Container Production of Purpletop Tridens (*Tridens flavus*)
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Purpletop tridens, also called tall redtop or just purpletop (*Tridens flavus*) is a native bunchgrass with showy purplish-red inflorescences that has excellent ornamental potential. Under landscape conditions, even with minimal inputs, purpletop manifests its full ornamental potential — dense, daylily-like foliage with showy, purplish-red inflorescences held entirely above the foliage. Purpletop has performed consistently well under north Florida landscape conditions in a 3-yr study at two sites (2) as well as in a demonstration planting (1). While purpletop is classified as a forage crop, we have observed no evidence of deer browsing even though one of our demonstration plantings is in area where deer browsing is prevalent.

Purpletop, which adapts to a wide variety of site conditions, is also considered a species for use in restoration as exemplified by the release and/or pending release of purpletop selections (seeds) by some USDA Plant Materials Centers. Availability of containerized purpletop is extremely limited. Hence, our objective was to develop liner/container production protocols appropriate for southern nurseries.

Seeds used in this study were from a selection of a north Florida ecotype of purpletop (Dixie County). Seeds were harvested 10 October 2007 from a landscape planting of this selection that was growing at the UF/IFAS, North Florida Research and Education Center in Quincy. Seeds were stored at 30-35% relative humidity and 75^{o}F. Container production cycles were started on the two dates when seeds were sown: Cycle 1 on 22 May 2008, and Cycle 2 on 19 June 2008. Seeds were sown into two 10 x 20-inch flats with #1201 inserts filled with MetroMix 200 and lightly covered with sifted MetroMix using a #12 U.S.A. standard test sieve. The flats were then placed in a greenhouse. Each morning, seedlings were overhead irrigated via a mist system.

Starting about 10 days after seeds were sown, seedlings were bottom-fertilized weekly with 100 ppm N of Miracle-Gro All Purpose Plant Food 15-30-15. On 18 June (Cycle 1) or 17 July (Cycle 2), seedlings were transplanted into #1204 inserts (one seedling per 1.5 x 2.38 x 2.25-inch cell; 48 cells) filled with MetroMix 200 in 10 x 20-inch flats. On 17 July (Cycle 1) or 14 August (Cycle 2), plugs were transplanted into #1 containers for

finishing. The potting medium was a 60:20:20 mix (pine bark:sand:peat) incorporated with Osmocote 15-9-12 (12-14 month Southern) at 4.2, 9.7 or 15.2 lb/yd^3. The potted liners were measured (height and two widths) and then placed on a full sun production bed; 10 liners per Cycle were harvested for dry weight analysis. There were 15 single container replications for each starting date by fertilizer rate treatment. The 90 plants (2 seeding dates x 3 fertilizer rates x 15 replications) were arranged in a completely randomized design on the production bed. Plants were overhead irrigated twice per day with 0.28 inches water. Plants were hand weeded as needed. Plants were grown until the flowers were visible on the first flowering stem (Fig. 1), the stage at which plants would be shipped to retailers. Once flowers begin to open, the flowering stems rapidly elongate and within 1 to 2 weeks extend well above the foliage. Shipping date of each plant was recorded along with total plant height, widest width and the width perpendicular to the widest point.

Results

Liners. At the time liners were potted into #1 containers, liners in Cycle 1 were about 8½ to 10 inches tall, while those in Cycle 2 were significantly smaller as they were about 7 to 7½ inches tall. While liners in both Cycles had well-developed root systems, Cycle 2 liners had a better ratio of root dry weight to shoot dry weight (0.82 vs. 0.71), suggesting that Cycle 2 liners might be more tolerant of drought stress.

#1 Container Plants. In terms of flowering and overall appearance, the best plants resulted from sowing seed on 22 May and potting the liners into a soilless pine bark based mix amended with Osmocote 15-9-12 (12-14 month Southern) at 15.2 lb/yd^3. These plants averaged nearly 24 flowering stems per plant (Table 1), which was well over twice as many flowering stems for any plant started on 19 June. However, the production cycle for these plants was 3 weeks longer than for plants seeded on 19 June.

Besides a shorter production cycle when seeds were sown on 19 June, plants were also shorter at time of shipping. Interestingly though, seeding date had little influence on shipping date.

Two other observations should be noted. First, regardless of sowing date, plants at the lowest fertilizer rate had a high percentage of red leaves, which is consistent with phosphorus deficiency. And second, flowering of plants started on 22 May was more responsive to fertilizer than for plants started on 19 June.

References

1. Norcini, J.G. and J.H. Aldrich. 2007. Performance of native Florida plants under north Florida conditions. Fla. Coop. Ext. Serv. Publ. ENH 1074.

2. Thetford, M., J.G. Norcini, B. Ballard, and J.H. Aldrich. 2009. Ornamental landscape performance of native and nonnative grasses under low input conditions. HortTechnology. (accepted)

Table 1. Effect of sowing date and fertilizer rate on production of purpletop in #1 containers.

					Vegetative growth	
Sowing date	Fert. rate (lb/yd^3)[1]	Ship date[2]	Length of prod. cycle (wk)	No. of flowering stems	Height (in)	Ave. width (in)
22 May	4.2	22 Sept.	17.1 a[3]	9.2 c[3]	22.7 b[3]	24.6 b[3]
	9.7	22 Sept.	17.1 a	17.7 b	25.3 a	28.6 a
	15.3	22 Sept.	17.1 a	23.8 a	25.2 a	29.8 a
19 June	4.2	22 Sept. to 6 Oct.	14.6 b	5.1 d	19.4 c	14.8 e
	9.7	26 Sept.	14.1 c	6.3 d	22.4 b	18.6 d
	15.3	22 Sept. to 29 Sept.	14.1 c	9.8 c	21.5 bc	20.7 c

[1] Incorporated rate of Osmocote 15-9-12.

[2] Ship date was defined as the date when flowers first emerged on the flowering stem (see Fig. 1); flower stems rarely extended above the top of the foliage at this point. When a single date is shown, flowers emerged on the same date.

[3] Means, within a column, followed by the same letter, are not statistically different.

Figure 1. Flowers emerging from the sheath of a flowering stem. Plants should be shipped at this point because flower stems begin elongating rapidly at this point.