



Selecting an Annual Ryegrass Variety for Winter Grazing

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As we approach the planting season for annual ryegrass, we start wondering what varieties should I plant, what variety will give me more for my money, and what characteristics should I look for in a variety? There are several traits that are important when selecting a variety and they include: quick establishment, well-adapted to the area, high yielding, consistent yield throughout the season, excellent palatability, good transition back to warm-season grasses, good disease resistance, improved cold tolerance, and cost. How can you determine what is suitable for your area? The Mississippi annual ryegrass variety test program provides information in performance and adaptation of different varieties across years and locations. It is from these annual evaluations that university research and extension professionals develop recommended varieties. These evaluations should be the first source in choosing a ryegrass variety for a beef stocker program or any other livestock grazing management. By consulting this information, a forage producer can select high-yielding varieties that are productive during the desired season of use.

The quality of the seed will have an effect on germination and establishment. Purchase premium-quality seed that is high in germination and purity and is free from weed seed. We recommend buying certified seed or proprietary seed of an improved variety. Order or book seed well in advance of the planting season to guarantee that it is available when needed and the prices are reasonable. The closer to planting you wait to buy seed, the more expensive it will. Sometimes producers might have leftover seed from the prior season that might have not been stored properly and the vigor of the seed might have decreased. Pay close attention to when the germination test was done. If the test

Table 1. Characteristics of some commercial available annual ryegrass varieties.

Cultivar	Type ¹	Maturity (flowering)	Crown Disease Resistance	Cold Tolerance
Attain	4n	Late	Resistant	Low to Medium
Beefbuilder III	4n	Early to Mid	Resistant	Medium
Big Boss	4n	Early to Mid	Resistant	Medium
Bigdaddy	4n	Mid to Late	Resistant	Medium
Brigadier	2n	Early	Resistant	High
Bruiser	2n	Late	Resistant	Medium to High
Bulldog Grazer	2n	Early to Mid	Resistant	Medium to High
Chipola	2n	Early to Mid	Resistant	Medium to High
Corral	4n	Mid to Late	Resistant	Medium to High
Diamond T	4n	Medium	Resistant	Medium to High
DH-3	2n	Early to Mid	Resistant	Medium to High
Ed	2n	Late	Resistant	High
Fantastic	2n	Early	Resistant	High
Flying A	2n	Early to Mid	Highly Resistant	Medium to High
Graze-N-Go	2n	Mid to Late	Resistant	High
Gulf	2n	Early to Mid	Resistant	Low to Medium
Hercules	4n	Medium	Resistant	High
Jackson	2n	Mid to Late	Highly Resistant	High
Jumbo	4n	Late	Highly Resistant	Medium to High
King	2n	Medium	Resistant	Medium
Marshall	2n	Late	Highly Susceptible	High
Maximus	4n	Medium	Resistant	Medium to High
Passeral Plus	2n	Late	Highly Susceptible	High
Prine	4n	Late	Resistant	High
Ribeye	2n	Mid	Resistant	Medium to High
Rio	2n	Mid to Late	Highly Resistant	High
TAM 90	2n	Mid to Late	Resistant	Medium to High
TAM TBO	4n	Late	Resistant	Medium to High
Winterhawk	2n	Early to Medium	Resistant	High

¹Type: 2n = diploid and 4n = tetraploid.

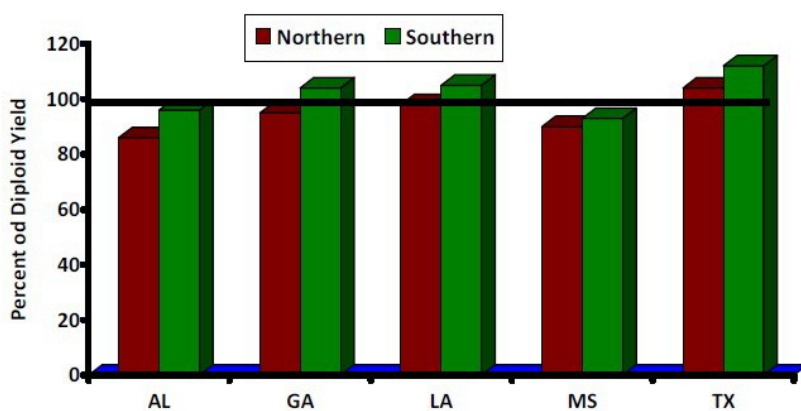
Note: The names and trademarks of the cultivars mentioned in this publication are **not endorsed** in any shape or form by the Mississippi State University Forage Extension Program. They are mentioned for educational purposes only. Producers should look at variety trials for their area to determine which variety(s) might best suited for forage production.



was done more than a year ago, it is recommended to get the seed retested. In that case, it might be a good idea to get a germination test and use that information to adjust the seeding rate. Contact your local County Extension Office to obtain information on seed testing. It might also be a good idea to use a Pure Live Seed (PLS) rate for planting considerations.

