Overview

- Potato plants sometimes flower and then form berries.
- Potato berries form only in favorable weather and with sufficient pollination.
- Potato berries contain seeds that you can grow.
- The berries are toxic and should not be eaten.
- There is not usually any reason to remove the berries from the plant.
- Seeds from berries that fall and rot can sometimes germinate in place.
- Berries can be harvested for seed after a minimum of six weeks.

Whenever spring and summer weather has been unseasonably cool, people report seeing something unusual on their potato plants: berries. Potato berries look a lot like small, green tomatoes. These are known variously as seed balls, potato apples, potato tomatoes, or simply as berries, which is the most accurate description, botanically speaking. Tomatoes and potatoes are both members of the same genus, *Solanum*, and they both produce berries. We eat the berries of tomatoes, but we don’t eat the berries of potatoes because they are somewhat toxic. Unlike tomatoes, potato berries are small, rarely much exceeding an inch in diameter. Most remain green at maturity, but some varieties turn purple.

If you were surprised to see berries on your potato plants, you are not alone. Potatoes are normally grown from seed tubers, so many people have never given much thought to the matter of actual seeds of the potato plant. When you grow a plant from a tuber, it is a clone. Every plant of a particular potato variety is, in a very real sense, part of the same original plant. But potatoes can also reproduce sexually. They flower and, if the flower is pollinated, later produce a berry that can contain several
hundred true potato seeds. Unlike planting a potato from a tuber, a potato plant grown from seed is new and unique. Potatoes are not true breeding like many crops that are grown from seeds. Seed grown potatoes will have different characteristics than their parents. This is the foundation of potato breeding. New varieties are first grown from seed and then propagated from tubers.

Potato berries are most commonly green

It can be a little difficult to find information about potato berries and seeds because we call the tubers that we plant “seed potatoes.” There is a lot more information about seed potatoes than potato seeds, but search engines can’t really tell the difference between the two. We call potato seeds “true potato seeds” or TPS to better differentiate. They may also be called “botanical potato seeds.”

Even if you have grown potatoes for years, you might never have seen berries. For one thing, you might simply have never looked for them if you didn’t know about them. There are several factors that are important to berry production:

**Climate**

Potatoes are native to cool, temperate areas in South America. The most significant ancestor of the modern potato is the group of potatoes that were domesticated in coastal Chile. Those potatoes, in turn, were produced from varieties native to the Andes. Both areas share a cool and often humid climate. Potatoes flower and form berries best under their native conditions, so when the temperature stays under 80 degrees with high humidity, plants tend to flower much more abundantly.

**Sterility**

Many modern potato varieties have sterile pollen. These “male sterile” varieties will not produce berries unless there is another fertile variety present that can pollinate them. People tend to notice berries when they begin to grow multiple varieties, which can cross pollinate. If you have grown the potatoes or true
Potato seeds that we offer, you are much more likely to see berries on your plants than you would be with commercial varieties, because we have excluded many sterile varieties.

Potato berries can also be blue, becoming almost black as they ripen

Pollination

Potatoes are most effectively pollinated by bumblebees, which perform a specialized “buzz pollination,” where they vibrate their wings very quickly to dislodge pollen from the flower. Other pollinators, like honey bees, don’t do this, so they are poor pollinators for potatoes. If you have noticed more bumblebee activity, that might explain the sudden appearance of potato berries.

Genetics

Humans have selected potatoes for heavy yields of large tubers. In contrast, wild potatoes often produce a much greater yield of berries than tubers. Through those thousands of years of selection, we probably didn’t care much about berries, since we don’t eat them or use them to propagate the plants in most cases. As a consequence, domesticated potatoes have often “forgotten” how to reproduce sexually. Many varieties rarely or never flower even in ideal conditions. Some flower but fail to hold their berries. Something like 10% of modern potato varieties are reliable flowerers.

Disease

Potatoes accumulate diseases, particularly viruses, over time. Those viruses decrease the yield of the plant, but they also often decrease the ability of the plant to flower. You are more likely to see flowering with fresh, certified seed potatoes than you are with a variety from which you have saved tubers for multiple years because certified seed tubers most likely have a lower disease burden.
Red potato berries are pretty uncommon, but also possible

How Toxic Are The Berries?

