



ARIZONA COTTONTOP

Digitaria californica (Benth.) Henr.

Plant Symbol = DICA8

Alternative Names

Common Names: cottontop, cotton-top, Arizona cottongrass, cotton grass, punta blanca, California cottontop.

Scientific Names: *Trichachne californica* (Benth.) Chase.

Description

General: Arizona cottontop is a native, warm season perennial bunchgrass. It is 1.65 to 4.93 feet (50 to 150 cm) in height, but most commonly 1.48 to 2.96 ft (45 to 90 cm), with firm culms and a knotty base. Leaf blades are 3.94 to 5.91 inches (10 to 15 cm) long, 0.08 to 0.18 inches (2 to 4.5 mm) wide, pubescent, occasionally glabrous, flat and narrow. The ligules are 0.04 to 0.16 inches (1 to 4 mm) wide. The collars are pubescent, and the sheaths are covered with densely matted woolly hairs. The inflorescence consists of several contracted panicles that are 3.15 to 5.91 inches (8 to 15 cm) long, narrow and each containing 5 to 10 erect densely flowered branches. The spikelet is 0.12 to 0.16 inches (3 to 4 mm) wide, white (occasionally purple) and covered with abundant pubescence, giving a silky cotton-like appearance after the seed ripens (Everitt et al., 2011; Felger et al., 2014; Wasowski, 2000).

Distribution: Arizona cottontop is found in the Central Great Plains, Southern Plains, Southern Plateaus, Southern Rocky Mountains, and Southwestern Desert plant growth regions (Thornburg, 1982). It is primarily present from Arizona to Texas, Colorado, the Caribbean and South America (Felger et al., 2014). For current distribution, please consult the Plant Profile page for this species on the PLANTS Web site.

Habitat: Arizona cottontop is commonly found among well-drained sites, including hillsides, rocky slopes, arroyos, canyons and dry mesas (Gould, 1978; Kearney et al., 1960). It can be found in Arizona's chaparral, oak woodland, semidesert grasslands (Mcauliffe, 1993) and broad alluvial plains in the Sonoran Desert (Cox et al., 1982). In Texas, Arizona cottontop exists on deep hard-land range sites (Brock et al., 1978), Trans-Pecos mountains and basins and south Texas plains (Alvarez & Plocheck, 2013). It is typically found at altitudes between 0 and 6,000 feet (0 to 1,820 m) (Humphrey, 1960; Judd, 1962; Maher & Reilley, 2020).

Adaptation

Arizona cottontop is adapted to low rainfall and high temperature environments (Lady Bird Johnson Wildflower Center, 2009). It is well adapted on a variety of soils from clay loam to sandy loam, but it grows best on gravelly and sandy loam soils (Leithead et al., 1971), rather than shallow, stony soils (Cable, 1979). Arizona cottontop is a long-lived grass, with some plants living 10 years or more (Martin, 1966) and it can regrow during wet years after periods of drought and after fire (Wright, 1980).

Uses

Arizona cottontop can be used in range seedings, critical stabilization and environmental protection areas (Thornburg, 1982) as it provides good cover and forage for livestock (Maher & Reilley, 2020). Since it is nearly evergreen, it works good as ground cover to prevent soil erosion (Wasowski & Wasowski, 2000). It is highly palatable forage that tolerates heavy grazing use over long periods of time (Cable & Martin, 1975). It is most palatable when green but also provides dry forage for cattle. It is mainly grazed by cattle and horses and occasionally by sheep and goats (Leithead et al., 1971), black-tailed



'Loetta' Arizona cottontop (Photo by Jim Thomas, USDA-NRCS Tucson Plant Materials Center).

jackrabbits (Finders & Crawford, 1977) and other wildlife species including the javelina, scaled quail, mule deer, pronghorn antelope and desert cottontail (Pater & Munda, 2000).

Ethnobotany

Unknown. Other species in the genus have multiple uses including medicinal and dietary uses (Akana, 1922).

Status

Threatened or Endangered: No.

Wetland Indicator: No.

Weedy or Invasive: Arizona cottontop is not known to be an invasive species.

Please consult the PLANTS Web site (<http://plants.usda.gov/>) and your state's Department of Natural Resources for this plant's current status (e.g., threatened or endangered species, state noxious status, and wetland indicator values).

Planting Guidelines

The recommended seeding rate for Arizona cottontop is 3-4 pure live seed (PLS) pounds per acre if planted with a drill and approximately 6-8 PLS pounds per acre if seed is broadcasted (Dial & Rosales, 2013). The seeding rate should be adjusted accordingly when used as part of a mix. There are approximately 615,000 seeds of Arizona cottontop per pound, as counted at the Tucson Plant Materials Center (Pater & Munda, 2000). Arizona cottontop reproduces primarily from seed and it can remain viable for as long as 10 years (Leithead et al., 1971). The Arizona cottontop planting period in Arizona is from late June through late August, coinciding with seasonal summer moisture (Dial & Rosales, 2013) and in August in south Texas (Maher & Reilley, 2020).

Management

Arizona cottontop grows rapidly following rainfall and continues to grow while moisture is available (Alderson & Sharp, 1994). It makes use of winter precipitation but most of its growth is produced during the summer season (Cable, 1979). Its growth is stimulated by grazing (vegetation responses). Recommendations include grazing 60 days before seed maturity every 2 to 3 years to maintain vigorous growth and limited to no more than 50% of the current year's growth (Leithead et al., 1971).

Pests and Potential Problems

No severe insect or disease problems have been observed in Arizona cottontop once established (Maher & Reilley, 2020).

Environmental Concerns

None known.

Seeds and Plant Production

Arizona cottontop should be planted in late summer to early fall at ¼ to ½ inch depth on a weed-free seedbed created by either tillage or herbicides. It is essential during seed development to irrigate to maintain a moist soil surface and to avoid soil crusting. Apply nutrients according to soil test results and recommendations, although established fields may require nitrogen applications each year at a rate of 40-60 pounds per acre. Appropriate herbicide can be used after the 3-5 leaf stage for weed control. Mechanical seed harvests can be completed with a combine, seed stripper or similar type harvester using a speed of 200-350 revolutions per minute. Harvested seed can be cleaned by processing with a brush machine and air screen cleaner using an 8 top screen and a 1/23 bottom screen. Alternatively, air seed shucking equipment can be used (Dial & Rosales, 2013; Pater & Munda, 2000; Maher & Reilley, 2020).

Cultivars, Improved, and Selected Materials (and area of origin)

Plant materials are widely available from commercial sources. Two germplasms have been released by the USDA NRCS Plant Materials Program with identified ranges of adaptation to different Major Land Resource Areas (USDA, 2006). 'Loetta' Germplasm Arizona cottontop (Arizona) was released from the Tucson Plant Materials Center in Tucson, Arizona. Loetta is adapted to MLRA 40 and 41, grows at a wide variety of precipitation regimes, and was collected from an area that receives approximately 11 inches of annual precipitation (Dial & Rosales, 2013). La Salle Germplasm Arizona cottontop (Texas) is a selected class from the E. "Kika" de la Garza Plant Materials Center in Kingsville, Texas. La Salle is adapted to MLRA 42, 81, 83 and 150 (Maher & Reilley, 2020; USDA, 2006). Cultivars should be selected based on the local climate, resistance to local pests, and intended use. Consult with your local land grant university, local extension, or local USDA NRCS office for recommendations on adapted cultivars for use in your area.

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