

# How to Grow a Giant Pumpkin

By Russ Landry, gvgo.ca



**Getting Started** > How does one actually grow a giant pumpkin? There are several tips and factors that can help a grower produce a true giant. Four things are most important Good Soil, Good Seed, Hard work and Good Luck! Some basic instructions found at many of the giant pumpkin web sites including the GVGO.ca site. It is packed full of information that will get you started and on you way. The Giant Vegetable Growers of Ontario is dedicated to promoting and sharing with all growers the knowledge and experience it takes to grow large vegetables. The GVGO attempts to inform the hobbyist grower in the proper care and growing techniques used in giant pumpkins that have now exploded in size up to 1810 pounds the current world record.

Good Luck and Good Growing.

**Soil Preparation** > The key for any type of plant growth. Proper preparations will assist the growing of the world's largest vegetable fruit. These giant types of pumpkins require the correct soil medium to grow to a healthy prize winning pumpkin. Try to find out what your soil conditions are currently, and consult the gvgo.ca message boards. A soil test will provide the amount of soil nutrients your garden contains and provide corrective action to balance your soil for planting. Sandy soils will generally require much more amendments than loamy soils and clays soils will require the addition of organic matter. In most case's a few yards of "composted" soil mixed with a rich blend of organic matter combines the best of what Mother Nature has to offer.

**Soil Testing** > Optional > The test lab will provide results, which are defined as the percentage of nitrogen N phosphorus P and potassium K fertilizer needed to correct deficiencies; These percentages are the three numbers found on most fertilizers bags. The test will also report the percentage of Calcium (ca) and organic matter (OM) in the soil. Calcium is considered a vital pumpkin growth requirement as it helps build cell walls of the pumpkin. Most Ontario area soils naturally contain 3 to 5% OM. Giant pumpkins like soil beyond this level, approaching 10% or more will allow you to grow a giant without supplemental fertilizers. The correct pH level of the soil will aid in the plants roots in easier uptake of the proper required growth elements. Pumpkins grow best in pH ranges from 6.8 to 7.2 but can perform well at levels above or below this range. Follow what the

test report recommends and amend your soil with the compost or the fertilizer supplement of your choice. Of course, there are many types of products to amend your soil. Some growers plant a cover crop in the winter and amend the soil with an additional manure or compost to give that extra punch. Be sure to till and mix your manure or compost in well to provide a good planting medium.

**Seeds** > Selecting a good genetic seed increases your chances in growing a large pumpkin. To get good seeds, join a local pumpkin grower association such as The **Giant Vegetable Growers of Ontario**, [gvgo.ca](http://gvgo.ca). Great seeds with proven histories of success are distributed annually to all club members free. Nursery store bought giant seeds are generally of low quality and will produce pumpkins under 400 pounds. With, proper care today's modern seed stocks available from the GVGO have the capability to reach weights as high as 1800 pounds.

**Germination** > Before attempting to germinate seeds they should be filed on the outside edges to allow for easier water absorption, and help the roots and leaves emerge from the hard shell. Germination usually takes about 3 to 7 days if the soil surface temperature is around 80\* F. This is not a requirement, but it is a rule of thumb. Once the seed germinates the root will begin to head downward at a very fast pace. Seeds started indoors should be planted in a 4" peat pot or larger similar type of pot with a hole on the bottom for drainage. A larger pot is better as the roots will have more room to spread. A plant in a 1-gallon pot will not have to be transplanted in the near future. I recommend buying a high quality seed starting medium with equal parts peat moss, vermiculite and perlite, purchased at your local nursery store. Do not waste your time buying the cheap stuff. Do it correctly and "buy a quality product" such as Promix. This three-part mix will help you to control the right mixture of oxygen and water that giant pumpkin plants roots require. The experts say not to let the pumpkin roots become bounded within the pot. Pumpkin roots grow very fast, plan to get the plant hardened off and in the ground shortly after the first true leaf appears. If you plant your seeds directly outside after last frost mound the soil in a hill about 5' in diameter 6" to 12" high and place the filed seed pointed edge down and cover with about an inch of soil. Remember pumpkins like direct sunlight and this giant will require 500 square feet or more to be able to produce a pumpkin in excess of 500 pounds or more. Space and growing area is one of the biggest factors in helping the plant and pumpkin grow to a very large size.

