

Species Productivity Schedule

Family: *Brassicaceae*
Nasturtium officinale

Common Name: *Watercress*

Family: *Brassicaceae*
Scientific Name: *Nasturtium officinale* W.T. Aiton

Common Name: *Watercress*

Description

September - November

- Harvestable!
- Cooler temperatures good for growth

Ethnobotanical Uses

- Can be eaten raw, if collected from clean water source
- Blood cleanser
- Good for strength
- Often used for kidney and heart ailments (Naegele, 1996).

Climate

- Cool, running water up to 6" deep
- Stream beds, riverbanks, ditches
- Not usually found in stagnant water
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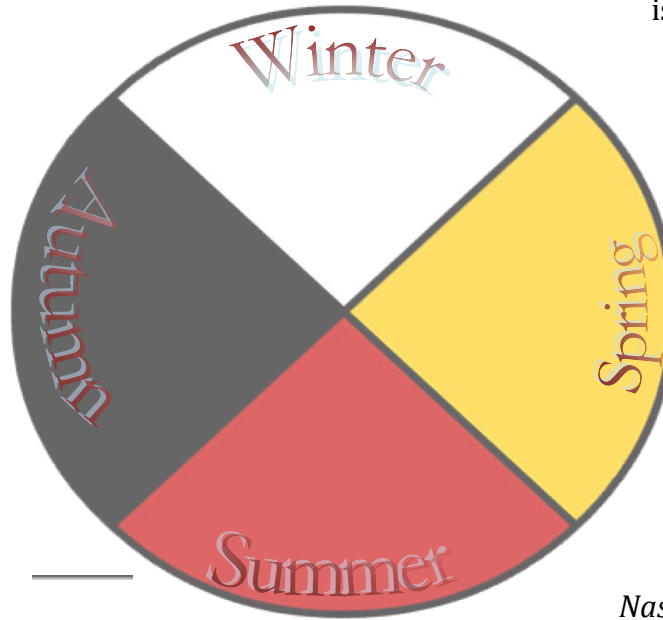
"Eat cress and get wit!"

December - February

- Continued growth and harvestability as long as adequate sunlight
- Freezing makes the crop unharvestable

Life Cycle

- Harvestable in any of the 4 seasons
- Tends to be more bitter in the summer months and less abundant in extreme cold of the winter; however, if found, it is edible year-round



March - May

- Best time for harvest! (before flowering)
- Most abundant
- Flourishes in the cooler weather and sunlight
- Flowers April - September

June - August

- Summer months are not considered to be prime time for harvesting
- Begins to flower
- Off-season
- Bitter-tasting

Nasturtium officinale, commonly known as watercress, is formerly known as *Rorippa nasturtium-*

Morphology

- Alternate, compound leaves
- White flower w/ 4 petals when in bloom
- Strong, peppery smell and bitter taste
- No serration, rounded top
- White, thin, abundant, matted roots

UK watercress season
Harvested April - October

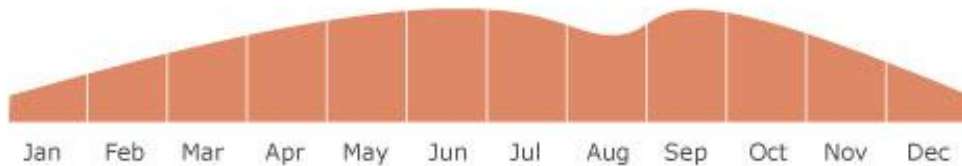




Photo by: (Mohlenbrock, R.H., 1995)

Figure 2: 4-petaled, white flowers; smooth, compound, leaves; oval-shaped, no serration, rounded tip.

Photo by: (Bonnie's Plants, 2001-2010)

Figure 3: Watercress along stream in ~2 inches of water; hollow stem extends from muddy streambed to the surface allowing the leaves to float.

Climate/Habitat

Watercress likes its feet wet and does best when the water is cool and thrives in water up to 6" deep. In response to cooler air temperatures or intense sunlight, watercress can recoil below the surface of the water to protect itself. (Smith, 2012). Watercress is not often found in stagnant water (USDA, 2012).

It can be found on the margins of rivers and streams; ditches; seepy places and brooks in woods and cedar swamps – especially in cold spring-fed waters (Voss, 1985). In the Cheboygan County area, watercress can be found in abundance at Carp Creek Gorge where a natural spring runs through.

Time of Harvest

The best time of harvest for watercress is spring (April through June) before the buds begin to flower and then again in early fall. During the summer months (June through August), the plant flowers and becomes very bitter to taste, but it is still edible.

It should be noted that when harvesting watercress, areas used for livestock can be the source of contamination from animal droppings or agricultural chemicals. Parasites such as liver flukes are popular in areas of sheep or cattle and can also be harmful to humans if ingested; however, if concerned about parasites, boiling the watercress can kill the parasites and other bacteria/fungi that can be harmful (Wikipedia, 2012). When picking a water source for harvesting, be mindful of other possible sources of contamination/pollution such as roadsides or downstream from beaver dams.

