Non-timber forest products **Fact sheet no. 15**

Produced by the Non-timber Forest Products Program at Virginia Tech in collaboration with:
USDA Forest Service, Southern Research Station, SRS-4702, Blacksburg, Virginia;
Top of the Ozarks Resource Conservation & Development, Inc., Houston, Missouri; &
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Forest tree and shrub seeds

Natural Resource

Every woodlot and every tree in your woodlot is a potential source of marketable seed. The seeds and/or fruits of almost all major commercial forest tree species, hardwood and conifer, are in demand on an annual basis. However, frequently the most marketable and most profitable seeds or fruits are those from trees and shrubs found in the understory or on sites too poor to produce high quality timber trees. These might be flowering trees or shrubs or those with a unique growth habit, unusual bark, etc. and often are those species considered without value or even be looked upon as "weeds" in more traditional forest management activities. As the attractiveness and benefit of these native species in home landscapes gains greater acceptance, the marketability of these plants and therefore their seeds can be expected to increase

In addition, the demand for native plant materials for reforestation, land reclamation, wildlife habitat enhancement and plant community restoration has increased tremendously over the past several years. Coupled with this is the fact that land managers and landscape architects are becoming ever more conscious of utilizing plant materials that originate in the area in which they are to be utilized. In fact, it is not uncommon for contracts to specify that the planting materials be grown from seed collected from a specific geographic area. These species are best suited to that local area.

Thus, the value of such seeds, as well as the opportunities for collectors willing to explore the seed demand and undertake the effort necessary to capitalize on these demands can only increase.

Marketing

There are numerous potential markets in both the public and private sectors. Almost every state's natural resource agency operates at least one nursery to produce seedlings for conservation plantings. In

addition, there are numerous large and small private growers of nursery stock found throughout the country and seed firms, both wholesale and retail, that scour the nation

A variety of tree and shrub seeds (after cleaning)

almost annually looking for sources of native plant seeds. For the beginning collector the state conservation agency nurseries frequently provide that all important “foot-in-the-door” market, as well as, sources of information regarding all aspects of seed collecting from when and how to collect to care for the seed/fruit once collected. Even if they do not provide you a direct market, the staffs of these nurseries are in almost daily contact with nursery managers and seed dealers from all over the country and may be able to help you locate other markets. The United States Department of Agriculture, U.S. Forest Service, maintains a website listing most of the public and private conservation nurseries in the United States as well as many commercial tree and shrub seed dealers (see electronic references).

Marketing begins well before there is any seed to collect. Take an inventory of your woodlot and determine what species to be present then start making some exploratory contacts with seedling growers and tree and shrub seed dealers as to what your opportunities might be. Requesting a catalog from a seed dealer(s) will provide you with insight into the variety and value of seeds you might be able to market.

Seeds and fruits may be marketed directly as collected or they may be processed to some degree before selling to add to the value. In some cases you may not be able to initially market directly to the nursery and may have to sell to someone that does. Excess trash (sticks, leaves, etc.) should be removed from the seed collection prior to marketing.

A good analogy to marketing tree and shrub seeds is the marketing of a grain crop. The farmer harvests the grain and takes it to what he feels is his best market opportunity. The buyer then inspects the grain and if it contains excess trash, damaged kernels, excess moisture, etc. he starts deducting from the posted price. If quality is below acceptable norms, it may be totally rejected. The same is true with tree and shrub seeds with the added expectation by the buyer that it is alive and will grow. Therefore, most buyers will make some evaluation of the viability of the seed either by a formal germination test or a cut or float test to determine percentage of filled seeds prior to purchase.

Ethics

Probably the most important thing to remember, if you want to be successful and continue to be successful over a long period of time, in marketing tree and shrub seeds is that it is not only the seed itself that you market but your own integrity.

Be truthful and up-front in your dealings with nursery managers and other seed collectors and dealers. If you indicate your collection is from Ripley County, Missouri, then make sure that it is. Be conservative at the beginning. Do not make promises that you cannot fulfill. What looks like a piece-of-cake may not turn out that way. Get some experience as to what collecting 10 pounds of lilac seed, for example, actually entails before promising someone that you'll do it. Having said that, everyone that has been in the business any length of time, realizes that Mother Nature can turn a bumper crop into a total loss overnight. If you face that situation, let your buyer know immediately.