**Early season** > plant care and protection should be provided to your seedling prior to planting outside. Frost dates for regions in North America vary providing an early season microclimate environment of warmth will help the plant become quickly established. Planting outside from the pot has a few concerns; the main problem is frost. To resolve this, build a cold frame or hoop house to protect your seedlings at night when frost is expected. Some people build huge elaborate structures and others build standard small unheated 4' x 4' x 4' enclosures. The main problem with the cold frame is they are not heated. Lights or electrical heaters can be used to keep the soil and air temperatures above normal on chilly nights. Underground buried heating cables are another more elaborate option against the cold. Simply planting your seedling in the elevated mound of soil in a cold frame will provide the most natural heat for the buck as the daily sun will

warm the hill and surrounding soil. However, vine growth will be slowed without some type of climate enhancing protection. Seedlings can be planted 3 or 4 weeks before last frost in such shelters. It is vital that you take adequate precautions defending against the cold nights. North West winds and clear skies are often the harbinger of a chilly night. Frequently consult the weatherman to avoid the death of a plant if conditions warrant.

**Fertilizing and watering** > are recommended to provide superior plant vine growth prior to pollination. The general recommended early season liquid or solid granular ratio is 1-3-1 in small quantities at low rates of ¼ strength-listed rates at frequent intervals. The first stage of fertilizing should be based initially on providing phosphorous P for root growth, then gradually shifting to a more balanced formulation with more nitrogen N in late May. As time progresses halt all fertilizer, applications in late June until after fruit set. Switching to a higher potassium K formulation for development after set fruit. Caution against over fertilization is necessary, high rates of nitrogen will cause rapid vegetative growth poor flower development and fruit set. A proper nutrient balance must be maintained in order to achieve desirable results. The major amount of green leaf and vine plant growth takes place for around 60 days. Most growers prefer to use organic products as foliar applications to traditional NPK fertilizing. Fish emulsions and seaweed blends are very popular natural products that encourage steady plant growth rates. Other natural organic products such as kelp meal, alfalfa meal and molasses work great.

**Wind protection** > Windbreaks are necessary to protect young plant and vines that are not fully rooted. Windbreaks should be positioned among plants to provide a calm environment in high winds. Providing a consistent microclimate is a challenge that will supply larger weights in the fall at harvest time. There are numerous ways to reduce the damaging affects of brisk winds. Snow fences, wood fences and burlap borders can make excellent windbreaks. Natural living windbreaks work very well. Small shrubs, hedging rows and annual rows of corn are some basic types of effective natural borders. A general rule of thumb is each 1 foot in height provides 8 feet of down range wind protection. Once vines are well rooted at each leaf node, windbreaks become less important. Thunderstorms and the winds they bring are a major destructive force for giant pumpkin plants. Fencing and natural windbreaks should be continuous along the edges of the giant pumpkin patch to reduce large wind concentrations at the ends of these protective zones.

**Pruning** > There are many ways and reasons why pruning is necessary to the rapidly growing giant pumpkin plant. The first being to control the wild growth habit of the naturally crossing vines and leaves. Pruning also allows the grower to control the flow of energy and direct it toward producing a single large fruit. Another advantage of pruning provides for a leaf canopy that occupies the maximum area, aids in air circulation and helps in cooling the plant on hot days. The plant is most often pruned in a Christmas tree fashion with the crown at the bottom of the tree. The plant will spread out from its base on a single main vine reaching up to 30' or more in length at maturity. Side vines or secondary vines begin to appear at each leaf node or junction. The side vines are trained to grow perpendicular to the main vine and allowed to extend 10 to 15 feet long. The plant will then begin to produce third or tertiary vines from each leaf junction of the side vines. These third vines begin to rob the developing plant and pumpkin of vital nutrients

and are quickly removed by the grower on a frequent basis. Vines and side shoots can be trimmed off using a clean sharp knife. Pruning will result in a plant that occupies 500 square feet or more at maturity.

