Potato Onion (Allium cepa var. aggregatum)

About Potato Onions
  Description
  History
  Nutrition
  Cooking & Eating
  Morphology

Cultivation
  Propagule Care
  Climate Tolerance
  Photoperiod
  Planting
  Companion Planting
  Growing as a Perennial

Harvest
  Storage
  Preservation

Propagation
  Vegetative Propagation
  Sexual Propagation

Problems
  Pests
  Diseases
  Defects

Crop Development
Relatives
About Potato Onions

Description

The potato onion (Allium cepa var. aggregatum) is a member of the onion family that reproduces primarily by division of bulbs, rather than by seed. This makes it more similar in form to garlic than to standard onions. They were once a mainstay of northern garden plots, where they were easier to grow than standard onions from seed. They are also known as nesting onions or multiplier onions.

Potato onions are closely related to shallots, which are also A. cepa var. aggregatum. Shallots are generally better known than potato onions. Although potato onions and shallots have just enough differences to represent two families of cultivars, the exact dividing line between the two is hard to place. Potato onions are larger, divide into fewer bulbs, and remain enclosed within the skin of the seed bulb longer (Fritsch 2002). Shallots typically have milder flavor and poor storage characteristics, while potato onions typically have a sharper flavor and store much better.

Potato onions are more commonly grown by replanting the bulbs than by starting from seed. This distinguishes them from conventional biennial onions, which must be started from seed. Nesting bulbs should not be confused with sets that are used to start biennial onions. Sets are actually small onions that somebody else started from seed; this is different than the propagation of potato onions, which directly produce bulbs that can be used to propagate the plant.

The individual bulbs are smaller than most conventional onions. Potato onions range from about half an inch to two inches (1.2 to 5 cm) in diameter, although some newer varieties produce larger bulbs.

Potato onions can be replanted indefinitely and harvested annually, which makes them easier to manage than biennial onions that must be grown from seed each year.

History

The origin of shallots and potato onions is uncertain. The earliest clear records of their use come from 12th century France (Fritsch 2003).

Potato onions were once a popular crop in North America, but fell out of favor in the early twentieth century, along with many other staples of the home garden. One possible reason for this is the additional labor involved in harvesting potato onions. Because they grow in a nest that must be divided, they are not as suitable for mechanical harvest as individual standard onions. The storage of bulbs for propagation
can also be expensive on a large scale.

Potato onions are grown as a home or small farm product in Europe, North America, and parts of Russia and central Asia. They are grown commercially in Brazil and India (Fritsch 2003). They were grown in Finland commonly until the middle of the twentieth century and 22 varieties have been identified there (Heinonen 2014). Potato onions were reportedly once grown from seed in Russia, which may account for the rich diversity in Northern Europe, where seed production is rare (Leino 2014).

**Nutrition**

I haven’t turned up any nutritional analyses of potato onions, but they are probably very similar to biennial storage onions.

**Cooking and Eating**

All parts are edible. You can snip the new leaves as green onions. The bulbs substitute well in recipes calling for storage type (not sweet) onions. Try incorporating them into soups or baked into breads.

**Cultivation**

**Climate Tolerance**

Onions of all types are pretty hardy plants that originated in cold climates. They can handle climates as cold as USDA zone 4 and perhaps colder if there is some snow cover or if a thick mulch is applied.

**Photoperiod**

Onions are perhaps the most familiar vegetable with photoperiod dependencies. Some require long days, some require short days, and some are day neutral: they will form bulbs at any time of year.

Most potato onions are long day plants that only bulb well north of 37N latitude (or south of 37S). There are a few short day or day neutral varieties grown in the South.

**Soil Requirements**

Potato onions are tolerant of a wide range of conditions, but prefer mildly acidic to neutral pH and will do best in organically rich, well drained soil.

**Propagule Care**

**Bulbs**

Onions keep best at cool, but not cold temperatures. 50 to 60° F (10 to 16 C) and low humidity is a good combination for storing onion bulbs.

