

# From Little Seeds Grow Big Trees

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It is interesting and even comical to watch squirrels and other wild things in your yard during the fall and early winter. There seems to be a clear focus, envious to most of us, as they go about their work. It's with a tone of surety that each nut or acorn is lifted, examined, stuffed, stored, buried, or if deemed a bad nut, "thrown to the birds."

The animals seem to be picky too. Did you ever stop to wonder why? After all, a seed is a seed. Or is it? Have you ever taken on the project of collecting tree seeds with the intent of starting your own seedlings, only to have none of them survive? "Nothing to it," you'd think, "after all, each spring new young trees seem to pop up everywhere in the yard. Surely if squirrels and birds can do it, then I can too."

Wildlife are experts at this subject, and somewhat reluctant to share their knowledge. They know that many seeds that drop to the ground — indeed most — are not viable, healthy, or sound. In some cases, up to 90% of the seeds could be rejects. That's because throughout the growing season, opportunistic insects have feasted on them, boring small holes through the seed coat leaving a cavity inside. Through quick examination, wildlife can tell by the weight and smell whether their valuable time should be spent on this or another nut. In addition, prolonged droughts can make seeds useless by causing them to abort early, crack, or develop improperly.

Assuming that you desire to start some trees from scratch and that you have the nose and touch to ascertain which seeds still contain life, there's still more science that you'll need to be schooled on. Understand that in order to germinate, seeds need these three things: moisture, oxygen, and temperature. Many seeds, because of their thick or rigid seed coat, will not easily allow water and oxygen to reach inside them. Others may have adapted to require a "pre-treatment" to break their dormancy and begin growth.

For these types of seeds, processes called stratification or scarification must occur. Stratification, also called "chilling," is exposing the seeds for a time to temperatures close to freezing. Wrapping seeds in moist paper towels and placing them in an unsealed zip-lock bag in the refrigerator though the winter is an example of chilling seeds. Some common tree seeds that need to be chilled include: walnut, hickory, red oak, and ash.

Scarification is a scratching or breakdown of the protective seed coat that allows moisture and gases to permeate the coat and continue growing. In the environment, this is done either by the seeds falling on rocks and being carried by wind and water across abrasive surfaces, or by being swallowed whole by animals, whose stomach acids break the seed coat down, preparing it for germination upon passing. You can scarify a seed coat by scratching the surface with a finger nail file. Trees requiring scarification include: locust, cedar, redbud, and baldcypress. Many species require both chilling and scarification.

For technical details on how to properly collect, store, treat, and plant seeds, refer to the book *Seeds of Woody Plants in the United States* (U.S.D.A. Forest Service). Or, if you prefer, find a naive squirrel willing to surrender his tricks of the trade! 🌱



John and Karen Hollingsworth/U.S. Fish & Wildlife

## Direct Seeding Oak Acorns

By *David Mercker*

Oak trees are a very important component in many hardwood forests, not only for market value, but also for mast production — essential to an array of wildlife. Efforts to restore oak trees on farm sites have increased over recent years, a result mostly from government programs. The lack of availability of oak seedlings and costs associated with transplanting them sometimes deters would-be tree farmers from establishing an oak plantation. An alternative to traditional tree planting is the direct seeding of acorns.

Direct seeding is less expensive than traditional seedling planting. Planting stock, labor, storage, and equipment are cheaper, leading to an overall establishment cost of about 40% of the alternative. Survival results are less reliable, however, and direct seeding is more likely to need reinforcement planting to bring the stocking to acceptable levels. To counter the poorer survival rates, planting spacing is normally tightened to ten feet between rows and three feet within rows, a sowing rate of about 1,500 acorns per acre. Direct seeding can be done at any time of the year (provided conditions are not too wet or dry and that your stored acorns are still viable).

For satisfactory results, follow these guidelines:

- Collect the acorns as soon as possible after seedfall and store them immediately in 4 mil polyethylene bags at about 35° F. If cold storage is not available, bury them in the bags about one foot deep in the ground.
- Acorns should be floated in water, discarding the ones that float. The sinkers are potentially viable. A humidified cooler is preferred for storage. The moisture content of the acorns should be kept at 40 to 45%. If it falls below 35%, the acorns

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