

THE COMPLETE GUIDE TO
GROWING
POTATOES



**LEARN ALL ABOUT POTATO SELECTION,
PLANTING, CARE, HARVEST, & STORAGE
PLUS HOW TO AVOID COMMON MISTAKES**

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COMPLETE GUIDE TO GROWING POTATOES

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Enjoy!

-Jonathon

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INTRODUCTION

Maybe you are a new gardener, with bright-eyed optimism about the prospect of growing your own food.

Then again, maybe you are a veteran gardener who has expectations that are tempered by experience.

Either way, I think you will enjoy growing potatoes. One thing is for sure: it won't take long to get started with growing your own potatoes at home!

If you learn the basics to prepare for planting and avoid the most common problems, you can look forward to a bountiful harvest of potatoes - year after year.

If you want to be thorough, you can read this book from cover to cover and get an overview of everything you need to know to grow potatoes successfully.

You can also skim the chapters and read only the parts you need, or skip right ahead to the common questions to find an answer for a specific problem.

I hope the book is helpful, and I wish you great success in growing potatoes (and whatever else you like!) in your garden.

Best,

Jonathon

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CHAPTER 1: WHERE DO POTATOES COME FROM?

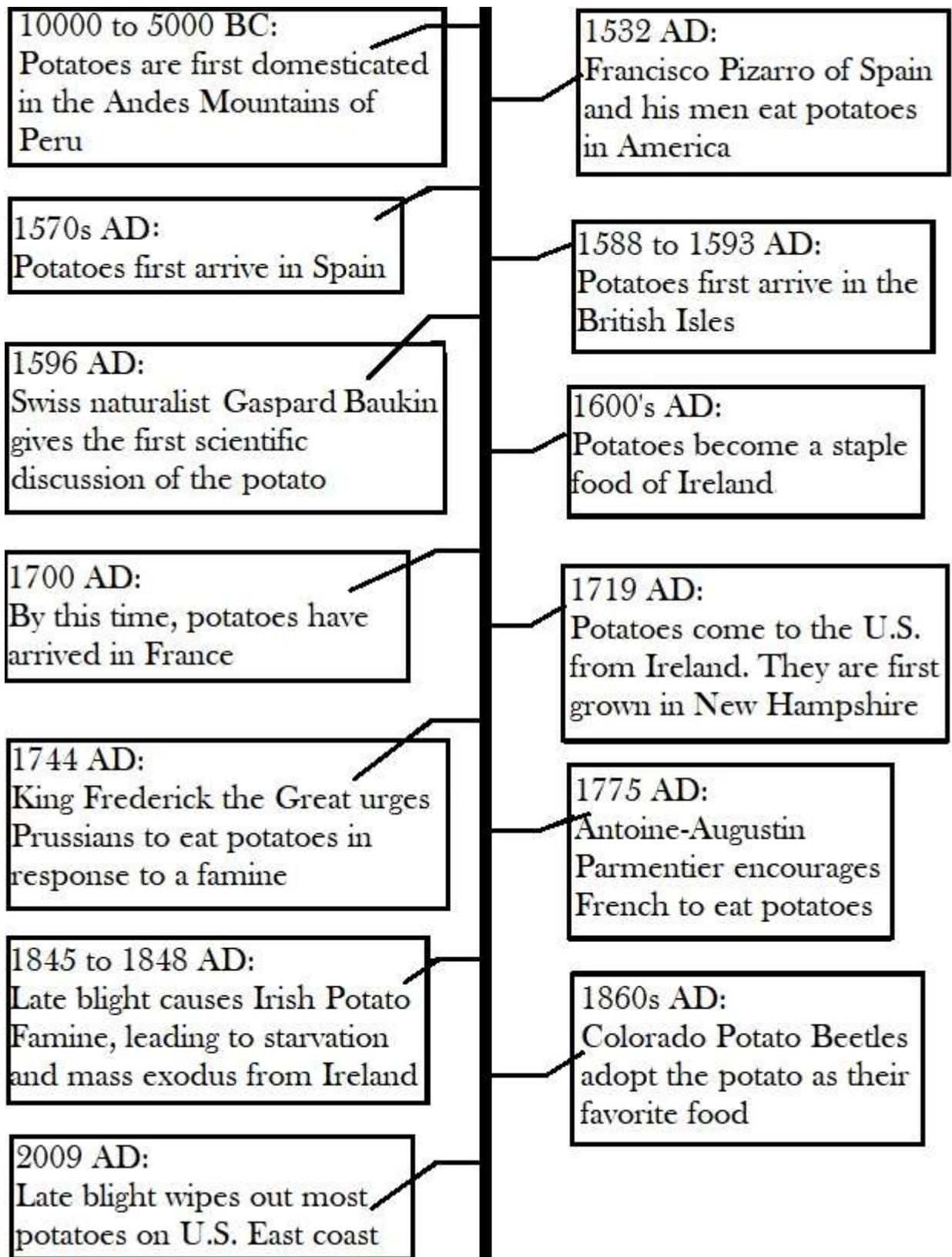
The stems and leaves of potato plants grow above ground, while the tubers that we like to eat form below the soil's surface. But where did people first start growing potatoes for food?

It turns out that potatoes got their start in the Southern Hemisphere. They were first domesticated and cultivated in the soil of South America¹ (near the Andes Mountains, most likely originating in Peru).



Potatoes originated in South America, near the Andes Mountains - most likely in Peru.

After that, potatoes were brought to Spain around 1576.² As time went on, the humble potato spread far and wide, beginning its world tour in the countries of Europe. The timeline on the next page shows how the potato made its way across the globe.