**Seeds**

Onion seeds have a short storage life; germination declines quickly after a year when they are held at room temperature. Stored below 40° F (4 C), they retain good germination out to at least three years.
They have no dormancy, so they can be sown as soon as they are harvested.

**Planting**

**Bulbs**

Much like any other northern onion, you can choose to plant in fall or spring (or winter in mild climates). Fall planting gives a bit of a head start but, in some cases, can trigger flowering. Fall planted potato onions may mature as much as a month earlier. Spring planting also works very well and may be a better choice in wet climates, since bulbs may rot in consistently wet soil.

Bulb dormancy can be broken with two weeks of vernalization at 50° F (10 C) (Sumanaratne 2002). Perhaps for the same reason, fall planting increases the number of plants that bolt to seed in spring in some climates (maritime climates, in particular). This can be useful if you want to produce seed, but the flower stalks are best removed if you don’t want seed, as they tend to reduce bulb size.

Heat treatment can be used to prevent varieties from flowering. The bulbs are warmed in 104 to 107° F (40 to 42 C) water for one hour (Heinonen 2014) before planting. This also helps to break dormancy.

In mild climates, where the plants will grow through the winter, plant the bulb with the tip just at the surface of the soil. In colder climates, where most of the growth will occur in spring, it is probably better to plant with the top below the surface of the soil for greater protection (Winter 2011).

**Seeds**

Starting potato onion seed is no different than starting other onion seeds. If you live in a mild winter climate and are a bit of a gambler, you can direct seed in early autumn. Otherwise, start seeds indoors about two months before your last frost.

Potato onion seeds forming
Scatter seeds and press into the surface of the soil. Provide strong light. Keep the soil moist until the seeds have germinated. Germination takes up to three weeks and is not as regular as that of standard onions. Plan for 60% germination at best. Harden off and transplant when the plant reaches about three inches (7.5 cm) in height.

Management

Onions are heavy feeders and will benefit from a boost of high nitrogen fertilizer early in spring when they start forming new leaves. Keep them well weeded as they don’t compete well with tough weeds. Otherwise, onions require very little care.

Companion Planting

Because they take up such a small area of ground, potato onions make good companion plants. They are also pretty when they flower and can be incorporated into ornamental beds. Potato onions combine well with plants that do not have to be dug for their roots. Bush beans and peas work well planted among onions. Carrots, parsnips, root parsley, and other tap rooted plants work well, especially in their second year when you are saving a seed crop.

Growing as a Perennial

Potato onions help you to live the dream of a care free food forest. They are well behaved, propagate themselves, and provide some kind of harvestable product at all times of the year in mild climates. I like to let them grow in a bed for several years, harvesting as needed, and thinning a little whenever I pull a plant. Eventually, conditions will get crowded and yields will go down; then, you have to renovate the bed. If you have the space, that is a good time to move the plants into new ground, which may help to prevent accumulation of pests and diseases.

Container Growing

Potato onions grow very nicely in containers. A gallon (4 l) pot will grow a single plant and the yield should be nearly as good as growing in the ground, as long as you keep the plants well watered.

Harvest

Green onions (new leaves) can be harvested fall, winter, and spring. Snip a few leaves from different plants to spread the damage. As long as you don’t cut more than ten percent, the effect on yield is minimal.

Bulbs are usually harvested in July and August, much the same as other onion varieties. This is when they are at their best, but you don’t have to harvest them all. Once the onions have bulbed, you can harvest them at any time. Usually, they will sprout in the fall, but the bulb quality remains pretty good all the way through the winter.

Storage
Potato onion flower

Like standard storage onions, potato onions keep best at cool, but not cold temperatures. Temperatures of 50 to 60° F (10 to 16 C) and low humidity is a good combination for storing onion bulbs. Don't store your onions in colder conditions, particularly not in the refrigerator. Quality degrades rapidly at low temperatures and they tend to rot before planting time.

