

PRODUCTIVE CONSERVATION:

Growing Specialty Forest Products in Agroforestry Plantings

Discovering profits in unlikely places

Whether you own a small acreage just outside of town, or a 5,000-acre farm, you may be able to earn supplemental income, save money, and improve and protect your environment by producing commercially valuable specialty products from tree and shrub plantings. There are many opportunities for producing, selling, or personally enjoying specialty forest products in rural, suburban or even in urban settings. For example, is your country home, farmstead, livestock area, or acreage battered by the wind or buried by winter snows? Tired of mowing acres of lawn on your acreage every weekend? Do you have fencelines, woodlots, marginally-productive upland fields, streamside areas, pivot irrigation corners, or just hard-to-farm small parcels? Any of these areas could be better utilized by planting woody crops in windbreaks, living snow fences, or streamside buffers that produce specialty forest products (SFPs).



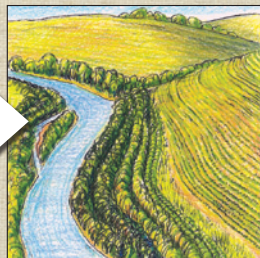
Unsheltered acreage or farmstead



Well-protected acreage or farmstead



Eroding streambank



Productive stable streambank

What are specialty forest products?

Specialty forest products generally fall into one of four categories; 1) medicinals and botanicals, 2) forest-based food products, 3) woody decorative florals, and 4) handicraft products and specialty woods.

1 Medicinals and Botanicals

Medicinals and botanicals are plant-derived substances that are used in a variety of food supplements, herbal health items, cosmetics or other products. Products are made from nearly all parts of trees, shrubs or herbaceous plants, including wood (cedar), bark (smooth sumac, slippery elm), buds (cottonwood), leaves (catnip, ginseng, ginkgo), roots (sassafras, ginseng, goldenseal), fruit and flowers (echinacea, partridgeberry, skullcap, St. John's Wort, elderberry), nuts (black walnut, pecan), sap (pines), and even pollen (ash, oak, cottonwood, maples, pines and many others).



Echinacea

2 Woody-Based Food Products

Tree and shrub-based food products include nuts, fruits and some mushrooms. Nuts include black walnut, Chinese chestnut, pecan (and northern pecan), hickory, butternut, hybrid hazelnut and ginkgo. Superior nut cultivars exist for all of these species. Commercial nut markets include in-shell products, whole and crushed kernels, oils and confections. High prices for fresh kernels are often paid by high-end restaurants, bakeries, etc.

Commonly harvested fruits include chokecherry, highbush cranberry, sand cherry, currants, Cornelian cherry dogwood, elderberry, saskatoon (serviceberry or juneberry), jostaberry,



Shiitake mushrooms





Delicious, natural food products

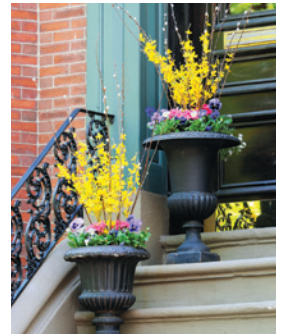
Nanking cherry, chokeberry, buffaloberry, pawpaw, and persimmon, among many others. All are harvested for home consumption, but many are also gathered for commercial use as fresh fruit, jams, jellies, syrups, juices, concentrates, confections and wines. Berries usually sell for \$0.65 to \$1.50 or more per pound.

High value gourmet mushrooms (e.g., Shiitake and oyster) can be intentionally cultivated on logs or wood chips in a forest

setting. These are marketed in supermarkets and ethnic or high-end restaurants as well as direct to consumers.

3 Woody Decorative Florals

Any woody plant species that has a colorful or unusually shaped stem, bud, flower, fruit or even leaf can become a decorative floral product. Examples include cultivars of red and yellow-stemmed dogwoods; curly, pussy, flame and basket willows; red (sweet) birch; holly and bittersweet vines (for fall fruit); flowering branches of forsythia, apple, cherry, plum, witchhazel; and many others. Floral designers increasingly use these materials fresh and dried in creative floral arrangements.



