How to Increase Yields with Potato Growing Bags

- Benefits and Challenges
- Variety Selection
- Whole Tubers vs. Cut Pieces
- Green Sprouting
- Planting Time
- Bag Fillings and Bag Colors
- Weeding and Refilling
- Nutrition and Watering
- Harvesting

Benefits and Challenges

Benefits

- Potentially higher yields per square foot ~ 20 bags can be lined up in 2 rows of 10 bags to cover an area of 3 ft. x 15 ft. Harvest could be 60-80 pounds from 20 bags, compared to 20-30 pounds from 6 hills planted in a traditional furrow.
- Bags are easy to tag with a label to ID the varieties.
- Planting and harvesting is quicker and easier.
- The weeding chore is very light.

Challenges

- Bags are exposed to wind and it is harder to keep the soil well hydrated, but not water logged. In order to reduce the area exposed to the wind, we recommend to line bags in rows [see picture below] or lined against a South facing wall.
- Watering needs to be adjusted to plant growing stages.
- Select the correct varieties to achieve higher yields.
Variety Selection

Pathogen infected tubers or Sprouting-Inhibitor Treated [like those found at the grocery store] are not a good choice. We recommend purchasing Certified Potato Seed tubers. Pick varieties that are drought and/or heat tolerant.

Growing potato in bags may be disappointing if you only find tiny tubers at harvest time. Almost any potato vine will set tubers, but not all varieties will “bulk” (mature the tuber to proper size).

Look for varieties that may develop tubers higher above the original seed piece. Such varieties may be indeterminate vs. determinate [analogy to tomato vines].

Whole Tubers vs. Cut Pieces

Farmers plant thousand of hills and cut the seed tubers into pieces. We recommend planting the tubers whole. A cut piece is much more likely to dehydrate and lack the energy to grow a healthy vine.

For the purpose of planting tubers whole select potato in the walnut to small peach size range.
Green Sprouting

Once you have selected your seed tubers, perhaps 2 - 4 weeks before planting time, you should start the Green Sprouting process.

First you need to determine how the seed pieces will be placed in the bag at planting time. Do you know how to tell the top and bottom of a tuber? Often tubers are oval to oblong. At one end you should be able to recognize where the spud was attached to the vine (stolon is the root piece linking the tuber to the vine) – that end is called the stearn end, where the opposite end is called the sprouting end.

We recommend placing the tubers in the growing bag with the sprouting end pointing up. Therefore you will place the tuber in the same direction on an egg carton at room temperature in your house under moderate light – not direct sun light.

In 2 – 4 weeks the tubers will start growing short and fat sprouts. At planting time these “stronger” sprouts will develop a healthy vine and give you a head start.

Planting Time

Don’t plant too early! Very much like tomato, potato vines love warm soil temperatures. The soil in the bags is exposed to greater temperature swings between sunny days and freezing nights in March and April. We recommend planting close to the last freezing night. The vines will take a couple of weeks to start growing and should not be exposed to night temps below 40F.

Bag Fillings

How to fill the bags at planting time may make the greatest difference at harvesting. Two factors are relative to “tuber bulking” – any potato vine will develop tiny tubers – but you want decent size spuds! Bulking or developing larger tubers is affected by lack of moisture in the soil and/or high soil temperatures.

The soil mix MUST retain a maximum of moisture and stay cool during the hot summer days and nights.
As a guideline compost holds seven times more moisture than standard garden soil. We are currently testing different bag fillings mixes to determine which yields higher crops.

How much soil do we need at the bottom of the bag under the potato seed piece? Currently we are filling the bags with about 1 – 2” of compost and insert / place the tubers in the correct vine growing direction. Then we fill the entire bag at planting time. The rationale is that potato seed tubers may dehydrate if not covered with 6 - 8” of soil / compost.

Next consideration: Typical garden soil will “bake” into a solid rock inside the bag and prevent tuber bulking! We recommend using compost and/or a mix of light filling materials.

We are currently testing this structure:

- First third of the bag compost with the seed tuber pieces inserted at about 1 – 2” from the bottom.
- Worm castings on top of the compost
- Middle third of the bag filled with straw.
- Top third filled with untreated wood shavings.

Compost and straw may contain weed seed that could germinate. Hopefully the “weed-free” wood shavings prevent weed germination. A few weeks after planting the soil mix will settle into the bag and some refilling may be necessary. Likely you will recognize the potato foliage emerging and pull any weed right away.

Other filling materials are being tested for their ability to retain more moisture and/or stay cooler. Soil mix temperatures are certainly affected by the bag color. Lighter color bags are better than darker. Black is the worst choice.

**Weeding and Refilling**

Depending on how much weed seed in hidden in your soil mix, the weeding chore may be very light. Pull any weed you recognize peaking through the bag top layer before the potato vines grow longer than 4”. Once the potato vine canopy develops further, weeds have little chance to become a determinant factor.
Check the bags for a last weeding once the potato vines are in the 6 – 8” length and refill the bags one last time to shade any tubers that may grow high in the bag.

**Nutrition and Watering**

The soil mix should provide sufficient nutrition to the potato vine. We are currently testing different amounts of worm castings to see how these affect the crop yields. More fertilizer could be added to the watering through the growing stages of the vines – perhaps fish emulsion.

Proper watering may also be crucial for best tuber bulking. Farmers apply irrigation in traditional planting: Typically irrigation is not required before the vines emerge from the soil, especially if you have planted whole tubers, these will provide enough energy for the vine growth.

Once the vines are 4 – 6” long the bag may need 1 – 2” of rainfall per week. It is always a good idea to monitor rainfall in your garden. Then again you may want to feel the moisture with your hand into the soil mix. Remember, compost holds seven times more moisture than typical garden soil. Therefore less rainfall may be required to keep adequate soil moisture.

As soon as the vines start turning yellow don’t water any more as too much moisture fosters disease and tuber rotting.

**Harvesting**

Harvesting is possible 4 – 6 weeks after flowering. We recommend to not disturb the vines until they start to change color. Best results for tuber storage are obtained by waiting until the vines have dried out completely. You want all the energy contained in the vines to transfer back to the tubers.

Farmers don’t care to wait – desiccant chemicals are sprayed to kill the vines and harvest sooner. Varieties are often chosen for the thick peels that prevent damage during harvest and storage.

What is the value of a potato spud grown in your garden without chemicals and with tender peels loaded with precious compounds?

*Please join Kenosha Potato Project Facebook Page or visit kenoshapotato.com*