This timeline shows some of the major stops across the globe on the potato's world tour.

The people of Ireland put a high value on potatoes, adopting them as one of their staple food crops.

However, Ireland would later suffer the effects of a potato famine from 1845 to 1848.

The Irish Potato Famine was due to crop loss from the disease late blight, which is caused by the oomycete called *Phytophthora infestans*.



Many left Ireland due to the potato famine in the 1840's. Some went to America.

Late blight also affects other plants in the nightshade family (especially tomatoes!) Even worse, the disease can survive winter beneath the soil, hiding dormant inside of infected potato tubers.



This potato tuber comes from a plant infected with late blight, caused by *Phytophthora infestans*.

Potatoes came to the United States from Ireland in 1719. New Hampshire has the honor of being the first U.S. state where potatoes were grown.

After Prussia suffered a famine in 1744, Frederick the Great had to order peasants to eat potatoes for their very survival.

Many resisted eating potatoes at first, with some people thinking they were poisonous (which is often true if they turn green due to sunlight exposure!)

Eventually, potatoes also made their way to France, thanks to the pharmacist Antoine-Augustin Parmentier.

After surviving on potatoes (and not much else) during his time as a prisoner of war, he became convinced of their nutritional benefits.

Parmentier's promotion of potatoes was so prodigious that the tubers would later take the European continent by storm. In France at least, it was said that Marie Antoinette put potato flowers in her hair, while Louis XVI put them in the buttonholes of his clothing.³



Potato tubers are full of nutrition - but the flowers are not to be outdone, and they boast a natural beauty of their own (they also come in purple!)

The historian William H McNeill went so far as to suggest that potatoes laid the foundation for European empires in the two centuries from around 1750 to 1950.

In other words, the same type of monoculture that caused the Irish potato famine also lifted much of the world above subsistence-level poverty.



Potatoes make up a large portion of the world's calories and nutrition - and it has been this way for centuries now!

To this day, potatoes make up a significant portion of the world's calories. Collectively, the world grows over 350 million metric tons (over 770 billion pounds) of potatoes every year!

Potatoes are found in countless dishes, and they are easy to prepare by boiling, baking, or mashing (you can find many tasty recipes in a later chapter!)

1. https://en.wikipedia.org/wiki/History_of_the_potato

2. <https://extension.psu.edu/potato-production>
3. <https://www.smithsonianmag.com/history/how-the-potato-changed-the-world-108470605/>
4. <https://www.statista.com/statistics/382174/global-potato-production/>

CHAPTER 2: WHAT ARE SEED POTATOES?

A seed potato is a potato that you bury in the soil to grow a new plant. Often, you wait to plant a seed potato until after it has started to sprout.

Seed potatoes are tubers that are bred specifically for growing new potato plants (rather than for eating). As such, they are not grown and treated the same way as grocery store potatoes.

Remember that seed potatoes are not exactly the same as potato seeds!

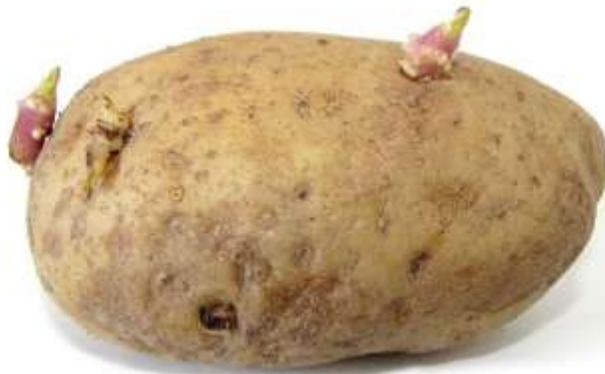
If given enough time, potato plants will often flower. These flowers may produce fruit (with proper pollination).



Given enough time, potato plants can produce white or purple flowers. Sometimes, these flowers will produce hard, green fruit that look like cherry tomatoes. These fruits are toxic, but they also contain lots of potato seeds.

This potato fruit grows above the ground, and it looks a little bit like green cherry tomatoes. However, the fruit is hard and poisonous, containing the toxin solanine (along with lots of potato seeds).

In general, you will not want to grow potatoes from potato seeds taken from the fruit. Rather, you will want to grow tubers from seed potatoes that you plant.



Seed potatoes look just like ordinary potatoes. They are not treated with sprout inhibitors. They are also inspected and certified disease-free.

When you plant a potato seed, you will most likely grow a plant that is different from the one you took the seeds from. Planting tubers is how we get a similar plant to grow.

In short: potato seeds come from fruit that grows above ground. Seed potatoes are tubers grown underground and set aside for growing new plants.

Seed potatoes look just like ordinary potatoes, but they are not for eating. You can find seed potatoes of many types from companies such as:

- [Baker Creek Heirloom Seeds](#)
- [Fedco Seeds](#)
- [Gurney's](#)
- [Harris Seeds](#)
- [Johnny's Selected Seeds](#)
- [High Mowing Organic Seeds](#)
- [Park Seed](#)
- [Urban Farmer](#)



Seed potatoes are certified disease-free, so they won't bring disease (like soft rot) to your garden.

Certified seed potatoes undergo a rigorous inspection process to make sure they are disease-free.¹ This means they will not bring the dreaded late blight (or any other potato diseases) to your garden.

Seed potatoes are also free from sprout-inhibiting chemicals (such as clorproham). This is important because potatoes bound for grocery store shelves are often treated with sprout inhibitors.