Potatoes form toxic substances called glycoalkaloids. They are produced in small amounts in the tubers, but typically much higher amounts in the foliage and the berries. Berries have about 10 times the level of glycoalkaloids as the tubers of commercial varieties (Friedman 1992) although the levels in both berries and tubers vary significantly with variety and growing conditions. Potato tubers are considered safe when they contain less than 200 milligrams of glykoalkaloids per kilogram of tubers. Berries may range in glykoalkaloid content from as little as 177 mg/kg to 1350 mg/kg or more (Coxon 1981).

Some people begin to experience symptoms of toxicity at about 1 mg per kg of body weight (Ruprich 2009). Based upon those amounts, a sixty kilogram (132 lb) person could consume somewhere between 40 and 300 grams (1.4 to 10.5 ounces) without developing symptoms, depending on the actual level of glykoalkaloids in the berries. An adult who eats a few potato berries might not have any symptoms or might spend an unpleasant few hours with vomiting and diarrhea. Of course, potato berries are much less tested than tubers, so you should definitely contact your doctor if you have eaten potato berries. The situation is likely to be more serious for children, since they can more easily accumulate a high dose for their body weight, so make sure that they understand that the berries are not edible.

It is possible that some potato berries may be edible when fully ripe. As noted above, some fall into the glycoalkaloid range that we would consider safe for tubers. Luther Burbank once bred a potato that he called a “pomato” that had large, light colored, sweet berries. Of course, the fact that he thought that they tasted good doesn’t mean that they still weren’t toxic if eaten in quantity. That is probably why there hasn’t been much follow up in breeding for potato berries – the testing process probably wouldn’t
Most potato varieties form only a few berries, but some can produce hundreds. These berries were all collected from the same plant.

Berries do not affect toxicity in the rest of the potato plant. The tubers are just as edible as always.

**Should I Remove The Berries?**

Probably not. It isn’t a common practice. If you have young children and you are worried that they might eat the berries, that is probably the best reason.

Berry production may reduce tuber yield by diverting resources into sexual reproduction (Tekalign 2005), but the difference is generally not significant. Tuber production and berry production both begin following flowering, so there is competition for the plant’s energy between the two. In practice, farmers do not normally perform reproductive pruning of potato crops, even with varieties that fruit heavily, since the cost of the work involved would exceed the value of the difference in yield. In general, the heavier the berry production in a variety, the greater the potential reduction in yield. If you are only growing a few plants, you could remove flowers before they form berries and you might get a little boost. Most varieties produce so few berries that you won’t see any difference.

**What Are They Good For?**

As with many plants that we normally propagate from vegetative parts, like tree and small fruits, asparagus, rhubarb, sweet potatoes, and others, the seeds of potato plants don’t grow true. That means that when you grow a plant from those seeds, the tubers are not the same as what you started with. In fact, every plant grown from seed is an entirely new variety. Very few will be as good as what you started with when compared across a wide variety of traits, but many will be perfectly acceptable to
home gardeners who like to be a little adventurous.

**When Do You Harvest the Berries?**

If you want to harvest the berries and extract the seeds, the best approach is to wait until the berries ripen and fall of the plant. Just collect them off the ground. If you have problems with pests eating the berries, then you can pick them after they have hung on the plant for six weeks, when they are still fairly hard and unappealing to animals. You can also put a mesh bag over the berries as they are forming to protect them and keep them from getting lost. Any berry in excess of 1/2 inch diameter probably has viable seed, but the seeds become larger and produce better seedlings when left to mature as long as possible. Once picked, leave the berries to ripen until they are soft to the touch before extracting the seeds.

![Seeds extracted from potato berries](image)

**Will The Berries Lead to Weeds?**

Maybe, but it is more likely that you will have problems with plants growing from tubers that you missed than from seeds. If you don’t collect the mature berries and allow them to fall on the ground, some will rot and release their seeds into the soil. If you live in a climate that doesn’t have long, deep freezes, those seeds can survive the winter and germinate. Normally, because the number of berries is small and the survival rate is low, volunteer seedlings are unusual. If you have a variety that produces lots of berries and you live in a mild climate, you could get lots of seedlings. This has happened here on occasion.

**How Do You Get the Seeds Out of the Berries?**

There are several ways to go about this. The simplest is to wait until the berries are fully ripe and very
soft and just squeeze the seeds out. You can also use any method for saving tomato seeds. If you want very clean seeds that are suitable for long term storage, you can extract them with a blender and treat them with detergent to break down substances that inhibit germination.

**How Do You Grow True Potato Seeds?**

The process overall is similar to starting tomatoes from seed. For more information, see our growing guide for true potato seed.

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