Always seek permission before collecting on the property of others. Street trees, yard trees, cemeteries and municipal parks are frequently good sources of seed, but remember the property does belong to someone else and seeking permission is common courtesy. Also, a written permit is usually necessary before collecting from state and federal properties and in many cases may not be allowed at all. Always check with the appropriate authorities before collecting from any public property. An appearance in court very quickly can take the profit out of the endeavor.

If you follow these few simple rules in your dealings, once you have broken the initial ice, it is very likely your marketing efforts will be one of choosing whom to turn down rather than one of scouring the country for markets.

Harvesting

Harvesting methods are as varied as the fruits being harvested and are a good test of one's ingenuity in many cases. This is also the first time that many folks realize that what looked like easy money may turn out not to be so easy.

Mature seed of flowering Dogwood (*Cornus florida*)

The first thing necessary for a successful seed harvest is positive identification of the plant from which the seed is to be collected. Learn as much about the flowering and fruiting of the species you plan to collect as you can. The seed of the majority of tree and shrub species mature in late summer or

autumn, but there are those that mature in early spring and yet others in midsummer. General information regarding flowering and fruiting can be found in many inexpensive field guides or call upon the expertise of local forest/ wildlife agency and nursery personnel. Also, keeping a good set of field notes regarding flowering dates, fruit ripening dates, and other details will prove very valuable.

Nothing is more devastating to the quality (value) of seed than collecting it before it is ripe. Of course, it is also disappointing to miss a good seed crop because you waited too long and it is lost to weather or wildlife or even natural seed dispersal. Conifers that bear seed in cones and hardwoods that bear seed in cone-like structures such alder and river birch or disperse their seed from fruit that clings on the tree after maturing like Sweet gum and sycamore must be harvested between the time the seed is mature and before it is sheds from the fruit. A slight change in the color of the fruit may be the only indication that harvesting time is near and the ripening process needs to be monitored closely.

Nearly everyone has picked up walnuts or pecans or picked blackberries or blueberries and realizes the time and effort required to accumulate significant quantities. However, this is still a very good way to harvest the seed of these and other large fruited or low growing species. A little preparation work prior to collecting the fruit can make the time spent more productive and less laborious. Cleaning under the trees from which the collection will be made is time well spent. This means removing other vegetation that might interfere with collecting, removing leaves and sticks and even mowing under the trees, if possible.

Collection of Oak acorns can be a pleasant autumn activity

Other harvesting methods include such things as spreading plastic or cloth sheeting under the trees or shrubs and waiting for natural seed fall or shaking the seed onto the cloth or stripping the branches by hand. Seed from stream bank or wetland trees such as silver maple and bald cypress may frequently be gathered in quantity by skimming from stream eddies or ponds or lakes. For others ladders may be needed to get into the branches to pick the seed directly from the trees. Here again knowledge of the biology of the species and its growth habits serve you well in determining the best collection method.

Seed Certification

Having your seed “certified” is one way to overcome questions regarding species and origin. Most states have a seed certification

board that provides 3 to 4 levels of "certification". The lowest certification level requires only that the seed source and species be identified. A controlled pollination and viability test is required for the highest-level certification. This official certification board will (for a fee) inspect your collection sites, collection activities, and/or processing facility and certify the seed at the proper level of eligibility. The fee for this service the seed is offset by greater marketability.

Seed Care and Handling

The vast number of species precludes specific discussion. However, the more you know about the biology of the species you are working with decreases the chance that you will damage your product. The foremost thing to remember is that seed is alive and must be treated with care to maintain that life. Rough handling, excessive drying, exposure to extreme temperatures, allowing the seed or fruit to "heat" or mold are among the most common hazards to which freshly collected seed is exposed. Consult your buyers for information as to how they wish the seed to be handled prior to delivery. A rule of thumb that will serve for many species is to surface dry the seed and hold it loosely packed in bags or spread in thin layers in a cool, dry location with good air circulation and deliver promptly. Seeds contained in fruits have a high moisture content are prone to heating and should be held in thin layers in a well ventilated area or, if possible, in refrigeration at 35 to 40 degrees Fahrenheit.

