# JIMMY CARTER PLANT MATERIALS CENTER
# USDA-NRCS
# AMERICUS, GEORGIA

# NOTICE OF RELEASE
# OF
# AMERICUS INDIANGRASS
# (Sorghastrum nutans (L.) (Nash)

**June, 2002**

**UNITED STATES DEPARTMENT OF AGRICULTURE**
**NATURAL RESOURCES CONSERVATION SERVICE**
**ATHENS, GEORGIA**

## NOTICE OF RELEASE OF 'AMERICUS' INDIANGRASS

The Natural Resources Conservation Service, U.S. Department of Agriculture announce the naming and release of 'Americus' Indiangrass (*Sorghastrum nutans* (L.) Nash.). 'Americus' Indiangrass has been assigned the PI number 514673.

**Collection Site Information:** 'Americus' originated as a seed collection in 1979. Seed was collected from native plant stands in four counties (Barbour Co. Ala., Houston Co. Ala., Sumter Co. Ga., and Terrell Co. Ga.) Seed site locations are as follows:
9021211- Barbour Co. Ala. North side of Ala. Hwy. 131 .6 miles west of milepost 27. Elev.500 ft. MLRA-133. 9021207- Houston Co. Ala. Roadside of US 231 , 1.4 miles south of milepost 30,MLRA -133 on a 3% slope. 9023089- Sumter Co. Ga. 2.2 miles east of technical school road in Americus. MLRA-133 on a 2% slope. 9021345- Terrell Co. Ga. West bank of RR just south of Ga. Hwy 45. 3% slope, MLRA - 133.

**Description:**

This selection is a warm season perennial tall grass native to the Southeastern U.S.

Plant Ht 150 – 300 cm Plant Wd 25 – 100 cm
Leaf blade – glabrous and scabrous – margin serrate and slightly involute
Leaf blade Ln 400 – 625 mm Leaf blade Wd 7 – 22 mm
Leaf sheath – pubescent to glabrous
Leaves both basal/cauline
Foliage color – green-blue green-yellow green
Ligule Ln 5 – 10.0 mm Ligule cilia – none
Node – pubescent
Internodes – glabrous
Culm Dia. 3.6 – 7.4 mm
Much branching from base
Inflorescence open panicle (wind -pollinated)
Panicle Ln 230 – 595 mm Panicle Wd 40 – 190 mm
Panicle branches – 10 to 16
1 floret/spikelet
Glumes – lance-elliptic, awnless yellow tawny brown in color
1st glume Ln 4.0 – 6.0 mm and ciliate

2nd glume Ln 4.0 – 6.0 mm
Lemma – yellowish thin hyaline, Lemma Ln 4 – 6 mm
With twisted awn 11-13 mm long. Total lemma length with awn ~ 18-20 mm
Palea – absent
Dates – Boot (8-30 – 9-15) Bloom (9-16 – 10-4) Harvest (10- 17 – 11- 4)
Seed Yield – low 27#/Ac high 166#/Ac
Grain Color – Yellowish brown – reddish brown
Grain Ln 5-8 mm Grain Wd 2 mm
Grain with Awn (Ln) 10mm – 18 mm
Grain Shape – ovate/elliptic

**Method of Breeding and Selection:** After four years of study at the Jimmy Carter Plant Materials Center, four accessions from an initial evaluation of 93 indiangrass accessions were selected for cultivar use. Criteria for selection included adaptability, growth, vigor, stand, seed production, disease, resistance, and insect resistance. Bulked seed from a crossing block of the four selections (9021211, 9021207,9023089,and 9021345) produced the composite called PI-514673.

Attached is the comparative testing results of PI- 514673 conducted at Americus and Athens, Ga.

**Ecological Considerations and Evaluation:** ' Americus' was "OK to release" when evaluated through the " Worksheet for conducting an environmental evaluation of NRCS plant releases. This document is attached.

**Conservation Use:** Dry matter production and survivability of 'Americus' makes it suitable for livestock forage and erosion control use. Because of the showy inflorescence display in late summer it can be utilized in landscape plantings. 'Americus' can also provide food and cover for wildlife.