These sprout inhibitors are great for grocery stores, since they increase shelf life (which reduces food waste). However, these same sprout inhibitors also prevent potatoes from sprouting after you plant them.



You don't have to wait until the potato sprouts are this long before planting. Just an inch or less will do - as long as they are sprouting, they should grow!

Seed potatoes won't have this problem. If you do use store-bought potatoes to grow, wait until 1-inch sprouts appear to ensure viability before planting.

In my experience, plants from seed potatoes grow larger and healthier than plants from store-bought potatoes (since store-bought potatoes are treated with sprout inhibitors).



Store bought potatoes are often treated with sprout inhibitors (like clorproham) to increase shelf life. This also prevents sprouting and growth after you plant them.

The reason is that sprout inhibitors will often stunt plant growth (in addition to preventing sprouting). To be safe, order seed potatoes to get tubers that will resist disease, sprout easily, and grow vigorously.

Sometimes, it is a little too early to plant your seed potatoes when they arrive in the mail. For example, the ground may still be hard due to a few late frosts in the spring.

Or, the weather forecast may call for an unseasonably late spring frost.



Don't worry if frost, snow, or rain delays planting - you can safely store your seed potatoes for a time while you wait for better weather conditions.

Either way, you may need to store your seed potatoes for a bit. Store seed potatoes at 38 degrees Fahrenheit for up to 2 weeks before planting.²

If the ground is still too hard from frost, don't worry! You can lay out the seed potatoes on soil in a tray indoors.

Even if they really start sprouting, you can still transplant them outdoors later (once soil or weather conditions improve).

Some stores near you may have seed potatoes for sale, such as:

- Home Depot
- Lowe's
- Menard's
- Tractor Supply Company
- Walmart



Purple is just one interesting color of potato that is available. You can also find potatoes that resist diseases (like blight) or potatoes that mature earlier in the season. So, shop around!

For less common varieties, you will probably need to order seed potatoes from a reputable mail-order company's catalog.

Some of the companies mentioned earlier in this chapter have many interesting potatoes for you to try growing.

In the next section, we'll talk more about various types of potatoes and how to choose the right ones for you.



Potatoes can be bred for size, color, skin thickness, disease resistance, time to maturity, and other factors.

1. <https://extension.oregonstate.edu/gardening/techniques/grow-your-own-potatoes>
2. <https://extension.umaine.edu/publications/2077e/>

CHAPTER 3: CHOOSING THE RIGHT POTATO VARIETIES

The best thing about growing potatoes is that you can choose any variety you want – and there are lots to choose from!

You can go for:

- early season, mid-season, or late season potatoes
- potatoes that will store for a long time
- thin-skinned potatoes or thick-skinned ones
- desired texture (buttery flesh, dry flesh, etc.)
- smaller potatoes or larger ones
- red, yellow, or purple potatoes
- disease resistant potatoes



You can choose to grow smaller potatoes that are limited in size but mature much faster than big ones.

Of course, there are always tradeoffs when deciding which potato variety to plant. You can't have it all, but you can choose the best types to match your specific growing conditions.

Let's take a closer look at the factors to consider when choosing potatoes.

Time To Maturity (Early, Mid, Or Late Potatoes)

If you live in a colder northern region, you will have a shorter growing season. For that reason, you might want to go for early season or mid-season potatoes, which mature faster than late-season potatoes.

On the other hand, if you have a long growing season and want to store potatoes for a long time, you might want to go for late season potatoes.

Here is a comparison of the three types, based on the classification from Fedco Seeds (some growers will use different ranges for days to maturity):

- **Early Season** - these potatoes are very fast-maturing. Some only take 60 to 80 days after planting to produce tubers.
- **Mid-Season** - these potatoes take more time to mature, but can still produce tubers 80 to 90 days after planting.
- **Late Season** - these potatoes take the longest to grow, and they need over 3 months (90 days) to produce tubers that are ready for harvest.

Here are some **early season potatoes** to try if you want to harvest sooner (60 to 80 days, or 8.5 to 11 weeks):

- Adirondack Blue
- Algonquin
- Belmonda
- Dark Red Norland
- Natascha
- Purple Viking
- Red Gold
- Yukon Gold



Yukon Gold is a popular early season potato variety that matures fast.

Here are some **mid-season potatoes** (80 to 90 days, or 11.5 to 13 weeks):

- Caribou Russet
- Gold Rush
- Huckleberry Gold
- Kennebec
- Satina
- Strawberry Paw



The Kennebec potato plant (shown above) is a mid-season variety with some resistance to late blight. It produces tubers with white flesh.

Here are some **late season potatoes** if you don't mind waiting (90+ days, or 13+ weeks):

- Elba
- French Fingerling
- Magic Molly

- Pinto Gold
- Princess Laratte
- Russian Banana

Storage Life

You may also want to consider storage life when choosing potato varieties. Some potatoes will last longer on the shelf than others.



Some potatoes will last longer in storage than others, and this is something to consider when choosing potato varieties.

For example, mid-season or late season potatoes tend to last longer than early season potatoes (but there are exceptions).

Also, potatoes with thicker skins tend to last longer than potatoes with thinner skins. Part of this is due

to the fact that thinner skins are easier to damage by bruising, cutting, or puncturing during or after harvest.

