



United States Department of Agriculture
Natural Resources Conservation Service
Plant Materials Program

'Hederma' riverbank lupine

Lupinus rivularis Douglas ex Lindl.

A Conservation Plant Release by USDA NRCS Corvallis Plant Materials Center, Corvallis, Oregon



Figure 1. 'Hederma' riverbank lupine (*Lupinus rivularis*) is a cultivar released in 1981 in cooperation with the Agricultural Experiment Stations of Oregon and Washington. Photo by A. Bartow, NRCS, 2008.

Alternate Names

Hederma was originally released as sickle-keeled or pine lupine (*Lupinus albicaulis* Dougl.), but was identified as *Lupinus rivularis* in 2003 by Richard Halse, curator of the Oregon State University Herbarium. Other common names for *L. rivularis* include riverside lupine, streambank lupine, stream lupine, and nine finger.

Description

Hederma riverbank lupine is a native, fast-growing, short-lived perennial (2-4 years) forb that reaches 1.5 to 5 feet tall. Leaves are alternate, palmately compound, with 5 to 9 leaflets that average 1.5 inches long. Plants are evergreen, stemmy, erect, and have primarily aerial growing points. Attractive purple-blue to pale blue pea-type flowers are borne on 4- to 12-inch-long clusters at the ends of branches, typically blooming in late May, and lasting two to four weeks before they fade to brown. Flowering is usually minor the first full growing season when fall or spring planted. The sparsely hairy pods up to 2 inches long contain 6-10 seeds that are gray with dark mottling, often with a black stripe on each side.

Source

Seed of this accession was originally collected in 1969 along roadsides in Polk and Marion Counties, OR, at an elevation of 230 ft, in Major Land Resource Area (MLRA) 2, the Willamette and Puget Sound Valleys. Hederma (P-15659 or PI-452129) was selected after comparisons with other lupine species in initial evaluations at the Corvallis Plant Materials Center (PMC). Foundation seed increase fields were rogued for any off-types to assure uniformity of the cultivar, although this accession is extremely uniform in growth habit and reproduction. Hederma was selected for rapid establishment and growth, seedling vigor, erect growth

habit, high seed yield, and freedom from any serious disease or insect damage.

Conservation Uses

Hederma is a competitive, fast-growing pioneer species for low fertility, disturbed sites. It provides rapid cover and erosion control on sites such as road cuts and fills, sandy dredge spoils, retired logging roads, and forest clear-cuts. Plants are robust nitrogen fixers, a trait that can be beneficial in reforestation projects. Hederma is useful for wildlife cover and hedgerow plantings. Several species of birds use the seed for food and the stemmy growth for cover. The flowers provide pollen and nectar for bumblebees and other native pollinators and beneficial insects. Showy floral displays, coupled with the pleasant fragrance of the flowers, make it a valuable ornamental and landscape plant, especially during the second year of growth. Hederma is also useful as a winter cover and green manure crop for erosion control and soil enrichment through nitrogen fixation.

Area of Adaptation and Use

Hederma is adapted to well-drained soils of western Washington, Oregon, and northern California at elevations below 3,000 ft with precipitation up to 100 inches. It is primarily recommended for use in MLRAs 1 (Northern Pacific Coast Range, Foothills, and Valleys), 2 (Willamette and Puget Sound Valleys), and 3 (Olympic and Cascade Mountains), and has potential for use in MLRAs 4A (Sitka Spruce Belt), 4B (Coastal Redwood Belt), and 5 (Siskiyou-Trinity Area), though further field testing may be required to determine its adaptation in these last three regions (Figure 2). It is susceptible to root rot if seeded on soil with a high water table. Stand persistence is best on soils low in nitrogen (e.g., sand dunes and dredge spoils) where competition is reduced. Best development is achieved when grown in full sun.

Establishment and Management for Conservation Plantings

Hederma can be seeded either in early fall or in the spring at 4 to 20 lb/acre, depending on the site and seed mixture desired, and at a depth of 1/2 to 3/4 inch. Seed should be inoculated with the appropriate rhizobia (N-fixing bacteria) prior to seeding. Strips for landscaping, hedgerows, or wildlife use can be broadcast seeded at about 20 lb/ac. For all conservation uses, Hederma can be seeded alone or in companion grass-legume mixtures at about 10 lb/ac, or it may be seeded into existing grass stands at 4 to 15 lb/ac. Fertilizer needs are best determined from an on-site soil test, but generally at least 36 lb/ac of elemental phosphorus is needed; phosphorus recommendations for red clover range from 0 to 120 lb/ac as P₂O₅ for soil tests of 0 to 25 ppm P, respectively.

