Protocol Information

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United States Department of Agriculture
Natural Resources Conservation Service

Corvallis
Plant Materials Center
Corvallis, Oregon

Family Scientific Name:	**Asteraceae**
Family Common Name:	**Composites; Aster family**
Scientific Name:	***Anaphalis margaritacea* (L.) Benth.**
Common Name:	**western pearly everlasting**
Species Code:	**ANMA**
Ecotype:	**Seed was collected at both Mt Rainier and Crater Lake National park, at elevations ranging from 2,500 to 7,000 feet. Seed was plentiful in most years at both Parks.**
General Distribution:	**Widely distributed across north America, including several subspecies. Occurs at low to subalpine elevations; often a pioneer species on open slopes and meadows, roadcuts and gravelly soils.**
Propagation Goal:	**Seeds**
Propagation Method:	**Seed**
Product Type:	**Propagules (seeds, cuttings, poles, etc.)**
Stock Type:	**Seed from seed increase**
Target Specifications:	**Clean viable seed, free of noxious weeds.**
Propagule Collection:	**Seeds are easily collected from mature native stands; entire flowering heads were picked into cloth sacks and air dried. Avoid collecting herbage along with flower heads as it will be more difficult to thresh later. Initial seed viability ranged from 47 to 64%, with no pretreatment needed.**
Propagule Processing:	**The tiny seeds (8,000,000 to 11,000,000 per pound) can be threshed from well-dried flower heads using a geared-down hammermill, or stationary thresher**

	for larger quantities. Any moisture in the material or equipment will make cleaning nearly impossible. Seed extraction using a Kertz-Pelz stationary thresher (which allows for virtually 100 % capture of threshed material) was improved by running the material through the thresher 2 times. Seed can be cleaned with an air-screen machine; we used a 3/16" screen for scalping and a 1/18 to 1/22" bottom screen with very low air flow. Seed cleaning of some quantities took 2 or 3 passes through the air-screen using progressive screen sizes to sift out inert matter without losing too much of the seed along with it.
Pre-Planting Treatments:	**None needed**
Growing Area Preparation/ Annual Practices for Perennial Crops:	**A finely tilled, weed-free, firm seed bed is surface-sown by broadcasting at the rate of 2 to 4 lbs Pure Live Seed / acre. Seed drilling not recommended because the tiny seeds tend to be buried too deeply and flow rate could not be controlled acceptably. Lightly surface-raking the seed to improve seed / soil contact and to very lightly cover the seed could be beneficial.**
Establishment Phase:	**Seedlings sown in late May emerge in 21 days; young seedlings are susceptible to damping-off but at the same time need frequent, light irrigations to avoid drying out. Cool wet weather during spring-seeding at Corvallis added to the damping off problem.**
Length of Establishment Phase:	**At about 6 weeks from seeding date, plants will still be quite tiny but better able to withstand longer periods between irrigations. No supplemental irrigation was supplied for established stands after the first season.**
Active Growth Phase:	**Seedlings remain quite small for several weeks before taking off. By the end of the first season, the plants are beginning to spread from rhizomes. Weed control was very difficult during the active growth phase and is the primary limitation to establishing this crop from seed. No selective herbicides were available and the small seedlings were easily injured during mechanical tilling. Canopy cover is slow to establish at first and this allowed extensive invasion by annual and perennial broadleaf weeds.**
Length of Active Growth Phase:	**June and July are the most active months. Some**

	flowering occurred in late July during the first year of growth; in subsequent years flowering occurs in June. Canopy cover develops much more quickly after the first year of stand establishment.
Hardening Phase:	**Irrigation is withheld in August and September; the seed was harvested by "mowing off" the herbage and seed heads. Not much new top growth occurred after harvesting, although plants seemed to continue to develop new rhizomes into the fall once fall rains resumed.**
Length of Hardening Phase:	**August to September; plants naturally became quiescent during the dry season although some rhizome formation was observed in the mild days during September and October after fall rains resumed.**
Harvesting, Storage and Shipping:	**Our best results were achieved by hand h-harvesting 2 to 3 times, picking or clipping the heads and collecting into paper bags. Mechanical harvesters were not feasible because they took up too much herbage, which still has very high moisture content by the time the seeds are ready for harvest and thus made it much more difficult to dry and separate the seeds. Seed heads were dried on tarps in a warm, dry poly greenhouse in August. Seed cleaning methods were essentially the same as for the native seed collection as outlined above in the section on propagule collection.**
Length of Storage:	**3 to 4 years at least; germination not formally tracked for longer periods.**
Outplanting performance on typical sites:	**Zone-specific accessions of three native-seed collections were outplanted in test plots at Mount Rainier National Park and their establishment and growth monitored over 3 years. In each plot, seeds were fall- sown at the rate of 35 PLS / sq. ft. onto both 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. Initial seedling emergence was fair to good at all sites in all treatments; however by fall there were significant differences in plant size, percent cover. Amended plots fared much better than control plots at each site. A study by Wood and Morris (1990) showed that reestablishment from natural seeding in a pumice soil at Mt. St. Helens depended**

primarily on subsurface moisture availability, and that A. margaritacea could colonize a wide range of habitats on the pumice plains.

Other Comments: **Although agronomic seed increase was successful, it was a labor-intensive effort owing to the lack of available herbicides for weed control, need for hand-harvesting, and intensive seed-cleaning effort to rid the crop of noxious weed seeds and other contaminants. Seed crops were fairly reliable in native stands - in most years the native stands flower and produce seeds in abundance. Direct collection from native stands can probably supply enough seed to meet most revegetation needs, either as direct reseeding or transplant production.**

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).**

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Citation:

Flessner, Theresa R.; Trindle, Joan D.C. 2003. Propagation protocol for production of *Anaphalis margaritacea* (L.) Benth. seeds (seed from seed increase); USDA NRCS - Corvallis Plant Materials Center, Corvallis, Oregon. In: Native Plant Network. URL: http://www.nativeplantnetwork.org (accessed 29 December 2009). Moscow (ID): University of Idaho, College of Natural Resources, Forest Research Nursery.