



Foundation Plant Services

Phone: (530) 752-3590

FAX: (530) 752-2132

Web: <http://fps.ucdavis.edu>

Email: fps@ucdavis.edu

University of California

One Shields Avenue

Davis, California

95616-8600

UCDAVIS

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Germinating UCB#1 Pistachio Seed

Recommended Procedure:

Germination rates of UCB#1 rootstock seed appear to vary considerably depending upon the method used. This method should result in germination rates exceeding 90%. Attempts to direct seed UCB#1 rootstock into soil media have resulted in considerably lower rates of germination. Though germinating the seed in towels is laborious for large numbers of seed, the increased success rate may be worth the effort.

1. Soak the seed at room temperature for 24–48 hours
2. Roll seed loosely in damp (not wet) burlap, cloth towels, or paper towels
3. Place towels in plastic bags and refrigerate at 33–36 °F for 6 weeks
4. Remove bags from refrigerator and place at room temperature, between 70–90 °F
5. Check seeds for root growth at least every other day
6. Remove seeds from towels as early as possible after observing root growth and plant in light soil media, potting soil, peat pots, or other standard soil mix
7. Keep in greenhouse until danger of frost is past
8. Transplant into larger containers as required

Observations On Germination Rates of UCB#1 Pistachio Rootstock Seed

Interest in UCB#1 pistachio rootstock seed produced at Foundation Plant Services has taken an upswing recently. Feedback from several clients with experience in germinating a variety of seed types has exposed a discrepancy in germination rates between FPS and industry.

At FPS, a sample of UCB#1 seed is germinated yearly to determine the germination rate. Extra seeds are then added to each order to compensate for expected non-viable seeds. Seed additions have regularly been 10% of the requested amount, even though FPS germination rates are usually above 95%. At FPS, the first four steps of the recommended procedure are followed and observations made for the initial presence of a root radical. Germination rates have generally been in excess of 95%, with the exception of the 2010 crop which was at 82%.

Given the fact that the majority of UCB#1 seed from FPS is sold in lots exceeding 100,000 per customer, we understand it is a challenge to germinate them in paper towels and transplant the seedlings. Most often in the commercial context, the product is direct seeded into soil media. Several sources have reported germination rates in the neighborhood of 60% when direct seeding.

To investigate the effect of direct seeding on the germination rates, FPS staff performed a series of tests using three different media types: a light mix of 50/50 perlite and vermiculite, a heavier mix of 50/50 perlite and potting soil (10% sand, 30% coir, 60% redwood bark), and a third still heavier mix of 100% potting soil. Results demonstrated that the heavier the media is, the lower the percent germination. This has been noted previously in that if the paper towels contain any amount of loose moisture, germination rates fall significantly due to rotting.

It is acknowledged that the attention required to germinate UCB#1 seed in plastic bags and to subsequently transplant the seedling to soil media is significant. However, because FPS seed production is not currently meeting the demand and it is possible to acquire a 90% plus germination rate by using the prescribed procedures, FPS will continue to distribute extra seed in numbers commensurate with its own germination tests. FPS clientele are advised to create protocols to maximize germination rates while balancing schedules and labor costs.