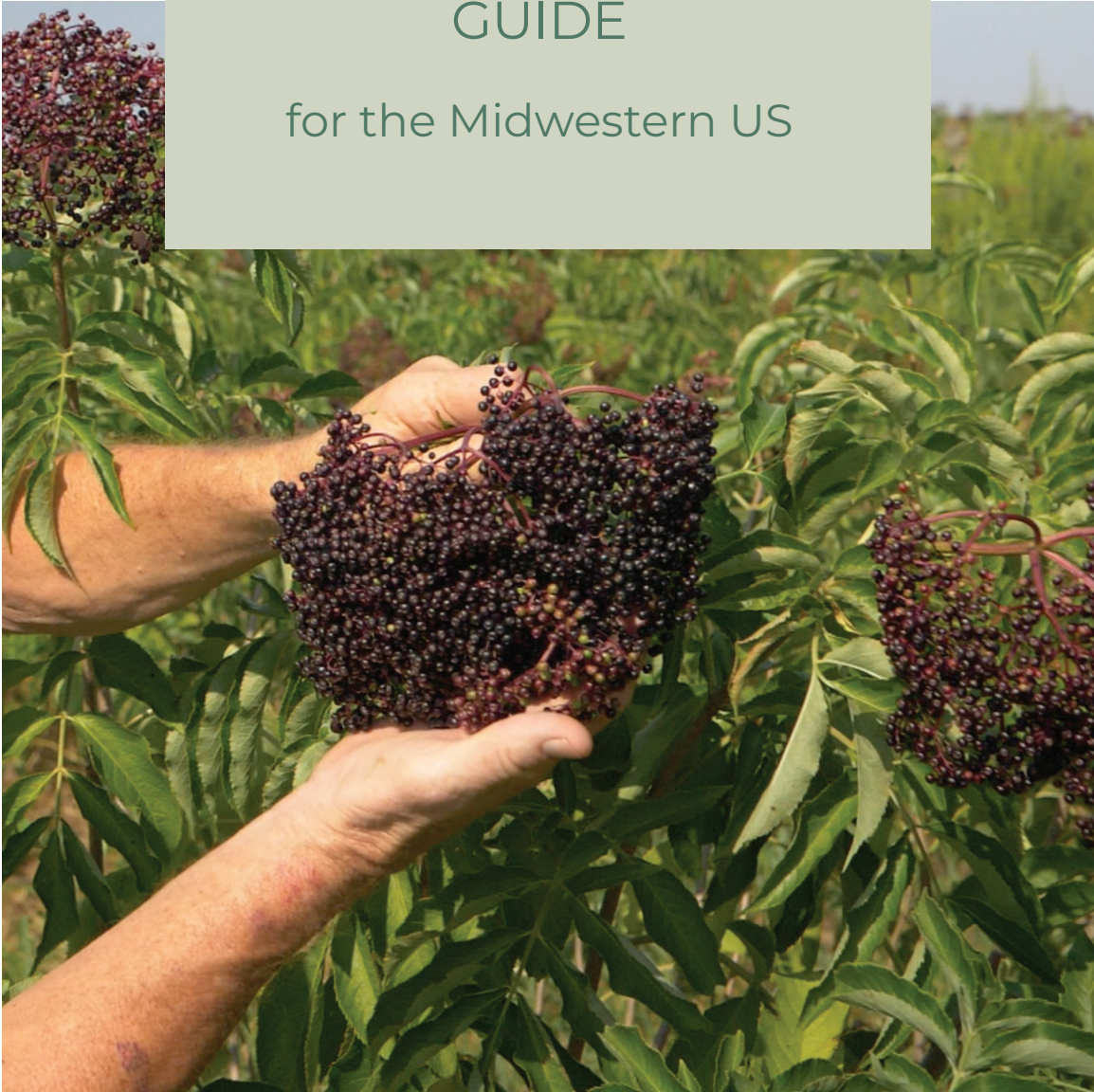


ELDERBERRY GROWER'S GUIDE

for the Midwestern US



SAVANNA INSTITUTE



SAVANNA INSTITUTE

1360 Regent St. #124
Madison, WI 53715
608.448.6432

info@savannainstitute.org
www.savannainstitute.org

ABOUT THE SAVANNA INSTITUTE

The Savanna Institute is a 501(c)(3) nonprofit research and education organization working to catalyze the development and adoption of resilient, scalable agroforestry in the Midwest U.S. We work in collaboration with farmers and scientists to develop perennial food and fodder crops within ecological, climate change-mitigating agricultural systems.

