



The Patriot Advantage
News and Information on Patriot White Clover

A Nutritious and High Quality Clover

1-800-285-SEED www.pennington.com

Get High Yield, Superior Grazing Tolerance & Unmatched Persistence from Patriot White Clover



For many years white clover has been used extensively as a cool season legume to enhance pasture quality and improve animal performance. More recently, the high cost of nitrogen fertilizer has farmers taking an even more serious look at utilizing clovers as a way to lower the need for purchased nitrogen fertilizer.



A limiting factor for clover use has been its poor persistence under grazing systems in many areas of the U.S. Seeing the potential of perennial white clover as a low input and sustainable livestock forage, Dr. Joe Bouton, a former University of Georgia plant breeder and previous Director of the Noble Foundation Forage Improvement Division, worked extensively with white clovers to find those with similar nutritional and agronomical attributes of traditional ladino clovers, but ones that would provide superior persistence and grazing tolerance.

Out of this concerted effort came a high yielding white clover with exceptional grazing tolerance that is now known as "Patriot". As a cross between the ultra popular "Durana" and a Mississippi virus-resistant ladino clover, Patriot offers the high yield of ladino clovers (Table 1), but with superior drought and grazing tolerance. (Table 2)

TABLE 1

White Clover Forage Yields

Variety	Avg Yield (lbs DM/A)	
	*UGA	**UKY
Patriot	4180	4030
Regal	3969	3950
Colt	N/A	3420
Barblanca	N/A	3400

*3 yr avg **2 yr avg

Patriot features high numbers of stolons (78 stolons/sq.ft. compared to just 52 stolons/sq.ft. for regular ladino clovers such as Regal, Will, Oseola, etc.). These stolons spread prostrate along the ground pinning down at each node by sending roots down into the ground. At each of these node junctions, new leaves initiate growth to become like a new "subplant". This allows Patriot plants to form a mass of highly palatable and nutritious foliage. This growth habit permits Patriot to perennialize and better withstand the grazing pressure and weather stresses commonly seen in on-farm conditions. It is a prolific reseed, further insuring its long-term persistence. Patriot works well as a

TABLE 2

*Stand Persistence of White Clover Varieties Under Cattle Grazing - University of Kentucky

<u>Variety</u>	<u>**Percent Stand</u>
Patriot	80
Barblanca	53
RegalGraze	49
Kopu II	45
Regal	33

*Planted March 2006

**Evaluated October 16, 2007

companion forage with perennial grass pastures containing tall fescue, orchardgrass, perennial ryegrass, prairiegrass and natives. It is adapted from eastern Texas and Oklahoma across the south to the Atlantic coast and north along a line from Macon, GA to Dallas, TX as well as in the Pacific Northwest and in river valleys and irrigated pastures of the intermountain region. It is marketed exclusively by Pennington Seed, Madison, GA in partnership with Agricom, Ashburton, New Zealand.

Adding Clover to Pastures Makes \$en\$e!



Forage and beef cattle specialists have long known and touted the benefits of clovers. Clovers offer multiple animal performance and sustainable production characteristics needed to maintain a high level of production at a reduced cost.

Benefits of Planting Clover in a Grass Pasture

- ▶ Increased forage quality
- ▶ Increased animal performance
- ▶ Free nitrogen
- ▶ Extends number of grazing days
- ▶ Reduces hay needs
- ▶ Lowers cost of production

Source: Dr. Dave Bade, Professor & Extension Forage Specialist Emeritus - Texas A&M

Increased Forage Quality

The introduction of clover to a grass pasture greatly enhances forage quality. This results in increased palatability, greater animal consumption and higher forage digestibility. Clover is nutrient dense providing large amounts of calcium, phosphorus, magnesium, protein and energy needed for optimum cattle performance. These desirable attributes of clover combine to reduce or eliminate the need for protein supplementation resulting in significant cost savings.

Free Nitrogen

As a legume, clover manufactures its own nitrogen thus reducing or eliminating the amount of purchased nitrogen fertilizer needed. Forage experts say clover can fixate up to 150 lbs/A or more nitrogen that can be shared with companion pasture grasses, thus reducing the amounts of purchased nitrogen fertilizer needed. With current nitrogen costs at 70 cents or more per pound, clover can reduce production costs by \$40-\$80 per acre or more. (Table 1)

Table 1

Nitrogen Fixation of Clovers		
Type	N Fixed/Yr	N Value @\$.70/lb
Perennial white clover	150 lbs/A	\$105
*Ladino clover	150 lbs/A	\$105
*Red clover	150 lbs/A	\$105
**Crimson clover	60 lbs/A	\$42
**Arrowleaf clover	75 lbs/A	\$52.50

