



# The Durana Advantage

News and Information on Durana White Clover

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## DURANA

### THE DURABLE & SUSTAINABLE ALL PURPOSE WHITE CLOVER



White clover is used extensively throughout the world as a cool season pasture legume. Research has repeatedly shown that adding white clover to grass pastures results in improved animal performance while reducing the need for nitrogen fertilizer application.

A limiting factor for clover use has been its poor persistence under grazing systems in many areas of the U.S. Scientists have linked low stolon density to the poor persistence of white clovers. Much of the breeding work on white clover has focused on ladino types, which are high yielding but possess a low number of stolons compared to stolon-dense common and wild types (Table 1).

Seeing the potential of perennial white clover as a low input, effective and sustainable livestock forage, Dr. Joe Bouton, a former University of Georgia plant breeder and now director of the Noble Foundation Forage Improvement Division initiated an aggressive white clover breeding program. His goal was to find a white clover with similar nutritional and agronomical attributes of traditional ladino clovers, but one that would be superior to ladino in persistence and grazing

TABLE 1

Stolon Density of Clovers	
Durana Stolon 9 months after planting	
Ladino Types	52/sq. ft.
Patriot White Clover	78/sq. ft.
Durana White Clover	97/sq. ft.

tolerance. Dr. Bouton began by collecting white clover ecotypes growing naturally and competitively in Georgia pastures. These ecotypes were exclusively the stolon-dense types and formed the parental base for the breeding program that developed "Durana."

In Bouton's research, Durana interseeded into tall fescue pastures maintained a clover percentage over a two year period of 43 percent by weight while the amount of Regal ladino clover fell to less than 5%. Beef steer gains over this two-year period averaged 2.5 lbs/hd/day for Durana; 2.0 lbs/hd/day for Regal and 1.4 lbs/hd/day on pasture fertilized with 65 lbs N/A and no clover (Table 2).

TABLE 2

Stocker Gain Pastures with and without clover	
Pasture	Daily Gain/hd**
Fescue & Durana	2.5 lb.
Fescue & Regal	2.0 lb.
*Fescue Alone	1.4 lb.

\*Pasture fertilized with 65 lbs/A N  
 \*\*2 yr. average - Eatonton, GA - Bouton, et.al.

Based on these results and others, Dr. Bouton and AgResearch- NZ released Durana for commercial use in 2003. It is marketed exclusively by Pennington Seed, Inc.

*(Information contained in this article was taken from an article entitled "Ecotype-derived White Clover Cultivars and Their Place in the Southern Great Plains" by Dr. Joe Bouton, Director, Noble Foundation's Forage Improvement Division)*

## ADDING CLOVER TO PASTURES MAKES \$EN\$E!



The significant improvement in animal performance on clover mixed pastures is well documented. It is not unusual to see average calf weaning weights increase 20+ lbs. per calf and stocker gains improve by 1.0 lb/hd/d or more when clover is added to the pasture forage mix. While improved livestock performance alone makes clover a good investment, perhaps the greatest attribute of clover and its effect on farm profits is its nitrogen production capability. Forage researchers say an established stand (35-40% basal coverage) of perennial white clover can fix 75-150 lbs/ac. or more nitrogen annually. This greatly reduces the need for purchased nitrogen fertilizer on clover/fescue or clover/bermuda mixed pastures. As seen in the table

<u>Amount Nitrogen Fixed/A</u>	<u>75 lbs</u>	<u>150 lbs</u>
<b>Nitrogen @ 50 cents/lb</b>	<b>= \$37.50</b>	<b>\$75.00</b>
<b>Seed cost (prorated 3 yrs.)</b>	<b>= \$ 7.50</b>	<b>\$ 7.50</b>
<b>Annual N Savings</b>	<b>= \$30.00/A</b>	<b>\$67.50/A</b>

above, nitrogen savings provided by white clover can be over \$60/acre after seed cost is factored in. In university trials and on-farm experience, many Durana white clover stands have survived 3-5 years or longer, thus reducing annual planting costs and increasing net nitrogen savings over those shown in the table.

## DURANA'S PERSISTENCE & SUSTAINABILITY MAKES FOR VERSATILE USE



Because it is nutritious, persistent, durable and able to fix its own nitrogen, Durana white clover is quickly gaining a reputation as a premier forage and one that will be a key component of future sustainable forage and crop production systems. These same traits have scientists, landowners, wildlife enthusiasts and landscape professionals looking at additional ways Durana can be used to lower production costs, improve wildlife habitat and enhance the aesthetics of the countryside.

