Apply 60-100 units of nitrogen/acre at seeding to reach maximum production.

Seeding Rate:

Alone: 20.25 lbs./acre
With corn: 2.5 lbs./acre

Seeding Depth:

1"-1.5" deep in well prepared, firm seedbed

Soil Types:

Well drained, fertile soils; pH 5.8-7.5.

Sorghum-Sudangrass

Standard

- Very good dry matter yield potential
- Excellent early season vigor and regrowth
- Small seeded product with excellent palatability
- Dark green plant color with thin stems and upright growth habit
- Low water requirement with very good drought tolerance
- Versatile crop usage for excellent hay, silage and grazing

Establishment:

Soil temperature should be at least 60° F. Can be no-tilled into the stubble of winter and spring crops. Do not plant in soils with pH greater than 7.5-8.0. Chlorosis can be a severe problem.

Fertilization:

Apply 40-80 units of nitrogen/acre at seeding; 50 units of nitrogen/acre after first cutting to reach maximum production.

Seeding Rate:

Dryland: 10-25 lbs./acre. Seeds per square foot: 4-9
Irrigated: 25-60 lbs./acre. Seeds per square foot: 9-22

Seeding Depth:

Planting depth should be 1"

Harvest:

Harvest 62-70 days after seeding. Protein will decline as harvest is delayed, but energy will increase upon heading due to continued sugar production.

Forage Master

Used for Establishing Alfalfa Stands

Forage Master is a mixture of forage triticale and forage field peas. This combination provides higher protein levels, lower fiber levels and better yield consistency than other spring cereals.

- **Blend is Important**
  Inaccurate blend percentages can cause problems in the field. With Forage Master you know the blend is right! Modern conditioning facilities and strict monitoring procedures insure precise mixture percentages.
- **Mixture is Complimentary**
  Both triticale and forage peas are cool season crops and perform best when seeded as early as possible in the spring. Triticale is very leafy and stands better than oats, providing a strong understructure for the peas that grow slightly faster. As a legume, peas provide large amounts of nitrogen through heavy nodulation. Consider the value of this stabilized form of N to the companion plant, triticale, and its residual value to the following crop. A unique preinoculation procedure insures high levels of bacteria necessary to stimulate adequate nitrogen fixation during the growing season.
- **Excellent Nurse Crop Characteristics**
  After quick emergence, triticale and peas develop more slowly than other nurse crops, allowing the underseeding of alfalfa to develop vigorous seedlings. Rapid Forage Master growth in the three weeks prior to a timely harvest result in high Forage Master yields and well established alfalfa crop.
- **High Forage Quality**
  High quality forage is a result of leaf density and genetic selection. High leaf density contributes to higher protein levels, higher yields and lower fiber than other cereal crops. Protein levels of 15-20% and excellent palatability qualify Forage Master for use in lactating rations. High levels of sugars and soluble carbohydrates in the leaves and stems result in a sweet taste that explains the excellent palatability of Forage Master.

Seeding Rates:

Alone: 120 lbs./acre with a grain drill
Broadcast: not recommended
Under seed alfalfa: 15-18 lbs./acre

Seeding Depth:

1/2" to 1" Deeper seed placement will restrict the tillering intensity of the triticale.

Seeding Date:

Seed as early as possible in the spring. Forage Master will tolerate cold temperature and snow.

Yield:

Tonnage will depend on many things such as weather, fertility, and management. Growers have had reported yields of up to 4 tons of dry matter per acre.

Hay King

- Brown mid rib forage sorghum
- 85-90 day relative maturity
- Expect high yields of up to 30 tons at 65% moisture
- Equal to corn silage in milk per acre
- Extremely high digestibility for lactating cows
- Available as treated or untreated seed

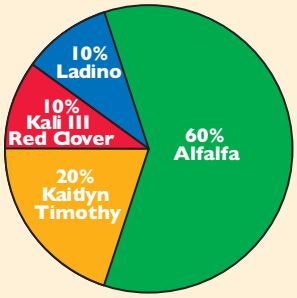
Seeding Rate:
100,000 seeds/acre at 60°F soil temp

No returns on hay and forage mixes.
*** Custom blends upon request. Please allow ten days advance notice for any custom blends.**

Premium Forage Formulas

Hay & Pasture Mix

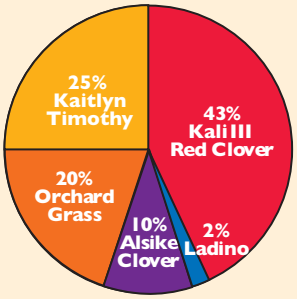
- 60% alfalfa
- Kaitlyn Timothy reduces bitter taste
- For higher protein feed
- More milk per acre



Mowing and harvesting a field of Forage Master.

