

# From Little Seeds Grow Big Trees

By: *David Mercker*

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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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# Legislation and Policy

The United States Department of Agriculture (USDA) and the Society of American Foresters (SAF) have joined together to provide better technical assistance to private landowners.

In July of this year the USDA and SAF signed a memorandum of understanding (MOU) that will help landowners obtain assistance in forest management. This partnership will provide a much-needed service for landowners who need technical support in the development of forest management plans for their property. SAF-certified foresters will help the Natural Resources Conservation Service (NRCS) expand its capabilities and meet the enormous demand for Farm Bill conservation programs.

The five-year MOU allows SAF to recommend its certified individuals to the USDA to provide technical services in forest management and agro-forestry practices. Their work must meet USDA standards and specifications for effective forest management. The 2002 Farm Bill expanded the availability of technical assistance to private landowners by encouraging the use of third parties.

These technical service providers will assist the USDA in delivering conservation technical support services to forest owners, farmers, ranchers, and others.

The certified specialists will be placed on a national, web-based registry called TechReg that is available to anyone seeking conservation technical assistance on their property. This list can be accessed at <http://techreg.usda.gov>.

## In Washington

### State and Private Forestry

Overall, State and Private Forestry (S&PF) programs changed little from Fiscal Year (FY) 2003 funding levels. The House of Representatives allocated \$290.8 million for S&PF in FY 2004, compared to \$284.6 million in FY 2003. The Senate Appropriations Committee increased the House mark to \$295.3 million.

The most significant differences are found in the Forest Legacy and Economic Action Programs. The House provided only \$45.6 million for Forest Legacy, a drop from the \$68.4 million allocated in FY 2003, while the Senate

increased the Legacy budget to \$84.7 million.

### National Fire Plan

Both the House and Senate have provided increased funding for the National Fire Plan, which in FY 2003 received an appropriation of \$1.4 million. While the Senate Appropriations Committee set the 2004 mark at \$1.5 million, the House approved a total of \$1.6 million for the coming year.

### Forest Inventory and Analysis

The House mark includes \$9 million for Forest Inventory and Analysis (FIA) in State and Private Forestry Programs, and \$49.4 million in Forest and Rangelands Research. The Senate Appropriations Committee combined the funds into a single line item of \$57.4 million under Forest and Rangelands Research. The S&PF programs will receive FIA funding from the Research budget line item. ♣

*(Information taken from the Washington Update, National Association of State Foresters; Volume 19, Number 3; August 2003.)*

## Direct Seeding Oak Acorns

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should be soaked in water at room temperature for 24 to 48 hours.

Properly stored, red oak acorns can be stored for up to three years.

- To reduce animal predation on the acorns once planted, it is best to choose planting areas larger than two acres and preferably not surrounded by forest. Predation will be worse along the forest edge where wildlife frequents. Sites should be fairly well-

drained and not with heavy clay soils (see a professional forester for specific site requirements for each oak species).

- Sowing depth of two to three inches seems to favor germination.
- Seeds can be sown by hand, although commercial planting machines are now available.

The initial growth rate will be slower for seedlings that originate from direct seeding. Also, they can't tolerate strong herbicide rates which are important for early weed control.

Direct seeding is a viable alternative to restoring farm land to hardwood forests. Explore it. ♣

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**Reference:** Sims, Daniel. 1986. U.S. Forest Service.

## Oops! We goofed . . .

In the Summer 2003 issue of *Alabama's TREASURED Forests*, we mistakenly identified Mr. Evan Frank Allison in the photo on page 29 as the man "with the cigar." We regret this error and are happy to set the record straight. -- The Editor