

## PLANTING AND PRODUCTION GUIDE

### CITRUS GERmplasm MAIDENCANE

*Panicum hemitomon*

**Release Information:** Citrus maidencane was a vegetative collection from Citrus County, Florida.

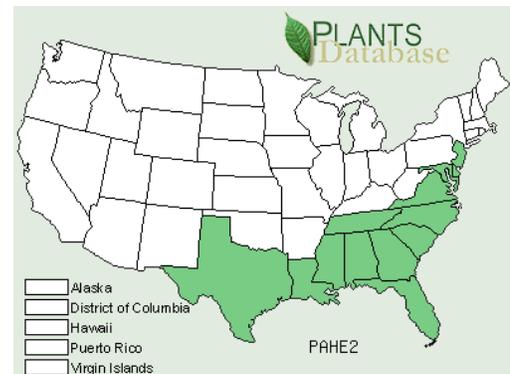


Citrus germplasm maidencane production field.

**Description:** Citrus maidencane is a native perennial, warm season, semi-erect grass with stems that diverge from true vertical by 30 to 35 degrees. It grows 36- to 40-inches tall and spreads by creeping rhizomes. Growth generally commences in June and persists with good vigor until mid-autumn. Leaf blades are characteristically lush green, 8- to 12-inches long and ½-inch wide. Rhizomes produce both sterile and fertile shoots. Sterile stems, which produce no seed heads, have hairy leaf sheaths; stems producing seed are hairless. The inflorescence is a compact, elongated panicle, 6- to 8-inches long; however, the quantity of viable seed produced by this plant makes it impractical to use seed for planting. Citrus maidencane has not shown susceptibility to disease or insects.

**Conservation Use:** Citrus maidencane can be used for controlling erosion along ponds, stream banks, shorelines, channels, and as a native forage for use on moist areas of rangelands and improved pastures. Nutrient uptake on wastewater application sites is another conservation use where this germplasm has shown great potential.

**Adaptation:** Although maidencane is native to Southeast and Mid-Atlantic region, Citrus maidencane has only been tested in Florida. Citrus maidencane has been shown to be well adapted throughout the state. Appropriate sites include mesic to hydric areas such as wetland hardwood hammocks and freshwater marshes and ponds. Maidencane is not tolerant of brackish conditions. It will grow in a wide range of soil types from mineral to peat. Maidencane will grow in standing water, but does best if the water level fluctuates from 2 inches above to 4 inches below the soil surface



Distribution of maidencane (*Panicum hemitomon*).

**Establishment of Production Fields:** Although listed as an obligate wetland species, production fields should be **established on upland sites (loamy fine sands or heavier) with irrigation. Establishment of production fields without irrigation is not recommended.** To minimize weed issues, make sure sites to be used for field production of Citrus maidencane are free of any perennial grasses. All operations necessary to produce a well-prepared plantbed (e.g., plowed, disked, and cultipacked) should be done prior to planting. No adjustment of pH is necessary.

Because of a lack of significant seed production, Citrus maidencane is planted vegetatively by using rhizome material. Rhizomes can be planted any time of the year in irrigated fields. Plant 25 to 35 bushels

(250 to 350 lb) of fleshy, well developed (minimum of 6 to 8 inches in length) rhizomes per acre. Use the lower planting rate when planting in rows and the higher rate when broadcast planting. Rows should be not farther than 18 to 24 inches apart to ensure rapid coverage. Tobacco or vegetable planters can be used to hand distribute rhizomes (end to end) in shallow furrows and then covered with approx. 2 inches of soil. Bermudagrass sprig planters, which open furrows, plant, and cover the rhizomes in one operation, can also be used. Alternately, rhizomes can be broadcast over the planting site by hand or by means of a slinger-type spreader and immediately disked in using a light weight, grove disk with no offset. Regardless of planting method, the field should be cultipacked after planting. Keep the field moist until the plants are well established. Once established, Citrus maidencane is very drought tolerant, but irrigation will improve rate of spread during establishment and regrowth after rhizomes are harvested.



Freshly dug Citrus maidencane rhizomes with some leaves still attached.

After the sprouts have emerged about 4 to 6 inches, apply 50 lb/acre of N and all P, K, and micro elements required based on soil test results.

Since maidencane is not a listed species option on the soil test form, identify bahiagrass to get the correct recommendation when submitting the soil sample to the University of Florida soils lab (<http://soilslab.ifas.ufl.edu>). If a recent soil test is unavailable, apply 50 lb/acre of N, P, and K as 10-10-10 (or equivalent amount of any similar complete formulation) with micro elements. If the field was planted in the winter or spring, a second application of 50 lb/acre of N should be made in mid summer.

