

How to Germinate Toyon, *Heteromeles arbutifolia*

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June 26, 2014

Toyon is a common chaparral shrub or small tree, known for its bright red berries in late fall and winter. These berries can stay on the plant for a long time. They begin to appear in the early fall, and can be found more than 6 months later. The berries give it its common names California Holly and Christmas Berry. Toyons are tough, fast growing, and attractive. They stay evergreen even in the heat of the summer and fall. They are hardy in the chaparral and they thrive in gardens.

Toyons are easy to germinate at room temperature, but only after you separate the seeds from the berry. The berries have an outer layer of fruit surrounding a capsule with two seeds inside it.

How to extract Toyon seeds from berries

1) Place red berries (Fig. 1) in a blender and blend them at low to moderate speed. The blender speed should be enough to remove the fruit (Fig. 2), but not enough to cut into the capsule. This process can take several minutes. You can also do this by hand by rubbing the seeds against a rough surface, or even just squeezing them between your fingers.

2) Rub the wet capsules against a coarse screen to break them up and release the seeds. Figs. 2 and 3 show a kitchen sieve. Fig. 3 shows wet seeds and capsules after this rubbing. I leave the seeds and capsules in the sieve overnight to dry.

3) When dry, separate the seeds from the capsules with a blower. Well equipped organizations have specialized blowers for this purpose. The rest of us can get by with a hair dryer on low heat. Fig. 4 shows what the dry seeds look like.

Figs. 1-4 show berries harvested in April 2014. There are few berries left on Toyons by April, so these were relatively old. Their seeds nevertheless quickly sprouted. I found similar results with seeds stored in a refrigerator since 2011 and 2012, so seeds stay viable for at least three years.

How to germinate Toyon

Toyons germinate quickly and at a high rate at room temperature. Figs. 5 and 6 show 2" plastic containers with seeds placed on top of a layer of sifted potting soil. When seeds germinate, the white radicle is easy to see, and the seed is easily moved to small pots to grow. These plastic containers are great for studying the germination process, but about anything will work if all you want to do is grow plants.

Toyons germinate over a wide range of temperatures, the warmer the better. Fresh seeds have produced radicles in only 2 days at 80°F, in 4 days at room temperature, and in a week at 55°F. A week or so after transplanting, cotyledons appear (Fig. 7). In another week, true leaves (Fig. 8) begin to appear.

If you want to grow a lot of Toyons, the easiest way may be to put seeds into flats and to keep them at room temperature until they sprout. All you need to do is to ensure that the growing media stays moist, and that they have adequate light as the cotyledons begin to rise. They should be ready to transplant into pots after they get some true leaves, typically in a few months. One

alternative is to put 3-10 seeds into a pot, allowing multiple seeds to germinate. As the seeds grow, select the most vigorous and remove the rest.

I have had the best success by growing Toyons in 1 gallon pots starting in the early fall. Then they are growing vigorously but not root bound when I plant them in late winter or early spring. Plants grow faster in pots than in the ground during the winter because they stay warmer. As the ground begins to warm, they quickly establish themselves and they can grow at amazing rates.



Figure 1. Toyon berries.

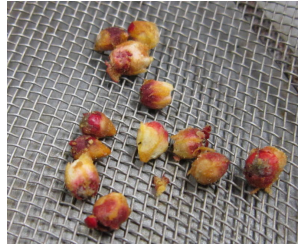


Figure 2. Inner capsules, each holding two seeds.



Figure 3. Seeds separated from the capsules on a sieve.

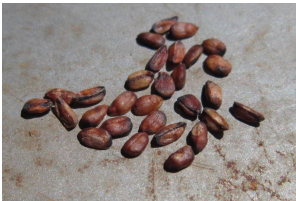


Figure 4. Dried seeds. Each is about 2 mm across.



Figure 5. Seeds laying on top of moist fine potting soil in 2" plastic containers from the 99 Cent store.



Figure 6. A radicle appears on one seed that has germinated.



Figure 7. Cotyledons about two weeks after germination.

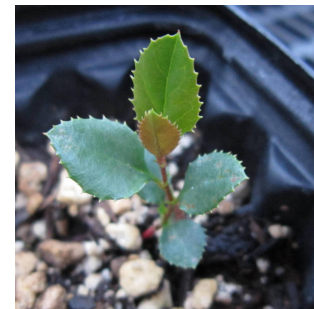


Figure 8. The plant is just over 1" tall at six weeks.

Both Emory [1] and DeHart [2] identify Toyon as being relatively easy to germinate. However, neither explain the importance of first extracting the seeds from the fruit. Seeds obtained commercially often come as dried berries, and the berry's fruit prevents germination (see Deno [3]). Emory suggests that Toyon seeds that have been stored require a long stratification period, but three year old seeds stored in a refrigerator germinate about the same as fresh seeds.

References

- [1] Dara E. Emory, *Seed Propagation of Native California Plants*, Santa Barbara Botanic Garden, 1988.
- [2] De Hart, "*Propagation Secrets for California Native Plants*", CNPS San Diego, 2004.
- [3] Deno, N. "*Seed Germination theory and Practice*", Second Edition, 1993 (available for download on the web).