

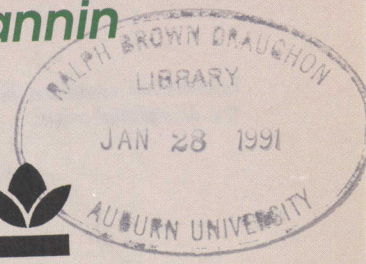
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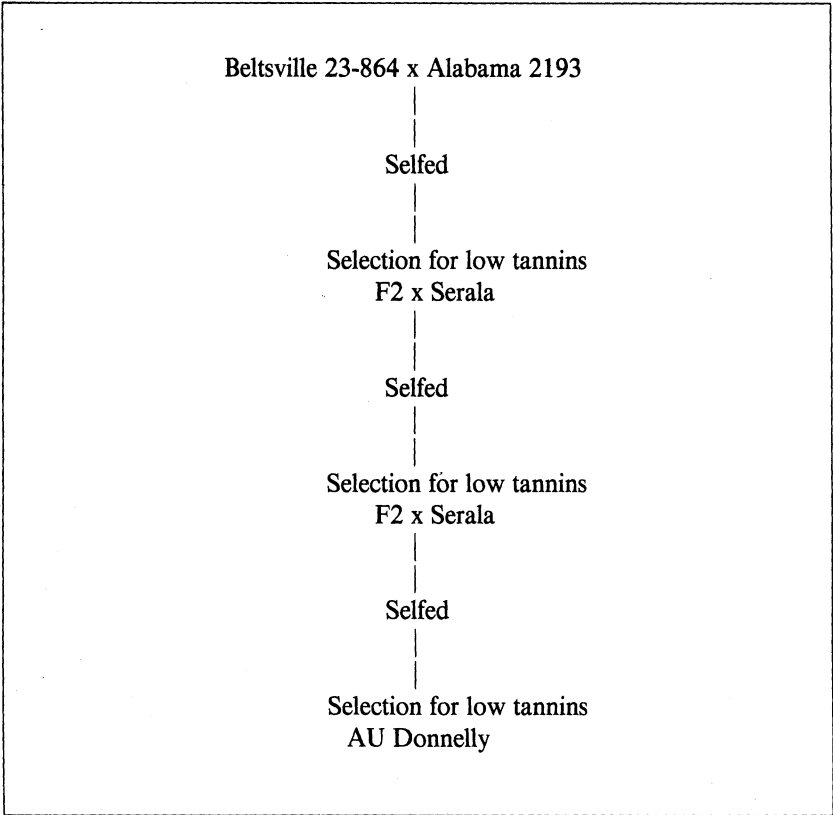
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"AU Donnelly"
A new variety of low tannin
Sericea Lespedeza

Alabama Agricultural Experiment Station
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BREEDING METHOD OF AU DONNELLY

Information contained herein is available to all without regard to race, color, sex, or national origin.

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AU DONNELLY: A NEW VARIETY OF LOW TANNIN SERICEA LESPEDEZA

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SERICEA LESPEDEZA [*Lespedeza cuneata* (Dumont) G. Don] is a popular nonbloating summer perennial legume grown for forage, soil conservation, and wildlife purposes in Alabama and the Southeast. Research aimed at improving the digestibility of sericea forage and its acceptability to grazing animals resulted in the development of the variety AU Lotan by the Alabama Agricultural Experiment Station, Auburn University. This variety, released in 1980, was the first variety low in tannins.

A second variety of low-tannin sericea lespedeza developed by the Alabama Agricultural Experiment Station was released in 1987. This cultivar, named AU Donnelly, was developed by the backcross method and was originally tested as line 73-162-19 in Alabama and Georgia. Recurrent parents, see figure, were high-tannin Alabama 2193 and Serala. Beltsville 23-864, the source of the low-tannin gene, was crossed to Alabama 2193 and backcrossed twice to Serala. Selection took place at the Plant Breeding Unit, Tallassee, Alabama.

AU Donnelly has an upright growth habit similar to Serala and AU Lotan. Tests in Alabama indicate that AU Donnelly has more early spring growth and is higher yielding throughout the season than AU Lotan, table 1. However, AU Lotan had slightly higher production than AU Donnelly in Piedmont soil at Auburn, table 2. AU Donnelly also was tested at four locations in Georgia between 1983 and 1985. In this work, AU Donnelly clearly was more productive than AU Lotan, table 3. Its successful production at Americus, Georgia, where the soil pH was 4.9, indicates that high production of AU Donnelly can be obtained on highly acidic soils.