Forsythia creatively used in floral arrangements

Good opportunities exist for garnering substantial returns by producing and marketing decorative woody stems. Retail florists generally pay around \$0.65-\$0.90 per 3'-5' stem for curly or pussy willow. Decorative florals can be sold directly

Specialty Forest Products With Commercial Markets

Species	Scientific Name	Cultivars for SFP Production	Products/Characteristics
NUTS			
Butternut	Juglans cinerea	"Kenworthy", "Mitchell"	fresh nuts
Chestnut, Chinese	Castanea mollissima	Many	fresh nuts
Ginkgo	Ginkgo biloba	"Salem Dandy", "Salem Lady", "Mother Load"	canned nuts, medicinal
Hazelnut, Hybrid	Corylus hybrid	"Farris 88-BS", "G-17", "G-14", "Gellatly # 502", "Grimo 188P", "Skinner", "Grand Traverse", "Winkler", "Rutter/Badgersett Hybrids"	fresh nuts, oils, syrups, nutmeat, confections
Pecan, Northern	Carya illinoensis	many	fresh nuts, nutmeat, confections
Walnut, Black	Juglans nigra	many	fresh nuts, oil, nutmeat, nutshells
FRUIT			
Apricot	Prunus armeniaca	"Moongold", "Sungold", others	fresh and dried fruit, jam
Buffaloberry	Shepherdia argentea	None	fresh fruit, jelly, wine
Cherry, Nanking	Prunus tomentosa	"White", standard red variety	fresh fruit, jelly
Cherry, Sand or Bush	Prunus besseyi	"Hansen", "Sioux"	fresh fruit, jelly
Cherry, Black	Prunus serotina	None	fresh fruit, jelly, wine, juice
Chokeberry	Aronia melanocarpa	"Nero", "Viking"	jelly, juice, persistent winter fruit
Chokecherry	Prunus virginiana	"Boughens Chokeless", "Robert", "Pickup's Pride", "Goertz", "Garrington", "Schubert" or "Canada Red"	fresh fruit, jelly, wine, syrup, juice
Cranberrybush, American (Highbush)	Viburnum trilobum	"Wentworth", "Hahs"	fresh fruit, jelly, wine, syrup, juice
Currant, American Clove	Ribes odoratum	"Crandall", "Deseret"	fresh fruit, jelly, wine, juice, syrup, medicinals
Currant, European Black	Ribes nigrum	"Consort", "Blacksmith", "Brodtop"	fresh fruit, jelly, wine, juice, syrup, medicinals
Currant, Red	Ribes rubrum	Many	fresh fruit, jelly, wine
Currant, White	Ribes sativum	Many	fresh fruit, jelly, wine
Dogwood, Corneliancherry	Cornus mas	"Elegant", "Redstar", "Yellow", "Redstone"	fresh fruit, jam, sparkling wine
Elderberry	Sambucus canadensis	"York", "Adams"	fresh fruit, jelly, wine, juice, tea, medicinals
Gooseberry	Ribes hirtellum or R. uva-crispa	"Pixwell", "Welcome", "Clark"	fresh fruit, jelly, juice
Jostaberry	Ribes nigidrolaria	"Jostagranda", "Jostina", "Red Josta"	fresh fruit, jelly, juice
Kiwi, Hardy	Actinidia arguta	Many	fresh fruit
Mulberry	Morus rubra	"Johnson", "Weisman", "Cooke", "Wellington"	fresh fruit, jelly, wine
New Jersey Tea (Redroot)	Ceanothus americanus	None	tea
Pawpaw	Asimina triloba	Many	fresh fruit
Persimmon	Diospyros virginia	"Hicks", "Meader", "Pieper", "Runkwitz"	fresh fruit, jam, wine
Rose, Wild	Rosa arkansana	Unknown	tea, syrup, jelly
Saskatoon (Juneberry)	Amelanchier alnifolia	"Smoky", "Northline", "Pembina", "Thiessen", "Martin", "Honeywood", "Nelson"	fresh fruit, jelly, syrup, juice
WOODY DECORATIVE FLORALS			
Apple, Crabapple	Malus spp	Many	flowers, forced
Birch, Red (Sweet)	Betula lenta	None	speckled burgundy stems
Bittersweet, American	Celastrus scandens	None	branches with orange berries
Dogwood, Bloodtwig	Cornus sanguinea	"Atrosanguinea"	dark, blood red or burgundy stems, suckers freely
Dogwood, Redosier	Cornus sericea	"Cardinal"	bright red-orange stems, suckers freely
	Cornus sericea var. coloradensis	"Cheyenne"	red stems, suckers freely
	Cornus sericea	"Bailey's Red"	red stems, suckers freely
	Cornus sericea	"Colorado Red Osier"	red stems, suckers freely
Dogwood, Tatarian	Cornus alba	"Allemans Compact"	red stems, suckers freely, few lateral branches
	Cornus alba	"Sibirica"	bright coral-red stems, suckers freely
	Cornus alba	"Kesselringii"	brownish purple stems, suckers freely