**Area of Adaptation:** All quantitative and qualitative data was taken from the Piedmont and Coastal Plain of Georgia. However, it is probably well adapted to most of the Southeastern United States and as far west as Arkansas and East Texas. Local testing will have to be conducted to verify its actual useful range. It is tolerant of most upland sites. It is most productive on moderately well to well drained soils of the Piedmont and Coastal Plain (MLRA 133A,135, 136, and USDA winter hardiness zones 7b,8a,8b ). During exceptionally humid and wet summers this cultivar is adversely affected by disease such as rust.

**Availability of Plant Materials:** Breeder seed will be maintained by the Jimmy Carter Plant Materials Center and the Alabama Crop Improvement Association, Auburn, Alabama.

**References:**

Little, T.M. and F.J. Hills. 1978. Agricultural Experimentation. John Wiley and Sons. New York.

Radford,A.E., H.E. Ahles and C.R. Bell. 1968. Manual of the Vascular Flora of the Carolinas. The University of North Carolina Press, Chapel Hill, North Carolina.

**Prepared by:**

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# COMPARATIVE TESTING RESULTS OF PI-514673
## INDIANGRASS

Conducted by: USDA-NRCS, Jimmy Carter PMC, Americus, Georgia.
Dr. Joe Bouton, University of Georgia, Athens, Georgia.

### Introduction:

(a) Comparative testing of indiangrass lines was conducted at Americus, Georgia and Athens, Georgia from 1989-1993. Response variables included forage quality determination and dry matter yield determination.

(b) Also comparative testing of indiangrass lines was conducted at Americus from 1996-1998. Survivability was the response variable.

### Materials and Methods:

(a) Tests were conducted in Athens and Americus to determine forage quality (IVDMD) and dry matter production (kg/ha) at two clipping times for 'Lometa', 'Rumsey', PI-514673, and Pensacola bahiagrass (control). The tests in Athens were on both a low fertility and a high fertility site. Evaluations were made from 1989-1993. Each treatment (entry) was replicated six times in a randomized complete block design.

(b) Tests were conducted in Americus (Jimmy Carter PMC) to determine survivability of forage grass after grazing events from 1996-1998. This test was an unreplicated split-plot design with main plots called grazed and ungrazed. Within the main plots were 12 replications each of PI-514673, 'Lometa', and 'Pensacola' bahiagrass (control). Grazed plots were grazed twice in 1996 (June and August), twice in 1997 (July and August), and twice in 1998 (July and August). Each grazing event took the indiangrass from about 18" in height to an 8" stubble. Survivability was measured as a survivability stem ratio (x100)

$$\frac{\text{Final stem count (year)}}{\text{Initial stem count 1995}}$$

### RESULTS:

(a) The low soil fertility site at Athens indicated PI-514673 produced significantly more dry matter (kg/ha) at heading than Rumsey during the entire three years of testing (Tables 1-5).

PI-514673 also produced a significantly higher IVDMD value than Rumsey or Lometa averaged over 1989 and 1990 (Table 4).

Data from the high fertility site at Athens in 1990 and 1991 indicates PI-514673 produced more yield (kg/ha) in July and heading than Rumsey (Tables 6-8).

Results from tests at Americus in 1993 (Jimmy Carter PMC) show PI-514673 produces more dry matter at heading than Rumsey (Table 11). Total dry matter production averaged over three years (1991-1993) at Americus indicates PI-514673 produced significantly more dry matter than Rumsey (Table 14).

(b) Over the three-year evaluation period under grazed conditions, there was no difference between PI-514673 and Lometa survivability. However, under ungrazed conditions, the survivability of PI-514673 is higher than Lometa. PI-514673 produces a better survival ratio ungrazed than it does under grazed. While Lometa shows no difference in survival ratio between grazed or ungrazed (Tables 15-20).

## DISCUSSION:

Data from Athens and Americus, Georgia indicate PI-514673 produces more dry matter than Rumsey indiangrass.

Grazing data from Americus shows no significant difference between PI-514673 and Lometa survivability under grazed conditions. However, under ungrazed conditions, the survivability of PI-514673 is higher than Lometa.