Clover Hay & Pasture Mix

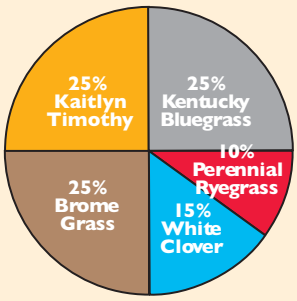
- 55% clover
- Withstands traffic and shorter clippings
- Grass aids in drydown
- For longer rotation

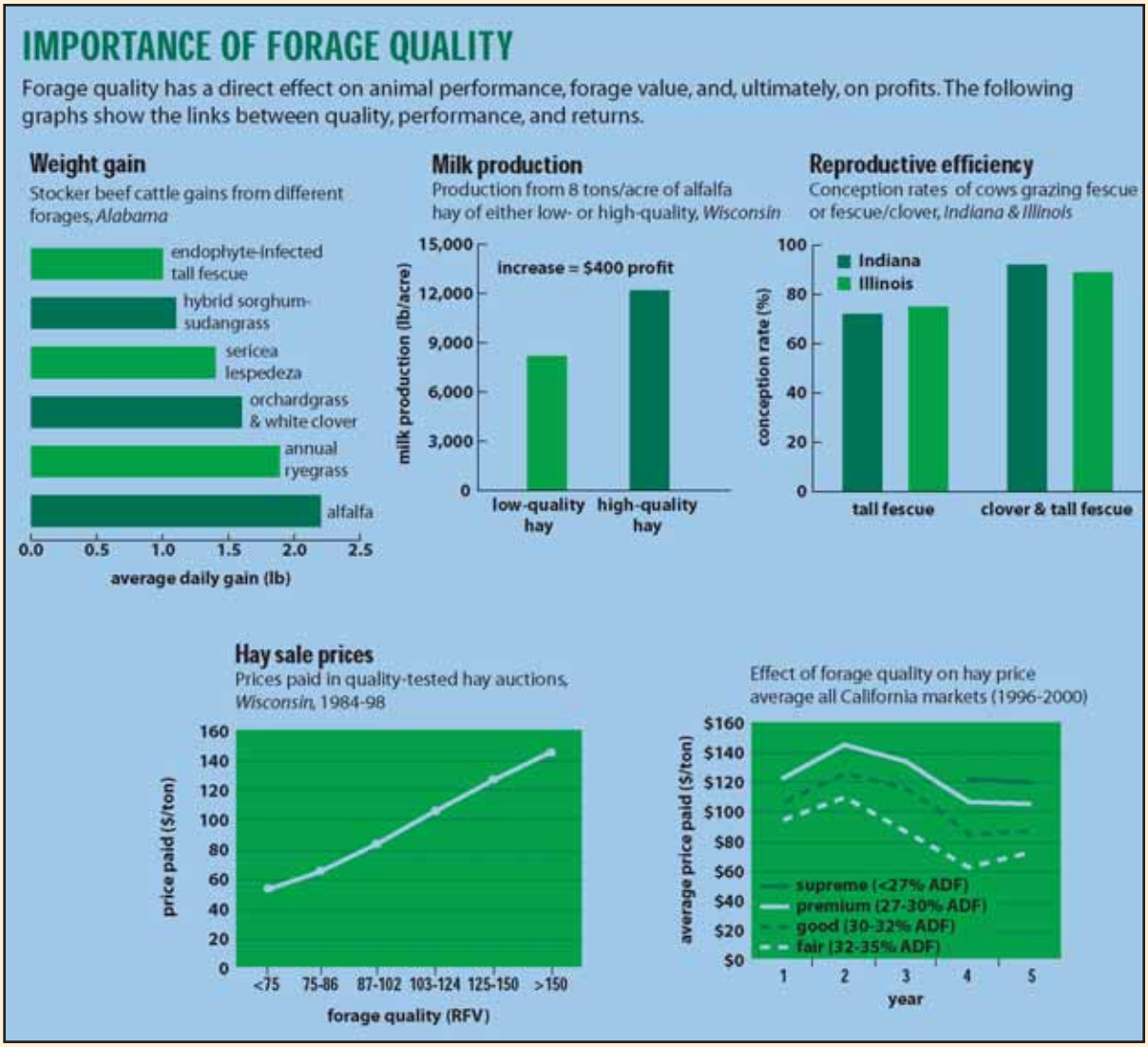


Now that's a tall field of Forage Master.

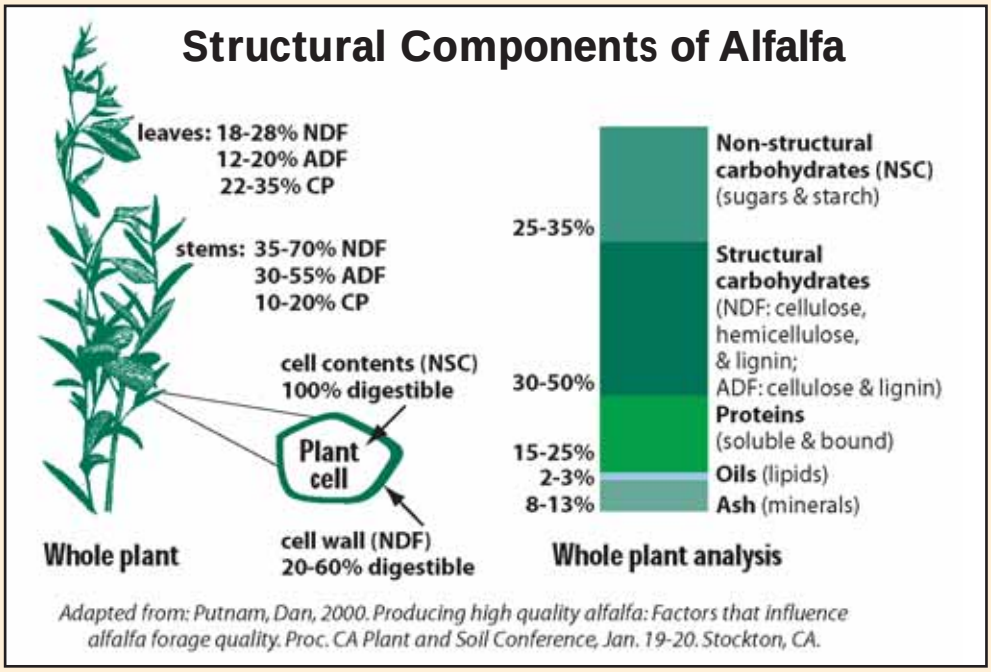
Waterway & Grazing Mix

- 85% grass content
- For higher digestibility and palatability
- Great for establishing waterways, renovating pastures or blending with alfalfa for grazing





Source: Understanding Forage Quality



Source: Understanding Forage Quality

Forage Quality Definitions

Crude Protein (CP)
gives an indication of the ability of the feed to meet livestock protein requirements. It is a mixture of true protein and non-protein nitrogen, and also includes insoluble protein. In general, a high Crude Protein (CP) level is desirable and usually obtained by harvesting at an early stage of growth. Legumes contain higher levels of CP than do grasses.

Insoluble Crude Protein (ICP)
is actually acid detergent insoluble nitrogen. It is an indicator of the amount of heating that has taken place in storage and a fraction of Crude Protein that is indigestible to livestock. A low ICP is desirable.

Adjusted Crude Protein (ACP)
is really the amount of Crude Protein that is available to the livestock for digestion. Adjusted Crude Protein= Crude Protein - Insoluble Crude Protein. The ICP to CP Ratio should be less than 10 if harvest and storage practices were correct. A high ICP/CP Ratio may occur when cutting is delayed, hay is baled too wet, or haylage is stored too dry, resulting in excessive heating that can cause significant heat damage. When the ICP/CP Ratio is 15 or more, ACP should be used to balance rations.