**Vine Burying** > placing soil over the vines to create additional roots underneath each leaf node is done to allow the plant draw in more water and resources thus allowing the fruit to attain larger sizes. This is necessary to get that monster pumpkin. Using a shovel or hand tool furrow a shallow trench and bury the pruned vines by placing a few inches of soil over the vine. The leaves will gradually become a deep green color as new roots begin to develop. The roots will grow from the leaf node at the base of the vine junction. The plant begins to change from a net user of nutrients to a provider and storage machine as new roots begin to develop. Growth, speed and volume of the vines and pumpkin begin to increase, as the extra growth is concentrated to a few active areas of the plant. Vine burring and pruning continues well into the month of July until all of the side vines are buried terminated and or halted from growing. At this point, the main vine is terminated by removing its active growing tip several feet beyond the growing pumpkin.

**Male Flowers** > Male flowers begin to appear a week before the females usually around the third to fourth week of June. They are allowed to grow and develop until pollination time ends in mid July. Male flowers contain the pollen, which is used to fertilize the female. Pollen forms on the stamen after opening early in the morning. All flowers begin to open at sunrise and are viable for only a short time each day. Males will need to be removed daily as they wither quickly by days end. Pollen grains form on the stamen surface as the temperature warms in dawns early light. After pollination ends all flowers are removed before they develop and further concentrates the flow of nutrients into the developing pumpkin.

**Female Flowers** > female flowers differ between males by the visible lump underneath the flower. The female has the small golf ball sized fruit under the flower while the male is perched upon a long slender stem with a flower on top. Female flowers internal parts are divided into multiple segments or stigma usually 4 to 6 are normal. Segments are the portions, which contain the unfertilized seeds. Looking inside the flower, the semi half-round segments are seen at the base the flowers interior. A good female candidate should be fully developed and symmetrical in size and shape. Females should also have a stem angle, which is almost 90 (perpendicular) to the vine, and be located from 10 to 20' feet out from the crown area on the main vine. If the female flower is less than 90\*, the stem will be more likely to be damage and stressed as the pumpkins shoulders grow larger.

**Pollinating Blossoms** > select and pollinate all females 10 feet or more from the main crown of the plant. Pollinating all females on the main vine gives the grower several opportunities and options should problems occur with individual females. Do not forget, pollination timing is important to allow sufficient time for fruit growth. Traditional pollination dates for North America average in the first three weeks of July. Most giant pumpkin growers like to control their pollinations to obtain purebred genetic strains that remain intact. This is done by keeping both the female and male closed before and after

the pollen is transferred. The flowers are kept closed to prevent pollination by honeybees thereby inhibiting cross-pollination with other non-giant pumpkin strains. Flowers are held closed the night before they open by a number of means, painters green tape works fine. They are opened only during the transfer process in the early morning. The most opportune time is from 7 to 10 am. This affords time for early morning heating thus allowing maximum grain formation on the male stamen and internal maturity of the female's organs. The closed pollination method described as hand pollinating is simply the transfer of selected male pollen to a female flower. The grower removes three or more ready to open male flowers from plant. The male's flower petals are gently removed exposing the stamen with its encrusted pollen grains. The transfer of pollen is completed by gently rubbing and rotating the male stamen around the edges of the female's stigmas. Discard the male and gently re-close the female flower. The wait begins to see if the pollination attempt has been successful. The female flower will begin to wilt and by the third or fourth day, the pumpkin should begin to increase in size and begin to swell. Growth is rapid as daily gains can reach 30 pounds or more at the peak 35 days after pollination.

**Post Fertilization** > is usually required during the transition from vine growth to fruiting. During the fruit growth stage, change from a balanced fertilizer to formulations which contain a higher percentage of potassium P. If you use a water-soluble fertilizer use a ratio of 1-1-2 or 1-1-3. For optimal growth, use organic types as previously described. Caution is required as too much fertilizer is damaging to the pumpkin due to accelerated growth. Excessive growth often leads to thin walled fruit that can split much like tomatoes after a heavy rainfall on a sunny day.