ACKNOWLEDGEMENTS

This publication was supported by the Specialty Crop Block Grant Program at the U.S. Department of Agriculture through grant AM190100XXXXG005. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the USDA.





ELDERBERRY

Sambucus nigra and *S. nigra* ssp. *canadensis*

Requirements:

DRAINAGE: Moderate to well-drained soil

PH: 5.5–6.5

LIGHT: Full to partial

ZONES: 3–9

Plant Selection:

North American cultivars developed from wild plants perform much better in the US than their European counterparts. Midwest-developed selections with proven commercial success include 'Bob Gordon' and 'Wyldewood'.

Spacing:

4 ft between plants, 10–12 ft between rows

Timing

YEARS TO PARTIAL/FULL BEARING:

2 partial; 3 full

HARVEST SEASON: June–July for flowers; July–September for fruit

Introduction

Elderberries (*Sambucus nigra* and *S. nigra* ssp. *canadensis*) have been used medicinally by humankind for centuries. Indigenous people were the first to grow elderberry in North America, and many continue to do so today, using all parts of the plant for a variety of purposes. Commercial elderberry production in the US exists at a much smaller scale than in Europe, where elderberries continue to be widely used for nutraceutical purposes and in syrups, wines, and other applications. US manufacturers have long relied on imported supplies of *S. nigra* from eastern Europe and South America to meet US demand. Midwestern farmers are increasingly growing the native *S. nigra canadensis* for production, yet US demand for elderberry products continues to exceed supply as consumers seek out elderberry products as a source of immune system support.

Individual farmers in the US have paved the way for other small farms to add this labor-intensive but profitable crop to their farm operations. These early adopters have also worked with key research organizations to identify improved varieties, document best management practices, and improve post-harvest handling processes.

This grower's guide is intended to be an introduction to cultivating elderberries. It gives the basics of preparation, planting, management, and harvesting. It also provides resources for further education and exploration of this perennial crop.

Elderberries are deciduous woody perennials. They grow upright, typically reaching a height of eight to twelve feet. They self-propagate and spread via shallow rhizomatous roots, sending up new shoots as they spread. The flowers, which typically appear in June, can also be harvested and dried. The berries ripen in late August and early September in a cluster called an umbel.

Elderberries grow in a wide variety of locations and soil types, but when cultivated for production they do best in well drained, fertile soil in a primarily sunny location. They can be grown as part of a riparian buffer or as a row in an alley cropping design. Elderberries can also be grown in an orchard style, in blocks. This method makes harvest and maintenance more efficient, and so is often used for higher-volume production.

Site suitability and preparation

Elderberries tolerate a wide range of soils and conditions. It is not advised to plant in wet areas as these will be hard to access and maintain. While elderberries will tolerate sandy soils, they have relatively high nutrient needs, and a sandy soil will ultimately require more supplementation.

An elderberry site should ideally be managed with a cover crop in the year prior to planting. The field should be cultivated in the fall or early spring, either entirely or by preparing strips four feet wide every twelve feet apart. If the entire field is prepared, the ground should be worked again prior to planting and strips being laid out. For ground cover between the strips, white clover works well in combination with low-growing pasture grasses.

Depending on soil conditions, compost should be added in the planting strips as needed according to soil tests. Target a soil organic matter content of 3-5%. Elderberries are heavy feeders and establishing healthy young plants can help produce a sizable crop in year two, so it is prudent to feed the young plants well. Elderberry expert Terry Durham (below) advises growers to add 2-4 inches of compost per

year. When plants are young, he suggests adding alfalfa or feather meal, which release nutrients more slowly, and covering with mulch.

The prepared strips can be covered with landscape fabric, black plastic, or biodegradable weed mats. Two separate sections of landscape fabric can be used on each side of the plants so that the fabric can be pulled back in order to add compost.

Some growers do not use mulch in the strips, and instead plant more densely (such as every two feet) in order to have the rows fill out more quickly and hopefully out-compete weeds. The cost of additional plants can be balanced against the cost and availability of mulch, but plants that are not mulched will often have weed issues.

Elderberries are not drought tolerant plants and need regular water. As a general rule, one inch of water per week is needed, so growers typically design and lay out an appropriate irrigation system, with drip tape installed in each strip, and a main feeder line placed appropriately.

