

## Newsletter

First Quarter 24

### ROOTS

Vegetables are our best friends. Packed with antioxidants, these nutritionally dense, diet-friendly, cancer-fighting, immune-boosting, heart-healthy and easily digestible healers are “superfoods”. When Michael Pollan says, “Eat food, but not too much, mostly plants”, he is referring to the green leafy vegetables that grow above the ground and the vast underworld of roots. They deliver a healthy diet that nourishes the body and soul as well as preserving our farmland.

The underground world of edible roots, tubers, corms, and rhizomes is vast and extremely useful both in and out of the kitchen. For example, many herbal medicines and teas are derived



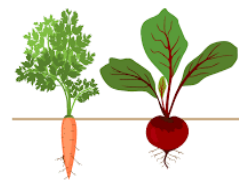
from the roots of plants. In the kitchen, roots find their way into every course of the meal, from pickles to soups, salad to entrees, and for breakfast, from hash browns to parsnip muffins. They even show up in desserts, lending their sweetness to carrot cake

and ginger ice-cream.

Here is small description of the roots or stems.

### **TRUE ROOTS**

**TAPROOTS-** A taproot is the main root of a plant that absorbs nutrients and moisture as it grows vertically downward, often bearing smaller lateral roots. Taproots vary in shape and are categorized as conical (carrots, parsnip), fusiform (radishes) and napiform (turnips and beets). Some other examples are celery roots, parsley roots, rutabagas and jicama.



**TUBEROUS ROOTS-** These enlarged modified lateral roots function as storage organs. Yuca and sweet potatoes resemble stem tubers because of their high starch content but are really tuberous roots rather than tubers. Some other examples are earthnut, mauka, and Prairie turnips.



## MODIFIED PLANT STEMS

**RHIZOMES-** A rhizome is fleshy horizontal plant stem that spreads below the soil surface and forms leaves above and thin roots below. If a rhizome is separated into pieces, each piece should be

able to produce a new plant. This is known as vegetative reproduction. Examples of this are arrowroot, wasabi, ginger, turmeric.

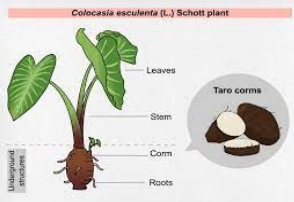
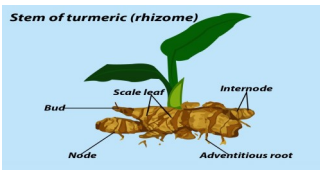
**CORMS-** A corm is a short, swollen underground or underwater plant stem whose inner structure is made up of solid tissue. What distinguishes corms from tube bulbs is the inner structure. A halved corm reveals a solid interior, while a halved bulb exposes fleshy layers. Compare the tissue layers of a shallot (a bulb) with the solid heart of a water chestnut or a taro.

**STEM TUBERS-** A stem tuber is a swollen underground storage organ that forms from a thickened rhizome or stolon. The top or sides of the tuber produce shoots that grow into stems and leaves, and the underside produces roots. Tubers typically store large amounts of starch, a valuable food source with a high-energy value. Examples are groundnut, potatoes, yams and Jerusalem artichokes.

There is something special about crops that grow beneath the soil; the harvest feels like a treasure hunt. Just getting a few handfuls of potatoes for dinner or a lesser-known crop like Chinese artichokes can become an event, since you don't know what you have until you dig it out of the ground.

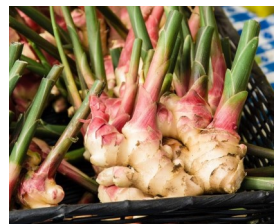
Let's learn more about some of the roots in detail.

**CARROT-** The carrot is a taproot which has a conical shape (widest at the top, tapering gradually to the bottom). The original wild carrot from which all others are descended was white, forked, and spindly. It is known that the carrot originated in Afghanistan and spread eastward to India, China, Japan and westward to Arab occupied Spain. It wasn't until 1600 that it was first grown in Virginia. Horticulturists in



the Netherlands hybridized the bright orange color, which became the favored type. Carrots contain the orange pigment beta-carotene, an important antioxidant and major source of provitamin A.

**GINGER-** Ginger is a tropical herbaceous perennial with large leaves rising from underground creeping, branching rhizomes. It is believed to have originated in northeastern India or Southern China. It was one of the first spices- and most prized - carried along the Silk Road from China to Europe. Spanish



people brought it to the New World in the sixteenth century to Jamaica and Mexico. India and China are number one and two in global production of the tropical rhizome. Ginger contains high potassium, but because it is used in only a small quantity in any recipe, its nutritional value is limited.

