



# The Pumpkin Vine

## Summer 2017

<http://www.utahpumpkingrowers.com/>

### SAVE THE DATE!

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The annual Utah Giant Pumpkin Growers patch tour will be held on **Saturday, August 12th**. This year, we will be visiting the Northern Utah patches including: Davis, Weber, Box Elder Counties, and our **FIRST EVER** stop to Cache County.

We are thrilled with the opportunity to see some new patches and enjoy the friendships that we have forged through our passion for all things pumpkin.

## CALENDAR

Patch Tour	August 12th
Thanksgiving Point Weigh Off	September 23rd
Hee Haw Farms Weigh Off	October 7th
Ginormous Pumpkin Regatta	October 21st
Hee Haw Farms Pumpkin Drop	October 28th

# Plant Nutrients 101

by Gordon Tanner



**P**lants need to be fertilized because most soil does not provide the essential nutrients required for optimum growth. Even if you are lucky enough to start with great garden soil, as your plants grow, they absorb nutrients and leave the soil less fertile. Remember those awesome giant pumpkins you grew last year? They took nutrients from the soil to build those plant tissues and pumpkins. Adding organic matter helps replace them. By feeding/fertilizing your patch, you replenish lost nutrients and ensure that this year's plants have the food they need to flourish.

There are six primary nutrients that plants require. Plants get the first three—**Carbon**, **Hydrogen** and **Oxygen**—from air and water. The other three are **nitrogen**, **phosphorus** and **potassium**.

**Nitrogen** helps plants make the proteins they need to produce new tissues. In nature, nitrogen is often in short supply so plants have evolved to take up as much nitrogen as possible, even if it means not taking up other necessary elements. If too

much nitrogen is available, the plant may grow abundant foliage but not produce fruit or flowers. Growth may actually be stunted because the plant isn't absorbing enough of the other elements it needs.

**Phosphorus** stimulates root growth, helps the plant set buds and flowers, improves vitality and increases seed size. It does this by helping transfer energy from one part of the plant to another. Organic matter and the activity of soil organisms also increase the availability of phosphorus.

**Potassium** improves overall vigor of the plant. It also helps regulate metabolic activities. It is involved in many enzymatic reactions. It functions in the synthesis of the energy compounds such as the making of carbohydrates. It is required for translocation of carbohydrates within the plant which provides disease resistance. It is involved regulating gas exchange and water relations during transpiration

There are three additional secondary nutrients that plants need, but in much smaller amounts:

**Calcium** is used by plants in cell membranes, at their growing points and to neutralize toxic materials. In addition, calcium improves soil structure and helps bind organic and inorganic particles together. It is an important component of the cell wall- and there are lots of cell walls in your pumpkin. It influences the permeability of the cell wall. It is involved in cell growth. It participates in the translocation of carbohydrates and nutrients within the plant.

**Magnesium** is the only metallic component

of chlorophyll. Without it, plants can't process sunlight. A necessary component of chlorophyll, which is the site of photosynthesis. It is involved in protein synthesis. It is involved in the transfer of energy within the plant.

**Sulfur** is a component of key enzymes and vitamins in the plant and is necessary for the formation of chlorophyll.

The other essential micronutrients elements **Boron, Copper, Iron, Zinc and Manganese** are required in very small quantities but still managed by growers.

In comparison with macronutrients, the uptake of micronutrients is expressed in parts per million (ppm, where 10,000 ppm = 1.0%), rather than on a percentage basis. Again, this does not infer that micronutrients are of lesser importance. If any micronutrient is deficient, the growth of the entire plant will not reach maximum yield, (Law of Minimum). Healthy soil that is high in organic matter usually contains adequate amounts of each of these micronutrients.

**Iron** is involved in photosynthesis,

respiration, chlorophyll formation, and many enzymatic reactions.

**Boron** plays an important role in the movement and metabolism of sugars in the plant and synthesis of plant hormones and nucleic acids. It also functions in lignin formation of cell walls.

**Copper** is also a component of enzymes, some of which are important to lignin formation in cell walls. It is also involved in photosynthesis, respiration, and processes within the plant involving nitrogen.