AU Donnelly has averaged 6 percent higher in digestible dry matter and 10 percent higher in crude protein than AU Lotan at the hay stage. Tannin

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TABLE 1. MEAN DRY FORAGE YIELD PER ACRE OF EACH CUTTING AND TOTAL FORAGE YIELD OF SERICEA LESPEDEZAS GROWN IN 10 ENVIRONMENTS IN ALABAMA

	Yield of cuttings		
	First entry	Other cuttings	Average total yield
	<i>Lb.</i>	<i>Lb.</i>	<i>Lb.</i>
AU Donnelly	2,456	4,054	6,510
AU Lotan	2,233	3,751	5,992
Serala, high tannin	3,126	4,983	8,108

TABLE 2. TOTAL DRY FORAGE YIELD OF SERICEA LESPEDEZAS GROWN AT THREE LOCATIONS IN ALABAMA

Location and year	Dry forage per acre		
	AU Donnelly	AU Lotan	Serala (high tannin)
	<i>Lb.</i>	<i>Lb.</i>	<i>Lb.</i>
<u>Brewton</u>			
1983	8,204	6,559	10,017
1984	8,182	6,724	11,291
1985	8,188	7,054	12,077
1986	4,860	4,866	6,849
<u>Auburn</u>			
1984	5,771	6,594	6,742
1985	6,675	7,056	7,539
1986	3,578	4,038	4,060
<u>Winfield</u>			
1983	6,275	4,947	6,498
1984	6,197	5,422	7,123
1986	7,164	6,641	8,894

TABLE 3. THREE-YEAR AVERAGE FORAGE YIELD OF SERICEA LESPEDEZAS GROWN AT FOUR LOCATIONS IN GEORGIA, 1983-85

Entry	Yield per acre			
	Blairsville	Athens	Eatonton	Americus
	<i>Lb.</i>	<i>Lb.</i>	<i>Lb.</i>	<i>Lb.</i>
AU Donnelly	2,820	7,680	4,550	6,080
AU Lotan	2,630	6,180	4,030	4,950
Serala	5,040	7,810	5,780	7,690

content, measured by the method of Rosenblatt and Peluso (2), is about the same in AU Donnelly as in AU Lotan. AU Donnelly is tolerant to *Rhizoctonia* spp. However, it can be damaged by late season attacks of these fungi in areas of high humidity, such as southern Alabama.

AU Donnelly is well adapted to well drained soils in Alabama and Georgia and should perform well in other areas where sericea lespedeza is normally grown. Its uses are the same as for any sericea lespedeza. However, grazing animals prefer low-tannin sericeas (1). In a grazing trial with sheep, it was found that about 80 percent of the low-tannin variety was consumed by sheep, while only up to 30 percent of the forage from the high-tannin varieties was consumed (5). These results suggest that low-tannin varieties offer advantages when used for grazing. However, since low tannin varieties are more palatable and animal intake of them is greater, the likelihood of overgrazing is also greater.

Recent experiments indicate that field-dried sericea forage undergoes a great reduction in analyzable tannins. Thus, since the intake and quality of a high tannin sericea improves when cut for hay (4), the primary advantage of low tannin cultivars is in grazing rather than hay situations.

To date, no animal performance data have been obtained with AU Donnelly. However, work done with yearling beef steers grazing a pasture of AU Lotan indicates that average daily gains of 1.65-1.85 pounds and gains per acre of 276-300 pounds can be obtained by cattle grazing low-tannin sericea cultivars (3). It is expected that similar gains would be obtained with AU Donnelly.

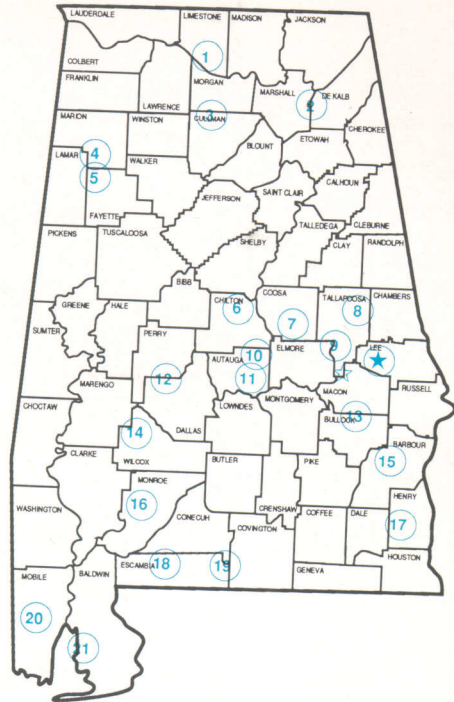
Breeder seed of AU Donnelly will be maintained by the Alabama Agricultural Experiment Station. Limited amounts of certified seed should be available in 1990.

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Research Unit Identification

- ★ Main Agricultural Experiment Station, Auburn.
- ☆ E. V. Smith Research Center, Shorter.

1. Tennessee Valley Substation, Belle Mina.
2. Sand Mountain Substation, Crossville.
3. North Alabama Horticulture Substation, Cullman.
4. Upper Coastal Plain Substation, Winfield.
5. Forestry Unit, Fayette County.
6. Chilton Area Horticulture Substation, Clanton.
7. Forestry Unit, Coosa County.
8. Piedmont Substation, Camp Hill.
9. Plant Breeding Unit, Tallassee.
10. Forestry Unit, Autauga County.
11. Prattville Experiment Field, Prattville.
12. Black Belt Substation, Marion Junction.
13. The Turnipseed-Ikenberry Place, Union Springs.
14. Lower Coastal Plain Substation, Camden.
15. Forestry Unit, Barbour County.
16. Monroeville Experiment Field, Monroeville.
17. Wiregrass Substation, Headland.
18. Brewton Experiment Field, Brewton.
19. Solon Dixon Forestry Education Center, Covington and Escambia counties.
20. Ornamental Horticulture Substation, Spring Hill.
21. Gulf Coast Substation, Fairhope.