**TURNIP-** A swollen taproot with edible greens, the turnip belongs to the mustard family, which also counts among its members horseradish, rutabaga, and radish. One of the world's oldest domesticated root crops, the turnip is believed to be indigenous to the region between the Baltic Sea and the Caucasus. Most research concludes that cultivation dates back at least four thousand years. Its longevity as a crop is due to two factors; it can grow in poor soil, and it stores well. European colonies brought the roots to North America in the late sixteenth century.

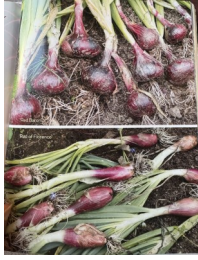
**WATER CHESTNUT-** These are small, crisp, round corms of a perennial water plant native to China. They have been cultivated for thousands of years in flooded paddy fields in southern China and underwater along the muddy banks of streams, ponds, and marshes.



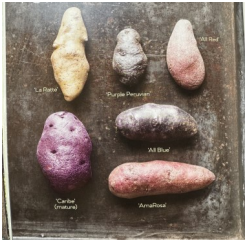
Today, water chestnuts are commercially cultivated in China, Japan, Thailand, and Australia. They are a good source of dietary fiber, riboflavin, and vitamin B6.

**ONION-** Common onion is the most widely cultivated species of the genus *Allium*. The onion has been

grown and selectively bred in cultivation for at least 7000 years. However, the history of ancestral onion species is not well documented. Ancient records of on use spans western and eastern Asia, so the geographic origin of the onion is uncertain. Onions have been variously described as having originated in Iran, western Pakistan and Central Asia. Most onion cultivars are about 89% water, 9% carbohydrates (including 4% sugar and 2% dietary fiber), 1% protein, and negligible fat (table). Onions contribute savory flavor to dishes without contributing significant caloric content.



**Seed Library Plant Pick -Potato-** The potato is a perennial plant, usually grown like an annual, with fibrous roots and many rhizomes that become swollen at the tip, forming edible tubers. Potatoes are indigenous to the Andean region of South America and the remains of wild tubers dating to 11,000 B.C. have been found in southern Chile.



The potato did not travel directly from South America to North America but were introduced by Irish immigrants in 1719. There are almost four thousand varieties of this plant. Potatoes have a reputation for being fattening, but they aren't. With 75 calories per 14-ounce serving, potatoes are 99.9% fat free and are a good source of vitamin C. They were the first vegetable grown in space AND THATS WHAT MAKES THEM OUT OF THIS WORLD!

**Seed Library Recipe Pick- Roasted Taro, Feta and Maple Salad**

What you need

2¼ pounds of taro, peeled and cut into ½ inch chunks.

7 ounces of green beans, trimmed and cut into 2-inch lengths.

Extra virgin olive oil.

1 lemon halved.

2 Tbsp maple syrup

1 small garlic clove

3½ oz feta, crumbled.

Handful roughly chopped chives.

How to cook -

Bake taro coated with generously amount of olive oil,



black pepper and salt for 25-30 minutes, tossing in between until the taro is crispy on the outside and tender on the inside.

Meanwhile, toss the green beans in olive oil and season with sea salt and black pepper. Add taro and beans in the pan and roast for 7-8 minutes, until the beans are tender, and the taro is golden.

In a large bowl, whisk 2 tbsp. olive oil, lemon, 1 tbsp. of water, maple syrup and garlic. Add taro and beans to the dressing and combine with feta and chives. Adjust seasoning to taste.

**Garden Events @ Scripps Ranch Library**

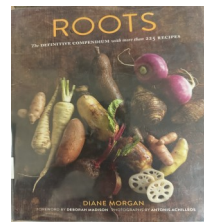
The library has several events scheduled in February if you are interested.

**Garden Share- Feb 10th 2-3:30pm**



**SEED LIBRARY BOOK SUGGESTION- ROOTS**

This comprehensive book reveals the underworld of roots from familiar to the practically unheard of. Discover the fascinating history each one, their nutritional content, how to buy and store them and best part- recipes that bring out their best flavors. Call no. 641.651/MORGAN



References:

Morgan, Diane (2012) "Roots" Published by Chronicle Books

There are multiple resources available at Scripps Ranch Library that are not cited here. We request that you share pictures of your garden and tells us about your experiences, which can be helpful for other gardeners. Also, we invite you to send in your garden related questions and we will answer them in the next newsletter.

This newsletter is composed by Ashu Agarwal and edited by Jeff Lash

For any questions, please contact Ashu Agarwal (seedlibrary@srfol.org )

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**Scripps Miramar Seed Library**

TAKE A SEED, GROW A SEED, RETURN A SEED