

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. It ripens in September. It is collected when the pappus begins to expand. Seed is tan to grey in color and wind disseminated, so must be collected before it blows away. Seed maturity is indeterminant. Seed can be collected using a vacuum. This removes only mature seed, leaving immature seed to ripen, and reduces the amount of trash which subsequently must be cleaned from the seed. Harvested seed is stored in paper bags at room temperature until cleaned.**

We determined 357 seeds/gram or 161,740 seeds/lb for this ecotype.

Propagule Processing: **Small amounts are rubbed to free the seed, then cleaned with an air column separator. Larger amounts are 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. Sterile rice hulls can be added to the hammermill to facilitate removal of the pappus. This is not necessary if there are stems and leaves collected with the seed.**

Pre-Planting Treatments: **Seed germinates readily without pretreatment. Unpublished data from trials conducted at the Pullman Plant Materials Center comparing untreated seed with seed treated by cold moist stratification for periods of 30, 45, or 90 days showed no increase in total emergence following stratification, although stratified seed may emerge 1-2 days sooner. The slight delay with untreated seed is probably due to the time required for the seeds to imbibe water and initiate the germination process.**

Growing Area Preparation/
Annual Practices for Perennial Crops: **In January seed is sown in the greenhouse in 10 cu. in. Ray Leach Super cell conetainers filled with Sunshine #4 and covered lightly. Head space of ¼ to ½ inch is maintained in conetainers to allow deep watering. 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.**

Establishment Phase: **Medium is kept moist until germination occurs. Germination usually begins in 6 days and is complete in 18-20 days.**

Length of Establishment Phase: **3 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.**

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

Harvesting, Storage and Shipping:

Length of Storage:

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 averages 85%.

Transplanting into sites with existing vegetation reduces survival and vigor depending on weather conditions following planting. Flowering and seed production usually occurs 1 year after transplanting.

Other Comments: Achenes are sometimes attacked by insect larva. Crown rot can affect the plant and the woody caudex is eaten by rodents.

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Citation:

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