While many have used Durana as a pasture forage and wildlife food plot plant, researchers and leading pecan producers in several states are now looking at adding this popular legume to the orchard floor forage mix to lower nitrogen fertilizer costs and attract beneficial insects. Depending upon the crop load, an established stand of clover can supply 50-100% of the nitrogen needs of a pecan crop according to Georgia Extension Pecan Specialist, Lenny Wells.

Responding to the commercial landscape industry's desire for a more sustainable and aesthetically pleasing slope vegetation mix, Pennington recently released the SlopeMaster product line which features Durana as a key ingredient. Durana provides up to 150 lbs. of free nitrogen and shares it with companion plants to reduce fertilizer costs. It also provides color which makes for more aesthetically pleasing areas. With its aggressive stolon production (97 stolons per sq. ft.), Durana is a natural fit as an erosion control plant.



*Pecan producers are adding Durana to the orchard floor forage mix to reduce N costs and attract beneficial insects.*



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# THE WHOLE TRUTH ABOUT DURANA WHITE CLOVER

BY KENT KAMMERMEYER



There has long been a need for a persistent, productive, long-lived clover for wildlife food plots that is highly competitive in a mixed stand with perennial grasses or other aggressive plants including weeds. Along comes Durana white clover, the product of Dr. Joe Bouton, renowned plant breeder formerly at the University of Georgia and currently with the Noble Foundation in Oklahoma.

"Durana will last at least three times longer than common ladino white clovers on the market today," said Dr. Carl Hoveland, senior researcher with the University of Georgia's Crop and Soil Science Department.

Durana is an intermediate white clover that has smaller leaves than taller ladino clovers but produces many more runners or stolons, which allow aggressive spreading and excellent grazing tolerance. Durana also flowers profusely for long periods making it a more dependable re-seeder if that seed bank is ever needed.

In performance tests at UGA Experiment Stations, Durana was not as productive as Regal ladino during the establishment year but caught up to it in year two with both producing close to 4,000 lbs/acre dry weight. Both produced two to five tons of forage per year at 25-30% protein levels and up to 80% digestibility. The difference is that Regal faded from perennial grasses in a few years (survival 17%) while Durana increased its original stand coverage (133%) and persisted for five years or more!

This cool season perennial legume is adapted in the Southeast, Northeast and Mid-west on all soils except deep sands. It is also adapted to the Pacific Northwest and Rocky Mountain regions (where rainfall is adequate).

UGA deer researchers completed a 1½ year field test at three locations testing Durana production, palatability and deer use. Results indicated forage production, utilization and standing crops of Durana and Regal were similar throughout the study except during year two when Durana surpassed Regal in production in two of three locations. In Georgia, standing crop of Du-



rana was good all 12 months (after establishment) in the south but not in December and January in the north. High production of Durana occurred in March, April and May and again in September, October and November. The researchers suggest that Durana may be superior to ladino in the long-term. Combine this with superior persistence, and Durana quickly and easily becomes the clover of choice for hunters and deer

managers.

Mark Buxton, manager of Oakland Club Plantation in South Carolina reported on his deer management successes at the recent Quality Deer Management Association Convention in Charleston, SC. Basically, his deer antler development has recently rewritten the SC record book for his part of the state. Durana is the cornerstone of his food plot program.

Why plant Durana? It withstands grazing, is more persistent, more drought tolerant, more acid tolerant, more aggressive with competitive grasses and weeds, and has more stolon density (runners) than any other clover. That is one tough clover!

Durana white clover is a key component of several Pennington Rackmaster and Buckmaster deer mixes including Rackmaster Elite and Buckmasters Ultimate.

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



"Pennington's new Durana clover has really impressed me. With minimal maintenance, and I mean minimal, I get great plots through critical summer months. Of course the fall stands are awesome and the turkeys flock to it like chufa in the spring. We joke around and call it 'chufa that you don't have to plant every year!'"

~CJ Davis

Senior PR Representative for Chevalier Advertising, Marketing & PR South Carolina

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 Regal-Graze clover was significantly less than that of Durana. This is important because basal coverage provides energy storage and growing points for good regrowth and survival of Durana.

Entry	Percent basal cover March 31, 2000	Percent basal cover January 31, 2002
Regal	77	6
RegalGraze	64	22
Durana	90	65

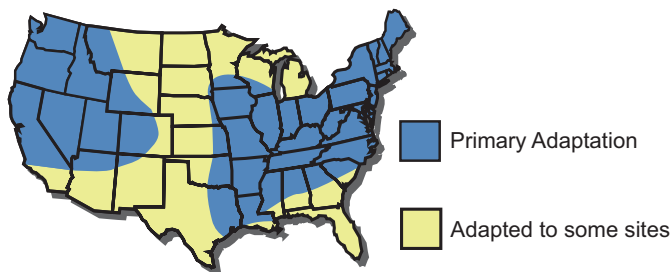
**Table 1.** Percent basal coverage within row of white clover entries continuously grazed in bermudagrass sod. Planted October 1, 1999, at the Northwest Georgia Branch Station.