Terry Durham, elderberry grower and educator.



Plant varieties

Selection of elderberries for commercial production is a relatively new endeavor that has not been widely coordinated. The development of improved varieties is the result of the joint efforts of growers and researchers. Current varieties are the results of efforts by New York, Nova Scotia, the University of Missouri, and Missouri State University. Some of the most common varieties in use are Ranch, Adams, Wyldeewood, and Bob Gordon.

Pollination in elderberries is not well understood and is currently being researched. Some sources suggest elderberries require multiple varieties in order to pollinate and bear fruit effectively. The advancement of named varieties has been made by selecting from the wild for a number of key characteristics.

In selecting for elderberry characteristics, improved yield is the most sought-after trait. The size of berries, the volume of berries, and the ability of the plant to hold fruit all contribute to yield. Varieties that lower the ripening fruit cluster, known as recumbent varieties, are preferred, since they are more difficult for birds to feed on. Varieties in which all berries in a compound cluster, or cyme, ripen at

the same time are known as determinant varieties, while those that ripen gradually and are harvested by the individual cluster within the cyme are referred to as indeterminate.

As noted in the variety chart, Ranch is the earliest ripening variety, often followed by Adams and Wyldeewood, with Bob Gordon typically fruiting near the end of the season. Regional cultivars and growing conditions or weather will push either end of the harvest window, but typically harvest is three to six weeks long. While elderberry pollination is not totally understood, it is recommended to plant at least two varieties to aid in pollination and subsequent fruit set, no more than 50 feet apart and preferably closer.

Today's commercial varieties have been selected in the wild and propagated through cuttings or root cuttings. Work continues at key institutions to identify hardier and higher yielding varieties. Adventurous elderberry aficionados continue to identify and propagate regional varieties that might be better suited to the micro-climate or more resistant to pest and disease pressure than the main commercial varieties.

LEFT: Johns variety. RIGHT: Ranch Variety.



There are a number of efforts to find an elderberry that can be mechanically harvested. A major challenge of mechanical harvest is that once the berries are fully ripe they tend to drop from the cluster, or “shatter.” Other challenges include the structure of the umbel and uneven ripening among umbels.

It should be noted that the known varieties have been tested for bioactive compounds, making them better suited for processed products or wholesale markets where nutrient profiles are an important part of marketing, while local varieties may be better suited for jams, jellies, syrups, and other products that are not advertised for their health benefits.

VARIETY DESCRIPTION

Common elderberry varieties used for commercial production in the US.

RANCH Hardy, shorter plant seems to tolerate less water and poor soil. Early maturing, upright growth.

JOHNS Vigorous, 8 to 12 feet tall, ripening earlier with large fruit clusters. Not as high yielding as some other varieties.

ADAMS Vigorous plants develop 8 to 10 feet tall and wide. Large clusters of large purplish black fruit, which are late maturing. Sturdy branches hold the fruit upright.

YORK 6 to 8 feet tall, vigorous, sometimes late-maturing cultivar producing large clusters of large, sweet berries. Can self-pollinate but produce better with a pollinator. Provides colorful yellow fall foliage.

NOVA Smaller plants, up to 6 feet in height, have early maturing, larger and sweeter berries than Adams. Can self-pollinate but are larger and sweeter with another berry such as York growing in proximity. Good for making pies, jam, jelly, juice, and wine.

WYLDEWOOD Large, vigorous and high yielding, some growers in northern areas have found this variety to sprawl out and yield less well, but the flower umbels are large.

BOB GORDON Extremely high yielding, maturing later, this cultivar has large, drooping umbels that help protect the harvest from birds. Medium to large fruit.

POCAHONTAS This new variety is reported to be very high yielding, ripening 10 days later than Bob Gordon and thus extending the season. It has yet to be trialed in northern areas. Found in Pocahontas, AR, and released by the University of Missouri.

SOURCES AND ADDITIONAL INFORMATION

https://www.herbsociety.org/file_download/inline/a54e481a-e368-4414-af68-2e3d42bc0bec

<https://www.uvm.edu/sites/default/files/media/ElderberryGuideComplete.pdf>

Getting Plants

There are a growing number of wholesale plant nurseries that sell starts of the main recognized elderberry varieties. Many growers, however, buy cuttings from existing growers and either plant them directly into the ground as soon as the soil can be worked or start them in a greenhouse. Planting directly into the prepared ground is often easiest, but growers will typically see some level (commonly at least 10%) of die-off in the first season and plants will need to be replaced.