**Vine positioning** > is required for plants main and secondary vines. Positioning the vines will provide the proper use of the plants growing area and reduce vine stress of the pumpkin. Make sure the pumpkins stem is perpendicular to the fruit. When the pumpkin is about the size of a basketball, you can slowly move the pumpkin perpendicular to the vine. This is done 1/4" per day to achieve a right angle from the main vine. Very carefully, move or slightly slide the pumpkin a small amount each day until the desired angle is achieved. There is no warning when the pumpkin is about to crack off, go slowly and do not move it much each day. As the pumpkin grows, the shoulders will often extend forward, touching the vine. Large growing shoulders of some pumpkins often push against the vine causing splits and cracks in the stem. This can be eliminated by positioning the vines early so they go away from the pumpkin. Making an S shape in the vine will give the burgeoning fruit some slack. The giant pumpkin grows very quickly as it rises off the ground, the vine will travel upward and undue stress could result to the main vine. Allow the main vine to rise off the ground and support it. Stem and vine stress is very common in pumpkins over 200 lbs. The taproots under the main vine leaf nodes near the pumpkin and the adjacent side vines on either side of the pumpkin may need to be severed. This allows the vine to easily rise off the ground, as the pumpkin grows taller. Side vines can also wrap around the large sides of the pumpkin and cause splits. Train the side vines away from the area or remove them completely at the main vine where the pumpkin will eventually grow so there is plenty of room to expand.

**Daily measurements** > and selection is required to assist you in your final pumpkin choice to that special fruit. Successful pollination has now resulted in several growing fruits on the plants main vines. Reducing the number of growing pumpkins to one or two greatly increases the size and growth speed. Daily measure the circumference of each fruit parallel to the ground to make a decision on which fruit to select for the final pumpkin. Measure the circumference of each pumpkin daily and keep records to determine the fastest growth rates. Select the fastest growing pumpkin at the corresponding dates from pollination. Often the second pumpkin on the main will be the fastest and attain higher daily growth rates even though it is young than the previous fruit. Trim away the slower pumpkin by slicing away a one-quarter section of its stem each day until it is completely severed.

**Watering** > Giant pumpkins will require an adequate supply of water during the growing season. 1” or more per week is the minimum necessary to achieve maximum growth rates. The best option is to use warmed water to reduce shocking to the root zone with sudden changes of temperature. Rainwater held in barrels and collected from eaves-troughs is a very effective option and accomplishes warming while providing nitrogen rich natural water. Overhead sprinklers, drip lines or soaker hoses, can apply water best at consistent flow rates. Each Plant will consume up to 100 gallons per day at maturity. Timers and valves automate the process but hand watering is just as effective. Avoid watering in late evening to guard against the promotion of wet leaves and Powdery mildew.

**Shade protection** > Leaves of the plant will shade small pumpkins. Larger pumpkins should have shade protection to reduce the aging stress of direct sunlight on the soft tender skin of the fruit. This also prevents sun scalding, while allowing the shell to remain supple and flexible. This slows down the development of surface cracks called cantalouping, keeping the skin young smooth. The added benefit of shade protection is consistent shell temperature and guards against sudden fluctuations, which may contribute to internal cracks and splitting problems. A simple frame built around the pumpkin and tarp supported from it will do the job. White sheets draped over the fruit will work equally well.

**Disease protection** > giant pumpkin plants are susceptible to many diseases and will be harmed very quickly if counter measures are not followed. Powdery Mildew (PM) is the main concern in August as cool nights begin to foster the development of the grayish white mold on the surface of the leaves. This slows photosynthesis and prematurely reduces growth rates of the pumpkin. Modern systemic and topical contact fungicides can be applied at labeled rates beginning in late July to reduce the incidence of infection. Organic controls also work well and are far more cost effective in controlling the damaging effects of PM. The most popular being 2 ounces of baking soda and 2 ounces of horticultural oil as a surfactant in a gallon of water. Spraying the mixture on the leaves at seven to ten day intervals works best to reduce active spores and controls further development.

**Insect protection** > Three main pests are know. They are the Squash Vine Borer, Cucumber Beetle striped and spotted and the Squash Bug. Left uncheck these insects will halt a pumpkin plant in a matter of a few days. The squash vine borer lays eggs that will hatch and burrow into the vine. Left unchecked they develop and spread disease, which kills whole sections of vine areas. The main defense is a combination of aggressive vine burring and insecticide spraying programs at frequent intervals. Cucumber beetles spread mosaic virus, which deforms fruit and plants and halts growth. Squash Bugs also attach vines feeding of the flow of juices within the vine.