Acid Detergent Fiber (ADF)
represents the highly indigestible fraction of the forage such as cellulose, Lignin, Silica, and insoluble Nitrogen compounds. As forage plants mature, ADF increase and digestibility of the forage decreases. Thus, a low percent ADF is most desirable.

Neutral Detergent Fiber (NDF)
is composed mainly of the cell wall fraction of the forage and includes hemicellulose and the ADF components. The NDF Fraction of forage is only partially digestible and is inversely related to forage intake. In other words, the higher percentage of NDF, the less of the forage the animal will eat. Therefore, a low NDF is desirable.

Dry Matter (DM)
is the percentage of the forage that is not water. If a forage is 55% DM, then it has 45% water. (100-55=45) Rations are balanced on a Dry Matter basis.

Digestible Dry Matter (DDM)
is an estimate of the percentage of the forage that is digestible as determined from ADF concentration. DDM is used to estimate the energy value of the forage. The lower the ADF, the higher the DDM will be.

Dry Matter Intake (DMI)
is based on NDF concentration and is an estimate of the amount of forage an animal will consume.

Digestible Dry Matter Intake (DDMI)
is an estimate of the DDM that the animal will consume. Intake of digestible energy can also be estimated by DDMI

Relative Feed Value (RFV)
is an index calculated from forage analysis which combines ADF (digestibility) and NDF (intake) nutritional factors to arrive at one number to measure and compare forage quality. The higher the RFV, the higher the forage quality.

Key Concepts To Remember

- The ultimate measure of forage quality is animal performance.
- Factors having the greatest impact on forage quality are forage species, stage of maturity at harvest, and (if forage is mechanically harvested) harvesting and storage techniques.
- Forage quality varies greatly among and within forage crops, and nutritional needs vary among and within animal classes and species. Knowing forage quality and animal nutritional needs is necessary to formulate rations that result in desired animal performance.
- Leaves are higher in quality than stems; young stems are higher in quality than old stems; and green leaves are higher in quality than dead leaves. In most cases, higher quality is also associated with legumes as compared to grasses; and with cool-season plants as compared to warm-season plants.
- Rain during field drying damages legume hay more than grass hay. Also, the dryer the hay when rain occurs, the greater the damage. However, delayed harvest due to concern about rain probably results in more forage quality loss than does rain damage.
- Fertilizing with nitrogen generally increases the crude protein level of grasses, but fertilization usually has little or no effect on the digestible energy of forage.
- Sensory evaluation of forage provides important information, but laboratory testing is required to formulate rations.
- A laboratory analysis uses only a few grams of material to represent tons of forage. Therefore, sampling technique is extremely important.
- The numbers provided on a forage test report are valuable but not absolute. Reported results vary somewhat due to differences within a hay lot (or other feed material sampled), sampling technique, and laboratory procedures.
- While protein and minerals can limit animal performance, digestible energy is more likely to be the limiting factor from forage.
- The more mature and fibrous (lower in quality) a forage, the longer it takes to be digested and the less an animal will consume.
- Major losses in forage quality often occur due to poor storage and feeding techniques. Producing forage with good nutritive value is not enough; good animal performance results when animals consume forage that is suitably high in nutrients and low in fiber.

Brier Ridge Brand Food Plot Seed

Great Lakes Deer & Wildlife Mix
Type: Perennial
Seed Rate: 20 lbs. per acre
Soil Type: Sand to Clay
Germination: 7-14 days
Establishment: 6-8 weeks
This mixture features high protein legumes and grasses. Great food & cover source for all deer & wildlife!
Formulation: Red Clover, Timothy, Creeping Red Fescue, Alsike Clover, Alfalfa, Tetraploid Perennial Ryegrass, Orchardgrass, Birdsfoot Trefoil, Ladino Clover