Cuttings of first year canes, typically the width of a pencil, are taken during the winter months and stored until ready to plant in the greenhouse. Cuttings will have two sets of opposite buds, with a 45 degree angle cut below the lower buds and a flat cut approximately one inch above the upper buds. Cuttings are placed into good-quality potting mix in deep-celled flats and kept moist. Some growers place the planted cuttings into a dark, cool area with heat below the flats to promote initial root growth. Many growers recommend keeping a cooler greenhouse temperature and not waiting too late in the spring to plant to ensure that root growth keeps up

with leaf growth. Cuttings are usually in the greenhouse for 6 to 12 weeks. As with any seedling, the goal is a robust plant that has a good root system but is not root-bound or otherwise stressed.

Transplanting usually takes place in May, or whenever the risk of significant frost has passed. Plants are typically placed four feet apart in rows that are twelve feet apart. Some growers space plants as close as two feet in row. Given the rapid growth of horizontal rhizomes, especially in good soil conditions, rows will fill in relatively quickly. While some growers try to keep an individual plant in a distinct bush to help facilitate in-row weed control, others let the row gradually fill in.

Another option used by growers is to take cuttings, either stored or taken as plants are budding out in the spring, and place them into nursery beds of well prepared soil. Plants can be carefully tended and cared for in that concentrated setting and then transplanted out to their destination either in the fall once they are dormant or the following spring before growth.

Weed & Nutrient Management

One challenge of managing a perennial crop such as elderberries is controlling weeds within the row. Because elderberry roots grow close to the surface, it does not work well to cultivate the ground near elderberries to control weeds. Most growers rely on regular mowing with hand equipment within rows and mowing with machinery between rows to keep groundcover short and deter pests. Woody perennial weeds in rows such as multiflora rose, mulberry, or raspberry should especially be avoided in the early stages of elderberry growth.

A primary technique for preventing row weeds during the establishment phase is mulching. Remember that each mulch type brings its own challenges,

whether it's weed seeds in old hay or pH changes from pine needles or oak chips, and be prepared to manage them.

Elderberries are heavy feeders. If you're not working under organic certification, you may feed a heavier nitrogen fertilizer early on in the season, then apply mid-season composted poultry manure or a 10-10-10 fertilizer blend, ending the first year with a fertilizer to promote root growth.

Test your soil and get advice as needed. Elderberries are comparable to blackberries in terms of nutrient needs. The healthier the plant, the better the yield of berries. In order to achieve a good fruit set, do not overfeed nitrogen after the first year.



Pests and Disease

Though they are relatively hardy under good growing conditions, elderberries are not immune to pests. As with any crop, a strong plant is the first line of defense.

Elderberries have numerous insects that feed on their foliage, but only a few cause measurable damage. Eriophyid mites (*Phyllocoptes spp.*) can be an issue, causing crinkled or cupped leaves, but can largely be controlled by coppicing over the winter and removing the plant material. A Neem oil drench on the roots can also help control the mites.

Elder borer beetles (*Desmocerus palliatus*) can cause cane die-back. Coppicing helps, but if they become a problem some growers spray a dormant oil on the canes after winter cutting.

Japanese beetles (*Popillia japonica*) love to eat the foliage, and should be controlled before they cause too much damage, as a defoliated plant will drop its berries. This can be managed initially through trapping and then through a Kaolin clay spray regime. Push/pull trapping of Japanese beetles has been shown to be effective.

By far the most challenging pest to manage, if it is a problem in your area, is Spotted Wing Drosophila

(*Drosophila suzukii*) or SWD. These tiny flies are the bane of berry producers, and can cause the loss of an entire crop if not controlled. If left unchecked, they will lay eggs in the fruit just as it is ripening and then the hatching pupae will eat the fruit after harvest, causing the berries to rapidly decompose. They must be actively scouted for and managed.

Early mass trapping for SWD can be effective. Traps are placed 50 to an acre, and must be put out early. Placement is very important: most traps should be placed within 12 inches of ground, at the middle of the plant, in the shade. It is also essential to harvest all fruit before it falls to the ground. Fruit on the ground is prime habitat for SWD.

Larger pests can also take a toll on elderberries. Birds love elderberry plantings and can consume the entire crop if not controlled. Deer fences may be necessary, depending on deer pressure in the area. Deer like to browse on young transplants, as well as mature plants in the early spring, and can cause considerable damage in a short time.

