

The POWER of PURPLE

Missouri's native elderberry holds promise as the next 'superfruit'

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Bouquets of thousands of tiny, snow-white flowers dot the rows at Terry Durham's Eridu Farms just north of Hartsburg. It's the first week of May here in the Missouri River bottoms, and the elderberries are already blooming.

"That warm weather we had in March really hit us hard," he says, explaining that in a normal year, the berries don't bloom until the calendar flips to June. "I hope we get our de-stemming machine back soon. We'll be needing it in about 40 days."

This year marks Terry's sixth season as a commercial elderberry grower. With 37 acres now in production, he operates the largest elderberry farm not just in Missouri but also across the entire United States. Along with the help of researchers and other growers, he is spearheading an effort to turn these tiny purple berries into a valuable specialty crop for Missouri farmers.

Elderberry is a native plant that can be found across most of North America growing wild in fields and fence-rows and along streams and ditches. Traditionally, American Indians and early American settlers harvested both the flowers and the berries for food.

Such foraging continues today. Terry has childhood memories of family outings to pick wild elderberries each August. Like they did with the blackberries harvested earlier in the summer, they'd bring home buckets of elderberries that his mother would turn into a sweet, delicious jelly.

Others find uses for elderberries, too. A few Missouri wineries occasionally produce small batches of elderberry wine.

In recent years, elderberry has grabbed headlines for its potential health benefits. Known as "the medicine chest of the country people," elderberry juice long has been used as a home remedy to treat a variety of ailments. Studies have lent credence to some claims, determining that the elderberry's concentrations of antioxidants and vitamins (it contains three times more vitamin C than orange

juice) can boost immunity and reduce the severity of colds and flu. Some celebrity physicians, most notably Dr. Oz, have touted the benefits of a tablespoon of elderberry juice on their television shows.

While the elderberry as an agricultural crop has been mostly overlooked in this country, the plant has been cultivated for decades in Europe. Both its flowers and berries are used in products that are consumed around the world. By some estimates, 60 percent of the world's elderberries are consumed in the United States, yet less than 10 percent of the fruit is grown here. Terry and his fellow elderberry growers see this as an untapped niche market that can be filled, and they are trying to play catch-up.

"The elderberry is still underdeveloped as a commercial crop," says Andy Thomas, a researcher at the University of Missouri Southwest Research Center in Mount Vernon. "We really have lots more work to do."

Thomas, along with Patrick Byers, a horticultural specialist with MU Extension, has spearheaded Missouri's Elderberry Development Program. With cooperation from researchers at



Left: Brad Foster, left, of Hartsburg and Joseph Klinefelter of Lupus process the morning's harvest of elderberries using a prototype de-stemming machine last August. When perfected, the machine will cut down on time and labor, effectively doubling the value of the berries. **Below:** Eridu Farm owner Terry Durham displays the snow-white blooms on an elderberry plant. Terry's orchard is the largest commercial elderberry farm in the United States.



Missouri State University and Lincoln University, the pair has worked since 1997 to identify and develop new cultivars for commercial production.

Terry planted his first wild elderberry bushes in 1996 as part of a community-supported agriculture business he managed. He learned about what Andy and Patrick were up to and decided to participate, providing cuttings from his elderberries for the project. In all, 62 wild varieties were evaluated, mostly from Missouri.

After an initial evaluation lasting about four years, the top 10 were placed in field trials. By 2004, two Midwest cultivars emerged as being superior for Missouri: "Wyldeewood" and "Bob Gordon," and it was then

that Terry decided to devote himself to growing elderberries.

Today, the two public cultivars released by MU dominate the orchards at Eridu Farms, which is served by Boone Electric Cooperative. They are favored because they produce large numbers of berries that ripen evenly. The "Bob Gordon" variety also has the added advantage of growing clumps that turn over and hang down, which helps stave off hungry birds.

Finding the best varieties was just the first step, however; an efficient and productive cropping system also was needed. The MU researchers learned that by cutting the elderberries back to the ground every year, the plants would grow back and produce fewer but larger clumps of fruit that were easier to harvest.

This is the system Terry now uses. His orchards are arranged in rows spaced every 12 feet; the elderberry bushes are planted four feet apart. Native grasses grow between the rows. These are mowed, and the clippings are used as mulch.

In August, the shiny berries turn dull and dimple, indicating they're ripe and ready to harvest, which currently is done by hand.

"They're the easiest thing I've ever picked," says Terry, who adds he's working on a mechanical harvesting device to help speed the process. "You don't have to get on a ladder like with fruit trees. The berries are at eye level. You don't have to search through the foliage, like with green bean bushes, or bend over and hunt like with strawberries."