Riverbank lupine is notoriously hard-seeded, so seed should be mechanically scarified or soaked in hot water (180°F) to overcome dormancy and increase germination rates.

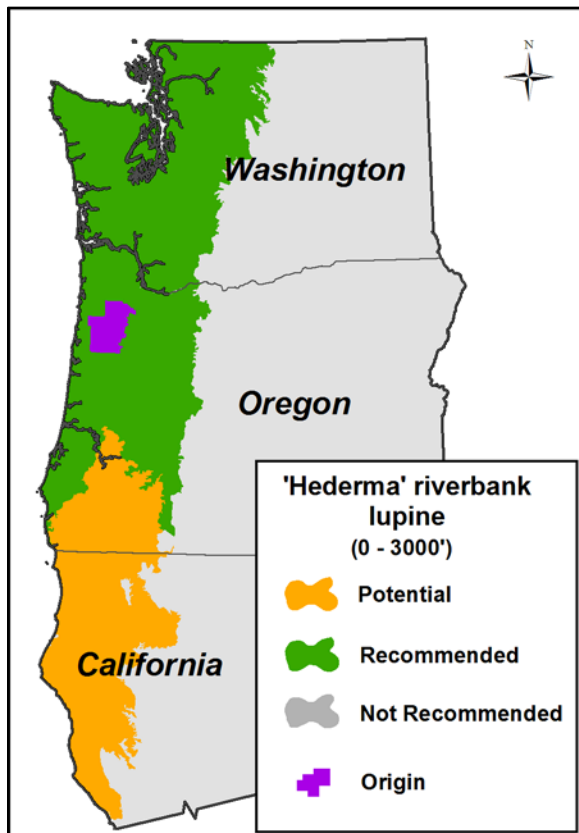


Figure 2. Recommended and potential areas of use and origin of source material for *Hederma*. Map by Ian Reid, NRCS Oregon State Office.

Ecological Considerations

Riverbank lupine is susceptible to powdery mildew under high humidity conditions. Insect damage is only significant during seed production. Diabrotic beetles (*Diabrotica trivittata*) and lygus bugs (*Lygus pratensis*) are the most common pests. Both can be controlled with normal spray programs, but their impact in conservation plantings appears to be insignificant. Because of its production of “hard” seed, volunteer plants may appear in agricultural fields for a number of years following stand removal. *Hederma* was determined to be non-toxic to sheep and cattle by the USDA Poisonous Plant Research Laboratory. It was found to have very low levels of alkaloids, the compounds that are responsible for livestock poisonings in other lupines, and does not contain anagryne, a compound found in many other lupines that causes the birth defect known as ‘crooked calf disease’.

Seed and Plant Production

Hederma seed can be produced on most well-drained tillable soils. Because plants do not re-sprout after they are cut, only one seed crop is produced. Fields are

typically planted at 10 pounds per acre in 24-inch rows. If seeded in late summer with irrigation, the field should produce an excellent seed crop the following year. Fall seeding without irrigation or spring seeding (with or without irrigation) will not produce a seed crop until the second full growing season. However, weed control may be maximized by seeding in the spring, as its dense canopy will shade out the majority of other species. Summer irrigation may be necessary depending on soil moisture conditions. Seed generally matures in late June to July; mature seed pods are identifiable by a color change from green to brownish-black. Because of seed shatter, the crop should be windrowed just before full maturity and rolled onto tarps or paper rolls to dry for several days to a week in order to produce a more uniform ripening and increase yields. Seed can then be combined off the paper rolls, or hand-fed into a stationary combine from the tarps. Alternatively, the crop can be direct combined, but both mature and high moisture immature (green) seeds will be harvested. Therefore, the seed should be spread on tarps to dry afterwards. Green seeds will turn dark without significant loss in viability. At the Corvallis PMC, seed production averages 350 to 400 pounds per acre. There are 20,000 to 25,000 seeds per pound.

Availability

For conservation use: Certified seed (recommended) or uncertified seed is available from several commercial sources. To find current seed producers, check the Native Seed Network website (http://www.nativeseednetwork.org/seed_search) or contact your local Soil & Water Conservation District or NRCS office for assistance. *For seed or plant increase:* Breeder or Foundation seed is available to seed growers from the Corvallis PMC.

For more information, contact:
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 Phone: 541-757-4812
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<http://plant-materials.nrcs.usda.gov/orpmc/>

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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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