*Short lived perennial in southern areas of adaptation
**Annual

Increased Animal Performance

Multiple livestock studies throughout the U.S. have shown increases in gain per head, average daily gain, gain per acre, % calf crop and weaning weights from clover and grass mixed pastures when compared to grass pastures alone. (Table 2)

Table 2

Effects of Clover on Beef Cattle Performance
▶ Increase in gain/hd up to 35%
▶ Increase in average daily gain up to 40%
▶ Increase in gain per acre up to 55%
▶ Increase in calving percentage up to 10%

Source: Dr. Dave Bade, Professor & Extension Forage Specialist Emeritus - Texas A&M

Patriot White Clover

“This offspring of Durana has slightly different characteristics that may be just right for your food-plot situation.”

BY KENT KAMMERMEYER



By now everyone in the deer and turkey worlds has heard of Durana clover, and many of you have already planted it. This new Pennington clover is a powerhouse; a persistent, productive clover that is highly competitive in a mixed stand with perennial grasses, weeds or other aggressive plants when managed properly.

Patriot white clover is lesser known but another powerful product of Dr. Joe Bouton, renowned plant breeder formerly at the University of Georgia (currently heading the Noble Foundation in Oklahoma).

To improve grazing tolerance and persistence

of white clover, he collected native ecotypes (dug from pastures where clover had not been planted for many years) that had survived hot dry summers and overgrazing in several Georgia locations. Plants were subjected to heavy, continuous grazing with grass competition, productive survivors were crossed repeatedly and a promising entry, called GA43 (later named Durana) was increased for further development from among the dozens of selections. Parent material from Durana was then crossed with a Mississippi virus-resistant intermediate-type (medium-sized leaf) hybrid ladino clover to form a new variety named Patriot. Hence, Patriot can be referred to as the daughter of Durana. Patriot differs from the long-standing familiar Regal ladino clover by having more stolon growing points, shorter plant height, smaller leaflets, shorter petioles, earlier heading date and more seed heads. Thus Patriot is in between Regal and Durana in appearance and other characteristics, but it can be quite difficult to distinguish from Durana. Patriot's high yield is more like its ladino-type parent, but its persistence is far superior and more similar to Durana.



Pennington Seed agronomist Chris Agee thinks Patriot's more upright growth can make it more competitive than Durana in ungrazed deer plots such as during years of abundant acorn crops in fall or plots that deer leave for weeks during mid-spring greenup in the forest. He also thinks that better cold tolerance and

faster seedling growth early in its establishment year can sometimes make it a better deer forage choice than Durana. This is especially true when planted in the far north or in a clover/cereal grain mix where competition can be intense in spring of the first year. Both are profuse bloomers and excellent

re-seeders producing a lot of hard seed that will germinate when conditions are right. This is a seed bank that you may eventually need to rejuvenate a fading stand.

My friend Tommy Hunter has planted both in separate deer plots on his Madison County deer property and currently prefers Patriot over Durana because of faster early growth. He has a 3-year-old plot that made it through a tough drought last summer and is still going strong in this year's drought.

In performance tests at UGA experiment stations, reported by Dr. John Andrae (currently at Clemson University), both Patriot and Durana compared very favorably with Regal ladino in high production. The difference is that Regal fades from perennial grasses or weed competition in a couple of years while Patriot can persist much longer... up to five years or even more!

(Kent Kammermeyer is a Certified Wildlife Biologist, Book Author, Private Consultant and Quality Deer Management Association (QDMA) Senior Technical Advisor.)

An Excerpt From:

White Clover of the Future is Here!

John Andrae, Carl Hoveland and Greg Durham

Crop and Soil Sciences Department, The University of Georgia



Grazing persistence is a far better predictor of clover performance than yield clipping trials because grazed clovers are frequently defoliated and treaded upon. Table 1 is derived from a trial at the Northwest Georgia Experiment Station. Ground coverage of all clover entries was equal at the beginning of the study. After one year of grazing, basal coverage of Regal and RegalGraze clover was significantly less than that of Patriot. This is important because basal coverage provides energy storage and growing points for good regrowth and survival of Patriot.

“...try one of these new clovers (Durana or Patriot), particularly in tall fescue pastures. I think you’ll be impressed with their persistence and benefit economically from improved animal performance and decreased fertilizer needs.”

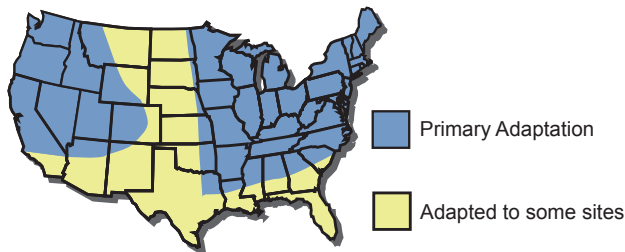
- Dr. John Andrae, State Forage Specialist, University of Georgia

Table 1. Percent basal coverage within row of white clover entries continuously grazed in bermudagrass sod. Northwest Georgia Branch Station, Calhoun, GA.

