

Brunswickgrass or *Paspalum nicorae*: A Weed Contaminant in Southern Pastures and Bahiagrass Seed Production Fields¹

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Introduction

Brunswickgrass (*Paspalum nicorae* Parodi) is becoming a problematic weed in summer perennial grass pastures in the Southeast. This plant is native to southern Brazil, northern Argentina, Paraguay, and Uruguay. It was introduced into the US as a soil conservation plant for erosion control and as a potential forage crop. Brunswickgrass is well-adapted to moderately acidic, sandy soils, but it also grows well in sandy loam and well-drained, light to medium clay-based soils. The plant is competitive with bahiagrass and bermudagrass. Since it is less palatable, it can eventually dominate a perennial grass pasture. Brunswickgrass has become naturalized and has reportedly contaminated bahiagrass seed fields and pastures in the southeastern states, including some of the important counties for seed production in Florida, such as Gilchrist, Levy, Alachua, Citrus, and Sumter.

Cattle will consume brunswickgrass when it is young and tender. However, the plant quickly becomes rank and loses its palatability, and cattle avoid it. It proliferates when the more desirable forages have been overgrazed. As it thrives under reduced competition, it spreads and becomes more

difficult to eradicate. Pastures contaminated with this grass will appear to have tufts or hills of plants where cattle refuse to graze (Figure 1). Because of the rhizomatous habit of the plant, those patches tend to increase in size year after year and eventually dominate the pasture.



Figure 1. Closely grazed bahiagrass pasture with patches of brunswickgrass in late September (toward the end of the growing season) in Levy County, FL.

Credits: Marcelo Wallau, UF/IFAS

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During the seed cleaning process, brunswickgrass seed does not readily separate from Pensacola bahiagrass seed: both seeds are close in size and shape. This has made it difficult for bahiagrass seed processors to effectively eliminate brunswickgrass in order to meet total weed seed specifications (2.0%) for saleable seed. It is believed that brunswickgrass is more readily removed from Argentine bahiagrass due to differences in seed size. There has been an increasing number of reports of brunswickgrass infestations in pastures around the state, and certain measurements should be taken to reduce spread. The most effective way is to avoid infestation by using certified seeds when establishing new pastures. No herbicide management is currently recommended. However, in cases of high infestation, total systemic herbicide application followed by cultivation and crop rotation could be needed.

Appearance

Brunswickgrass is a perennial summer grass with a growing season and appearance similar to those of bahiagrass (Figure 2), especially during the vegetative phase. Brunswickgrass often has three to four racemes per seed head (Figure 3, left), while Pensacola bahiagrass (*P. notatum* var. *saurae* Parodi) typically has two to three racemes (Figure 3, right) (Hitchcock 1971).



Figure 2. Bahiagrass seed field contaminated by brunswickgrass. Species are similar, but can be differentiated by seed head. Credits: Marcelo Wallau, UF/IFAS

Brunswickgrass has a deep and aggressive rhizome system that looks different from bahiagrass rhizomes. Brunswickgrass rhizomes occur below the soil surface (with a depth of approximately 4 in or 10 cm) and spread laterally (Figure 4 B), while bahiagrass rhizomes, which are sometimes referred to as stolons, spread along the soil surface (Figure 4 A).



Figure 3. Seed heads of brunswickgrass (left) and bahiagrass (right). Credits: Marcelo Wallau, UF/IFAS



Figure 4. Rhizome comparison of brunswickgrass (right A) and Pensacola bahiagrass (left B). Credits: Marcelo Wallau, UF/IFAS

Seeds are slightly smaller than those of Pensacola bahiagrass. The seed coat has a dark, chestnut brown center that varies somewhat in size, depending on the variety. The seeds are noticeably convex in shape compared to the relatively flat, tan seeds of Pensacola bahiagrass (Figures 5 and 6). Seed may average about 200,000 per pound, based on our estimates.



Figure 5. Seeds of brunswickgrass (left) and Pensacola bahiagrass (right). Credits: Ann Blount, UF/IFAS



Figure 6. Close-up of brunswickgrass (A) and Pensacola bahiagrass (B) seeds. Note the brown-colored coat of the brunswickgrass seeds when removing the glumes (arrow on A).

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Variety/Germplasm

Brunswickgrass (*Paspalum nicorae* Parodi) is synonymous with *P. plicatum* Michaux. var. *arenarium* Arechav. It is sometimes referred to as *P. leptum* Shult. (Oliveira and Valls 2008). Two seed sources were released and promoted for conservation plantings by the Soil Conservation Service (presently Natural Resources Conservation Service—NRCS) from Plant Materials Center in Americus, GA (Belt and Englert 1999; NPGS GRIN Global 2016). ‘Amcorae’ (Origin: Argentina, Source: PI 202044, CPI 21370, ATF 1040) is a bluish-green, vigorous introduction released in 1969. A later release, ‘Doncorae’ (Origin: Brazil, Source: PI 310131, CPI 125877, ATF 1028), occurred in 1993. It has rapid seedling establishment, vigorous growth habit, and winter hardiness.

Management

Brunswickgrass is tetraploid, similar to Argentine-type bahiagrass. Control of this grass with herbicides will likely be more difficult because of its higher ploidy level. To our knowledge, no herbicides currently exist that will selectively remove brunswickgrass without severely injuring or killing the desirable pasture grass. Several recent herbicide treatments on brunswickgrass-infested Florida pastures do show some promise of possible chemical control. However, these are preliminary results that require further confirmation of successful eradication or reduced brunswickgrass stands. Systemic herbicides should be the most effective in killing brunswickgrass, due to the plant’s strong rhizome system. High rates of glyphosate will likely be required to kill the pasture as the first step of total field renovation. Mechanical cultivation alone may not solve the problem; it may exacerbate the spread of brunswickgrass through rhizome segments. A combination of mechanical cultivation, herbicides, and crop rotation may provide successful control of brunswickgrass, since seed survival in the soil seed bank is not believed to be long-term.

The best preventive actions a producer can take to avoid further distribution of this grass are to refrain from

harvesting contaminated production fields and to always use certified seeds when establishing new pastures. Certified (“blue tag”) seed has been produced under strict production guidelines that minimize the risk of weed contamination. It is important to remember that large quantities of bahiagrass seed are sold without any field inspections for purity, resulting in the sale of some contaminated seed for use in new pasture plantings. Plan to purchase certified seed from a reliable seed source.

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Table 1. Comparison chart of brunswickgrass and Pensacola bahiagrass.

Characteristic	Brunswickgrass	Pensacola Bahiagrass
Growing season	April to October	April to October
Flowering	July to September	July to September
Height	8–28 in	4–24 in
Leaf shape	Linear, lanceolate, white mid-rib	Linear, lanceolate, crowded at the base with overlapped keeled sheaths
Leaf size	8–14 in long, 0.25 in wide, but highly variable	1–20 in long, 0.1–0.5 in wide
Leaf pubescence	Generally smooth, but can be hairy	Smooth leaves and sheath
Seed head	3 to 4 alternate racemes	2 racemes, Y-shaped
Seeds	Brown-coated, convex, hairy glumes when present	Tan-colored, relatively flat
Seed weight	Estimated 200,000 seeds/lb	Estimated 250,000–275,000 seeds/lb
Root system	Long, thin rhizomes	Short, thick, J-shaped superficial rhizomes