

SANGUINE PURPLE CONEFLOWER

Echinacea sanguinea Nutt.

Plant Symbol = ECSA



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PLANTS Database

Alternate Names

Common Names: Sanguine Purple coneflower

Scientific Names: *Echinacea pallida* (Nutt.) Nutt. var. *sanguinea* (Nutt.) Gandhi & R.D. Thomas (USDA, NRCS 2013)

Description

General: Sanguine purple coneflower is a native perennial forb with stiff, upright, slender stems reaching 1.5 to 3 feet in height. The seed head may reach 3 inches in diameter, and the drooping petals are a pale purple to a dark pink. The rough leaves are 4 to 9.5 inches long and arranged alternately on the stem (Ajilvsi, 2003). Sanguine purple coneflower can be distinguished from *Echinacea pallida* and *E. angustifolia* by its rounded seed heads (10 to 20mm high), smaller achenes (seed), and yellow pollen (Diggs, 1999). Sanguine purple coneflower usually flowers in May with some populations in southern Louisiana blooming until August (McKeown, 1999).

Distribution: Sanguine purple coneflower is found in Texas, Oklahoma, Arkansas, and Louisiana (Flora of North America, 2014). For current distribution, please

consult the Plant Profile page for this species on the PLANTS Web site.

Habitat: Sanguine purple coneflower is found in prairies, grassy slopes, and open pine and hardwood forests (Ajilvsi, 2003).

Adaptation

Echinacea species prefer full sun and well drained soils (Kindscher, 2006). Sanguine purple coneflower prefers sites with acidic, sandy soils (McKeown, 1999).

Echinacea species are usually found growing among native grasses. Sanguine purple coneflower can tolerate drought because it has a taproot which enables it to reach water and nutrients deeper in the ground (Kindscher, 2006).

Uses

Wildlife: *Echinacea* species are utilized by bumblebees (*Bombus* sp.), sunflower leafcutter bee (*Megachile pugnata*) and butterflies such as monarchs (*Danaus* sp.), swallowtails (*Papilio* sp.) and sulfurs (*Colias* sp.) (Mader et al., 2011).

Medicinal: In a study by Birt et al. (2008), sanguine purple coneflower exhibited greater anti-inflammatory activity than narrow leaved purple coneflower (*E. angustifolia*), pale purple coneflower (*E. pallida*), or wavyleaf purple coneflower (*E. simulata*).

Ethnobotany

Echinacea has been used by Native Americans for treatment of venomous bites, rabies, toothaches, cough, sore mouth, throat, dyspepsia, colds, colic, headache, and stomach cramps (Hobbs, 1989; Kindscher, 1989; Foster, 1991).

Status

In Arkansas, sanguine purple coneflower is considered threatened (USDA, NRCS, 2013). Please consult the PLANTS Web site (<http://plants.usda.gov/>) and your State Department of Natural Resources for this plant's current status (e.g., threatened or endangered species, state noxious status, and wetland indicator values).

Wetland Indicator: UPL (Reed, 1988)

Planting Guidelines

Planting and production information for sanguine purple coneflower is very limited. Therefore, the planting guideline provided in this section will address *Echinacea* in general unless mentioned otherwise.

Seedbed preparation should begin well in advance of planting. Establish a clean weed free seedbed by tillage or herbicides. Note, tillage may increase competition by disturbing the seed bank and require additional herbicide treatments. Prior to planting, the site should be firm and have adequate soil moisture.

Avoid fertilization during the first year of establishment unless soil tests indicate severe nutrient deficiencies. Fertilization, particularly nitrogen, encourages competition from warm season, annuals such as crabgrass.



Seed of sanguine purple coneflower (PI 631257). Photo by: R. Stebbins-USDA/ARS

Unstratified seed of purple coneflower can be planted in the fall to expose the seed to outdoor conditions to break seed dormancy

(Kindscher and Riggs, 2006). Use stratified seed for spring planting. Two methods of stratification described by Smith-Jochum and Albrecht (1987) is to place seed in moist sphagnum peat moss for one month at 32°F or presoak seeds in water for 24 hours. Houseal (2008) recommends drilling the seed. Seed should be planted between ¼ and ½ inch deep.