Entry	% basal cover at onset of grazing trial	% basal cover after 2 yrs grazing
Regal	77	6
RegalGraze	64	22
Patriot	85	75

Planting and Management Information for Patriot White Clover

Where to Plant:



Management:

Seed come pre-inoculated and once established, Patriot does not require nitrogen fertilizer. Clip or harvest surplus forage in underutilized pastures or food plots. Under continuous grazing, keep grass and/or weed height between 2” and 6” to help maintain the clover stand.

Planting:

- Dates:**
 - South:** September - November...may be frost seeded in February to early March in some locations
 - Upper South:** September - early November...may be frost seeded in February to early March or spring planted in April - early May
 - North:** August - September...may be frost seeded in February - March or spring seeded in April - May
- Rate:** 3 lbs./acre if no-till drilled or broadcast into established pastures; increase to 4 lbs./acre if frost seeded; 5 lbs./acre for a pure stand (pure stands for wildlife plots; for Livestock, see Special Considerations).
- Depth:** 1/8” maximum (stand failures will result from seed planted too deeply).
- Fertilizer:** Soil testing is highly recommended. Liming to a pH of 6.0-6.5 and providing adequate levels of potassium and phosphorus are necessary to ensure a productive clover stand. See your local county extension office for details.
- Special considerations:** Bloat can be a problem for animals on pastures with a large proportion (>35%) of white clover. Bloat-preventative supplements are recommended.

Think all Clovers are the Same?

Compare and Discover the

Advantage!

Plant Characteristics	Patriot	Ladino	Red	Crimson	Arrowleaf
Annual/Perennial	Perennial	*Perennial	*Perennial	Annual	Annual
Stand Life	**3-5+ years	1-2 years	1-2 years	6 months	6-8 months
Seeding Rate (lbs/ac)	3	3	10	20	10
Annual Grazing Days	180-210	180-210	180	60-90	90-120
Grazing Tolerance	Excellent	Poor	Fair	Fair	Fair
Re-seeding Under Grazing	Excellent	Poor	Poor	Poor	Fair
Drought Tolerance	High	Low	Low	Medium	Medium
Nitrogen Fixed (lbs/ac)	150	150	150	60	75
Fixed Nitrogen Value (0.70/lb)	\$105	\$105	\$105	\$42.00	\$52.50

*Short lived perennial in southern areas of adaptation**University trials and on-farm experience has shown many stands of Patriot to persist more than 5 years.

Compare Clover Establishment Costs**



When shopping for clovers, seed cost per acre should be considered over seed cost per pound. This is because different varieties or types of clover call for different seeding rates. Seeding rates can range from 2 lbs. to 20 lbs. or more seed per acre depending on the type of clover. Another factor to consider is expected stand life. Some clovers last a single growing season while others remain productive 2-5 years or longer. While perennial clovers may cost more per pound, prorated establishment costs are often much lower than those of annual types that must be seeded every year. As a long lasting perennial clover, Patriot offers lower prorated seed and establishment costs when compared to annual clovers and other short-lived clover varieties.

Plant Characteristic	Patriot	Ladino*	Red*	Crimson	Arrowleaf
Stand Life	***3-5 years	1-2 years	1-2 years	6 months	6-8 months
Seeding Rate(lbs/ac)	3	3	10	20	10
Seed Cost/acre over Stand Life	\$4.17-\$6.95	\$4.10-\$8.25	\$8.75-\$17.50	\$20.00	\$22.50

*Short lived perennial in southern areas of adaptation**Approximate seed cost only ***Estimated stand life for comparison purposes - University trials and on-farm experience has shown many stands of Patriot to persist more than 5 years.



DISCOVER THE PATRIOT ADVANTAGE!

High yielding, persistent, superb quality,
self sustaining, widely adapted



A Nutritious and High Quality Clover

VS. OTHER CLOVERS

- ▶ More persistent under close continuous grazing
- ▶ Captures up to 150 lbs./acre per year of free nitrogen
- ▶ More tolerant of low pH soils
- ▶ More drought tolerant
- ▶ A perennial plant that regrows from roots/stolons
- ▶ University proven to last 3 times longer than ladino types
- ▶ Saves money on planting costs vs. annual clovers
- ▶ 50% more stolons and denser leaf growth than ladino types
- ▶ More grazing days when compared to annual clovers



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LOOK INSIDE TO LEARN MORE ABOUT
PATRIOT WHITE CLOVER!