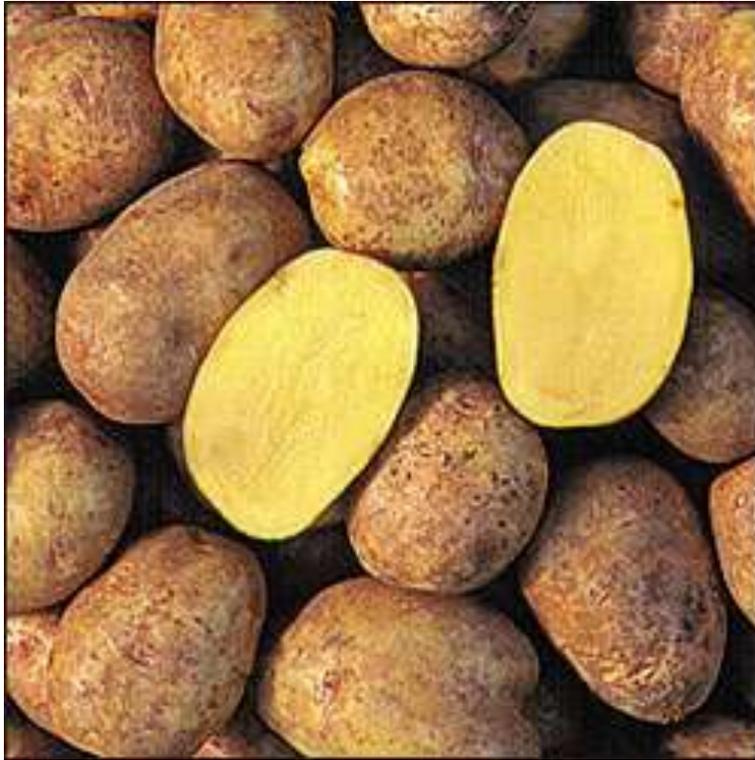
Here are some potato varieties that store well:

- All Blue
- Burbank Russet
- Elba
- German Butterball
- Katahdin
- Kennebec
- Lehigh
- Natascha
- Pinto Gold
- Purple Viking
- Red Chieftain
- Red Pontiac
- Russian Banana Fingerling
- Satina
- Strawberry Paw
- Yukon Gem
- Yukon Gold

Skin Thickness

Skin thickness is another factor to consider when choosing potato varieties.

Potatoes with thinner skins are easier to damage by bruising, scraping, or cutting during harvest or handling. However, they are better for cooking if you don't want to peel the potatoes first.



Yukon Gold is an early season potato variety with smooth, brown, waxy, thin skin and yellow flesh that has medium starch.

On the other hand, potatoes with thicker skins will keep longer in storage, making them preferable if you want to store potatoes for months on end.

Note that potatoes with thicker skins are not as well suited for the Southern U.S.¹

Potato Size & Purpose

The size of potatoes you want will also play some part in the variety you choose (as well as how soon you will harvest).

Generally, larger potatoes take a longer time to grow to full size at maturity. However, you can always take some “new” potatoes from beneath the soil before they are fully mature.

These new potatoes will be smaller than mature potatoes, with much thinner skin. However, you can harvest them sooner, and they can hold you over until the rest of the crop matures to full size.



New potatoes are harvested early. They are smaller than mature potatoes, but with their small size and thin skin, you can easily cook them whole, with no need for cutting or peeling.

You can also grow “fingerling” potatoes. These varieties produce tubers that are naturally smaller than other varieties – even at full maturity.

Here are some **fingerling potato varieties** to try if you want to harvest smaller tubers:

- French Fingerling
- Magic Molly
- Pinto Gold
- Russian Banana

These smaller potato varieties are great if you have limited space to grow (for example, if you are using a container like a grow bag).



If you are growing a potato plant in a smaller container (like a grow bag), smaller fingerling varieties might be just what you need.

Color (Skin & Flesh)

You can also choose specific colors for your potatoes. This is more for appearance than anything else, but there are some varieties with interesting colors for both skin and flesh.

Here are some potato varieties with unusual colors:

- Agria – mid-season variety with tan skin and yellow flesh. Oblong or flat shape.
- Caribe – early season variety with purple skin and white flesh. Oblong shape.

- Cranberry Red – mid-season variety with red skin and pink flesh. Round shape.
- Goldrush – mid-season variety with tan skin and white flesh.
- Keuka Gold – early season variety with tan skin, and yellow light flesh. Oblong or flat shape.
- Yukon Gold – early to mid-season variety with tan skin and yellow flesh. Round or oblong shape.

