What do you call a remarkably ornamental plant that produces an obscure yet desirable international commodity, plus a wide array of useful products like seed meal, cooking oil, coffee alternative, fruity beverage, medicinal herbage and strong hemp-like fibers? Most English speaking people call this plant roselle, but around the world it is known by many names including Rosa de Jamaica, Florida cranberry, red sorrell, jelly okra, Karkadé, and Bissap (bee sap), just to name a few.

If you are a producer living in an area with a long growing season, you might wind up calling roselle a moneymaker. Most people in Europe and North America know roselle only by taste because it is the singular ingredient that gives Celestial Seasonings’ popular Red Zinger Herbal Tea its berry-like “zing.” Yet, for all of its flavor and versatility, this tropical beauty is rarely grown in the home garden or fields of American farmers.

**WHAT IS ROSELLE?**
Botanically speaking, roselle (*Hibiscus sabdariffa*) is a member of the Malvaceae (mallow) family, which encompasses approximately 250 genera and well over 4,000 species of plants. The hibiscus genus alone contains hundreds of species of ornamental flowering shrubs, plants and trees, some of which also produce valuable commodities like cotton, cacao and okra. Like most hibiscus species, roselle is a hardy, heat-loving plant that grows best in areas with a very long growing season. There are over 100 known natural varietals and cultivars of *H. sabdariffa* around the world. All are annual herbaceous sub-shrubs, with some growing to heights of 8 feet or more, depending on the cultivar.

Roselle is characterized by smooth, round fleshy stems that become increasingly red in color as the plant matures. The distinctively large, 3-5-inch long alternate leaves are somewhat fleshy and have reddish veins as they age. Young leaves and those at the topmost part of mature plants are often simple in shape, but the mature lower and middle leaves are often deeply palmate — sometimes with as many as seven lobes per leaf — making roselle a gorgeous ornamental. When it comes to cultivating roselle as a cash crop, the real money lies in the flowers — or to be more exact — in the calyxes of the flowers.
True to its nature, the flowers of roselle hibiscus are just as large and spectacular as any other member of the genus. However, as an annual it takes a long time for this particular species to grow to the point where it can begin to bloom and even longer for the fruit and calyx to mature. Each single flower is either borne in the leaf axils along the main stem or in terminal racemes, which are clusters at the very tips of branches. Like its cousin okra, the flowers open in succession from the bottom of the plant to the top. Depending on the cultivar, the huge showy flowers of roselle can reach up to 5 inches in width. Most cultivars have petals that range from buff to white, turning a soft shade of pink as they age — while those grown for their hemp-like fiber typically bear yellow flowers. Both share a pronounced dark red to maroon center.

A quick look at the back of the flower will reveal the rather large and desirable calyx, a cuplike structure that encloses and protects the unopened flower bud and supports the large flower after it opens. The calyx is also the point of emergence and support structure for the fruit. As the fruit grows, the calyx thickens and becomes fleshy. In many cultures, the fruits are not used as vegetables; however, the dry seeds are processed into useful and healthy vegetable oil and seed meal. Most people grow roselle specifically for the sweet, juicy calyxes, which have a very distinct tart-sweet cranberry flavor.

Most botanists cite Africa as the point of origin for roselle, while others strongly believe it originated in South Asia. Either way, the plant has developed a long and strong tradition as food, fiber and medicine on both continents. Due to its versatility, roselle has been adopted and adapted by many temperate and sub-tropical cultures over the centuries. According to Hibiscus: Post-Production Management for Improved Market Access by Anne Plotto, published by the Food and Agriculture Organization of the United Nations (FAO), roselle is “one of the highest volume specialty botanical products in international commerce,” with more than 15,000 metric tons entering the international trade market annually. Countries that currently grow and export roselle to the international market include Egypt, Mexico, Senegal, Tanzania, Mali, Jamaica, Thailand, China and a few smaller south Asian countries.

