

# Protocol Information



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Natural Resources Conservation Service

Corvallis

Plant Materials Center

Corvallis, Oregon

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Family Scientific Name: **Cyperaceae**

Family Common Name: **sedge**

Scientific Name: ***Carex pachystachya* Cham. ex Steud.**

Common Name: **chamisso sedge, thick-headed sedge**

Species Code: **CAPA14**

Ecotype: **Our collections were from Mt Rainier National park at around 4,600 ft elevation near Cayuse Pass, and from Crater Lake National park around 6,000 ft elevation. Propagation characteristics very similar for both.**

General Distribution: **Western US, including Alaska, sea level to timberline on open, somewhat dry slopes in moister mountainous regions.**

Propagation Goal: **Seeds**

Propagation Method: **Seed**

Product Type: **Propagules (seeds, cuttings, poles, etc.)**

Stock Type: **Seed**

Target Specifications: **Clean seed free of noxious weeds and smut; dehulled seed averages about 1,375,000 / lb.**

Propagule Collection: **Seed heads can be clipped or easily hand-stripped when seed is mature, brown, and starting to shatter. Seed heads can be clipped at hard-dough to shatter stage also, and held loosely in cloth sacks for air-drying out of direct sunlight.**

Propagule Processing: **Hulls are easily removed by running through an oat dehuller. Threshing with a geared-down hammermill and 3/16" screen worked well;**

followed by a rough scalping with an office clipper (air screen machine) using a 1/14" screen and low air. The seed is then run briefly through a lab-scale oat dehuller and rescreened with an office clipper using a 1/20" screen and moderately low air flow. Also, any smutted seeds can be scalped off with the proper screen size.

Pre-Planting Treatments: **Dehulling enhanced germination from 14% (control) up to 84% for dehulled seed which was useful for stand establishment.**

Growing Area Preparation/  
Annual Practices for Perennial Crops: **Our best results were achieved by fall-sowing with carbon-banding. In this method, seed was sown into a finely tilled, firm seed bed with a Hege precision seeder, at 30 " rows, 100 seeds / ft row; overspraying the seed with an activated charcoal slurry (carbon-banding) followed by a field application of diuron broad spectrum pre-emergent herbicide at 2.2 lbs ai/ acre (experimental use only). Equipment for applying the carbon slurry was provided on loan from the Agricultural Research Service (ARS) in Corvallis. The system consists of a tank with mechanical agitator to keep the charcoal in solution, and an impeller pump connected to tubing with large-diameter nozzles directed over the seeding row to deposit the slurry in a 1/8 to 1/4 inch band directly over the seeded row. The system is front-mounted on the tractor while seeding equipment is pulled behind.**

Establishment Phase: **Until emergence, some weed control was achieved over the winter with broad spectrum herbicides; once seedling emergence started the following spring weed control was by means of spot-wicking with glyphosate and by mechanical hoeing / cultivation between rows. Three applications of propiconazole and chlorothalonil fungicides were made at label rates during the late winter / spring of the first and following years to control rusts and other foliage diseases.**

Length of Establishment Phase: **Over winter; about 6 months at Corvallis.**

Active Growth Phase: **After initially slow growth, crowns develop more rapidly as the soil warms in spring. Little seed is produced during the first year of stand establishment. Seed harvest really begins in the 2nd year; once established, stands remained fairly healthy as long as rusts and fungi are controlled in**

the spring and weed competition is kept in check.

Length of Active Growth Phase: **March to June at Corvallis.**

Harvesting, Storage and Shipping: **Seed ripening was fairly uniform - entire seed heads were clipped in late May / early June when seeds could be easily shaken loose from the heads. Larger plots would lend themselves to mechanical harvest; because of our small plot size the hand-clipped heads were collected in barrels and taken to the poly greenhouse in June and spread out on tarps to dry. Seed shattered easily from the drying seed heads and were collected off the tarps and processed similar to the native collections as noted, above.**

Length of Storage: **At least 5 years; see comment section below.**

Outplanting performance on typical sites: **Observational test plots at Mt. Rainier National Park were seeded in fall of 1992, and establishment and growth of this and several other species were monitored over 3 years. The site chosen was a disturbed soil (former trail / parking area) near the trailhead to Owyhigh lakes off of Highway 410. In each plot, seeds were fall-sown at the rate of 35 PLS / sq ft onto bare native soil in untreated and amended plots (amendment consisted of the addition of organic matter (peat moss), 9-month Slow-release N-P-K fertilizer, and straw-blanket erosion control blanketing). In the first year, initial seedling density was higher in the amended plots (27.5 seedlings / ft sq vs. 14 for the control) and by the first fall, plant vigor as measured by percent cover was significantly higher in amended plots (30% vs. 10% in untreated plots). After 3 years, plants density in the amended plots was 11 / ft sq vs. 6 /ft sq for untreated; 95% of the plants on amended plots were in flower or setting seed vs. 0% in the untreated; and stand cover percent and percent 'plant residue (amount of residual plant material from previous seasons' growth) was 30% for the amended plots vs. 1% for untreated. *Carex* species seeded at test plots at Crater Lake National Park showed similar results in their response to soil amendment to enhance establishment from fall seeding.**

Other Comments: **Seed was plentiful during most collection years at both parks; seedlings were also easily established in "cone-tainers" for transplant plug production (see**

separate protocol for plug production).

**An informal observational seeding of 2-, 4-, and 5-year-old seed lots from Crater Lake National Park was conducted in the greenhouse in March of 1996. Germination of the 4- and 5-year old seeds was lower than for the two-year-old seeds - about half the rate of the more recent seed lot but still satisfactory for seeding cone-tainers. Seedlings from the older seed lot were not notably less vigorous or thrifty than those from the 2-year-old seeds.**

**Due to changing labels, laws, and regulations, the authors and USDA NRCS assume no liability for pesticide information. Any use of a pesticide contrary to current product label instructions is neither legal nor recommended.**

**The use of manufacturer and trade names in this document is for clarification only. No discrimination is intended and no endorsement is given by the USDA NRCS.**

References: **Corvallis Plant Materials Center Technical Report: Plants for Woodland and Rangeland Reclamation and Erosion Control 1980 - 1997 (includes Annual Reports to Mount Rainier National Park from 1990 - 1996).**

**Hitchcock, C.L. and A. Cronquist 1973 Flora of the Pacific Northwest. University of Washington Press, Seattle, WA.**

**Link, Ellen, ed. 1993. Native Plant Propagation Techniques for National Parks Interim Guide; Compiled by Rose Lake Plant Materials Center 7472 Stoll Road East Lansing, MI 48823.**

**USDA, NRCS. 2001. The PLANTS Database, Version 3.1 (<http://plants.usda.gov>). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.**

**Citation:**

Flessner, Theresa R.; Trindle, Joan D.C. 2003. Propagation protocol for production of *Carex pachystachya* Cham. ex Steud. seeds (seed); USDA NRCS - Corvallis Plant Materials Center, Corvallis, Oregon. In: Native Plant Network. URL: <http://www.nativeplantnetwork.org> (accessed 30 December 2009). Moscow (ID): University of Idaho, College of Natural Resources, Forest Research Nursery.