

A Conservation Plant Release by USDA NRCS Tucson Plant Materials Center, Tucson, Arizona



Figure 1: 'Loetta' Arizona cottontop production field at the Tucson Plant Materials Center.

'Loetta' Arizona cottontop (*Digitaria californica*) is a native, perennial bunchgrass that was released by the USDA Natural Resources Conservation Service (NRCS) Tucson Plant Materials Center in cooperation with the University of Arizona Agricultural Experiment Station and the USDA Agricultural Research Service in 1999.

Description

Arizona cottontop is a native, warm season perennial bunchgrass. It typically grows from 1 to 4 feet tall with bluish-green leaves that vary from 3 to 5 inches long. The inflorescence is a contracted panicle, 4 to 6 inches long, with few branches. The paired spikelets are covered in white silky hairs that give the seedhead its characteristic "cottony" appearance.

Arizona cottontop is found in oak woodlands, chaparral, and semi-desert grasslands in Arizona, Colorado, New Mexico and Texas. It grows on a variety of soils but is more abundant and productive on clay, sand, or sandy-loam subsoils rather than on shallow, stony or cobbly soils. In Arizona, it can be found at elevations ranging from 1,000 to 5,900 feet.

Source

The single accession that became Loetta was collected from the Santa Rita Experimental Range in southern Arizona. Loetta Arizona cottontop was evaluated with 22 other accessions at the Tucson Plant Materials Center. It was selected for release because of its overall vigor, seed production, and forage production.

Conservation Uses

This species has beneficial qualities in terms of diet for wildlife species including pronghorn antelope, mule deer, desert cottontail, whitethroat woodrat, javalina, and scaled quail.

Area of Adaptation and Use

The identified range of adaptation of Loetta is Major Land Resource Areas 40 and 41 at elevations between 1,000 and 5,000 feet. Within its geographical range, Arizona cottontop grows in a wide variety of precipitation regimes. The site Loetta was collected from receives approximately 11 inches of bimodal precipitation annually. Prior to release, Loetta was evaluated at a planting site in Avra Valley (Pima County, AZ) and at a planting site within the Southwestern Borderlands Savanna Grassland Ecosystem Restoration Project (Cochise County, AZ). In both instances, Loetta established and persisted.



Figure 2: Collection location of Loetta Arizona cottontop and range of adaptation.

Establishment and Management for Conservation Plantings

The recommended seeding rate for Arizona cottontop is 4.0 pure live seed (PLS) pounds per acre if planted with a

drill and approximately 8 PLS pounds per acre if seed is broadcast. When used as part of a mix, the seeding rate should be adjusted to the desired percentage of the mixture. There are approximately 615,000 seeds of Loetta Arizona cottontop per pound. Compatible species for seeding with Arizona cotton top may include sideoats grama (*Bouteloua curtipendula* (Michaux) Torrey), cane bluestem (*Bothriochloa barbiodis* (Lag.) Herter), purple threeawn (*Aristida purpurea* Nutt.), desert globemallow (*Sphaeralcea ambigua* Gray) and fourwing saltbush (*Atriplex canescens* (Pursh) Nutt.).

In southern Arizona, the recommended planting period for rangeland applications using Loetta is from late June through late August coinciding with seasonal summer moisture. Seed should be planted into a firm, weed-free seedbed at a depth of ½ inch. Broadcast seeding should be followed with a cultipacker or harrow to provide seed with a shallow covering of soil.

Arizona cottontop is highly palatable to livestock and wildlife throughout the year. As a result, it is frequently overgrazed. Preventing summer use of Arizona cottontop two years out of three is recommended to maintain vigor and increase productivity.

Ecological Considerations

This release is an indigenous selection collected from within its natural range of adaptation. This species is documented as having beneficial qualities and no negative impacts on wild or domestic animals. The test plots supporting this release were made in close proximity to natural and induced plant ecosystems. There is no evidence of negative impacts or invasion into these ecosystems.

Seed and Plant Production

Loetta Arizona cottontop should be planted in late summer to early fall into a firm, weed free seedbed at ½ inch depth. Within row spacing can vary from 24–40 inches and row spacing can range from 36–40 inches. The planting should be irrigated to maintain a moist soil surface and to avoid soil crusting. Herbicides for weed control should not be applied until the 3 to 5 leaf stage.

Established fields require 40-60 pounds per acre available nitrogen per year. Apply phosphorus and potassium according to soil test recommendations. Irrigate fields in the spring through the boot stage if rainfall does not provide sufficient moisture for continued plant growth. Irrigation should be avoided during flowering but good

soil moisture is essential during seed development. Bring soil moisture to field capacity in late fall.

Arizona cottontop can produce multiple seed crops per year. At the Tucson Plant Materials Center, Loetta Arizona cottontop has been harvested using a Woodward Flail-Vac Seed Stripper using a brush speed of 200-350 revolutions per minute. After drying, the harvested material is then processed through a Westrup Laboratory Brush Machine to remove the hairs from the glumes. Seed may then be separated from the chaff using a dual screen air separator using an 8 top screen and a 1/23 bottom screen. Seed production has been good to excellent for most years at the Tucson Plant Materials Center ranging from 150-200 bulk pounds per acre.

Availability

For conservation use: Arizona cottontop is widely available from the commercial seed market.

For seed or plant increase: Seed production of Loetta is restricted to two generations of increase from breeder seed, one each of foundation and certified. Breeder and foundation seed will be maintained by the USDA NRCS Tucson Plant Materials Center.

For more information, contact:

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Citation

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For additional information about this and other plants, please contact your local USDA Service Center, NRCS field office, or Conservation District <<http://www.nrcs.usda.gov/>>, and visit the PLANTS Web site <<http://plants.usda.gov/>> or the Plant Materials Program Web site <<http://www.plant-materials.nrcs.usda.gov/>>

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