Research information indicates the PI-514673 indiangrass shows several superior characteristics to known standards.

## TABLES:

**TABLE 1 LOW FERTILITY SITE YIELD & IVDMD DATA TAKEN AT HEADING ATHENS, GEORGIA TEST (1989)**

| Cultivar | Mean DM Yield (Kg/Ha) | Mean IVDMD Value |
|---|---|---|
| PI-514673 | 1110 | 479.66 |
| Pensacola Bahia | 364.50 | 502.96 |
| Rumsey | 276.60 | 435.08 |
| Lometa | 911.66 | 475.36 |
| LSD (.05) | 297.50 | 31.10 |

**TABLE 2 LOW FERTILITY SITE YIELD & IVDMD DATA TAKEN AT HEADING ATHENS, GEORGIA TEST (1990)**

| Cultivar | Mean DM Yield (Kg/Ha) | Mean IVDMD Value |
|---|---|---|
| PI-514673 | 4599.66 | 522.26 |
| Pensacola Bahia | 2025.16 | 442.15 |
| Rumsey | 3351.83 | 414.73 |
| Lometa | 4143.66 | 440.55 |
| LSD (.05) | 1104.50 | 46.20 |

**TABLE 3 LOW FERTILITY SITE YIELD DATA TAKEN AT HEADING ATHENS, GEORGIA TEST (1991)**

| Cultivar | Mean DM Yield (Kg/Ha) |
|---|---|
| PI-514673 | 5471.50 |
| Pensacola Bahia | 2636.83 |
| Rumsey | 3585 |
| Lometa | 4677.33 |
| LSD (.05) | 1032.90 |

**TABLE 4 LOW FERTILITY SITE YIELD & IVDMD DATA TAKEN AT HEADING ATHENS, GEORGIA TEST (1989-1990)**

| Cultivar | Average Mean DM Yield (Kg/Ha) | Average Mean IVDMD Value |
|---|---|---|
| PI- 514673 | 2854.83 | 500.96 |
| Pensacola Bahia | 1194.83 | 472.55 |
| Rumsey | 1814.25 | 424.9 |
| Lometa | 2527.66 | 457.95 |
| LSD (.05) | 548.1 | 26.7 |

**TABLE 5 LOW FERTILITY SITE YIELD DATA TAKEN AT HEADING ATHENS, GEORGIA TEST (1989-1991)**

| Cultivar | Average Mean DM Yield (Kg/Ha) |
|---|---|
| PI-514673 | 3727.05 |
| Pensacola Bahia | 1675.50 |
| Rumsey | 2404.50 |
| Lometa | 3244.22 |
| LSD (.05) | 1005.90 |

**TABLE 6 HIGH FERTILITY SITE YIELD & IVDMD DATA ATHENS, GEORGIA TEST (1990)**

| Cultivar | Mean DM Yield (Kg/Ha) Taken in July | Mean IVDMD Value From July Clipping |
|---|---|---|
| PI-514673 | 3217.00 | 499.78 |
| Pensacola Bahia | 2220.66 | 519.10 |
| Rumsey | 1750.66 | 550.25 |
| Lometa | 2574.33 | 469.93 |
| LSD (.05) | 865.10 | 48.20 |

| Cultivar | Mean DM Yield (Kg/Ha) Taken at Heading | Mean IVDMD Value From Heading Clipping |
|---|---|---|
| PI-514673 | 3905.83 | 468.81 |
| Pensacola Bahia | 2658.33 | 528.35 |
| Rumsey | 2583.83 | 511.06 |
| Lometa | 4748.50 | 464.30 |
| LSD (.05) | 1117.30 | 39.40 |

| Cultivar | Total Mean DM Yield (Kg/Ha) From July and Heading Clipping |
|---|---|
| PI-514673 | 7122.83 |
| Pensacola Bahia | 4879.00 |
| Rumsey | 4334.50 |
| Lometa | 7322.83 |
| LSD (.05) | 1660.2 |