Management

Mowing over the top of the coneflower seedlings or cultivating between rows can reduce weed competition (Wynia and Kaiser, 2009). If a soil test is not available, for stand maintenance apply a complete fertilizer (12-6-6) at a rate of 1 lb per 100 sq. ft. in the spring before new leaves emerge (Davenport, 2014).

Pests and Potential Problems

Echinacea species have a low occurrence of disease. Researchers have observed tent caterpillars eating purple coneflower foliage and damage by root borers. The disease aster yellows has been found on *Echinacea* species. This disease, spread by the aster leafhopper, causes distorted growth and deformed flowers. To

manage it, remove and discard infected plants within the stand (Frett, 2009).

Environmental Concerns

McGregor (1968) noted that *Echinacea* species hybridize, so proper isolation should be maintained between species to prevent hybrid seed production.

Control

Please contact your local agricultural extension specialist or county weed specialist to learn what works best in your area and how to use it safely. Always read label and safety instructions for each control method.

Seeds and Plant Production

Echinacea seed is hand harvested or direct combined in the fall. Use heavy gloves when hand harvesting seedheads. They are very stiff and pointed; thus, alluding to the Greek word “echinos” which means ‘hedgehog’ (Ajilvsi, 2003). Check to see if seed separates easily from the head. If they do not, seed are probably immature and require a longer ripening period. Avoid seed that shows signs of damage such as insect bore holes, shriveled caryopsis, or light, unfilled hulls which may reduce seed quality. Wartidiningsih and Geneve (1994) found that *E. purpurea* seeds harvested at physiological maturity, but not dried, had higher germination rates than seed harvested after desiccation. To check for mature seed, mash the seed with your fingernail and examine the seed for a moist endosperm (Kindscher, 2006). After collecting, store the seeds in a cool, dry place for up to 6 months. Seeds placed in cold storage should remain viable for approximately 5 years (Foster, 1991). When harvesting with a combine, dry the seed and process using an air screen cleaner equipped with 3 to 4 screens (Wynia and Kaiser, 2009).

Plant production

Spring transplanting preparation should begin in the fall by building beds or ridges, and laying landscape fabric (Cech, 2002). *Echinacea* growers normally raise seedlings indoors for transplanting to the field in the spring (Li, 1998). This practice yields better results than direct seeding in the field (Smith-Jochum, 1987). *Echinacea* seeds are sown into flats or trays in late winter and placed in an unheated greenhouse for natural stratification in February. After emergence, transplant tap rooted seedlings in deep pots or containers to accommodate the growing taproot (Kindscher and Riggs, 2006). These plants should be ready to transplant by May (Cech, 2002). For greenhouse propagation use stratified seed (Wynia and Kaiser, 2009) As previously noted, storing the seed in

moist sphagnum peat moss at 32°F for one month or presoaking seed for 24 hrs has shown to improve germination. Sow stratified seed into greenhouse flats and cover with 1/8" of soil two months before the last frost free date (Houseal, 2008). Banga and Ardelean (2008) found sanguine purple coneflower exhibited a good seed germination rate when the temperature setting was 68°F.

Two to three weeks prior to field planting, move transplants from the greenhouse to a protected area outside to acclimate to climatic conditions. Transplant after danger of frost has passed (Houseal, 2008).

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

Currently, no cultivars of sanguine purple coneflower are commercially available. Seed of sanguine purple coneflower is commercially available in limited quantities from seed companies. Seed purchases should be 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 or local sources for use in your area.