to retail floral shops, large retailers and wholesalers throughout the U.S. For example, in Nebraska there are over 200,000 stems sold wholesale each year.

Woody stems are sold fresh or dried, depending on the end use. Flowering stem material is generally cut dormant, and is forced to flower by either the grower or florist. Some plant materials with showy leaves are preserved by soaking in glycerin and enhanced with various dyes, increasing their value. “Floral greens” are cuttings from coniferous trees (firs, spruces and pines) for use in wreaths and seasonal decorations. Produced in native northern forests, they are a multimillion dollar industry in a number of northern states.



Imaginative use of willow in furniture

used by local artisans in handcraft products. The same “basket” or “Streamco” willow (*Salix purpurea*) used for streambank stabilization can be made into bent willow furniture, and also is used in floral arrangements. The deep lesions on “diamond willow” stems are carved and polished by craftsmen to create beautiful walking sticks, sometimes selling for up to \$100 or more.

Smooth sumac, hickory, and aspen saplings are converted to walking sticks and mass marketed. Wood

carvers use cottonwood bark and many types of “character” woods such as butternut, basswood, figured walnut, and catalpa. Burlwood of many species is used to create decorative inlays, furniture and art pieces. Similarly, turning “spalted,” or partially decayed and stained wood, reveals beautiful grain highly valued by craftsmen. Pine cones and other seed capsules and pods are widely used in craft, potpourri and seasonal products. ■

4 Handicrafts and Specialty Woods

Specialty woods and other natural materials are often

Handicraft products can be derived from forest-grown trees, shrubs, vines, pine needles, etc. Most of these products are not grown on a large scale, but are instead harvested from existing forests. Markets can be small and easily overwhelmed with excess supply.