Disease Resistance

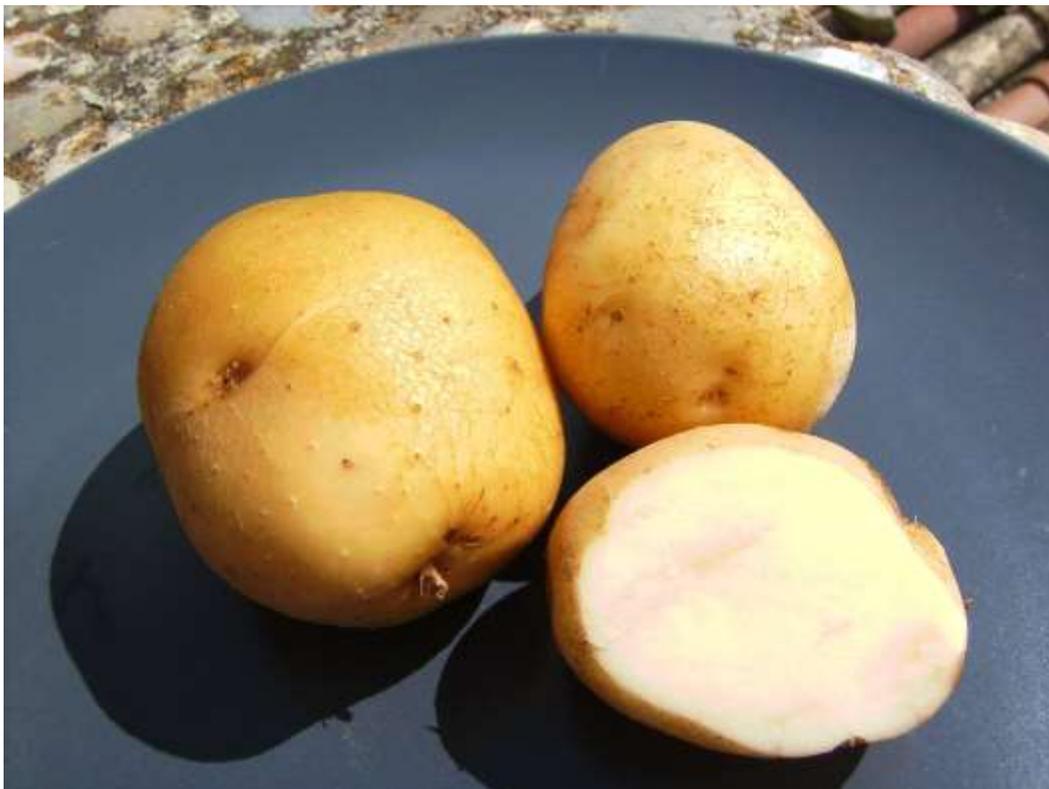
Finally, you might want to take disease resistance into account. Depending on where you live and the growing climate, late blight and other potato diseases may pose a threat to your plants.



Late blight has been around a long time, and it is still a serious threat to potato plants today.

Remember that late blight caused the Irish Potato Famine in the 1840's, and the disease still presents a threat to potatoes now. These potato varieties have some **late blight resistance**:

- Baltic Rose
- Chieftain
- Desiree
- Elba
- Kennebec
- Nicola
- Soraya
- Upstate Abundance
- Yukon Gem



Kennebec potatoes have some resistance to late blight.

Keep in mind that some potato varieties are especially susceptible to late blight. If you want to grow one of those varieties, prevention is the key (more on this in a later chapter).

Scab is another common potato disease. Here are some potato varieties with scab resistance:

- Caribou Russet
- Dark Red Norland
- Nooksack
- Onaway
- Russet Burbank
- Superior



Russet Burbank is a potato variety with resistance to scab.

Scab problems tend to go away when soil pH is 5.2 or below (somewhat acidic).²

(Note: Defender, Katahdin, Kennebec, Russet Norkotah, Shepody, and Yukon Gold are susceptible to scab).

Don't be limited by the potatoes listed in this chapter. There are hundreds of varieties out there, and seed companies have some unique ones you can try.



You can find lots of potato varieties in seed catalogs from companies like Fedco.

Many universities are also constantly doing research to create new potato varieties. This can take years to get right, but they always have something interesting in the works!

Here are some potato varieties from U.S. universities, along with release dates:

- Amarosa Russet - 2010 - Oregon State University
- Caribou Russet - 2015 - University of Maine
- Centennial Russet - 1976 - Colorado State University
- Chipeta - 1993 - Colorado State University
- Crimson Red - 2009 - Oregon State University
- Easton - 2014 - University of Maine
- Klamath Russet - 2000 - Oregon State University
- Mazama - 2000 - Oregon State University
- Modoc - 2003 - Oregon State University
- Owyhee Russet - 2009 - Oregon State University
- Pinto - 2015 - University of Maine
- Purple Pelisse - 2009 - Oregon State University
- Red Sunset - 2009 - Oregon State University
- Russet Nugget - 1988 - Colorado State University
- Sage Russet - 2010 - Oregon State University
- Sangre - 1982 - Colorado State University
- Sebec - 2014 - University of Maine
- Snowden - 1990 - University of Wisconsin
- Umatilla Russet - 1998 - Oregon State University
- Ute Russet - 1986 - Colorado State University
- Wallowa Russet - 2002 - Oregon State University
- Winema - 2000 - Oregon State University
- Yukon Gem - 1994 - North Dakota State University

Now that you know what to look for in a potato variety, it's time to go online (or request catalogs by mail), do some research, and decide on the potato varieties you want to grow!

1. <https://extension.uga.edu/publications/detail.html?number=C1011&title=Home%20Garden%20Potatoes>
2. <https://hort.extension.wisc.edu/articles/potato-scab/>

CHAPTER 4: HOW TO MAKE POTATOES SPROUT

Before we can learn how to make potatoes sprout, it helps to know why they sprout, how it happens, and what causes it in the first place.

Potatoes sprout as a natural part of their reproductive cycle. Sprouting is one of the early steps in the creation of a new potato plant.



Potatoes sprout as a natural part of their reproductive cycle. The sprouts will grow into an entirely new plant, given the right conditions.

After a period of winter dormancy, potato tubers prepare to sprout. This is encouraged by specific environmental conditions for light, temperature, and moisture (more on this later).

After dormancy ends, an enzyme turns some of the potato's starches into sugar.¹ Storage temperature has an effect on how this process plays out.

The sugar is now more readily available as energy to form new sprouts. These sprouts grow from the eyes (or buds) on potato plants.



You can see eyes on the skin of these potatoes, indicating where sprouts will appear (given enough time after dormancy).