Doe's Delight
Type: Annual
Seed Rate: 10 lbs. per acre
Soil Type: Lt. Loam to Clay
Germination: 7-14 days
Establishment: 6-8 weeks
Doe's Delight is formulated to provide a nutritional feast for both bucks and does during the summer and early fall. Make sure your deer herd is healthy this year!
Formulation: Forage Soybean, Forage Pea, Alfalfa, Ladino Clover

Long Beard Lettuce
Type: Perennial
Seed Rate: 20 lbs. per acre
Soil Type: Lt. Loam to Clay
Germination: 7-14 days
Establishment: 6-8 weeks
Formulated to provide cover, high energy food and to attract insects. Sure to develop long beards in big old Tom Turkeys. This mixture offers menu diversity. Plant next to Gobbler Gourmet for the ultimate turkey hunting grounds.
Formulation: Rape, Tetraploid Perennial Ryegrass, Kentucky Bluegrass, Alfalfa, Red Clover, Timothy, White Clover

Gobbler Gourmet
Type: Perennial
Seed Rate: 20 lbs. per acre
Soil Type: Lt. Loam to Clay
Germination: 7-14 days
Establishment: 6-8 weeks
Formulated as a high protein food source for turkey. This mix will attract insects for late spring and summer growth and development. Combine with Fur & Feather Cover Mix and you have created excellent habitat for turkey, pheasant and other wildlife.
Formulation: Alfalfa, Red Clover, Creeping Red Fescue, Birdsfoot Trefoil, Kentucky Blue Grass, White Clover

Bucks Banquet
Type: Annual (North) Perennial (South)
Seed Rate: 10 lbs. per acre
Soil Type: Lt. Loam to Clay
Germination: 7-14 days
Establishment: 6-8 weeks
Time tested deer approved. Bucks Banquet is an excellent choice for quality whitetails. This mix attracts big BUCKS by providing them a mix of lush clovers, leafy rape, tasty turnips and choice chicory. Once the cooler temperatures arrive this mix becomes sweet and succulent. Revitalize each year with Rut N Ready!
Formulation: Ladino Clover, Alsike Clover, Dynamo/Samson Turnip, Puna Chicory, Rape

Horn Honey Clover
Type: Perennial
Seed Rate: 10 lbs. per acre
Soil Type: Lt. Loam to Clay
Germination: 7-10 days
Establishment: 6-8 weeks
Horn Honey is specially formulated with high quality clovers that will be sure to bring in the does and BUCKS! With proper planting and maintenance this mixture will last for years. Foundation for any Quality Deer Management plan.
Formulation: Ladino Clover, White Clover, Red Clover, Alsike Clover

Rut N Ready
Type: Annual (North) Perennial (South)
Seed Rate: 5 lbs. per acre
Soil Type: Lt. Loam to Clay
Germination: 7-21 days
Establishment: 8-10 weeks
Designed as a quick establishing mix to attract BUCKS during the RUT! This formula features high energy turnips, rape and chicory. This plot will stay green late into the fall and early winter. Will also revitalize Bucks Banquet!
Formulation: Puna Chicory, Rape, Dynamo Turnip, Hobson Rape

EZII Gro
Type: Annual (North) Perennial (South)
Seed Rate: 10 lbs. per acre
Soil Type: Lt. Loam to Clay
Germination: 7-14 days
Establishment: 6-8 weeks
This mixture is formulated to grow in areas where ideal preparation of the soil is difficult to achieve. This low maintenance mix is perfect for plots under 1 acre in size.
Formulation: Crimson Clover, Berseem Clover, Red Clover, Rape, Tetraploid Perennial Ryegrass

Rooster Relish
Type: Annual
Seed Rate: 30 lbs. per acre
Soil Type: Lt. Loam to Clay
Germination: 7-21 days
Establishment: 8-10 weeks
Rooster Relish is an excellent choice for food and cover. This formulation provides dependable, high energy food for fall & winter survival. Plant next to Great Lakes Deer & Wildlife Mix to make pheasants feel safe and curtail movements to other food sources.
Formulation: Early Corn, Buckwheat, Black Oil Sunflower, Early Grain Sorghum, Japanese Millet