Immature seed of Common sassafras (*Sassifras albidum)*

One of the most important aspects of seed handling is to maintain complete, accurate records and labels. The minimum label should include species, date collected, location of collection, collector and amount. This label should remain with the seed throughout its storage, any subsequent processing and until it reaches the buyer.

Seed Production Areas and Seed Orchards

Seed production can be enhanced for many species in existing natural stands with some cultural work. Removal of trees or other vegetation that compete directly with the desired seed producing plants will not only increase their vigor but allow them to develop larger crowns with more seed bearing branches. These areas are termed seed production areas and in many cases qualify seed collected there for at least the basic level of seed certification.

Seed orchards can be established with the plant species for which you have seed

markets. The term “orchard” implies management of the plants. This can be especially beneficial for shrub species and/or those that are difficult to find or access for seed collection. Orchards allow the application of cultural activities such as irrigation, fertilization, weed control and even perhaps frost protection giving you many opportunities to increase production while reducing the time and energy needed to monitor and collect the seed. The ability to protect the plants and seed crops from depredation by animals is also improved but not guaranteed. The trade-off, however, is that seed orchards will require a significant commitment of capital, space and time. Initial returns may not be realized for several years.

Opportunities

As mentioned earlier the demand for seed of native species from known geographic sources has grown dramatically. A number of instances can be cited of someone collecting seeds as a weekend hobby for extra income and eventually developing a full-time business. Many of these individuals and/or families have invested in seed processing machinery, cleaning equipment and maybe even seed testing equipment enabling them to market a higher value product. Many have become markets for other seed collectors as their business grew. As with most worthwhile endeavors the outcomes are directly related to the amount of time and effort you are willing to expend. It cannot be emphasized enough that seed collection is not an effortless source of income. However, if you are found to be a reliable producer by seed dealers and nursery managers, market opportunities will be there.

While this discussion deals with tree and shrub seeds do not overlook other native, wild plants. Seed of wildflowers and other herbaceous plants are also in demand and ounce for ounce may be more valuable than many tree and shrub seeds.

References and information resources

(You may be able to find some of the following or other publications in your local library. Another valuable resource is your local cooperative extension office.)

Dawson, Ian and James Were. Collecting germplasm from trees--some guidelines. *Agroforestry Today* Vol 9(2). Hertfordshire, England.

Dirr, Michael A. and Charles W. Heuser, Jr. 1987. The Reference Manual of Woody Plant Propagation, From Seed to Tissue Culture. Varsity Press, Inc. Athens, Georgia.

United States Department of Agriculture, Forest Service, 1974. Seeds of Woody Plants of the United States, U.S. Department of Agriculture Handbook No. 450.

United States Department of Agriculture, Forest Service, 1976. Hardwood Nurseryman’s Guide, U.S. Department of Agriculture Handbook No. 473.

Electronic resources

University of Wisconsin Extension. New Farm Options Website. http://cf.uwex.edu/ces/agmarkets/ideas/prodfull.cfm?ProdID=94

Jones, Norman. 2000. Forest Technology 1: Seed Collection. Agroforester.com http://www.agroforester.com/articles/Jonestech1.html

The United States Department of Agriculture, U.S. Forest Service. Directories of Nurseries and Nursery People. Reforestation, Nurseries and Genetics Resources (RNGR). http://199.128.173.21/spfo/rngr/pubs/direchp.htm

Wilkinson, Kim and Craig Elevitch. 1999. Selected Tree Seed. The Overstory No. 19. Honolulu, Hawaii. http://www.agroforester.com/overstory/overstory19.html

This fact sheet was written by Bill Yoder, former Superintendent of the George O. White State Nursery - Missouri Department of Conservation.

Photos by the Missouri Department of Conservation.

This fact sheet was prepared by Soumitri Das, Laura Shillington, and Tom Hammett at the College of Natural Resources, Virginia Tech, Blacksburg, Virginia.

This is part of a series of fact sheets on non-timber forest products. The full set of fact sheets is available at the Non-timber Forest Products website: http://www.sfp.forprod.vt.edu/

Please give us your comments on this fact sheet and suggestions for future fact sheets. Direct your comments to Tom Hammett, Department of Wood Science and Forest Products, 210 Cheatham Hall (0323), Virginia Tech, Blacksburg VA 24061. Phone: (540)-231-2716. E-mail: himal@vt.edu.