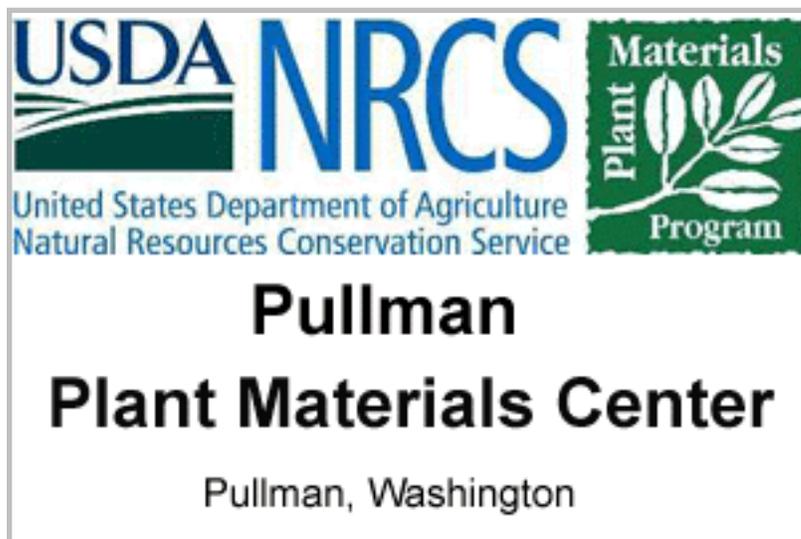


Protocol Information

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Family Scientific Name: **Asteraceae**
Family Common Name: **Sunflower**
Scientific Name: ***Eriophyllum lanatum* (Pursh)
Forbes**
Common Name: **Oregon sunshine**
Species Code: **ERLA6**
Ecotype: **south of Moscow, ID**
General Distribution: **Dry, open, often rocky places
in grasslands and dry forest
from southern British Columbia
to California and east to
Montana, Wyoming, and Utah.**
Known Invasiveness: **not invasive**
Propagation Goal: **Plants**
Propagation Method: **Seed**
Product Type: **Container (plug)**
Stock Type: **10 cu. in.**
Time To Grow: **4 Months**
Target Specifications: **Tight root plug in container.**

Propagule Collection: Fruit is an achene which ripens in mid to late July. Seed is dark grayish brown to nearly black in color. The pappus is reduced to short scales or is lacking entirely and the achene is not windborne. Seed will hold in the inflorescence longer than the seed of many other members of Asteraceae, but will shatter within a week or so of ripening. Small amounts are collected by hand and stored in paper bags or envelopes at room temperature until cleaned.

818,000 seeds/lb (Hassell et al 1996).

Propagule Processing: Small amounts are rubbed to free the seed, then cleaned with an air column separator. Larger amounts can probably be threshed with a hammermill, then cleaned with air screen equipment. Clean seed is stored in controlled conditions at 40 degrees Fahrenheit and 40% relative humidity.

Pre-Planting Treatments: Seed stored at room temperature remains viable after 8 years (Mooring 1975) but germination decreases sharply after 2 years (Mooring 2001). Seed collected in Washington germinated at 80% in the dark at 20°C and 84% in the dark at alternating temperatures of 20/30°C (Maguire & Overland 1959).

Extended cold, moist stratification is needed.

Unpublished data from trials conducted at the Pullman Plant Materials Center revealed that no germination occurred without stratification. 45 days of cold, moist stratification resulted in 10% germination. 90 days of cold, moist stratification resulted in 75% germination. Some seed germinated while in stratification, indicating germination will occur at low temperatures. Containers sown in November and left outside under cool, fluctuating spring temperatures achieved 82% germination. Seedlings which germinated in the greenhouse thrived in the constant warmth, so it is likely the longer stratification time and not the cool, fluctuating temperature was the factor in the increased germination. Seed stored in controlled conditions at 5°C and 40% relative humidity for 1 year and then sown without pretreatment failed to emerge, indicating after-ripening is not a factor in germination.

Growing Area Preparation/
Annual Practices for Perennial Crops:

In October or November seed is sown in 10 cu. in. Ray Leach Super cell conetainers filled with Sunshine #4 and covered lightly. A thin layer of coarse grit is applied to the top of the planting soil to prevent seeds from floating during watering. Conetainers are watered deeply and placed outside. Conetainers are moved to the greenhouse in January.

Alternately, seed can be moist stratified in a refrigerator at 35-40 degrees F for 90 or more days before sowing in the greenhouse. Some seed will germinate during stratification.

Establishment Phase: Medium is kept moist until germination occurs.

Emergence usually begins in 3 days and is complete in 13 days.

Length of Establishment Phase: 2 weeks

Active Growth Phase: Plants are watered deeply every other day and fertilized once per week with a complete, water soluble fertilizer containing micro-nutrients. Plants may require water every day during the final part of the active growth period.

Length of Active Growth Phase: 3 months

Hardening Phase: Plants are moved to the cold frame in late March or early April, depending on weather conditions. They are watered every other day if the weather is cool, and every day during hot, dry spells.

Length of Hardening Phase: 2-4 weeks

Outplanting performance on typical sites: Transplanting is done in early May by using an electric drill and portable generator to drill 1.5 inch diameter holes at the planting site. Survival in seed increase plantings without competing vegetation exceeds 95%. Transplanting into sites with existing vegetation may reduce survival and vigor depending on weather conditions following planting. Plants produce a few flowers and small amounts of seed late

in the first season.

Other Comments: ***Eriophyllum lanatum* is almost entirely outcrossed (Mooring 1975, 2001).**

Bees, beetles, syrphid flies, butterflies and moths frequent the flowers (Mooring 2001).

It is a polyploid complex for which a number of subspecies and/or varieties have been proposed.

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