

UNITED STATES DEPARTMENT OF AGRICULTURE  
 NATURAL RESOURCES CONSERVATION SERVICE  
 JIMMY CARTER PLANT MATERIALS CENTER  
 AMERICUS, GEORGIA

and

AUBURN UNIVERSITY  
 ALABAMA AGRICULTURAL EXPERIMENT STATION  
 AUBURN, ALABAMA

NOTICE OF RELEASE OF ‘AU SUNUP’ CRIMSON CLOVER

The Natural Resources Conservation Service, U.S. Department of Agriculture and Auburn University with the Alabama Agricultural Experiment Station announce the naming and release of ‘AU Sunup’ crimson clover (*Trifolium incarnatum* L.). ‘AU Sunup’ crimson clover has been assigned the NRCS Accession number 9093790.

**Collection Site Information:** Cultivar was developed from 11 different accessions.

Table 1. Collection locations for accessions used in the development of ‘AU Sunup’.

<u>Accession Number</u>	<u>Location</u>	<u>Collector</u>
9016346	Madison Co. FL.	
9049682	Jefferson Co. FL.	
9039845	Mobile Co Ala - Sec 32, Twn T4S, Rn 4 W, Troup soil, 3% slope	David Steward
9053017	Lowndes Co. Ga - west side of I-75 at route 22 on 5% slope	Bob Glennon
9053018	Tift Co Ga - west side of I-75 at Exit 10, 5% slope	Bob Glennon
9053019	Turner Co Ga - west side of I-75 at intersection with Rt. 159, 5% slope	Bob Glennon
9053204	Leon Co FL - Sec 10, Twn T1N, Rn 2E, north side of I-10, 10.2 Mi E. of Route 319, 10% slope	Bob Glennon
9053950	Cook Co Ga - west side of I-75 at Exit 10, 5 % slope	Bob Glennon
9053959	Henry Co Al - Sec 6, TwnT4N, Rn 29E, .25 miles S of Hwy 134 on Co Rd 63	Ken Rogers
9054007	Colleton Co SC - median of I-85, .8 miles N of Rd 34, 20% slope	Bob Glennon
9054008	Dorchester Co SC Roadside of I-95, 3.5 mi N of Rt. 78, 20 % slope	Bob Glennon

Precipitation ranged from 45-50 inches per year at each collection site.



utilizing 4 replications in a randomized complete block (RCB) design. Results from 2 years of testing showed **Cycle 3 ('AU Sunup')** is a cultivar that flowers 5 to 21 days earlier than 'AU Robin' (Standard of comparison) depending on the year and location (Tables 3 and 4). Forage yield of Cycle 3 ('AU Sunup') compared to 'AU Robin' was 145%, 82%, and 91% in 1994, 1995, and 1996 respectively (Tables 5-7).

**Ecological Considerations and Evaluation:** The environmental evaluation of the plant materials releases worksheet indicates **'AU Sunup' is OK to release**. The impact on habitats, ecosystems and land use rated low. Ease of management rated moderate. Conservation need and plant use rated moderate. Biological characteristics rated moderate. (See attachment)

**Conservation Use:** This early blooming crimson clover can give flexibility to cover crop and conservation tillage systems. It can also be used as a green manure, organic farming, and pollinator crop.

**Area of Adaptation:** 'AU Sunup' was tested and is highly adapted from North Alabama to South Alabama and South Georgia. This area includes upland well drained soils in the following MLRAs: 128-Southern Appalachian Ridges and Valleys, 133A- Southern Coastal Plain, 135A- Alabama and Mississippi Blackland Prairie, and 136- Southern Piedmont. This cultivar should be adapted to zones 7b, 8a, and 8b of the USDA Plant Hardiness Zone Map.

**Availability of Plant Materials:** Breeder seed will be maintained by Auburn University. Alabama Crop Improvement will work with an exclusive grower to produce foundation certified seed.

#### **References:**

Mosjidis, J.A., C.M. Owsley, M.S. Kirkland, and K.M. Rogers. 2000. Registration of 'AU Sunrise' crimson clover. *Crop Sci.* 40:290.