Elderberries can be susceptible to blights, rusts, and powdery mildew. Good airflow and pruning of infected canes are typically the best control strategies.

LEFT: Elderberry rust. CENTER: Powdery mildew. RIGHT: Eriophyid mite damage.





MANAGEMENT RECOMMENDATIONS FOR SPOTTED WING DROSOPHILA IN ORGANIC BERRY CROPS

University of Georgia Cooperative Extension Bulletin 1497, May 2018

SUMMARY

Controlling SWD requires a rigorous, persistent, and diverse management plan. Using as many control techniques as possible on your farm will help to reduce SWD infestation. For effective management, follow these key points:

- 1.** Before the start of the growing season, implement cultural control strategies such as pruning and weed barrier mulches as preventative measures if feasible at your farm.
- 2.** Monitor fields with traps and check the traps at least weekly starting from the fruit-set until the end of harvest.
- 3.** Make sure to check the trapped flies and correctly identify SWD to determine their presence and number.
- 4.** As soon as SWD is detected in the traps while berries are ripening or ripe, implement management strategies including 1) using exclusion netting if possible, 2) decreasing your harvest intervals, 3) keeping your planting clean by removing and destroying leftover fruit, and 4) using recommended NOP-compliant insecticides to protect the fruit, as necessary.
- 5.** While selecting insecticides for SWD control, take into account the efficacy, chemical class, harvest date, preharvest interval, re-entry restrictions, and your target markets.
- 6.** If you are exporting fruit, carefully check the maximum residue limits (MRL) for the destination country.
- 7.** Make insecticide applications early in the morning or late in the evening to target peak SWD activity periods.
- 8.** Calibrate your sprayer before making insecticide applications to ensure proper coverage.
- 9.** Make sure to integrate cultural and physical control methods and rotate other classes of insecticides with Entrust sprays to delay the development of insecticide resistance.
- 10.** Continually evaluate your management program by monitoring SWD populations and sampling ripe and ripening fruit regularly to determine whether your management practices are working, and respond in a timely manner if needed.
- 11.** Stay informed of your regional SWD pressure and new management techniques by using the resources listed below, and contact your local extension office for further information.

Pruning

Most growers in northern climates do a full coppice while the plants are dormant, either with a pruner to save the canes for further propagation, or with a trimmer using a chainsaw blade, or with a heavy duty sickle bar mower. While this may reduce yield slightly, it causes the plants to have a more con-

sistent harvest window and allows for a more manageable stand. It also provides the opportunity to dormant spray field borders if necessary. Alternatively, some growers prune back but leave one or two canes of first or second year wood to promote early berry maturity and a stronger, taller plant.



Food Safety

Growers need to educate themselves and develop protocols to ensure they are meeting requirements of the Food Safety Modernization Act (FSMA) and the Produce Safety Rule. (See our Food Safety in Agroforestry project at savannainstitute.org/food-safety-guide-download for more information.) Regulations and requirements can differ from state to state. Much will depend on the requirements of the market or customer. Many elderberry products undergo a “kill-step” in their processing (for example, freezing) that allows them to meet or be exempt from certain food safety requirements. But it is important to remember that even if a customer and market do not require audits or documentation, the intent of food safety regulations always applies: take all necessary steps to ensure customers are receiving a product that can be safely consumed.

Common food safety practices include:

- Maintaining sanitary conditions in the washing and processing areas
- Using an approved sanitization step in the washing process.
- Having everyone in contact with the berries, from harvest to pack-off, wash hands prior to handling the berries
- Keeping records of protocols and procedures followed

While there is interest in incorporating livestock into elderberry production systems, there is minimal information available on best practices for doing so. Maintaining food safety standards when integrating elderberry and livestock production is also a concern that must be taken seriously.



Harvesting Elderflowers

Elderberry flowers are used both fresh and dried for a variety of purposes, from teas to cordials. When harvesting for this purpose, look (and smell) carefully to see that the flower is at its peak, with pollen present. Most people recommend harvesting flowers in the first couple hours of the day when pollen is fully on the flower. Some growers harvest the entire cyme, while others take just a portion. Processing the flowers as soon as possible maintains the flavor. Removing the stems can be a painstaking process, usually accomplished with scissors or with a comb. If the flowers are to be dried, stems may be removed after drying through a sifting process. An ideal method is freeze drying, which retains more

flavor and commands a better price than drying.