To best harvest *Nasturtium officinale*, scissors or a knife can be used to cut the leaves at about the level of the water surface not only make it easier on you, the harvester, but this also allows for the plant to grow back more readily because the roots do not become dislodged from the soil (Locarni, 2012). If it is decided to dislodge the plant, roots and all, from the soil, the roots can later be removed.

Cultural Usage/Preparation

Watercress has been used as a food and a medicine for over 2,000 years (Flower and Gardening Tips, 2012). As an edible, it is most commonly used in combination with other leafy greens in salads, in sandwiches, on pizza, in soups and sauces, or as a garnish. If freshly squeezed, the juices from the leaves can become a beverage or used as a topical ointment on wounds. The roots, though edible, are typically trimmed or picked off. The roots can be enjoyed much like alfalfa sprouts.

Healthful Benefits

Benefits ranging from encouraging growth in children to fighting carcinogens, watercress is classified as a 'super food' and the benefits are as wide ranging as the dishes it can be enjoyed in.

In a study done to further investigate watercress as an anti-cancer superfood, it was concluded that after 8 weeks of eating a cereal bowl-sized serving of watercress everyday, blood cell damage partially responsible in the development of cancer was reduced significantly (Medical News Today, 2007).

The nutrients found in watercress have been used to remedy canker sores and other diseases of the mouth, detoxify the system, purify the blood, treat migraines, break up kidney or bladder stones, improve vitamin deficiency, fatigue, acne, eczema, rashes, digestion, and cure hangovers among many other uses.

Overall, providing your body with the proper vitamins and minerals is essential and foundational in the practice of food being used as medicine; watercress is the perfect example of a medicinal food because it has successfully been used in the treatment of such a range of conditions and illnesses (Flower and Gardening Tips, 2012).

It is not recommended that pregnant women eat watercress as it may cause an abortion (Naegele, 1996).

Nutritional Value

	Watercress (raw)	Broccoli (raw)	Broccoli (boiled)	Tomato (raw)	Apple (raw)
Calories (kcal)	18	26	19	14	38
Vit B1 (mg)	.13 (9%)	.08 (6%)	.04 (3%)	.07 (5%)	.02 (2%)
Vit B6 (mg)	.18 (9%)	.11 (6%)	.09 (5%)	.11 (6%)	.05 (3%)
Vit E (mg)	1.17 (12%)	1.04 (10%)	.88 (9%)	.98 (10%)	.47 (5%)
Beta-Carotene (mcg)	2016	460	380	451	14
Vit A (mcg)	336 (42%)	77 (10%)	63 (8%)	75 (9%)	2 (.3%)
Iron (mg)	1.8 (13%)	1.4 (10%)	.8 (6%)	.4 (3%)	.1 (.7%)
Calcium (mg)	136 (17%)	45 (6%)	32 (4%)	6 (.8%)	3 (.4%)
Zinc (mg)	.6 (4%)	.5 (3%)	.3 (2%)	.1 (.7%)	.1 (.7%)
Magnesium (mg)	12 (4%)	18 (6%)	10 (3%)	6 (2%)	4 (1%)
Lutein/Zeaxanthin (mcg)	4614	1353	1214	98	23

Table 1: Information from the Food Standards Agency (2002).