**Preservation**

Onions are typically either dried or pickled. Potato onions are great for pickling, as the range of sizes is very convenient. Overall, though, one of the main benefits of potato onions is that they store really well and don't require much effort to preserve. Potato onions will often store for more than a year in an open box in a cool pantry.

**Propagation**

Potato onions can be planted from bulbs, which is the usual practice, or from seeds. All varieties are hybrids, so they will not grow true from seed. Instead, you get new varieties to evaluate.

**Vegetative Propagation**

Replanting couldn't be easier. When harvesting, remove one bulb from the nest and replant. It is best not to plant in the same place for too long. I maintain a perennial patch of potato onions in the same place for three or four years and then relocate.

The dormancy period of potato onions is eight to ten weeks, although this can be extended substantially with cool, dry storage conditions.
There is not an easy way to propagate potato onions by cuttings.

**Sexual Propagation**

Potato onions are able to produce true seed, although it may take some work to convince them to do so. The most reliable way to force potato onions to go to seed is by planting them in early fall and allowing them to overwinter. Getting good early growth is important. If your potato onions are about a foot (30 cm) tall by the time freezing weather arrives, you should have a good chance of producing seed. Bulb size also plays a significant role in flowering, with bulbs of 1.2 inch (3 cm) diameter or larger flowering at more than four times the rate of smaller bulbs (Sumanaratne 2002).

A selection of potato onion bulblets grown from seed

Onions are insect pollinated and a reasonably pure crop requires isolation from other flowering onions at a distance of at least 100 feet (30 m), and preferably more. Some crossing will still occur at this distance, but I’m assuming that ninety percent purity is sufficient. For that matter, crossing with other types of onions may produce very interesting results. If you isolate a single variety of shallot or potato onion, the seeds will produce a very similar variety, although seed set will often be poor.

If you allow different varieties of potato onions to cross, then you will obtain new varieties with new characteristics. If you allow potato onions and shallots to cross, then you will generally still produce nesting onions, but they may have a wider range of characteristics. If you allow potato onions to cross with other kinds of onions, the progeny may not all be nesting types, although some probably will be, and you may get some really interesting new traits.

In short, you can get lots of different types of both annual and perennial onions by allowing wide crossing between types. Eat the annuals and propagate the perennials. You may find that you get something really good.
I see a lot of pollinator interest in potato onions, mostly honey bees and hover flies. Still, they seem to be more efficient with the flowers on the top side of each flower head. You can improve seed set by cutting a few flower heads and brushing them against the undersides.

**Problems**

**Pests**

Onions are happily a pretty pest free plant. Onion fly can be a problem, but is typically only a serious threat to seedlings. Plants grown from bulbs can be cosmetically damaged, but usually survive to produce a normal yield. Slugs sometimes show some interest in potato onions, but if you keep the soil hilled up to protect the bulb, they can't do any serious harm.

**Diseases**

Onions are vulnerable to a lot of viral diseases that usually don’t kill the plant but do reduce yield. This is a common problem with clonally propagated crops like potato onion. You may notice that the size of your onions decreases over time. This is often a result of virus burden. If your potato onions flower, you might try collecting some seed to grow new plants. If you keep them isolated from other onion varieties, any seeds that you collect should produce plants that are reasonably similar to the variety that you started with, but the onions will often be larger because they lack the accumulated viruses of the parent plant.

**Defects**

Potato onions have a lot of interesting reproductive defects. You may see some plants that flower normally and set seed, some that cannot be persuaded to flower at all, some that produce rare bulblets
among the flowers, or even varieties that replace flowers entirely with bulblets. It may be possible to select new top set type onions from potato onions that produce bulblets, although these are not “true” top set onions, because they are a different species.

**Crop Development**

Shallots and potato onions are closely related and interfertile, so there is good potential for crossing the two in order to bring improved flavor and strong storage characteristics closer together. Also, breeding either of them against annual onions has the potential for introducing new traits (such as improved size) while retaining perenniality. I think that there is a lot of exciting potential here. Big agriculture may have little use for perennial onions, but they are fantastic for home growers.