The United States has very limited local production in California and a few southern states including Louisiana, Texas, Mississippi, Florida and Kentucky. Thailand and China are the world’s leading producers and exporters of dried roselle calyx. Although Sudanese strains such as El Rahad are said to produce the highest-quality roselle in the world, availability is severely limited due to the fact that nearly all of that country’s product is exported to Germany and the rest is plagued with inconsistent harvest and processing techniques, which reduces both the quality and quantity of the end product.

AN APPEALING NICHE PRODUCT

With limited U.S. production and growing demand by consumers and the herbal industry, roselle is a potential cash crop for those who are willing to find or build sales outlets. For farmers interested in selling in bulk, building relationships with one or two lucrative wholesale outlets might be the ticket. For small-scale producers, roselle can easily be added to existing farm-to-market sales programs in multiple forms. The most obvious product would be the fresh and dried calyxes, both of which have the color and flavor of cranberries and can be used in the same way as that popular fruit.

Fresh calyxes can be used raw or cooked, sweetened or unsweetened, and can be added to salads and baked goods. They can also be chopped, minced, pureed, or juiced and used to create an array of value-added products including pie, cake and pastry fillings, vinegars, salad dressings, syrups, relishes and pickles. The calyxes are rich in natural pectins, making all-natural, self-setting sauces, jams, marmalades, jellies and chutneys a snap. Many kinds of beverages can also be made using the fresh calyxes, including juice, wine and liqueur. When dried, the calyxes excel in niche products that could include hot or cold herbal teas, natural sodas or candies, as well as a natural flavoring for medicinal remedies such as tea blends and lozenges.

Roselle calyxes also lend themselves well to preserving through drying or freezing, which can be very helpful for extending sales or product manufacturing into the off season. As if that weren’t enough incentive for the small grower-producer, the tender young leaves and stems of roselle can be sold fresh alongside traditional vegetable crops for use in salads, as well as a nutritious vegetable and potherb that can be steamed, stewed or boiled, alone or as an addition to soups and stews.

The fresh leaves have a slightly astringent flavor and are often used to season rice during steaming, and in parts of the world are popular for making tart cold drinks similar to lemonade. With such a wide array of uses – and potential niche products – roselle is a crop worth investigating. To top it off, the market for organic local production and sale of roselle-based products appears to be fairly wide open.

CULTIVATING ROSELLE

Despite its huge potential, roselle isn’t a crop that just anyone can grow. Successfully cultivating this plant means either farming in a naturally favorable growing region, or manipulating the seasons to meet the demands of this warm-season crop. As a member of the Malvaceae family, roselle naturally prefers warmth and a growing period of four to eight months. Since roselle is warmth- and day-length sensitive, it is important to focus on starting seeds and setting plants early in the season – much like tomatoes and peppers. Greenhouses and high-tunnels are a good bet for getting seedlings off to an early start. An easy mistake to make with roselle is to overfeed with fertilizer.

Roselle is a photoperiodic short-day plant, which means that flowering begins only after the days begin...
to shorten and nights exceed the critical photoperiod. This means that flowering won’t begin until after the summer solstice in June, and ripening generally occurs sequentially through September or October.

Many people who try growing roselle complain that the plants don’t set flower buds early enough to get a harvest before frost. Most of those I’ve spoken to are gardeners who don’t realize that night length matters more than day length. Because of their extreme photosensitivity, even a short burst of bright light, like that from a yard or security light, shining on plants at night can disrupt or delay the development of flowering buds. In areas with long day lengths, providing early afternoon shade and complete darkness at night can improve yields considerably.

Consistent moisture is beneficial to the early development of roselle, particularly in the early stages of growth. However, once plants are established they are very drought-tolerant. In fact, dry conditions are preferred as harvest time draws near. Excessive rainfall, and even high humidity levels, can not only reduce quality and yield of fruiting plants, but may also result in poor drying conditions that could reduce the quality of the finished product.