*"...try one of these new clovers, 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*



## PLANTING AND MANAGEMENT INFORMATION FOR DURANA WHITE CLOVER

### Where to Plant:



### Management:

Seed come pre-inoculated and once established, Durana does not require nitrogen fertilizer. Clip or harvest surplus forage in under utilized 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:** Southern U.S. - September - November  
Northern U.S. - August - September...May be frost seeded in February-March;  
Spring seeded in late March-April.
- Rate:** 3 lbs./acre, no-till drilled or broadcast into established pastures; 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.

# ADDING DURANA CLOVER TO BERMUDA LOWERS COSTS & EXTENDS GRAZING PERIOD



Research at Mississippi State University has shown adding Durana white clover to bermuda fields can extend the grazing season and significantly lower nitrogen fertilizer costs. In an article in the January 2007 issue of "Cattle Business", MSU forage agronomist David Lang reported the results of a study looking at yields of bermudagrass in fields overseeded with Durana.

In the fall of 2003, Durana was seeded into established bermuda at 5 lbs. of seed/ac. Sixty-eight pounds of nitrogen was applied once in the spring of 2004 and not again during the three year study. Total annual forage yields (bermuda & clover) ranged from 3.5 tons/A in a drought year to 6 tons/A (see table).

Dr. Lang reported that Durana persisted into the fall of 2006 with a nearly 100% stand. He added that forage quality of the bermudagrass interseeded with clover was similar to bermuda alone fertilized with nitrogen. He also pointed out that clover, as a companion forage with bermuda, extends the number of annual grazing days for livestock. Because it is a cool season forage, white clover provides abundant forage growth in early spring prior to bermuda greenup and again in early fall when bermuda is beginning to go dormant. Since white clover is low growing, Lang said it does not sig-

nificantly interfere with early spring growth of bermuda.

Dr. Lang conceded yields will be somewhat less with this system than bermuda fertilized with 200 lbs. N/acre, but added that production costs with clover/bermuda mixed pastures and hayfields would be considerably lower.

## FORAGE YIELDS OF BERMUDA OVERSEEDED WITH DURANA CLOVER MISSISSIPPI STATE UNIVERSITY

<u>Year</u>	<u>Clover</u>	<u>Bermuda</u>	<u>Total**</u>
2004	4,700	7,400	12,100
2005	4,500	5,800	10,300
2006*	2,600	5,000	7,600

**Note: 68 lbs. N applied Spring 2004.  
None applied in 2005 & 2006.**

\*Drought year  
\*\*Lbs./acre

## HERE'S WHAT PEOPLE ARE SAYING ABOUT THE DURANA ADVANTAGE!



*"I have tried lots of the clovers in my food plots and I have not seen anything stay like this does. It was a little slower to establish, but the second year it took over. It is everything I hoped it would be. I had read the articles and seen the advertisements saying it was the best and it is. I will use it again because it has proven its durability. I*

*am always looking for the next best thing and after 3 years, Durana is still it."*

~ Bruce Meyer  
Thayer, MO



*"I wintered 17 yearling heifers on 11 acres of bermuda pasture overseeded with Durana clover with no supplemental feed and only 1/2 round bale of hay. The heifers gained well and remained in excellent condition the entire winter. I will no longer*

*plant small grains for grazing. If planted and managed correctly, Durana clover can lower production cost, improve cattle performance and increase profits. Durana is an absolutely amazing clover! It is the best forage that has been introduced to my cattle farm in recent years."*

~ Fred Greer  
Mansfield, GA



# THE FORAGE OF THE FUTURE IS HERE!



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

## DISCOVER THE DURANA ADVANTAGE!

- ✻ Persists under close continuous grazing
- ✻ Makes up to 200 lbs./year free nitrogen
- ✻ More tolerant of low pH soils
- ✻ More drought tolerant
- ✻ Self sustaining
- ✻ A perennial plant that regrows from roots/stolons
- ✻ University proven to last 3 times longer
- ✻ Saves money on planting costs vs. annual clovers
- ✻ 90% more stolons and denser leaf growth than ladino types
- ✻ Extended growing period when compared to annual clovers



P.O. Box 290  
Madison, GA 30650



*Look inside to discover the Durana Advantage!*