Quail Cuisine
Type: Annual
Seed Rate: 20 lbs. per acre
Soil Type: Lt. Loam to Clay
Germination: 7-21 days
Establishment: 8-10 weeks
Produces abundant sources of seed all season long for quail and other game birds. Plant with Rooster Relish and Great Lakes Wildlife. Sure to invite quail coveys.
Formulation: Korean Lespedeza, Wheat, Soybean, Black Oil Sunflower, Early Grain Sorghum

Ducks Deli
Type:: Annual
Seed Rate: 20 lbs. per acre
Soil Type: Lt. Loam to Clay
Germination: 7-21 days
Establishment: 8-10 weeks
Designed to attract ducks and other waterfowl to dry land areas that can be flooded. This formulation supplies ample amounts of seed that waterfowl require all season long. Best results when planted in areas with controlled flooding.
Formulation: Buckwheat, Early Grain Sorghum, White Proso Millet, Japanese Millet

Fur & Feather Cover Mix
Type: Annual
Seed Rate: 20 lbs. per acre
Soil Type: Lt. Loam to Clay
Germination: 7-14 days
Establishment: 6-8 weeks
Provides all wildlife concealment cover. Besides a great spring nesting cover, this mixture will also provide a safe haven from predators and severe weather.
Formulation: Early Bird Millet, Early Grain Sorghum, Huntsman Millet, White Proso Millet, Japanese Millet

Natures Meadow Mix
Type: Perennial
Seed Rate: 20-25 lbs. per acre
Soil Type: Loam to Clay
Germination: 7-10 days
Establishment: 6-8 weeks
Natures Meadow is a special combination of clovers and grasses designed for establishing deer and elk habitat. It was developed in consultation with wildlife specialists for use in rural woodlands and meadows.
Formulation: White Clover, Orchardgrass, Medium Red Clover, Creeping Red Fescue, Alsike Clover, Kentucky Bluegrass

Roundup Agricultural Herbicides and Asian Soybean Rust Management

Glyphosate has been shown to have activity against Asian soybean rust1. Monsanto is evaluating the potential for Roundup agricultural herbicides to manage the disease. However, additional research and development is needed to determine whether glyphosate could provide sufficient levels of Asian rust control as part of an Asian rust management program; then EPA approval of directions for use and product labels must be obtained.

Since Asian rust typically requires management at later stages of soybean development, Monsanto wants to emphasize that growers must not delay Roundup agricultural herbicide applications into reproductive soybean growth stages in an attempt to gain additional rust management value.

Monsanto has revised language – not made a change in use recommendations – on Roundup agricultural herbicide labels and in the Technical Use Guide to emphasize the approved application window for Roundup agricultural herbicide use with Roundup Ready Soybeans.

Current language states that Roundup agricultural herbicide applications may be made to Roundup Ready Soybeans throughout flowering. New language incorporates generally accepted soybean growth stage terminology to define "flowering" and emphasize that applications may be made through the R2 stage of growth ending when the R3 stage begins [a pod 5 millimeters (3/16 inch) long appears at one of the four uppermost nodes on the main stem with a fully developed leaf]. Applications made beyond the R2 stage of soybean growth are not labeled uses.

Monsanto will continue to fully evaluate the activity of glyphosate against Asian soybean rust and research potential commercial uses. **Glyphosate is not currently registered or labeled for fungicidal use.** *It is a violation of federal law to use a pesticide in a manner inconsistent with labeling.* Growers should consult local retailers about labeled fungicides and recommendations for Asian soybean rust control and prevention.

1. PNAS Article: *Glyphosate inhibits rust diseases in glyphosate-resistant wheat and soybean.* Paul C. C. Feng. G. James Baley. William P. Clinton. Greg J. Bunkers. Murtaza F. Alibhai. TImothy C. Paulitz, and Kimberlee K. Kidwell - Monsanto Biotechnology Research, St. Louis, MO 63017; Department of Crop and Soil Sciences, Washington State University, Pullman, WA 99164-6420; and Root Disease and Biological Control Research Unit, Agricultural Research Service, U.S. Department of Agriculture, Pullman, WA 99164-6430; PNAS (Proceedings of the National Academy of Sciences) 2005 102: 17290-17295; published online before print November 17 2005, 10.1073/pnas.0508873102