Any elderberry variety can be harvested for flowers. Some growers take a small portion of each flower, noting that it can push the remaining berries to ripen more evenly. Research has shown that taking up to 15% of the flowers does not reduce the berry crop. The variety “Wyldeewood” has been identified as a variety that excels for flower production due to its very large flowers (though it can also be grown for fruit). Some growers in northern regions have reported challenges with this variety, with susceptibility to blights or rusts as well as a habit of excessive drooping branches.

Harvesting Elderberries

The best varieties of elderberry will ripen evenly across the entire umbel, or fruiting head. Given that people are harvesting from wild selections of their own, or any number of identified and clonally reproduced varieties, this can vary a great deal. Regardless, it is important to harvest only the ripe berries in order to maximize nutritional value, juice, and flavor. Any green berries harvested inadvertently can be sorted out in the post-harvest process.

The challenge with elderberry harvest is carefully monitoring the berries to wait for peak ripeness, but not waiting too long. Not only will birds make quick work of the berries once they reach peak ripeness, but they can begin to shatter, which refers to berries dropping off the stem. Growers can experience significant loss due to shattering, so diligent monitoring is key.

Harvesting methods vary based on both the scale of the planting and the size of the harvest crew. Some growers harvest the entire umbel in order to harvest as quickly as possible, while other growers harvest just the sections of the umbel they feel are truly ripe. Most growers use a sharp hand clipper or simply break umbels off, and carry either a bucket or bag with shoulder straps, available at orchard supply companies. Pickers often consolidate buckets in the field, then haul them back to the wash and pack area. As with any fruit, the cool of the morning is the best time to harvest, before the berries begin to hold the heat of the day.

In general, think about ways to find efficiencies for your particular operation. Minimize lifting, try to handle the crop fewer times, and use tractors, trailers, or other equipment to minimize the handling distance and effort between picking the berry and getting it cleaned and into storage.

Post-Harvest

Most growers bring the berries back to a packing shed to de-stem, wash, containerize, and cool the berries. As mentioned previously, destemming elderberries is one of the processes that requires strict attention. The stems can bring bitterness to juice and lectins in the stems can cause gastrointestinal distress in some people. It is best for berries to be de-stemmed the day of harvest, or the process gets significantly more difficult.

Berries can be stemmed by hand through a 5/16ths inch stainless steel mesh strainer into a container, or with tools specifically developed for the process. Larger growers will find the “TED” machine invaluable in the process.

LINK: <https://www.riverhillsharvest.com/ted>

Other growers have been able to adapt equipment designed for grapes or other berries to use for elderberry de-stemming. Mike Breckel, a grower in southwest Wisconsin, is partnering

with a local metal entrepreneur to manufacture a small scale de-stemmer that can be used in the field, bringing an added option for efficiency.

LINK: <https://www.youtube.com/watch?v=Dr5Y5XdaSrw>

Once de-stemmed, the berries should go through a trip wash process, which will clean, sanitize, and rinse the berries. During the first immersion, growers typically use a sieve or mesh of some kind to strain off the remaining stems and any green berries.

Once through the wash process, berries can be put on trays to air dry for a couple of minutes, or go through a fan drying process. Then they are placed into containers to be refrigerated or frozen. A typical pack method for most processing markets is a 25 pound bucket frozen, with or without a plastic bag liner, depending on customer preference and how new or sanitized the buckets are.



Markets

There are numerous options for marketing elderberries, and like most crops, the best option will depend on individual circumstances, scale, and marketing practices for other crops grown on the farm.

Elderberries can be grown as a component of U-pick operations. Consumers wanting to make their own medicinal items may find this option attractive, especially if the farm has the ability to de-stem the berries for them. Some farms have found that customers tend to damage plants in a U-pick system. Other direct marketing options (farmer's markets, direct to consumer, direct to retail) can also provide value to growers.

Tinctures, syrups, jellies, jams, and wines can be unique and valuable elderberry products that take advantage of both the healing properties of elderberries and the story of the farm and the region where they were grown. Always be aware of any requirements for food safety and processing in order to comply with state and federal regulations and to ensure customer wellbeing.