**Management of Production Fields:** Production stands that are dug on a regular basis should be fertilized with 100 lb/acre of N per year with P, K, and micro element amounts based on soil test (see paragraph above) in a split application (March and again in June). If a recent soil test is unavailable, use 50 lb/acre of N, P, and K as a complete fertilizer such as 10-10-10 with micro elements for each application. For thick stands, excess residue may need to be removed from the field to prevent self smothering. Burning the aboveground residue during the dormant season is the recommended method for controlling residue, but mowing the stand is an option. Mowing during the growing season should be kept to a minimum because regrowth of stems and leaves reduces the size and quality of the rhizomes, at least temporarily. Testing has shown that the Citrus maidencane plants are tolerant of 2,4-D. Testing in other states with other Panicums has shown they are tolerant to atrazine, but this herbicide treatment has not been evaluated in Florida for Citrus maidencane. No serious insect and pathogen problems have been noted for this species. Supplemental irrigation may be required during periods of drought or in areas where the soil does not have a high water-holding capacity. Newly established production fields should not be harvested until the end of the second growing season, or until the field is well established. Once established, production fields can be harvested, in most cases, on an annual basis as long as rhizome quality remains consistent. Conservatively, production fields can be expected to produce 100 bushels (2500 lb) of rhizome planting material per acre per year.

**Rhizome Harvesting/Processing:** Prior to digging rhizomes, remove aboveground material by mowing and raking off or burning. Rhizomes can be dug by hand or with implements such as a potato digger or tobacco lifter. Because these methods require hand labor to separate the material into planting divisions and loading for transport, these methods are only recommended when small quantities of rhizomes are needed. A bermudagrass sprig digger is the recommended method for harvesting large quantities of rhizomes, because this machine will lift, separate the cut rhizomes from the soil, and load them in to a receiving wagon. When using any method of digging rhizomes other than a bermudagrass sprig digger, it is advisable to leave non-harvested (undug) strips between digging rows to promote rapid reestablishment of the production field. When a bermudagrass sprig digger is used, it is not necessary to leave non-harvested strips, because the digger will not dig deep enough to remove all the rhizomes from the site.

Harvested rhizomes should be protected from drying out and should not be allowed to go through a heat prior to planting. To prevent drying out, tarp bulk quantities of rhizomes with or/without light watering and store in the shade. In the winter, rhizomes can be stored in the shade, if kept moist under a tarp or in loosely closed plastic bags, for several days if temperatures do not exceed 75° F. When higher winter temperatures are expected or for summer dug material, digging should be timed so that the rhizomes can be shipped overnight to the planting site. If refrigerated storage is available, rhizomes can be stored in loosely closed plastic bags for up to a week.



Using sprig digger to harvest maidencane

**Production of Transplants from Field Grown Rhizomes:** Field grown rhizomes can be used to



Newly sprouted Citrus maidencane rhizomes. Note internode length is approximately 1 inch.

produce potted transplants in the greenhouse or shade house if these are required. In the summer time, sprouts can be trimmed back to about 2 inches and the rhizomes can be hand or mechanically dug. Divide rhizomes into two to three nodes sections and pot in containers with at least a 4-inch diameter opening. Larger size containers should be used if the plants will be held for any length of time after potting. Water as needed until the transplants are well rooted. If dormant rhizomes are used, rhizome segments should be longer, between 3 to 4 inches (4 to 5 internodes). A complete, slow release fertilizer or liquid fertilizer can be used. A bushel of field-produced rhizomes dug with a bermudagrass sprig digger will contain around 350, 6- to 10-inch lengths of rhizome. By

cutting each of these rhizomes in half, each bushel of rhizomes would be expected to produce around 700 divisions for transplant production. The rhizomes can be divided into smaller sections, but survival of transplants will be lower.

**Establishment for Restoration/Conservation Use:** Non-irrigated sites should be planted during the winter (November- January) dormant season or summer (June-August) rainy season. If temporary irrigation is available or the site can be flooded after planting, rhizomes can be planted at any time of the year. Rates and methods outlined for establishing production fields can be used. More rapid cover can be achieved if higher rates are used. When planting on steep sites such as constructed channels or berms, plant in rows parallel to the waterline no more than 1½ to 2 feet apart with the first row at the waterline. Lay 1 to 4 rhizome pieces per foot of row and cover 1½- to 2-inches deep. Alternatively, rhizomes (1 to 4 rhizome pieces) or rooted-transplants can be space planted on 18- to 24-inch centers. These spacings (for the single rhizome rate and transplants) are equivalent to 55 and 31 bushels (550 and 310 lb) of rhizomes per acre. Be sure to stagger rows so plants in adjacent rows are not lined up. Do not apply any fertilizer.

**Additional Information:** Contact the USDA-NRCS Brooksville Plant Materials Center, 14119 Broad Street, Brooksville, FL 34601 (352) 796-9600, FAX (352) 799-7305.

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