HOME GROUND HABITATS

PRE-GERMINATION TECHNIQUES

When planning to propagate, it really pays to think like nature. Pay careful attention to the conditions that the parent plant was growing in—the sun or shade exposure, the soil and duff or litter layer, the moisture in the area, and if possible, the phenology of the plant throughout the seasons. Then think about what happens to those seeds in the wild and, in particular, about the natural conditioning processes that occur to plants and their seeds in the native environment.

Seeds do not necessarily hit the ground at the best time for them to germinate. Many seeds have built-in mechanisms that prevent germination until ideal conditions are met. Many types of seed need a prior experience—an intermediate step—in order to germinate.

Seeds are of two basic and very different types:
Most are **orthodox**, which means that they need to dry out completely before they will germinate, or they are **recalcitrant,** which means that they quickly deteriorate when they are too dry. It's a pretty amazing thing because a living plant is about 95% water, but the orthodox seed, when fully dried is only 5% water. The recalcitrant seeds are mostly the nuts such as acorns, buckeyes and bay nuts; they are viable as a seed to sprout for just a short period of time—until they dry out naturally.

As plant propagators, there are ways that we can mimic some of these "prior experiences" in order to promote germination of our seeds in a home nursery. These are called pre-germination techniques.

SCARIFICATION is the term used to describe methods that damage the seed coat, thereby allowing moisture into the seed and starting the germination process. With some seeds, this is only part of the pre-germination process. In nature, it can happen by fire, by abrasion from sand or gravel, or by animals. Fleshy fruits actually inhibit the germination of the seeds within until the flesh is removed. These fruits are meant to be passed through the digestive tract of an animal and etched by the acids in the digestive tract. The scarified seeds, now minus the flesh, are then passed out, complete with their own supply of organic fertilizer! Many chaparral plants and closed-cone pines need fires to scarify their seeds, and also to create the ideal seed bed and greater available light. There are a number of rare natives that are considered fire followers, like the beautiful fire poppy, golden yarrow, and whispering bells.

For example: a foraging squirrel may damage the seed coat of a pine nut and then, because of the abundance of seeds available in each cone, overlook it. The seed may then get partially buried in the duff and, over the course of the next season, be exposed to changing temperatures—perhaps a snow pack and changing day lengths. Photoperiodism will trigger germination when conditions are optimum for growth.

SCARIFICATION TECHNIQUES

Soak seeds in boiling water for thermal shock.
Soak seeds in very strong, dark, black coffee to mimic the digestive acids.
With large seeds, use a knife to nick off a tiny bit of the seed coat. Or line a jar with sandpaper, place your seeds in it and shake. Fill a jar with grit and seeds, and shake to scarify.

Create a charate (burned materials) to topdress the seed flat.

Creating a "controlled burn" on top of a seeded flat.

Smoke pads are available from some suppliers, or you can try using a smoker (such as those used by beekeepers)

Smoked fish can be soaked, and the water used as a drench. There is also a "smoke flavor" product available at some grocery stores.

STRATIFICATION is the term used to describe the effect that weather, changing temperatures, and day length have on a seed store. The seeds of summer annuals are programmed to go through changing day lengths and receive a certain amount of rain before germinating.

Desert wildflowers, which germinate during a very short monsoon season, must experience a season of very hot temperatures first.

Seeds of high mountain plants need to experience a snow pack and then moist, warming weather and lengthening days before germinating.

Seeds of many plants simply need to ripen and dry out completely after detaching from the parent plant before germinating.

STRATIFICATION TECHNIQUES

Seeds of some perennials germinate more readily after being soaked in water. If it's hot water it provides a thermal shock; if it's coolish water it simply starts to break down the seed coat barrier.

The seed of native shrubs, especially those native to higher altitudes, often respond when contained in a moistened medium and refrigerated for one to three months. Be sure to label the seed. Keep it moist and check on it regularly, watching for the growth of the radicle, and then pot into a soil mix soon after growth starts.

Some seeds respond to warm and moist soil conditions which is easy to duplicate with a propagation heat mat and moist soil mix.

Seeds can be fooled into thinking it is spring with a grow-light set for 12 to 14 hours a day.