Current bulk prices

As of publication in 2021, River Hills Harvest is buying conventionally grown, frozen and destemmed elderberries for \$3.00 per lb, and certified organic destemmed berries at \$4.00 per lb. Frozen berries can be purchased for \$5.00–\$7.00 per lb directly from various growers, depending on the year, the

Elderberries can also be grown for wholesale markets. Cooperative marketing arrangements include:

THE MIDWEST ELDERBERRY COOPERATIVE has been a tireless advocate for elderberry production, encouraging their use as a crop for small family farmers and thus a benefit to rural economies. They share numerous resources on their website, help growers network with each other, and sell elderberries for growers who need marketing assistance. Chris Patton, the leader of the cooperative, has worked tirelessly to educate farmers and buyers on the opportunities and benefits of American elderberry. www.midwest-elderberry.coop

RIVER HILLS HARVEST Terry Durham, (profiled in the next page) has spent decades sharing his expertise with growers all over the US, encouraging countless farmers to plant elderberries on their farms. River Hills Harvest markets a number of excellent elderberry products both online and in retail locations, and buys bulk berries from growers. www.riverhillsharvest.com

Conclusion

Elderberries are a hardy perennial crop that can provide strong economic returns and be a valuable part of a small farm operation. Given their documented medicinal properties and the fact that the majority of elderberry products are manufactured from imported elderberries, considerable demand exists in the marketplace. Once established, elderberries

can produce a harvestable crop for many years. Elderberries provide great habitat for pollinators and other wildlife. As a perennial crop, they help reduce erosion and water runoff. Get started by planting a few elderberries now to see if they are a good fit for you and your farm goals!

Grower Profiles



Terry Durham
RIVER HILLS HARVEST

Terry Durham joined the organic farming movement in 1987 after 20 years of growing organic fruits and vegetables. He instituted Missouri's second CSA, which served 90 families from 1989 to 1995. He has held the position of President of the Missouri Organic Association, which he co-founded, for several terms, and was a board member of the Ozark Organic Growers Association.

Terry spends a great deal of time recruiting growers and teaching them how to grow and harvest elderberries and how to prepare their crop for market. He has developed two unique products using a proprietary process under the River Hills Harvest label. Terry gives farm tours, tastings, sponsors Elderberry Mentoring Workshops, and does custom planting and management work. In addition, he hosts an annual growers workshop, The Comprehensive Elderberry Workshop and Field Tour, in June each year.



Jim Riddle & Joyce Ford
BLUE FRUIT FARM

Blue Fruit Farm is a certified organic perennial fruit operation in southeast Minnesota. The farm is located on ridge land about 12 miles south of Winona, Minnesota and has been managed organically since the 1970s. Blue Fruit Farm grows a variety of fruits, including aronia, blueberries, honeyberries, juneberries, plums, and about 1200 running feet of elderberries.

Jim and Joyce have had long and distinguished careers as farmers, educators, policy advocates, and organic consultants. They began organic farming in the 1980s, then spent nearly two decades working in organic inspection and policy development. Jim and Joyce returned to farming in 2009, and identified berries and "blue fruits" as a niche and untapped market in their region. They now sell fresh and frozen fruits both wholesale and direct-to-consumer, and are actively involved in education and outreach efforts on their farm.



Natasha Simeon
REGENERATION ACRES

Regeneration Acres is located in northwest Wisconsin (Clayton, WI) and produces perennial crops, herbs, and grassfed livestock. Natasha Simeon and her family operate the farm with a focus on nursery and fruit production of specialty berry crops: elderberry, currant, and aronia.

Regeneration Acres employs sustainable practices and principles including soil health, water conservation, and preserving genetic diversity in crops and with heritage breeds with a value for research and education. The farm is based on principles of regenerative agriculture and permaculture, and the focus on perennial berry crops is due to Natasha's love of perennials and the flexibility they provide. The main commercial focus of the farm at present is the nursery production of elderberry cuttings and started plants. Natasha says that while failures happen, they can teach you a great deal - she has killed plants by the thousands, but in doing so she has learned how to help them thrive.



Elle Sullivan
LILY SPRINGS FARM

Elle Sullivan (she/her) is the Lead Educator and Interim Farm Manager at Lily Springs Farm (LSF) in Osceola, Wisconsin. After five years in Oregon learning and working in environmental education, peer facilitation, and community food systems, she returned to her Midwest roots and joined the LSF team in early 2018. Forest management through rotational grazing, experiential learning, and elderberries form the foundation of her passions and responsibilities. She is continually inspired by the lessons elderberries have to teach: lessons of resiliency, regrowth, and living in service of community health.