Species	Scientific Name	Cultivars for SFP Production	Products/Characteristics
Dogwood, Yellow Twig	<i>Cornus sericea</i>	“Flaviramea”	yellow stems, suckers freely
Forsythia spp.	<i>Forsythia ovata</i>	“Meadowlark”	bright yellow flowers, forced, hardy
	<i>Forsythia ovata</i>	“Northern Sun”	clear yellow flowers, forced
	<i>Forsythia ovata</i>	“Sunrise”	bright yellow flowers, forced
	<i>Forsythia ovata</i>	“Northern Gold”	golden yellow flowers, forced, hardy
	<i>Forsythia X intermedia</i>	“Lynwood Gold”	brilliant yellow flowers, forced
Holly hybrid	<i>Ilex verticillata x Ilex serrata</i>	“Sparkleberry”	branches with persistent bright red berries
		“Apollo”	male, no fruit, pollinator for “Sparkleberry”
Holly, Winterberry	<i>Ilex verticillata</i>	“Winter Red”, many others	branches with persistent red berries
	<i>Ilex verticillata</i>	“Gentleman”	male, no fruit, pollinator for “Winter red”
Plum, Peach, Cherry	<i>Prunus spp.</i>	Many	flowers, forced
Willow, Purpleosier (Basket)	<i>Salix purpurea</i>	“Streamco”	green flexible branches, also used in baskets
Willow, Corkscrew	<i>Salix matsudana</i>	“Tortuosa”	twisted branches
	<i>S. alba</i> “Tristis” X <i>S. matsudana</i>	“Golden Curls”	twisted branches
	<i>S. matsudana</i> X <i>S. alba</i> “Britzensis”	“Scarlet curls”	twisted branches, red in winter
Willow, Pussy (Japanese Giant)	<i>Salix chaenomeloides</i>	–	red flower buds, large (1-3”) pink-rose catkins
Willow, Pussy (Goat)	<i>Salix caprea</i>	–	catkins (1”), forced
Willow, Pussy (Black)	<i>Salix melanostachys</i>	–	black catkins with red anthers, forced
Willow, Pussy (Rosegold)	<i>Salix gracilistyla</i>	–	pinkish-reddish catkins, forced
Willow, Flame	<i>Salix</i> “Flame”	“Flame”	bright red-orange stems
Witchhazel, Common	<i>Hamamelis virginiana</i>	–	yellow flowers, forced
Witchhazel, Hybrid	<i>Hamamelis x intermedia</i>	“Jelena”, “Diane”, “Ruby Glow”, “Arnold Promise”, “Pallida”	yellow or red flowers, forced
MEDICINALS AND BOTANICALS			
Black Cohosh	<i>Cimicifuga racemosa</i>	None	root (estrogenic, sedative, anti-inflammatory)
Blackhaw	<i>Viburnum prunifolium</i>	None	bark of root, stem (uterine tonic, sedative, antispasmodic)
Bloodroot	<i>Sanguinaria canadensis</i>	None	root (emetic, stimulant)
Blue Cohosh	<i>Caulophyllum thalictroides</i>	None	root (uterine stimulant)
Blue Gentian	<i>Gentiana saponaria</i>	None	root (digestive)
Culver’s Root	<i>Veronicastrum virginicum</i>	None	root (laxative)
Dandelion (root)	<i>Taraxacum officinale</i>	None	root (laxative, diuretic)
Elderberry	<i>Sambucus canadensis</i>	None for medicinal purposes	flowers (mild stimulant, carminative, diaphoretic)
Ginkgo, Maidenhair tree	<i>Ginkgo biloba</i>	None	leaves (aid memory)
Ginseng	<i>Panax quinquefolius</i>	None	root (tonic, stomachic)
Goldenseal	<i>Hydrastis canadensis</i>	None	root (astringent, tonic, antiseptic, diaphoretic, styptic)
Mayapple	<i>Podophyllum peltatum</i>	None	root, resin (cathartic, stimulant)
Nettle	<i>Urtica dioica</i>	None	herb (astringent, diuretic)
Partridgeberry	<i>Mitchella repens</i>	None	vine (astringent, diuretic)
Sassafras	<i>Sassafras albidum</i>	None	bark of root, pith, leaves (Aromatic, demulcent)
Saw Palmetto	<i>Serenoa repens</i>	None	berries (anti-inflammatory)
Skullcap	<i>Scutellaria lateriflora</i>	None	herb (sedative, nervine, antispasmodic)
Slippery Elm	<i>Ulmus rubra</i>	None	stem and root bark (antiseptic, astringent)
Smooth Sumac	<i>Rhus glabra</i>	None	stemwood (astringent, antiseptic)
Staghorn Sumac	<i>Rhus typhina</i>	None	berries (astringent, antiseptic, beverage)
Solomons’s Seal	<i>Polygonatum biflorum</i>	None	root (treat skin irritations, indigestion)
Stoneroot (Horse-balm)	<i>Collinsonia canadensis</i>	None	root (diuretic, astringent)
Walnut, Black	<i>Juglans nigra</i>	None for medicinal purposes	nutshell (“soft” abrasive in skin cleansers)
Wintergreen	<i>Gaultheria procumbens</i>	None	leaves, Oil of Gaultheria (astringent, analgesic, anti-inflammatory, antiseptic)
Witchhazel	<i>Hamamelis virginiana</i>	None for medicinal purposes	bark, leaves (astringent)