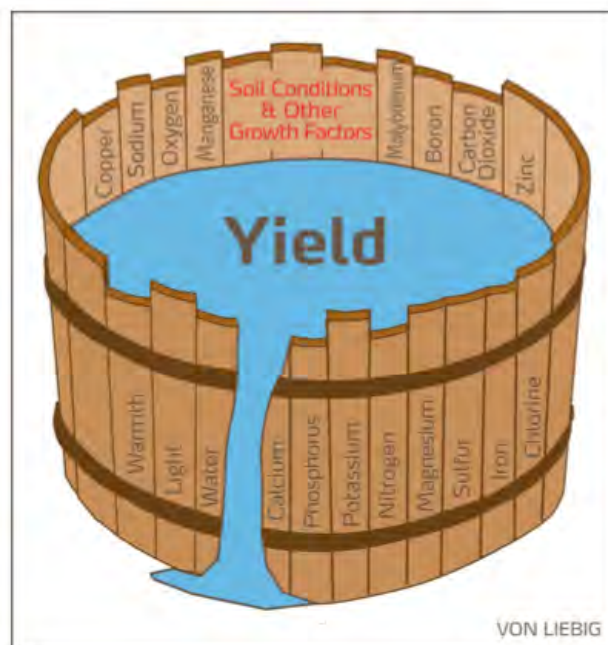
**Manganese** is a component of enzymes and is also involved in photosynthesis and root growth. Additionally, it is involved in nitrogen fixation.

**Zinc** is a component of many organic complexes and DNA protein. It is also an important enzyme for protein synthesis. Also, zinc is involved in growth hormone production and seed development.

There are additional micronutrients Molybdenum, Nickel, Chlorine and Cobalt that have been classified as essential, but are not managed by growers.

**Justus von Liebig's  
"Law of the Minimum"  
published in 1873**

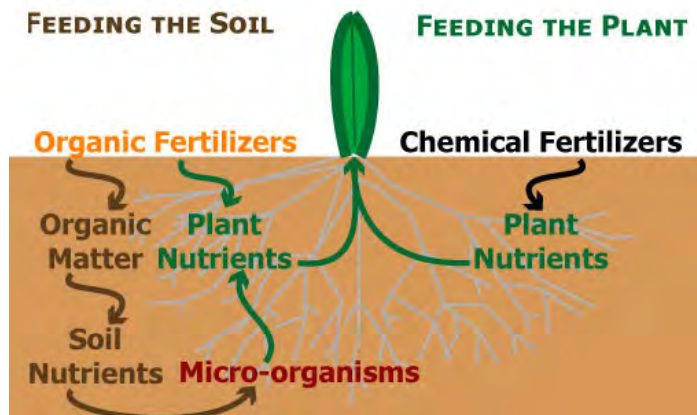
"If one growth factor/nutrient is deficient, plant growth is limited, even if all other vital factors/nutrients are adequate...plant growth is improved by increasing the supply of the deficient factor/nutrient"





# Feeding Schedule

by Gordon Tanner



There are as many different feeding schedules as there are growers. Many growers don't believe in applying any chemical fertilizers. Remember good seed, good soil and good work. We can all obtain good seeds fairly easily. Good work or hard work is the time and effort that we put into our plants. Good soil is the key thing that most growers lack. Adding lots of organic matter is the "secret" here. Keep in mind that sandy soil generally required more fertilization because the nutrients leach out of the soil quickly. While clay soils are the opposite.

The following schedule is a basic general guideline to feeding your giant pumpkin plant.

**Mix A:** Weeks 1-2, starts when the seed sprouted and is in a container. The goal is to start establishing a strong root system for you little plant. Dissolve 1/2 teaspoon of xx-XX-xx and 1/2 teaspoon seaweed fertilizers into 1 gallon of water. Applying 1-2 times a day to the soil, as needed, into the container holding the plant. Make sure your container is big enough for your plants root system. Week 1 would typically start around April 10th. xx-XX-xx plantfoods contain higher levels of Phosphorous (P) like EnP (10-50-10) and MiracleGro (15-30-15)

**Mix B:** Week 3 to week 4 or 5, starts when the plant is transplanted out into the patch. The goal is to continue to establish a strong root system. Dissolve 1 teaspoon of xx-XX-xx, 1 teaspoon seaweed and 1 teaspoon of fish fertilizers into 1 gallon of water. Drench applying 1-2 times a day to the soil, as needed, to the base of the plant and extending 1 ft out. As the plant grows larger increase extending distance to 2-3 ft out. Humic acid, Fulvic acid, Compost Tea and your other secret or favorite fertilizers applications could also be started at this time and continue throughout the season. Make larger batches as required see chart. Week 3 would typically start around April 24th.