The eyes on a potato are small dimples or indentations on the surface of the tuber. They are visible if you take a close look at the tuber's skin.

Each eye on a potato contains vegetative buds. These vegetative buds will eventually sprout, giving the tuber a chance to grow into a whole new plant.²

At first, the eyes are tiny - but after sprouting occurs, you can easily see the sprouts as they grow longer.

If the potato is not planted, the sprouts will grow longer and use up energy (sugar or starches) from the tuber until its reserves are exhausted.

You can see the potato plant become more wrinkled as this happens over time. Eventually, it will have a “deflated” appearance.

Generally, you should try to get a potato tuber to sprout before planting it. A potato that has not sprouted *might* grow into a new plant - but there is no guarantee.

Generally, a potato will grow better if it ages a bit and goes through dormancy before planting. The physiological age of the seed potato determines what it looks like.

The table below shows physiological age and the corresponding appearance of the potato tuber.

Physiological Age	Tuber Appearance
1. Dormant (Young)	No Sprouts (Eyes Only)
2. Apical Dominance	One Sprout
3. Sprouting	Multiple Sprouts
4. Branching (Old)	Branched & Hairy Sprouts
5. Tuberization	Little Tubers

There is a much better chance to successfully grow a healthy new plant if you encourage the potato to sprout before you plant it.



Get your potatoes to sprout before planting them. This ensures that you are only planting tubers that are ready to grow!

To encourage sprouting in potatoes (also known as *chitting*), just do the opposite of what you would do to store potatoes long-term!

Normally, to store potatoes and prevent them from sprouting, you would store them in a cool, dark, dry place. This encourages the potatoes to remain in the “dormant” state.

In the dormant state, potato eyes will not sprout. They “know” that it is not the right time to reproduce (since cold and dark conditions tell them it is still winter).

This dormant state protects the potato plant from sprouting and growing when there is still a danger of frost that could kill the new plant.



To prevent potatoes from sprouting in long-term storage, we keep them in a cool, dark place (high humidity prevents them from drying out and shriveling).

When spring comes along, the soil gets warmer and wetter, and the days get longer and brighter. Snow and ice also melt, allowing more sunlight to reach the soil.

So, if you want your potatoes to grow eyes and start sprouting sooner, then keep them somewhere warm and moist, giving them some exposure to indirect sunlight.

To encourage faster sprouting, lay the potatoes out on a bed of soil in a container indoors. Keep the

humidity high with a spray bottle to mimic outdoor conditions in the spring.



Find a warm spot with some sunlight (make it indoors if it is still cold outside) and lay out your potatoes on damp soil to encourage sprouting (chitting) of the tubers before planting.

To encourage more sprouts to form, turn the potatoes over after they start sprouting. When you expose the other side of the potato to light, the eyes on that side will also have a chance to sprout.

All of these conditions (warmer temperatures, brighter light, and wetter soil) are exactly what happens in the spring. These conditions are what encourage potatoes to break dormancy and start sprouting.

After your potatoes have sprouted, you can cut them into pieces before planting. There should be at least

one eye per piece, since this is where the sprouts come from!

Cutting seed potatoes may give you more potential plants, but there is a cost to this approach.



Cutting your potatoes into pieces gives you the potential for more plants, but they may get a slower start due to smaller energy reserves.

Remember that enzymes in the potato convert starch into sugar. This sugar provides energy for sprouts to grow from the eyes of the potato.

A small piece of sprouted potato tuber may grow slower at the start of the season, because it has less energy reserves due to smaller tuber pieces.

If you do decide to cut your sprouted potatoes into smaller pieces for planting, give them time to heal before planting.

Leave them out for a few days so they can scab over. This will help to protect them from rot and disease.

1. <https://sampson.ces.ncsu.edu/2019/08/is-it-safe-to-eat-a-potato-that-has-sprouted/>
2. <https://extension.unh.edu/blog/2020/03/what-best-way-grow-potatoes-containers>

CHAPTER 5: HOW TO PREPARE SOIL FOR POTATOES

Now you've chosen your favorite potato varieties, ordered them, and gotten them to sprout. It's time to prepare the soil to optimize their growth and maximize your harvest!

Remember that potatoes grow best in soil that drains well and has a loose consistency.¹ Usually, this means sandy loam soil (which does not have much clay content).



Sandy loam soil is ideal for growing potatoes. Clay soil is heavy and dense, retaining too much water (which can lead to rotten potatoes).

Potatoes also prefer somewhat acidic soil: the ideal pH range is 4.8 to 5.4 (remember that a pH of 7.0 is neutral).

Soil Consistency

Does your soil stick together? Can you mold a handful into different shapes (like clay in your hands)?

If so, then guess what? You have clay soil.

Clay soil holds lots of water because it does not drain well. This is good if you live in an area that is prone to drought.

However, clay soil can also be bad news for growing potatoes. Clay soil is very dense, with small particles that are packed close together.



Clay soil has tiny particles that are packed together in a dense clump.
Clay soil drains poorly, and it is not ideal for growing potatoes.

Since tubers form underground, clay soil makes it harder for potatoes to grow to their full potential.

To improve clay soil for growing potatoes, add some compost or aged manure.

This will loosen up the soil and make it drain better. It will also add some nutrients and organic material to the soil, which will help to attract beneficial organisms (like earthworms).

Warning: you should not add sand to loosen up clay soil. The result will be very hard soil that is difficult to work with!

On the other hand, if your soil is loam (not clay), but not as loose as you want, you can add a little sand to the soil.

Potatoes, carrots and other “root” crops prefer loose soil, which allows them to grow without bumping into dense clumps of earth.



