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A Conservation Plant Released by the Natural Resources Conservation Service
Bridger Plant Materials Center, Bridger, Montana

Stucky Ridge Germplasm Silverleaf phacelia

Phacelia hastata Douglas ex Lehm.

Stucky Ridge Germplasm silverleaf phacelia is a selected class release of *Phacelia hastata* Douglas ex Lehm (accession number 9081632). It was selected for its tolerance to acid and heavy metal impacted soils in the Butte and Anaconda, Montana area. Its potential conservation uses include reclamation, wildlife and pollinator plantings, conservation cover, field borders, and landscaping. It is well adapted to large areas of Montana and Wyoming.

Stucky Ridge Germplasm was released in 2017 by the USDA-Natural Resources Conservation Service, Plant Materials Center, Bridger, Montana, in cooperation with the Montana Agricultural Experiment Stations, the Wyoming Agricultural Experiment Stations, and the Deer Lodge Valley Conservation District.

Stucky Ridge Germplasm silverleaf phacelia

Description

Stucky Ridge Germplasm has the same general botanical (floral, foliage, fruit, and seed) and phenological attributes as the species and variety. Stucky Ridge Germplasm is a native, perennial, tap-rooted forb, with one to several stems from 20 to 40 inches tall. Stems and leaves are covered with fine, short, silvery hairs. Leaves are simple with prominent pinnate venation and the margins are usually entire. The flower is a cluster of lavender-colored blossoms. This species is insect pollinated, most commonly by honey bees and bumble bees. The fruit is a 2-chambered capsule, with several seeds per chamber. There are approximately 153,000 seeds per pound.

Source

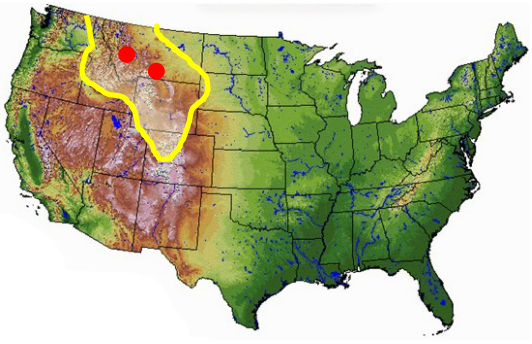
Seeds of Stucky Ridge Germplasm were collected in 1998 from a heavy metal and low pH site north of the junction of Montana Highway 569 with Montana Highway 1 near Anaconda, Montana. Collection site soil was a gravelly loam, highly drained, with a pH of 5.7. Soil samples in the area contained arsenic and copper concentrations exceeding Envirnmental Protection Agency's (EPA's) upper range for phytotoxicity. Stucky Ridge Germplasm was growing at an elevation of 5,081 feet, in an area with an average annual precipitation of 10 to 13 inches, with most precipitation occurring in late spring to early summer. The average frost free period at the collection site is 90 to 105 days.

Conservation Uses

Stucky Ridge Germplasm exhibits tolerance and adaptation to acid soils (pH range 4 to 6) and the presence of heavy metals. The species provides excellent soil erosion control. It provides pollen and nectar for native bees and other beneficial insects during an extended blooming period (May through September). Incorporation into planting mixes may support beneficial predatory insects. A long bloom period and excellent drought tolerance make Stucky Ridge Germplasm a good selection for low maintenance and naturalistic landscapes.

Area of Adaptation and Use

Stucky Ridge Germplasm silverleaf phacelia has been tested and proven adapted to two locations in Montana (red areas on map). The test location near Anaconda, Montana was a limed and fertilized site impacted by acid and heavy metal fallout from historic mining operations. The Bridger, Montana location was a valley bottom site characterized by deep alluvial soils. Stucky Ridge Germplasm did not survive testing in Idaho and Utah when planted in annual precipitation zones of less than 10 inches, which is lower than most areas within the native range of the species. Based on these findings, Stucky Ridge Germplasm should perform well under environmental conditions comparable to the test sites within the yellow boundary delineated on the map. These include areas of dry open terrain, loamy to sandy soils, elevations ranging from 2,000 to 8,000 feet, average



Known areas of adaptation (red) and potential area of adaptation (yellow) of Stucky Ridge Germplasm silverleaf phacelia.

annual precipitation of 10 to 14 inches, and an average frost-free period of 90 or more days. Additional plantings are needed to verify the area of potential adaptation to eastern Oregon and Washington, northern Idaho, Montana, Wyoming, and northern Colorado,.

Establishment and Management for Conservation Plantings

This species exhibits seed dormancy and should be fall planted. The recommended full stand seeding rate for Stucky Ridge Germplasm is 7 Pure Live Seed (PLS) lb/acre on a well prepared site with 12-inch row spacing or approximately 24 PLS seeds per square foot. Double this rate for broadcast seeding (14 PLS lb/acre) and quadruple the rate for broadcast plantings on critical areas (28 PLS/acre).

Ecological Considerations

Stucky Ridge Germplasm does not spread aggressively, and is not known to be invasive or weedy, although it may spread slowly into adjacent plant communities. It is a native species that reproduces only by seed under natural conditions. There are no known insect or disease problems endemic to silverleaf phacelia in this region. Silverleaf phacelia flowers, stems and seed pods are covered in hairs, each containing an oil that can cause rashes, and itching. Rashes caused by silverleaf phacelia can last for several days after exposure.

Seed and Plant Production

Field of Stucky Ridge Germplasm silverleaf phacelia.

Stucky Ridge Germplasm silverleaf phacelia exhibits seed dormancy and should be seeded in the fall with a drill at a depth of ¼ inch or less into a firm, weed free seedbed. Silverleaf phacelia seed production has been successful when planted at the rate of 2.8 PLS lb/acre or approximately 24 PLS seeds per linear foot on 30-inch row spacing. Increasing the seeding rate to 40 PLS seeds per linear foot or 4.5 PLS lb/acre increases stand density. Growth begins in early spring and flowers appear from May through September beginning the second growing season.

Average seed production of Stucky Ridge Germplasm near Bridger, Montana is approximately 56 to 65 pounds of clean seed per acre. A seed crop is not produced until the second growing season, and stands are typically productive for 3 to 5 years. Average date of harvest of Stucky Ridge Germplasm in Bridger, Montana ranges from July 11 to August 7. Seed production fields are harvested when seed pods begin to shatter, although ripening is indeterminate. For container production, an artificial moist:chilling period for up to 150 days is required. Good germination percentages are obtained in northern climates if containers are fall-sown and stored under ambient environmental conditions (unheated) where they undergo winter stratification and fluctuating spring temperatures.

Availability

For Conservation use: Commercial seedlings are available from state and private conservation seedling nurseries.

For seed or plant increase: Generation 1 seed of Stuckey Ridge Germplsam, which is equivalent to foundation class, is available by contacting the Foundation Seed Stocks Program, Plant Sciences and Plant Pathology Department, Montana State University, Bozeman, Montana 59717-3150 or Wyoming Seed Certification Service, Powell Research and Extension Center, University of Wyoming, P.O. Box 983, Powell, Wyoming 82435-9135.

Citation

Release brochure for Stucky Ridge Germplasm silverleaf phacelia (*Phacelia hastata* Douglas ex Lehm.), USDA-Natural Resources Conservation Service, Bridger Plant Materials Center, Bridger, Montana, November 2017.

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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