To determine PLS, first, find the percent germination. Second, find the percent purity. That information should be in the tag of the certified seed. If not contact your seed provider or coop to obtain such information from the seed lot you purchased. Multiply them and divide by 100 to find the PLS. For example: (95% germination × 80% purity)/100 = 76% PLS. Now that you know this information divide the desired seeding rate by this number to determine the amount of bulk seed needed. For example, if the seeding rate is 30 lb/ac, then amount of seed that need to be planted is 39.5 lb/ac (30/0.76). PLS often varies among seed lots, even of the same variety. PLS can also be used to determine the best seed buy. The amount a producer might be paying per pound of seed must be adjusted according to PLS. To determine the true cost, first determine the PLS of the variety that you might be considering and then divide the cost per pound by the PLS to get the cost per pound of PLS. For example, if you are paying \$0.44/lb, then the cost based on the example above will be \$0.58/lb (0.44/0.76). Using this information you can compare seed lots and varieties if economics is a major factor in determining the number of acres planted. Sometimes the cheapest seed that you might be getting might not be cheapest seed after all. If necessary, you should adjust the seeding rate according the calculated PLS. If the recommended seeding rate was 30 lb/ac and you need 39.5 lb/ac to achieve the target rate, you would be roughly 25% under the target seeding rate. Annual ryegrass will germinate in 7-10 days with sufficient soil moisture and having lower seed number per square foot will have an effect on productivity and probably more weed competition. Many times, purity and germination are high enough that a significant adjustment will not be necessary. However, even seed with 90% purity and 90% germination will yield 20 percent less viable seed than you think if you do not consider PLS. So do not overlook PLS when you buy or plant seed.

Maturity of the variety is also important to determine which variety is more suitable for a grazing program. There are three categories in which ryegrass can be classified based on maturity: early, mid-, or later maturity (Table 1). This is especially important when over-seeding warm-season pastures. Establishment of winter annuals into bahiagrass is likely to be more difficult than into bermudagrass because of the extremely competitive nature of bahiagrass, which grows later into the fall than bermudagrass and form a tight root system due to the production rhizomes. Over-seeding permanent grass pastures with winter annuals usually decreases annual yield of the perennial grass to some extent as a result of shading and competition in spring. This is especially a concern with annual ryegrass because it grows so late into summer. If this case, selecting an early or mid-maturing variety, especially if the intended used of the warm-season pasture is hay production.



What is the difference between diploid and tetraploid cultivars?

Most cultivars released prior to 1985 were considered diploid (only two set of the same chromosome, 2n=14 chromosomes). In the last two decades, new cultivars categorized as tetraploid (4 copies of the same chromosome, 4n = 28 chromosomes) have been developed by treating germinating seed with specific compounds that cause a mutation in the chromosome number. Tetraploid plants usually have larger leaves and plants are usually larger in overall size. Tetraploids are usually marketed as producing higher forage production than diploids, but this could be management, fertility, and environmental conditions dependent. In Mississippi, it has been observed that tetraploids might have a slight advantage in the southern region than in the northern region (Fig. 1), but still lower than

diploids. The advantage of diploids in the northern part of the state is attributed to them having more tolerance to cold temperature and quicker recovery and allowing higher biomass production. A study that looked at 5 year annual ryegrass data from Georgia, Alabama, and Mississippi indicated that tetraploids produced 5 to 15% less dry matter than did diploid cultivars. On the same token, 5 year trials in southern Louisiana and Texas indicated that tetraploids had a 5% to 12% advantage than diploids.



All livestock producers who depend on forages for most of their feed have an intense interest in forage varieties. However, forage species, fertility and harvest management all have larger effects on yield and quality than do variety within species. Therefore, when selecting a variety, the key is to select one with a proven track record of good performance in the same region where it is to be used. Adaptation to soil conditions (soil type, drainage, pH), local climate (rainfall, minimum and maximum temperatures) and tolerance or resistance to local plant diseases and insect pests are the critical issues. For more information of annual ryegrass variety trials contact your local county Extension office or visit <http://msucares.com/pubs/crops3.html>.

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2010 Mississippi Forage & Grassland Conference

Forage Production Systems and Economic Sustainability

November 17, 2010
Mississippi Horse Park
716 East Poor House Road
Starkville, MS



Agenda:

- 7:30 – 8:30 Registration – Exhibits Open
- 8:30 – 8:40 Welcome and Opening Remarks (**Dr. Rocky Lemus**, MSU)
- 8:40 – 9:15 Economics of Forages (**Dr. John Michael Riley**, MSU)
- 9:15 – 9:50 Legumes in Pasture Systems (**Dr. Don Ball**, Auburn Univ.)
- 9:50 – 10:25 Native Warm-season Grasses as Forage Crops (**Dr. Joe Bouton**, Noble Foundation)
- 10:25 – 10:50 Break/Exhibits
- 10:50 – 11:25 Profitability of Forages in Mississippi (**Dr. Bisoodat Macoon**, MSU).
- 11:25 – 12:00 Nutrient Management in Pasture Systems (**Dr. Dennis Hancock**, Univ. of Georgia)
- 12:00 – 1:00 Lunch/Exhibits
- 1:00 – 1:35 Baleage Production and Utilization (**Dr. Mike McCormick**, Louisiana State Univ.)
- 1:35 – 2:10 Pest and Pesticides Issues in Livestock Production (**Dr. Kristine Edwards**, MSU)
- 2:10 – 2:45 Utilization of Forages in Livestock Production Systems (**Dr. Don Ball**, Auburn Univ.)
- 2:45 – 3:15 Break/Exhibits
- 3:15 – 3:50 Equine Nutrition and Forage Alternatives (**Dr. Ray Smith**, Univ. of Kentucky)
- 3:50 – 4:25 Weed Control – Industry Update (**Dupont, Dow AgroSciences, and BSF**)
- 4:25 – 4:45 Reflections and Summary

The **2010 Mississippi Forage and Grassland Conference** will be held at the **Mississippi Horse Park** in **Starkville, MS on Wednesday, November 17**. It promises to be the best yet, with experts from six states speaking on important forage related topics. The conference agenda, information about speakers, and the conference pre-registration form can be found at the MSUCares Forage Website. **Pre-Registration** cost is **\$15** per person before November 12, 2010; after that date cost will be **\$20** per person. Registration includes lunch. Space is limited; early registration is encouraged.

For more information and registration form contact your local County Extension office or contact or visit the MSU Forage Website at <http://msucare.com/crops/forages/conference/>

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