Potatoes, carrots, and other plants with large roots or tubers underground have one thing in common: they prefer loose soil, which lets them grow to their full potential.

If your soil is too sandy, it will drain very fast. This can lead to a lack of water for any plants you try to grow, including potatoes.

If your soil feels rough, coarse, or gritty to the touch, has large grainy particles, does not hold its shape well, and dries out fast, then you have sandy soil.

The table below shows a comparison of the three basic soil types (clay, loam, and sand), along with their consistency and ways to make it better for growing potatoes.

Soil Type	Consistency	Solution
Clay	Heavy and dense, with poor drainage, due to small particles.	Add compost to provide organic material and improve drainage.
Loam Or Sandy Loam	Good drainage, due to a mix of medium to large particles.	None.
Sand	Light, with fast drainage, due to large particles.	Add peat moss or coconut coir, or mulch on top of soil to hold moisture.

On the next page, you can see images comparing clay, loam, and sandy soil types.



This figure shows clay soil that drains poorly (top), loam soil that drains well (middle), and sandy soil that drains fast (bottom). Sandy loam is best for growing potatoes, since clay soil will prevent tuber growth and lead to rot.

No matter what type of soil you have, you can improve it by running it through a sifter. This will remove sticks, rocks, roots, soil clumps, and other debris from your garden soil.

You can make a soil sifter with just the following items:

- 4 long pieces of wood
- chicken wire with small holes
- snips (to cut chicken wire, if necessary)
- nails
- hammer

A soil sifter looks something like this:



A soil sifter made from wood, chicken wire, snips, nails, and a hammer.

You can also buy a soil sifter online if you are not handy at building things (or if you want to spend the time gardening instead of building).



Sifted soil will be free from large rocks, sticks, clumps of dirt, and anything else that might inhibit the growth of potato tubers.

Soil pH & Nutrients

The ideal soil pH for growing potatoes is 4.8 to 5.5 (which is somewhat acidic). If you are not sure about the pH of your soil, get a soil test.

You can buy a home soil test kit online or from a store. However, these home test kits are not as accurate as a lab test.

Another option is to send a soil sample to your local agricultural extension for testing.



If you collect a soil sample from your garden, you can test it with a kit or send it to a lab for testing to find out the pH and nutrient levels.

A soil test will tell you the pH of your soil, and it will also tell you about the nutrient content of your soil.

The “big three” nutrients to worry about are nitrogen, phosphorus, and potassium (NPK), although it is possible to have deficiencies of others (such as calcium, magnesium, sulfur, etc.)

A soil test may reveal that one or more of these nutrients is lacking in your soil. In that case, you may want to use fertilizer as you prepare your soil for planting potatoes.



You can take soil samples from several different parts of your garden to see which area is best for growing potatoes.

(We will go into more detail on fertilizing potato plants in a later chapter).

Compost

Compost will help to improve most soil types - not just clay soil. Compost contains organic material and

nutrients, which both help to improve the ecosystem in your garden.



Adding compost will improve drainage for clay soil, and it will add nutrients and organic material to attract earthworms and other beneficial soil organisms.

Compost also helps to build soil structure while feeding plants. It replaces what plants take out of the soil when they use nutrients for growth.

In addition, compost encourages the growth of soil organisms, such as beneficial bacteria and earthworms. These organisms aerate the soil while breaking down leaves, grass, and other debris into a form that plants can use to grow.

Compost is a great way to keep your soil healthy. The best part is that you can make compost from yard and kitchen scraps that you probably already have lying around.

There's no need to let grass clippings, raked leaves, or fruit/vegetable scraps go to waste. Turn it all into compost!

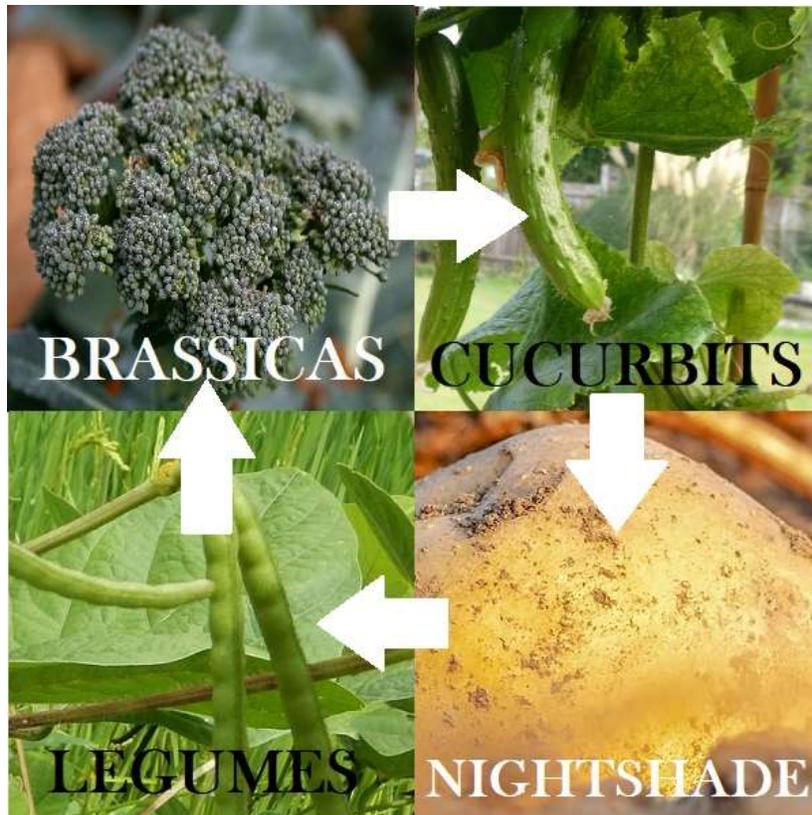


Don't let yard and kitchen scraps go to waste. Turn grass clippings, raked leaves, and fruit or vegetable scraps into compost to help you grow better potatoes!