1	teaspoon	1	gal
1	tablespoon	3	gal
1.33	tablespoon	4	gal
1.67	tablespoon	5	gal
2	tablespoon	6	gal
3	tablespoon	9	gal
3.33	tablespoon	10	gal
5	tablespoon	15	gal
10	tablespoon	30	gal
0.5	cup	30	gal
0.75	cup	45	gal
1	cup	60	gal

**Mix C:** Week 5 or 6 to week 8 or 9. Switch from high (P) plant foods to high Nitrogen (N) formulations. Use drench or broadcast & foliar spray applications. Use as a drench or per package instructions 1-2 times a week. Granules should be watered in after broadcasting. Use liquid Fish emulsion and liquid seaweed as both a foliar spray and a drench at package recommendations along with other fertilizers you maybe be using. **XX-xx-xx.** (16-0-0) and Urea (48-0-0)

are good choices.

Note: Many growers want to feed every time they water, it is acceptable to dilute the fertilizers and apply them every watering. Week 5 would typically start around May 8th, week 6 – May 15th.

**Mix D:** Week 9 or 10 to week 20 or 21, starts after week 8. Transition from high (N) to a balanced formulation **xx-xx-xx**. Broadcast granules at a rate of roughly 1/4 pound per 100 sq. ft. once per week or 1/2 pound twice per week. It is acceptable to apply water solubles as a drench instead of broadcasting granules. Continue liquid Fish emulsion and liquid seaweed as both a foliar spray and a drench at package recommendations along with other fertilizers you maybe be using.

**xx-xx-xx**, such as granular (10,10,10), (16-16-16) or Peters soluble (20-20-20).

Week 9 would typically start around June 5th, week 10- June 12th.

**Mix E:** Week 21 or 22 to end of pumpkin growth. Switch a **xx-xx-XX** fertilizer. This is the push toward harvest. Higher Potassium (K) formulations should now be used. Broadcast granules at a rate of roughly 1/2 pound per 100 sq. ft. once per week or 1/4 pound twice per week. It is acceptable to apply water solubles as a drench instead of broadcasting granules. Continue liquid Fish emulsion and liquid seaweed as both a foliar spray and a drench at package recommendations along with other fertilizers you maybe be using **xx-xx-XX**. Muriate of Potash (0-0-60), Potassium Nitrate (14-0-46) and Peters (15-11-29) are good choices. Week 21 would typically start around Aug 28th, week 22- Sept 4th.

## Disease and Pest Control Tips

by Matt McConkie

**A**s many of us know, there is nothing more frustrating than having a great plant going, only to watch it quickly decline due to insects or disease. In some instances, growers battle the same challenges year after year and struggle to get anything to the scale at all. While it is impossible to completely eliminate pests and disease from your patch, there are a few products that might give you a better chance of getting a monster on the scale. Please keep in mind, there are many ways to attack these problems and each patch is different. Step 1 is to identify the problems that you face and come up with a personalized game plan on how to deal with them.

**Disclaimer:** *We will give both organic and chemical options when facing disease and pests. Feel free to choose the option that works best for your philosophy and in your patch. There are certainly health and environmental risks when dealing with potent chemicals. Please use caution and read the label. Protective attire is often recommended including masks, goggles, gloves, rubber boots, chemical suits, etc. Additionally, you'll want to consider: proximity to neighbors, personal exposure, close-by edible fruits/veggies, children, beneficial insects, groundwater, and other factors as you determine which products you want to use.*

## Irritating Insects

Insects not only damage the cells of the plant, but they often spread diseases that can completely wipe out a pumpkin plant in a few short days. If you have been growing for some time, you'll soon come to know which insects present a problem in your area. Some growers choose only to treat for bugs that have arisen in the patch in previous years. Others spray preventatively for insects. If you see pests in or near your plant, or notice damage to the plant from bugs, or have had recurring issues in the past, you'll want to deal with the problem right away. We'll address a few common pests one at a time.