Lily Springs Farm, located on ancestral Dakota, Anishinaabe, and Ho-Chuck lands, is a research and demonstration farm exploring oak savanna revitalization through rotational grazing, native perennial crop management, and integration of traditional medicine plants. Elderberries are a key crop in LSF's agroforestry design, where they are planted in a keyline design utilizing low-lying field edges that border seasonal streams. Production alternates every two years between flower harvest and berry harvest as a means of controlling spotted wing drosophila populations. They are a core element in LSF's outdoor education: workshops on foraging, plant medicine, and woody perennial propagation all depend on the elder hedges and guilds of Lily Springs Farm.

ELDERBERRIES AT BLUE FRUIT FARM

By Jim Riddle

Blue Fruit Farm (BFF) is a certified organic perennial fruit operation in Southeast Minnesota. The land has been managed organically since the 1970s, and the blue fruit orchard is surrounded by fields of native plants, with no conventional crops within more than a mile. The farm is located on ridge land about 12 miles south of Winona, MN.

The 5-acre fruit field was converted from organic vegetable production to fruits between 2008-2010 by planting the entire field to cover crops of oats, wheat, and clovers for one year. During the second year, beds were established with 10 feet of grass and clover cover between rows. During the second year, the beds were planted to cover crops of buckwheat and sorghum-sudangrass to build fertility and break weed cycles prior to planting fruit bushes and trees.

BFF grows a variety of fruits, including aronia, blueberries, honeyberries, elderberries, juneberries and plums. We have about 1200 running feet of elderberries. While the elderberries were originally planted with 6 feet between plants and 10 feet between rows, the plants have spread and now we have about 4 feet between rows and the plants are found throughout, in the

rows. One thing to know about elderberries – they will always spread out from their original planting site!

At BFF, we grow healthy fruits that are packed with flavor. Elderberries have high levels of antioxidants and anthocyanins, and they have natural anti-viral properties. Unlike some of the fruits we grow, like honeyberries, black currants and aronia, people are familiar with elderberries. There is strong market demand for both the fruit and flowers, but there are some tricks to growing, harvesting, processing and marketing them successfully.

We grow Bob Gordon, Ranch, Johns, York, Adams, Nova and Wyldewood varieties, in descending order by number of plants per variety. *(For descriptions of each variety, please refer to page 7)*

When planting elderberries, select a site with full sun, good airflow and high level of organic matter. Provide irrigation, at least for the first few years and possibly later during fruit set. Protect fruits from deer and birds and keep weeds under control.

There are several pest and disease issues to consider. We successfully control elderberry rust by scouting the field at least weekly during the hot, humid months of late June

thru mid-July. Remove and destroy infected leaves and stems by cutting and putting into a plastic garbage bag, disinfecting the pruning shears after each scouting event.

For control of both eriophyid mites and powdery mildew, we spray a solution of stylet oil and water several times during the growing season, beginning when the plants are 12-18" tall, then again before flowering, and finally when green berries have formed. If we find powdery mildew after fruit begins to ripen, we spray with a 10:1 solution of water to organic milk.

With the warming climate, Japanese beetles have become an issue, since they eat the growing tips of the elderberries, before the blossoms emerge. We have been removing Japanese beetles by hand, but will need to use an organic-approved insecticide to control them in coming years in addition to monitoring and other prevention strategies.

We have not yet had a problem with spotted wing drosophila (SWD), largely because of our biological diversity and because we are very thorough with our fruit harvests. In the future, we may need to apply an approved pesticide, such as Entrust or Pyganic, because low numbers of SWD are present on our farm.

We have pruned the elderberries by cutting down all canes in the fall, after the plants have gone dormant. We have then chipped the canes and added the chippings to our compost pile, along with horse manure and grass clippings. We are changing that system to leave the canes over winter, so that we might sell cuttings, and to select certain canes to leave for an earlier harvest the following year.

We harvest elderberries by strapping on a picking tote and walking through the rows, selecting only ripe cymes, or ripe portions of cymes, and then clipping them into the totes. Totes are weighed in, then placed in a walk-in cooler, or preferably, immediately de-stemmed.

To de-stem the berries, we use a bicycle-powered rotary screen de-stemmer, invented by Mike Breckel, Coon Valley, WI. Mike invented the de-stemmer, and I added the stationary bicycle. We inspect the de-stemmed berries, and then freeze them right away, or use them to make elderberry juice, elderberry jelly, or mix with aronia to make our line of Elderonia™ products.



