

Natural Resources  
Conservation Service

Jimmy Carter  
Plant Materials Center  
Americus, GA

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Plant Materials Technical Note No. 25

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# Evaluation of Indiangrass Selections for Conservation in the Georgia Coastal Plain



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# Acknowledgements

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**Purpose:** The purpose of this technical note is to provide State specialists and NRCS field offices in Georgia with information on the adaptation performance of ‘Americus’, ‘Cheyenne’, ‘Rumsey’ and Wynia Germplasm Indiangrass at the Jimmy Carter Plant Materials Center, Americus, GA.

**Suggested citation:**

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**Overview:**

Indiangrass [*Sorghastrum nutans* (L.) Nash] is a native, warm season, perennial, bunchgrass occurring throughout the southeastern U.S. (Grelen and Hughes, 1984; Leithead et al., 1971). Recognizing the many conservation benefits of Indiangrass, USDA-Natural Resources Conservation Service (NRCS) plant materials program and other state and federal agencies have evaluated and released several improved cultivars (Alderson and Sharp, 1994) and pre-varietal germplasm selections for commercial production for livestock forage, wildlife habitat, revegetation of drastically disturbed lands and critical area seedings.

Indiangrass is recommended by the USDA- NRCS in Georgia for inclusion in the following conservation practices:

- 327 – Conservation Cover
- 342 – Critical Area Planting
- 647 – Early Successional Habitat
- 386 – Field Border
- 512 – Forage and Biomass Planting
- 422 – Hedgerow Planting
- 381 -- Silvopasture
- 645 – Upland Wildlife Habitat Management

**Purpose:**

The purpose of this Technical Note is to transfer the results of an adaptation trial of ‘Americus’, ‘Cheyenne’, ‘Rumsey’ and Wynia Germplasm Indiangrass conducted at the USDA-NRCS Jimmy Carter Plant Materials Center, Americus, GA.

**Procedure:**

A 20-ft row of each Indiangrass entry was established 15 July 2016 on Red Bay Sandy Loam soil at the Jimmy Carter Plant Materials Center, Americus, GA (Table 1). Irrigation water was applied weekly for the first 6 weeks after planting to accelerate establishment. No additional irrigation water was applied during the 3-year evaluation. Weeds were controlled mechanically by hand hoeing and cultivation. Fertilizer was not applied during the year of establishment. A complete, high-grade, fertilizer with analysis of 10-10-10 was applied at a rate of 300 pound per acre after spring green up in the second and third year of the evaluation. Dormant plant residue was burned mid to late winter each year.

Plots were evaluated twice per year in 2017-2019, once in the spring for stand survival following winter dormancy and early vigor (plant health) and again in late summer for stand survival, vigor, environmental stress (insect, disease, drought), bloom, and plant height.

Table 1. Collection origin and releasing PMC of Indiangrass cultivars and germplasm.

<b>Cultivar/ Germplasm</b>	<b>Collection Origin</b>	<b>Releasing PMC</b>
Americus	GA and AL	USDA-NRCS Jimmy Carter Plant Materials Center, Americus, GA
Cheyenne	Supply, OK	Soil Conservation Service
Rumsey	Jefferson Co., IL	USDA-NRCS Elsberry Plant Materials Center, Elsberry, MO
Wynia Germplasm	eastern OK and western AR	USDA-NRCS Booneville Plant Materials Center, Booneville, AR

**Findings:**

None of the Indiangrasses exhibited disease or insect issues. However, Cheyenne and Rumsey began to steadily decline in stand and vigor from 2018-2019 (Table 2). This rapid decline in stand and poor vigor is not uncommon once plants of northern origin are moved southward. Thornburg (1981) stated that plant originating from the northern latitudes are usually less vigorous, do not use the available growing season, and are more vulnerable to diseases when moved southward. Americus and Wynia Germplasm maintained a high stand percentage and remained vigorous over the 3 years (Table 2). These cultivars were also consistently taller than Rumsey and Cheyenne during the study. All lines bloomed and set seed at the Georgia location. Cheyenne bloomed in early August; Rumsey mid to late August; Wynia Germplasm in early September and Americus in late September.

**NRCS Application:**

Americus and Wynia Germplasm are the recommended Indiangrasses for NRCS conservation practices in the Georgia Coastal Plain. These Indiangrasses were more vigorous and shown better persistence than Cheyenne and Rumsey (Fig. 1).



Fig. 1. (Left to Right) Cheyenne, Rumsey, Americus and Wynia Germplasm.

Table 2. Percent stand, plant height and vigor of Indiangrass sources in 2017-2019, USDA, NRCS Jimmy Carter Plant Materials Center, Americus, GA.

Cultivar/ Germplasm	Evaluation Parameters								
	% Stand			Plant Height <sup>a</sup>			Vigor <sup>b</sup>		
	2017	2018	2019	2017	2018	2019	2017	2018	2019
	----- % -----			-----inch-----					
Americus	100	100	100	68	72	82	1	1	1
Cheyenne	100	43	33	61	74	60	5	5	5
Rumsey	100	95	71	70	77	66	7	4	5
Wynia	100	100	90	73	80	81	3	3	3

<sup>a</sup> Plant height is defined as the absolute height of the plant.

<sup>b</sup> Vigor is defined as the health of the plant and visually rated on a scale of 1 to 10 where 1 = excellent; 3 = good; 5 = fair; 7= poor.

### Reference:

Alderson, J.A, W. C. Sharp. 1994. Grass varieties of the United States. USDA-Soil Conservation Service. Agr. Handbook No. 170. Washington, DC.

Thornburg, A. A. 1982. Plants for surfaced-mined lands in arid and semiarid regions. SCS-TP-157. U. S. gov. print. Office, Washington, DC.

Leithead, H. L., L.L. Yarlett, and T.N. Shiflet. 1971. 100 Native Forage Grasses in 11 Southern States. USDA-Soil Conservation Service. Agr. Handbook No. 389. Washington, DC.

Grelen, H.E. and R.H. Hughes. 1984. Common Herbaceous Plants of Southern Forest Range. US Forest Service Research Paper SO-210. Southern Forest Experiment Station. New Orleans, LA