Once harvested, the elderberries are de-stemmed, washed, sanitized, packed into 25-pound buckets and frozen immediately. During his first

four years of commercial production, Terry hand-shucked elderberries from their stems — a time-consuming task. In 2011, he began experimenting with a mechanical de-stemmer that he hopes is perfected in time for the 2012 season. He says when you account for the time and labor saved, the de-stemmer doubles the value of the berries.

In addition to the 37 acres currently in production at Eridu, Terry has another 13 acres planned for next year. He also tends smaller elderberry orchards for other landowners in Boone County.

Terry buys their berries — along with those harvested from the wild — for about \$1 per pound. He says a mature commercial orchard can produce thousands of pounds per acre.

Unlike blackberries or blueberries, elderberries aren't ideal as a fresh-eating fruit. They have a tart, somewhat grassy flavor that requires the addition of sugar or honey, making them better suited for processing into other products.

All of the elderberries Terry harvests eventually find their way into three products sold under the River Hills Harvest label: pure juice, jelly and an herbal cordial used for sore throats. According to Terry, it takes 12 to 14 pounds of berries to make one gallon of juice that wholesales for \$120. He currently sells 11-ounce bottles of juice for a retail price of \$16.97.

Terry's dream for elderberries doesn't stop with juice, however. He and other growers have banded together to form the River Hills Harvest Elderberry Producers, a vertically integrated farmer cooperative that intends to provide its members with production information, marketing assistance and most of all, a place to

sell their berries.

"It's what farmers need," Terry says. "They have to have a place where they can go and sell their elderberries and be assured of a marketplace."

He envisions a network of de-stemming stations across Missouri and eventually the Midwest — similar to the hulling stations that Hammons Products Co. in Stockton has devised for black walnuts — where both commercial growers and those harvesting wild berries can come to sell their crop. In the future, he hopes to build a dedicated processing plant for juice.

"There are millions of pounds of wild elderberries that rot and fall to the ground every year," he says. "Instead, they could be an economic engine for our state."

The demand for elderberry products seems to be on the rise. Terry was able to sell his entire 2011 crop and every other berry he could buy. His nursery business, ElderberryLife, sold out of cuttings this year. He hopes that as the availability of berries increases, members of the co-op will create new products that can be sold under the national label.

"We're really trying to develop farmer marketers instead of selling



River Hills Harvest currently produces three elderberry products: juice, jelly and an herbal cordial for sore throats.

everything at farmers markets," he adds.

For the third consecutive year, Terry is organizing a comprehensive, two-day workshop and farm tour on June 7-8 for producers who might be interested in growing elderberries. The workshop is held in conjunction with Eridu Farm's Elderberry Festival featuring live music from more than 30 artists. This year's workshop will feature a dinner that will highlight its namesake fruit.

Horticultural research continues on elderberries. Andy Thomas recently completed another variety trial, though results of the trial are not yet known. He says projects also are underway to learn more about managing microscopic mites that could decrease production, as well as identifying viruses in elderberry that may hinder their full potential.

The results of another ongoing research project could have even greater impact on the future of the elderberry industry.

In late 2010, the National Institutes of Health awarded a five-year, \$7.7 million grant to the MU Center for Botanical Interaction Studies and the Missouri Botanical Garden to study five plants, including elderberry, for their potential to treat cancer, stroke

and infectious disease. Depending on the study's results, the "country people's medicine chest" may open up to a wider consumer base.

As Missouri emerges as a leader in elderberry development and production, the world has taken notice. In June 2013, scientists from around the world who study all aspects of the elderberry will converge at the University of Missouri for the first international symposium on elderberries.

The meeting will include horticulturalists, botanists, biochemists, food scientists and economists. Andy Thomas is coordinating the symposium, which dovetails with Terry Durham's farmer workshop and festival.

"It's going to make for a long nine days," says Terry.

In less than a decade, the elderberry has gone from relative obscurity to legitimate contender as a cash crop and Missouri's "superfruit."

"This is a crop that could be good for a lot of people," Terry says. "It could bring viability to our farmers and their farms, create new industry for our communities and improve the health of the whole country."

Space is still available for those wishing to attend the June 7-8 workshop and farm tour. For more information, visit www.elderberrylife.com/workshops or contact Terry Durham at 573-999-3034 or info@elderberrylife.com.

Tickets to the third annual Elderberry Festival, June 7-10, can be purchased online at www.elderberryfestival.com or through the Blue Note box office in Columbia.

River Hills Harvest products can be purchased at a number of grocery stores and health markets across Missouri, or online at www.elderberrylife.com.



Terry Durham describes the layout of his elderberry orchard to those attending his two-day workshop and farm tour in June 2011. Interest in producing elderberries continues to increase as more is learned about the fruit's potential health benefits.