Aside from the few specific cultural requirements already mentioned, roselle is about as easy to grow as tomatoes or okra. I have grown roselle in my zone 7a garden in south central Missouri and have spoken to others living in colder and shorter growing zones that have also grown roselle to good effect. Missouri and have spoken to others in their garden can expect a yield of roughly 1 pound of dried calyxes per person growing a few roselle plants – about 4-8 weeks before the average last frost. Be sure to provide young seedlings with bright, direct sunlight and supplement with grow lights to increase day length to 10 hours. Avoid fertilizing seedlings to prevent legginess. Once all danger of frost has passed and soil temperatures begin to climb into the 60°F range, transplant seedlings outdoors in an area with moderately rich, well-drained soil and full sun.

Roselle plants get very big, so be sure to give them plenty of room to spread out. Final spacing of seedlings should be 3 feet within the row and 4-5 feet between rows. Avoid using nitrogen-rich fertilizers, which encourage excessive leaf growth at the expense of future flowers and fruit. Avoid mulching plants until temperatures reach about 80°F. Roselle isn’t keen on competition, so you will need to weed well and often until you can mulch. It is possible to use black mulch throughout the season, which helps warm the soil early, holds weeds at bay and retains moisture all at the same time.

Although roselle is generally robust in terms of withstanding pests and diseases, stem and root rot are concerns in wet or over-irrigated fields, and mildew can be a problem later in the season in very humid climates. Flea beetles, cutworms, mealy bugs, leafhoppers and stem borers are all common pests to watch out for, particularly early in the season when seedlings are most vulnerable.

**HARVESTING & DRYING CALYXES**

The real trick in large-scale roselle production isn’t growing the crop; it’s the timing of the harvest. Detailed instruction on harvest techniques can be found in the Greenpaper published by the Herb Research Foundation entitled “Hibiscus Production Manual (Hibiscus sabdariffa)” by Robert S. McCaleb. “The harvest is timed according to the ripeness of the seed. The wet red fleshy calyxes are harvested after the flower has dropped but before the seed pod has dried and opened. The more time the capsule remains on the plant after the seeds begin to ripen, the more susceptible the calyx is to sores, sun cracking, and general deterioration in quality. All harvesting is done by hand.” The paper goes on to describe hand-harvesting: “The field is harvested approximately every 10 days until the end of the growing season. The calyx is separated from the seed pod by hand, or by pushing a sharp edged metal tool through the fleshy tissue of the calyx separating it from the seed pod.”

Once the calyxes have been harvested they can be used fresh, dried or frozen. To dry, spread the calyxes out in a single layer on very clean screens or a non-plastic tarp in a warm, well-ventilated area out of direct sun. Do not allow the fresh calyxes to come in contact with soil at any point during or after harvest, as this may initiate mold. Once dry, calyxes can be kept in breathable burlap bags. Overall yields depend on many factors, including variety, soil health, growing region, temperature, and so on. According to the publication entitled, “Roselle Hibiscus sabdariffa L.,” published online by the Center for New Crops & Plant Products at Purdue University, experienced farmers in ideal growing regions can expect anywhere from 3 to 16 pounds of fresh roselle calyxes per plant. The average person growing a few roselle plants in their garden can expect a yield of roughly 1 pound of dried calyxes per plant and perhaps more.

In terms of a new and virtually untapped market in the United States and the potential to create a plethora of new niche products, roselle just can’t be beat. It is versatile, productive, drought- and heat-tolerant, as well as relatively disease and pest-free. From the edible stems, leaves and fruity calyxes, to the sturdy hemp-like fibers, edible oils and meal-producing seeds, roselle is a plant that provides. Even

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**THE HARVEST TABLE**

With limited U.S. production and growing demand by consumers and the herbal industry, roselle is a potential cash crop for those who are willing to find or build sales outlets.
the flowers are edible. On top of that, there are very few seedsmen offering roselle seeds to the home gardening market and even fewer producers of value-added products featuring this incredibly multifaceted plant.

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