Crop Rotation & Cover Crops

Crop rotation means that you plant different crops in the same location every year. For example, in one corner of your garden, you might plant potatoes in year 1, beans in year 2, corn in year 3, and so forth.

Crop rotation helps to avoid the spread of diseases (such as early or late blight, which affects both potatoes and tomatoes) in your garden.



Crop rotation helps to prevent soil diseases and can also help with pest control and nutrient management. You can try switching between Brassicas (like Broccoli), Cucurbits (like Cucumber), Legumes (like Green Beans), and Nightshades (like Potatoes) over the course of four years.

Crop rotation also helps to prevent soil depletion by growing different crops each year and replacing nutrients in the soil.

Planting a cover crop (also known as green manure) is another way to improve your soil between growing seasons.

A cover crop is one that you plant and grow in the garden to help replace nutrients that have been used and depleted by other crops.

For example, you would plant a cover crop, such as alfalfa (Lucerne), in your garden after the growing

season ends. The alfalfa has deep roots, and it will pull up nutrients from deep underground.



Alfalfa is one cover crop (green manure) that you can use to help add nutrients to the soil for growing potatoes.

After the alfalfa grows, you would till it into the soil and let it decompose. The nutrients in the alfalfa would then become available to the crop you plant in the soil next year.

Here is a list of some common cover crops you can use as green manure.

- Alfalfa – a legume also known as Lucerne, alfalfa has a deep root system. This makes alfalfa resistant to drought, and allows it to absorb nutrients from deep in the ground.
- Beans – a legume that grows above ground on vines. Beans prefer warmer weather to grow. They can become quite tall, and they are a good source of protein for humans and animals. You can grow

pole beans (tall and narrow) or bush beans (short and wide).

- Clover - a legume with distinctive 3-section leaves, clover is often used as feed for livestock in addition to being used as a green manure.
- Peas - an annual legume (they live only one year), peas grow best in cool weather. They are a good source of protein, making them a good choice for animal feed if you don't need the whole crop for your garden soil.
- Vetch - another member of the legume family, vetch is a close relative of peas and lentils. Once eaten widely by humans, it is often used as a cover crop or as animal feed.



Green beans are legumes that grow on vines. They help to restore nitrogen to soil.

Fertilizer

You may need to fertilize potato plants later in the season as they grow. However, you might be able to avoid this if you give them enough nutrients at the start of the season.

As mentioned earlier, compost and cover crops will help to replace some nutrients in the soil. Still, fertilizer may be necessary.

This is especially true if you are growing “heavy feeder” crops (like potatoes) that use up lots of nutrients in the soil.



Potato plants are heavy feeders, so they will take lots of nutrients from the soil as they grow. You might need to add compost, aged manure, or other fertilizers to replace what is used up.

Out of all the nutrients, a potato plant will use the most nitrogen (N) and potassium (K) for growth of vines and tubers, followed by phosphorus (P), calcium (Ca), magnesium (Mg), and sulfur (S).²

Potatoes will take small amounts of iron (Fe), manganese (Mn), zinc (Zn), copper (Cu), and boron (B) from the soil.

A balanced fertilizer, such as 10-10-10, will add some of each of the “big three” NPK nutrients (nitrogen, phosphorus, and potassium) to your soil.

No matter which fertilizer you choose, always follow the instructions on the package to avoid burning your potatoes (and other plants) by over fertilizing.



Chicken manure is a good source of nitrogen and other nutrients for potato plants. Just make sure that the manure is aged and decomposed before you apply it to your plants.

Aged chicken manure is good for growing potatoes – it contains lots of nitrogen, which helps potatoes to grow.

Watch out though! Make sure to give the manure enough time to age and decompose properly. Avoid using “hot” or fresh manure for growing plants.

Fresh manure contains too much nitrogen, and also some salts from animal waste. Both of these things can burn your potato plants in high amounts.



Avoid using fresh manure so that you don't burn your plants. Always let manure age before using it in the garden.

When using chicken manure (or any other manure) in your garden, there are a few guidelines to keep in mind:

- Allow manure to age for 3 to 12 months to break down completely. To make it decompose faster, turn it with a pitchfork or shovel every so often, and add water if it dries out.
- Properly aged manure should look like soil. You should not be able to see much (if any) sawdust, wood shavings, straw, or animal bedding in properly aged manure.

- Mix manure with compost & soil before putting it in the garden. This will decrease the concentration of nitrogen and salt in the manure.
- If applying aged manure directly to your garden, use a thin layer that is 0.25 to 0.5 inches deep.

Once your soil is ready for potatoes, you should work soil to a depth of at least 6 inches before planting.³ This will loosen up the soil and make it easier for potato tubers to grow.

(You can learn more about this in a later chapter on potato depth and spacing).

1. <https://extension.uga.edu/publications/detail.html?number=C1011&title=Home%20Garden%20Potatoes>
 2. <https://extension.umn.edu/crop-specific-needs/potato-fertilization-irrigated-soils>
 3. <https://extension.oregonstate.edu/gardening/techniques/grow-your-own-potatoes>
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