Literature Cited

- Ajilvsgi, G. 2003. Wildflowers of Texas. Shearer Publishing, Fredericksburg, TX.
- Banga D. and M. Ardelean. 2008. Proceedings of the Fifth Conference on Medicinal and Aromatic Plants of Southeast European Countries, Brno, Czech Republic. pp.85
- Birt, D.F., M.P. Widrlechner, C.A. LaLone, L. Wu, J. Bae, A.K.S. Solco, G.A. Kraus, P.A. Murphy, E.S. Wurtele, Q. Leng, S.C. Hebert, W.J. Maury, and J.P. Price. 2008. *Echinacea* in infection. *Am. J. Clin. Nutr.* 87(2):488S-492S.
- Cech, R. 2002. Growing at Risk Medicinal Herbs. Williams, Oregon, Horizon Herbs.
- Davenport, M. 2014. *Echinacea*. Cooperative Extension Bull. HGIC 1182. Clemson Univ., Clemson, SC.
- Diggs, G., B. Lipscomb, and R. O'Kennon. 1999. Shinner and Mahler's Illustrated Flora of North Central Texas. Botanical Research Institute of Texas, Inc., Ft. Worth, TX.
- Flora of North America. *Echinacea sanguinea*. Vol. 21:pg.89, 92. Accessed online 15 May 2014. http://www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=250066490
- Foster, S. 1991. *Echinacea*: Nature's Immune Enhancer. Healing Arts Press, Rochester, VT.
- Frett, J. 2009. Coneflowers for the Mid-Atlantic Region. Mt. Cuba Center Research Report. Greenville, DE.
- Hobbs, C. 1989. The *Echinacea* handbook. Eclectic Medical Publications, Portland OR.
- Houseal, G. 2008. Native Seed Production Manual. University of Northern Iowa: Tallgrass Prairie Center.
- Kindscher, K. 1989. Ethnobotany of purple coneflower (*Echinacea angustifolia*, Asteraceae) and other *Echinacea* species. *Econ. Bot.* 43:498-507.
- Kindscher, K. 2006. The Biology and Ecology of *Echinacea* species. From: The Conservation Status of *Echinacea* species. University of Kansas, Lawrence, KS.
- Kindscher, K. and M. Riggs. 2006. Cultivation of *Echinacea angustifolia* and *Echinacea purpurea*. From: The Conservation Status of *Echinacea* species. University of Kansas, Lawrence, KS.
- Li, T.S.C. 1998. Echinacea: Cultivation and Medicinal Value. *Hort Technology* 2:122-129.
- Mader, E., M. Shepherd, M. Vaughn, S. Black, and G. LeBuhn. 2011. Attracting Native Pollinators. Storey Publishing, North Adams, MA.
- McGregor, R.L. 1968. The Taxonomy of the Genus *Echinacea* (compositae). The University of Kansas Science Bulletin. Volume XLVIII, No.4
- McKeown, K. 1999. A Review of the Taxonomy of the Genus *Echinacea*. In Perspectives on new crops and new issues. J. Janick (ed.), ASHS Press, Alexandria, VA.
- Reed, P.B., Jr. 1988. National list of plant species that occur in wetlands: national summary. U.S. Fish Wildl. Serv. Biol. Rep. 88(24). 244 pp.
- Smith-Jochum, C. and M.L. Albrecht. 1987. Field establishment of three *Echinacea* species for commercial production. *Acta Hort.* 208: 115-20.
- USDA, NRCS. 2013. The PLANTS Database (<http://plants.usda.gov>, 1 July 2013). National Plant Data Team, Greensboro, NC 27401-4901 USA.
- Wartidiningsih, N. and R.L.Geneve. 1994. Seed source and quality influence germination in purple coneflower (*Echinacea purpurea*) *Hort. Sci.* 29:1443-1444.
- Wynia, R. and J. Kaiser. 2009. Plant Guide for purple coneflower [*Echinacea pallida* (Nutt.) Nutt.]. USDA-Natural Resources Conservation Service, Kansas Plant Materials Center, Manhattan, KS.

Citation

Brakie, M. 2014. Plant Guide for Sanguine purple coneflower (*Echinacea sanguinea*). USDA-Natural

Resources Conservation Service, East Texas Plant
Materials Center. Nacogdoches, TX, 75964.

July, 2014

Edited:

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