SPECIALTY FOREST PRODUCTS

Making conservation pay: producing specialty forest products in agroforestry settings

Specialty forest products come from woody plants that can be planted in ways that provide many environmental and conservation benefits. They can be planted in a field or farmstead windbreak, in a large community windbreak that protects an entire rural town or village, or in a living snow fence. Wind protection increases crop yields by up to 20%, reduces energy costs around the home and farmstead, and trims snow removal costs. Woody plants can also be used in streamside buffer strips to intercept pollutants. SFP-producing plants used in conservation plantings can reduce soil erosion, improve water quality, enhance wildlife habitat, and improve your own quality of life. They also can be arranged in mass groupings or “orchards” to maximize production efficiencies.

Even a backyard can be transformed into a low-maintenance “edible woody landscape” for both people and wildlife, filled with species that produce high quality nuts, berries, and mushrooms. Kids want a snack? Send them into the backyard to “graze” for fruits and nuts. And if you don’t have time to harvest the “fruits” of your yard, the local wildlife will certainly benefit from the available food and cover.

As with any crop, challenges abound. The timing of harvest, perishability of the product, available labor, wildlife pressure, insects and diseases, year-to-year production variability, herbicide injury and lack of formalized subsidy or crop insurance programs all require planning and management.



Produce red-stemmed dogwoods in your windbreak

Marketing specialty forest products for supplemental income

Most SFPs can be sold in the marketplace. Some markets are quite large and well-structured with both wholesale and retail outlets (decorative florals, some fruits and nuts). Other markets are more restricted (a local jelly company, winery, floral shop, craftsperson, the town farmers’ market, or a roadside stand), and are better suited for the small producer. Large or small, all specialty forest product markets are “niche” markets, requiring far greater marketing efforts than do traditional crops.

Smaller niche markets may be easily overwhelmed by excessive supply. Prices can be volatile, depending on product supply and quality. Some products have seasonal markets (pussy willow in the spring, holly during the holiday season, berries when ripe), others are more year-round (e.g., curly willows). It definitely pays to line up markets *before* production investments are made. Solid marketing and quality production can earn a producer higher prices and consistently greater profits. For more information on markets, please see *Marketing Special Forest Products*, a companion publication in this series.

Summary

Specialty forest products produced in woodlands or in agroforestry plantings can provide important supplemental income to rural and semi-rural residents, and at the same time improve your environment. Successful producers clearly need to be skilled growers *and* effective marketers of their products. ■

Selected Resources

Agroforestry information:
<http://www.agroforestry.net/>

Conservation Trees. National Arbor Day Foundation. <http://www.arborday.org/programs/conservationtrees.cfm>

Farming the Forest for Specialty Products. Proceedings of the North American Conference on Enterprise Development Through Agroforestry, Minneapolis MN, October 4-7, 1998. 1999. S. Josiah, Editor. University of Minnesota: 800-876-8636, or http://www.cinram.umn.edu/publications/proceedings_from_the_1998_specia.htm

Forest Farming eXtension Community of Practice:
http://www.extension.org/forest_farming

Income Opportunities in Special Forest Products: Self-help Suggestions for Rural Entrepreneurs. 1993. M.G. Thomas. USDA Forest Service, Ag. Info. Bulletin 666.

The National Agroforestry Center produces a number of SFP-related publications:
<http://www.nac.unl.edu/pubs/>

International Non-Wood Forest Products:
<http://www.fao.org/forestry/nwfp/en/>

North American Fruit Explorers:
<http://www.nafex.org>

Restoration Agriculture. 2013. Mark Shepard. Acres USA, Austin, Texas.

SFP information by species: <http://www.hort.purdue.edu/newcrop/default.html>

SFP reference info: <http://www.ntfpinfo.us/>

Woody Decorative Floral Assessment for Nebraska. 2000. D. Lambe. University of Nebraska – Lincoln.

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Productive Conservation
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