Mosjidis, J. A. 2001. Forage legume breeding and evaluation at Auburn University in the last 16 years. Proceedings of the 56<sup>th</sup> Southern Pasture and Forage Crop Improvement Conference. Springdale, AR. April 21-22, 2001.

#### **Prepared by:**

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## CRIMSON CLOVER TESTS

Table 3. Days to 50% flowering (counted from Feb. 1) of crimson clover entries in 1994.

Entries	Tallassee	Americus	Prattville	Marion Junction	Belle Mina	Brewton	Mean
-----days-----							
'AU Sunup'	58.0*	42.0*	54.7*	61.5*	67.0	37.0*	53.3
'AU Robin'	63.0	51.0	59.7	68.2	67.0	49.5	59.7
MSD (0.05)	0.0	2.1	1.0	1.7	0.0	0.7	
Difference between 'AU Sunup' and 'AU Robin'							
	5.0	9.0	5.0	6.7	0.0	12.5	6.4

MSD = Minimum Significant Difference

\*Significant at the 0.05 level of probability

Table 4. Days to 50% flowering (counted from Feb. 1) of crimson clover entries in 1995.

Entries	Tallassee	Americus	Prattville	Marion Junction	Belle Mina	Brewton	Mean
-----days-----							
'AU Sunup'	51.0*	50.0*	55.0*	43.0*	55.0*	31.0*	47.5
'AU Robin'	58.0	55.0	66.0	53.5	64.0	52.0	58.0
MSD (0.05)	0.0	1.9	0.3	2.6	0.0	0.8	
Difference between 'AU Sunup' and 'AU Robin'							
	7.0	5.5	11.0	10.5	9.0	21.0	10.5

MSD = Minimum Significant Difference

\*Significant at the 0.05 level of probability

Table 5. Forage yield (dry matter early March to middle April depending on the location) of crimson clover entries in 1994.

Entries	Tallassee	Americus	Prattville	Marion Junction	Belle Mina	Brewton	Mean
-----lb/acre-----							
'AU Sunup'	271	290	633	342	668	1987	698*
'AU Robin'	86	302	541	387	319	1244	480
MSD (0.05)							117

MSD = Minimum Significant Difference

Table 6. Forage yield (dry matter early March to middle April depending on the location) of crimson clover entries in 1995.

Entries	Talasssee	Americus	Prattville	Marion Junction	Belle Mina	Brewton	Mean
-----lb/acre-----							
'AU Sunup'	2463	1408	3471	401	1307	1940	1832
'AU Robin'	3435	1333	4605	376	1344	2243	2223
MSD (0.05)							230

MSD = Minimum Significant Difference

Table 7. Forage yield (dry matter early March to middle April depending on the location) of crimson clover entries in 1996.

Entries	Talasssee <sup>1</sup>	Americus	Prattville	Marion Junction <sup>1</sup>	Belle Mina	Brewton	Mean
-----lb/acre-----							
'AU Sunup'		2737	516		718	1834	1451
'AU Robin'		2811	1107		819	1610	1587
MSD (0.05)					273	251	

<sup>1</sup>Experiment lost

MSD = Minimum Significant Difference

**Signatures for the release of:  
'AU Sunup' Crimson Clover (*Trifolium incarnatum* L.)**

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James Tillman  
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United States Department of Agriculture  
Natural Resources Conservation Service  
Athens, Georgia

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Date

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Niles Glasgow  
State Conservationist  
United States Department of Agriculture  
Natural Resources Conservation Service  
Columbia, South Carolina

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Date

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Gary Kobylski  
State Conservationist  
United States Department of Agriculture  
Natural Resources Conservation Service  
Auburn, Alabama

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Date

**Signatures for the release of:  
'AU Sunup' Crimson Clover (*Trifolium incarnatum* L.)**

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Mary K. Combs  
State Conservationist  
United States Department of Agriculture  
Natural Resources Conservation Service  
Raleigh, North Carolina

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Date

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Mike Hubbs  
Director, Ecological Sciences Division  
United States Department of Agriculture  
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Date

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