**TABLE 7 HIGH FERTILITY SITE YIELD DATA ATHENS, GEORGIA TEST (1991)**

| Cultivar | Mean DM Yield (Kg/Ha) Taken in July | Mean DM Yield (Kg/Ha) Taken at Heading |
|---|---|---|
| PI-514673 | 8929.16 | 3206.66 |
| Pensacola Bahia | 4157.50 | 2678.33 |
| Rumsey | 5218.83 | 2328.50 |
| Lometa | 7374.16 | 3791.83 |
| LSD (.05) | 2097.30 | 828.90 |

| Cultivar | Total Mean DM Yield (Kg/Ha) from July and Heading Clipping |
|---|---|
| PI-514673 | 12,135.83 |
| Pensacola Bahia | 6,836.33 |
| Rumsey | 7,547.33 |
| Lometa | 11,166.00 |
| LSD (.05) | 2,652.70 |

**TABLE 8 HIGH FERTILITY SITE YIELD DATA ATHENS, GEORGIA TEST (1990-1991)**

| Cultivar | Average Mean DM Yield (Kg/Ha) Taken in July | Average Mean DM Yield (Kg/Ha) Taken at Heading |
|---|---|---|
| PI-514673 | 6073.08 | 3556.25 |
| Pensacola Bahia | 3189.08 | 2668.58 |
| Rumsey | 3484.75 | 2456.16 |
| Lometa | 4974.25 | 4270.16 |
| LSD (.05) | 2373.80 | 666.50 |

| Cultivar | AverageTotal Mean DM Yield(Kg/Ha) from July and Heading Clipping |
|---|---|
| PI-514673 | 9,629.33 |
| Pensacola Bahia | 5,857.66 |
| Rumsey | 5,940.91 |
| Lometa | 9.244.41 |
| LSD (.05) | 1,499.40 |

**TABLE 9 AMERICUS YIELD DATA TEST (1991)**

| Cultivar | Mean DM Yield (Kg/Ha) Taken in July | Mean DM Yield (Kg/Ha) Taken at Heading |
|---|---|---|
| PI-514673 | 4233.33 | 1516.66 |
| Pensacola Bahia | 2040.00 | 1683.33 |
| Rumsey | 2936.66 | 1136.66 |
| Lometa | 3476.66 | 1320.00 |
| LSD (.05) | 1583.50 | 411.9 |

| Cultivar | Total Mean DM Yield (Kg/Ha) from July and Heading Clipping |
|---|---|
| PI-514673 | 5750.00 |
| Pensacola Bahia | 3723.33 |
| Rumsey | 4073.33 |
| Lometa | 4796.66 |
| LSD (.05) | N.S. |

**TABLE 10 AMERICUS YIELD DATA TEST (1992)**

| Cultivar | Mean DM Yield (Kg/Ha) Taken in July | Mean DM Yield (Kg/Ha) Taken at Heading |
|---|---|---|
| PI-514673 | 926.67 | 690.00 |
| Pensacola Bahia | 406.67 | 593.33 |
| Rumsey | 916.67 | 425.00 |
| Lometa | 1236.67 | 663.33 |
| LSD (.05) | 355 | N.S. |

| Cultivar | Total Mean DM Yield (Kg/Ha) from July and Heading Clipping |
|---|---|
| PI-514673 | 1616.67 |
| Pensacola Bahia | 1000.00 |
| Rumsey | 1341.67 |
| Lometa | 1900.00 |
| LSD (.05) | 473 |

**TABLE 11 AMERICUS YIELD DATA TEST (1993)**

| Cultivar | Mean DM Yield (Kg/Ha) Taken in July | Mean DM Yield (Kg/Ha) Taken at Heading |
|---|---|---|
| PI-514673 | 640 | 560 |
| Pensacola Bahia | 297 | 517 |
| Rumsey | 660 | 387 |
| Lometa | 827 | 760 |
| LSD (.05) | 223.67 | 150.06 |

| Cultivar | Total Mean DM Yield (Kg/Ha) from July and Heading Clipping |
|---|---|
| PI-514673 | 1200 |
| Pensacola Bahia | 813.33 |
| Rumsey | 1046.67 |
| Lometa | 1586.66 |
| LSD (.05) | 280.10 |

