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Jerusalem Artichoke

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About Jerusalem Artichoke

Description

The Jerusalem artichoke, sunchoke, sunroot, or topinambur (*Helianthus tuberosus*) is a tuber forming member of the sunflower family. Its close relative, the woodland sunflower (*Helianthus strumosus*) is often lumped in under the same name due to its similar tubers and ability to hybridize with *H. tuberosus*. It is a distant relative of other sunflower family root crops like yacon and dahlias. The sunchoke has the distinction of being one of just a few food crops that were domesticated in North America.

I have a complicated relationship with this plant. I'm not sure if I love to hate it or hate to love it. I have grown it longer than any of the other tuber crops that I work with except potato and, when I aspired to start breeding plants, it was my first choice. There is only one problem: I have a digestive intolerance to inulin, the major storage carbohydrate in sunchoke. Because of this, I must limit my intake to no more than a couple of ounces per day. That was what made me interested in breeding this plant, but testing a lot of varieties to find out whether or not they make you sick turns out to be not much fun! This complicated relationship convinced me to drop this chapter when writing the Cultivariable Growing Guide, as I really wanted to focus on plants that I love to grow. I've since changed my mind, as I do love to grow sunchoke even if I don't love to eat them. I'll probably change my mind again in the future, as that is the nature of our relationship.

The structure of the sunchoke will be familiar to anyone who has grown a sunflower. The plants form one or more thick stems that branch to produce large leaves with a rough, sandpaper texture. Many varieties flower, producing familiar sunflower type blooms. Plants can grow up to 15 feet tall, and maybe taller. Most improved varieties are shorter than that, but height depends a great deal on climate and day length. Although naturally a plant of woodland edges that appreciates a good supply of water, sunchoke will tolerate a wide range of conditions and can be grown in almost all of the United States, with the possible exception of desert areas, and southern Canada.

The edible part is the cluster of tubers formed shallowly under the plant. The tubers are formed at the end of rhizomes and, although improved varieties tend to cluster fairly closely under the plant, wild varieties may produce tubers as much as four feet away from the center of the plant. The tubers are slightly sweet and are often described as having a nutty flavor. Yields can be quite large, commonly in the two to three pound range, and sometimes double that.

Sunchoke is a perennial that grows new plants from the tubers produced in the previous growing season. It can survive very cold weather, so the plant will usually survive to complete its natural lifecycle and senesce late in the year.

Sunchoke is a polyploid, usually of tetraploid configuration, but also occasionally hexaploid. The level of ploidy does not appear to make a great deal of difference in agronomic characteristics.

There are several dozen improved varieties that are reasonably common in North America, although the

full number of recognized varieties may be in the low hundreds. Sunchoke also grows wild in the northern parts of the United States and Canada east of the Rocky Mountains.

History

Jerusalem artichoke was cultivated in North America before the arrival of Europeans, but the extent of this cultivation is, unfortunately, unknown. The crop probably spread from the watersheds surrounding the Ohio and Mississippi rivers as the result of human activity, but the exact center of origin is unknown. It was first introduced to Europe in 1607 and had become a fashionable crop in France only ten years later. It remained a fairly popular crop in areas where the potato was not yet heavily cultivated.

The Jerusalem artichoke had a bumpy ride through the 20th century, with a number of short bursts of popularity both as a food and fuel crop. This reached a peak in the 1980s when the Jerusalem artichoke was marketed in a pyramid scheme that caused widespread losses in the midwest. The crop seems to be attracting greater interest in the 21st century, with increasing interest in permaculture and perennial vegetables.

Nutrition

As with other sunflower family tubers, such as yacon and dahlia, Jerusalem artichokes primarily use undigestible carbohydrates for energy storage. Jerusalem artichoke has roughly half the usable calories as the same amount of potato. This makes it a good choice for people who are watching their weight. Of course, if you have read our guides for other sunflower family crops, you probably can see the downside coming. One of the names for this crop that I didn't mention in the introduction is "fartichoke." Inulin cannot be digested by humans, but can be digested by bacteria that live in the large intestine. This works out fine for some people, with the only downside being a bit of gas. It works out less well for others. I am in the camp with John Goodyear, who wrote the following in 1863:

"In my judgement, which way soever they be dressed and eaten, they stir up and cause a filthy loathsome stinking wind within the body, thereby causing the belly to be much pained and tormented[.]"

Some people who initially have trouble with Jerusalem artichokes can adjust to them by starting with small quantities and increasing their consumption slowly. Others, it seems, will never make the adjustment. Some research suggests that there may be an element of digestive intolerance with inulin in addition to the problems with fermentation in the large intestine. The best advice is to start slowly and keep portions small until you figure out how well you tolerate Jerusalem artichoke. The consequences of overconsumption for the intolerant can be very unpleasant.

Kaldy (1980) reported the following nutritional analysis:

Protein	6.53% DW
Fat	7.33% DW
Sugar	51.65% DW
Starch	26.26% DW
Fiber	5.28% DW

Vit A	37 IU FW
Vit C	0.82 mg/100g
K	1.44% FW

Cooking and Eating

Jerusalem artichoke tubers can be eaten raw or cooked. Like most root vegetables, they are versatile and can be substituted in dishes calling for potatoes, carrots, turnips, and many others. They are most commonly prepared by boiling or roasting. The thin skin can be left on or removed. Raw tubers will discolor when cut or peeled and left exposed to air, but this does not affect edibility.

Propagation

Sexual Propagation

True seed production in Jerusalem artichoke is complicated.

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