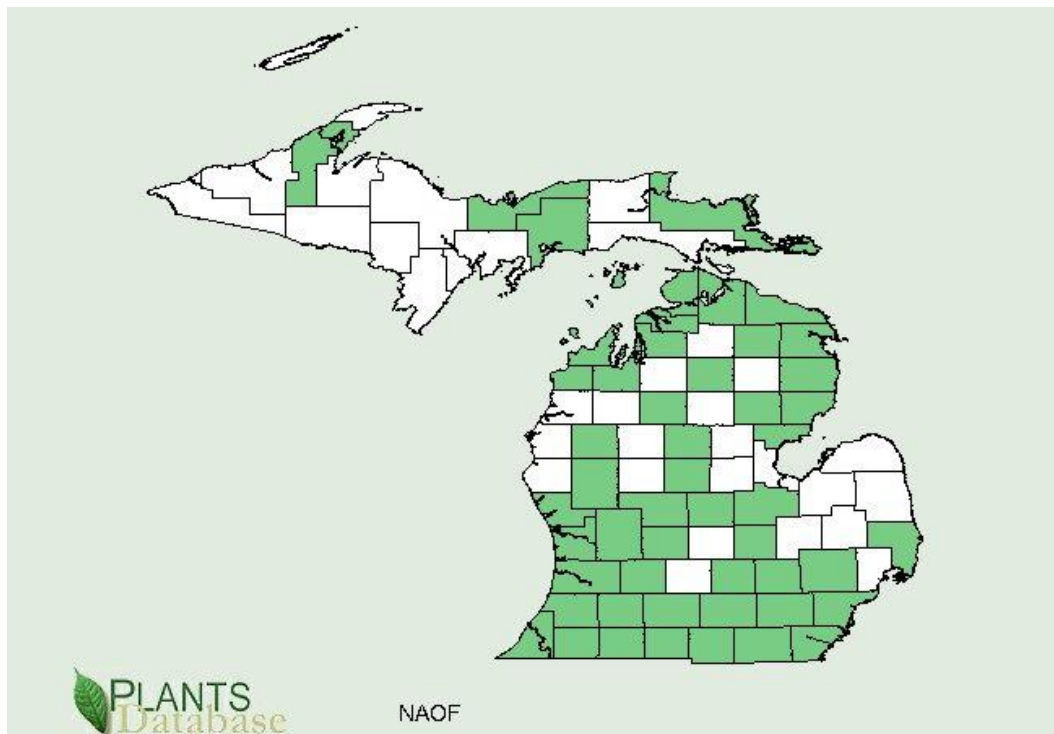
The table above demonstrates that per average serving (80g), watercress is more nutritionally valuable in all categories than broccoli, tomato, and apple, all foods that are considered to be “wonder” foods. Lutein and Zeaxanthin are antioxidants that help reduce damaging free radicals, giving watercress its reputation of being a cancer-fighting food. In summary, “watercress can boast more vitamin C than oranges, more vitamin E than broccoli, more calcium than whole milk and more iron than spinach!” (Watercress, 2012).

Usage in History

The Great Lakes Region

Watercress was not originally found in North America, but since introduction through cultivation, it has made itself at home in nearly all of the states, in some areas to the extent that it has since been classified as an invasive species in 46 states (USDA, NRCS. 2012). The tangling mass of roots, are capable of out-competing and choking out other plants that share a similar habitat.

It is unclear as to whether or not watercress was a native species in North America or if it became naturalized post-colonization. The first records of watercress appeared in 1859; Voss makes a legitimate argument that it is hard to believe that early explorers in the 1830’s would have overlooked such a prominent aquatic plant, supporting the hypothesis that it is, in fact, a non-native species that was introduced from the Old World (Voss, 1985).



The PLANTS Database Plant Database (USDA, NRCS. 2012).
Figure 4: Distribution map of *Nasturtium officinale* found in Michigan

Anishinaabek

There are no known recorded uses of the watercress by the Ojibwa. However, *Nasturtium officinale* was enjoyed raw by Iroquois, Algonquin, Halkomelem, and Okanagan-Colville among others (Kuhnlein & Turner, 1991).

Folklore -

Watercress is known as one of the most ancient leafy vegetables consumed by humans in history (Watercress.com, 2010). In Greek history through Medieval Europe, watercress was used as a salve for sword wounds and observed improvements in the health of soldiers kept value of the plant high. As vitamin C deficiency in sailors and early settlers heightened, watercress was used in cases of scurvy (herbs2000.com, 2012). The Greeks also believed highly in the plant's ability to brighten their intellect, "hence their proverb 'Eat cress and get wit'"; and Roman emperors ate it before making 'bold decisions' (Watercress, 2012). Stories of the Father of modern medicine, or Hippocrates, suggest that he deliberately designated that his hospital be besides running water so watercress was accessible to him in the treatment of his patients (Watercress.com, 2012).

Challenges/Threats

As an aquatic plant, the risk of environmental pollution/contamination is high. The plant is capable of absorbing heavy metals and toxins that can be harmful to humans if ingested (Foster & Duke, 2000). As mentioned before, not only chemical pollution but also parasites and other diseases from livestock are threats to watercress. Because the stems of watercress are hollow, there is a potential that bacteria can accumulate if grown in stagnant or slow-moving water (herbs2000.com, 2012). Watercress is also susceptible to mites, worms, beetles and other insects that feed on the leaves.

Furthering Production/Availability

Hydroponic cultivation of the watercress is definitely a possibility, but the window in which the plant stays fresh is small, so supply often falls short of demand. Like other fresh vegetables, drying, preserving or freezing the plant greatly decreases the nutritional value. It is important to keep it moist in fresh water until prepared for eating, and it is best if eaten the same day.

Despite the obvious healthful benefits of watercress, it is considered to be the most under-utilized green leafy vegetable even though it tops the charts in nutrient density. If more resources were put towards harvesting fresh, organic, native watercress, it could undeniably improve the malnourished state of much of the world's population today (Watercress.com, 2010).

Watercress is made locally available in the Pellston area by local organic markets including the Food Co-op, the Grain Train, in Petoskey, MI. There are also plenty of resources made available to those who wish to grow their own watercress in their gardens.

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