**TABLE 12 AMERICUS YIELD DATA TEST (1993)**

| Cultivar | Average Mean DM Yield (Kg/Ha) From July & Heading Clipping |
|---|---|
| PI-514673 | 600 |
| Pensacola Bahia | 407 |
| Rumsey | 523.5 |
| Lometa | 793.5 |
| LSD (.05) | 140 |

**TABLE 13 AMERICUS YIELD DATA TEST (1992 & 1993)**

| Cultivar | Average Total Mean DM Yield (Kg/Ha) from July & Heading |
|---|---|
| PI-514673 | 1408.33 |
| Pensacola Bahia | 906.67 |
| Rumsey | 1194.17 |
| Lometa | 1743.33 |
| LSD (.05) | 309.34 |

**TABLE 14 AMERICUS YIELD DATA TEST (1991, 1992 & 1993)**

| Cultivar | Average Total Mean DM Yield (Kg/Ha) from July & Heading |
|---|---|
| PI-514673 | 2855.50 |
| Pensacola Bahia | 1845.54 |
| Rumsey | 2153.88 |
| Lometa | 2761.11 |
| LSD (.05) | 635.02 |

**TABLE 15 JIMMY CARTER PMC SURVIVABILITY STEM RATIO (1996)**

| Cultivar | Grazed Survivability Stem Ratio | Ungrazed Survivability Stem Ratio |
|---|---|---|
| PI-514673 | 37.83 | 124.80 |
| Lometa | 51.58 | 66.75 |
| Pensacola Bahia | 86.83 | 90.58 |
| LSD (.05) | 13.83 | 31.42 |

**TABLE 16 JIMMY CATER PMC SURVIVABILITY STEM RATIO (1996)**

| Cultivar | Survivability Stem Ratio |
|---|---|
| Grazed PI-514673 | 37.83 |
| Ungrazed PI-514673 | 124.83 |
| LSD (0.05) | 22.78 |
| Grazed Lometa | 51.58 |
| Ungrazed Lometa | 66.75 |
| LSD (0.05) | 22.78 |

**TABLE 17 JIMMY CARTER PMC SURVIVABILITY STEM RATIO (1997)**

| Cultivar | Grazed Survivability Stem Ratio | Ungrazed Survivability Stem Ratio |
|---|---|---|
| PI-514673 | 25.74 | 57.31 |
| Lometa | 32.89 | 34.02 |
| Pensacola Bahia | 72.91 | 66.65 |
| LSD (.05) | 13.91 | 17.36 |

**TABLE 18 JIMMY CARTER PMC SURVIVABILITY STEM RATIO (1997)**

| Cultivar | Survivability Stem Ratio |
|---|---|
| Grazed PI-514673 | 25.74 |
| Ungrazed PI-514673 | 57.31 |
| LSD (0.05) | 15.42 |
| Grazed Lometa | 32.89 |
| Ungrazed Lometa | 34.02 |
| LSD (0.05) | 15.42 |

**TABLE 19 JIMMY CARTER PMC SURVIVABILITY STEM RATIO (1998)**

| Cultivar | Grazed Survivability Stem Ratio | Ungrazed Survivability Stem Ratio |
|---|---|---|
| PI-514673 | 23.04 | 63.07 |
| Lometa | 31.18 | 37.92 |
| Pensacola Bahia | 69.08 | 57.47 |
| LSD (.05) | 15.63 | 15.15 |

**TABLE 20 JIMMY CARTER PMC SURVIVABILITY STEM RATIO (1998)**

| Cultivar | Survivability Stem Ratio |
|---|---|
| Grazed PI-514673 | 23.04 |
| Ungrazed PI-514673 | 63.07 |
| LSD (0.05) | 15.10 |
| Grazed Lometa | 31.18 |
| Ungrazed Lometa | 37.92 |
| LSD (0.05) | 15.10 |

**Signatures for release of:**

**'Americus' Indiangrass (*Sorghastrum nutans* (L.) Nash )**

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Leonard Jordan — Date 6/19/02

State Conservationist
United States Department of Agriculture
Natural Resources Conservation Service
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Ronnie Easter, Acting — Date 6/19/02

State Conservationist
United States Department of Agriculture
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Mary K Combs — Date July 1, 2002

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