### Aphids



#### Chemical Solutions for Aphids

Mix 1 TBS Merit 2F with ample water and drench into the root zone over 1000 sqft. This product slays aphids like no other but can also kill bees as it is systemic and long lasting. Cover or remove flowers to prevent bee casualties.

Mix 1/8 oz. Talstar into 1 gallon of water sprayed foliar on 1000 sq ft concentrating efforts on the bottom of the leaf. Repeat weekly as long as aphids are visible. Their life cycle is very short and they quickly repopulate. For best results, use in combination with Merit.

#### Organic Solutions for Aphids

3 TBS dish soap mixed with 1 quart of water. Spray the aphids directly with the mixture. Insecticidal oils and soaps- spray directly on the aphids. Repeat frequently until no aphids are visible. Leaf burn possible with oils and soaps so test on a small area first.

### Squash Bugs

#### Chemical Solutions for Squash Bugs

Mix 1/8 oz. Talstar into 1 gallon of water sprayed foliar on 1000 sq ft concentrating efforts on the bottom of the leaf. Repeat as needed. Adult squash bugs are not easy to kill and many products fail but the Talstar will get the job done.

Mix 1 TBS Merit 2F with ample water and drench into the root zone over 1000 sq ft. Use in combination with Talstar and don't forget the bees when using Merit.





## Organic Solutions for Squash Bugs

Bait plants are very effective against the squash bug. Plant an edible yellow squash or zucchini plant at the corners of your patch. The squash bugs prefer the squash or zucchini to the giant pumpkin and will generally show up there first. Check frequently for eggs and adult squash bugs on the zucchini plants and kill them.

Clean patch and garden. Squash bugs and other insects thrive when the environment provides plenty of mulch and dead plant matter that provides areas to hide, live, and reproduce. Check the undersides of your giant pumpkin leaves for eggs and adults. They will show up first near the crown (stump) of the giant pumpkin plant.

## Spider Mites



### Chemical Solutions for Spider Mites

Mix 5 mL Floramite with 1 gal water and spray on leaves concentrating efforts on the bottom of the leaf. Kills all stages of the mites including eggs. More forgiving to predatory mites and beneficials.

Mix 1.6 mL Avid with 1 gal water and spray on leaves concentrating efforts on bottom of the leaf.

Spray weekly as their life cycle is very short and they quickly repopulate.

### Organic Solutions for Spider Mites

Predatory mites are very effective against the two spotted spider mite. Ap-

ply 1000-2000 mesoseiulus longpipes per 1000 sqft and repeat as often as is necessary. Spread throughout plant focusing on areas of highest infestation. These beneficial mites require some humidity so misting helps them thrive and reproduce. The neoseiulus californicus mite is also effective.

## Snails and Slugs

### Chemical Solution for Snails and Slugs

Snail bait such as Sluggo can be placed around the perimeter of the patch as well as under the leaf canopy of the pumpkin plant.

### Organic Solution for Snails and Slugs

Partially bury a pie tin or similar flat container in the ground and fill with an inch or so of beer. The snails and slugs are attracted to the beer and will crawl in and drown.

## Devilish Diseases

As we have seen once again this year, Utah has very high daytime temperatures and very low humidity. For this reason, we experience less disease problems than other areas

of the country. That being said, many growers are shading their patches and watering multiple times a day which is very good for pumpkin growth, but also creates conditions where disease can quickly become a problem. Many growers use a combination of biological disease prevention/control and chemical prevention and control. Here are a few helpful products and how to use them:

## **Biological Disease Control**

Mykos Granules- 5-10 lbs per plant mixed into the soil at the planting site and at each node.

Rootshield- 5-10 lbs per plant mixed into the soil at the planting site and at each node to prevent pythium root rot.

Companion- Drench 16 oz into the root zone with 100 gallons of water to cover 1000 sqft. This soil bacteria feeds on the potentially damaging fungi that live in the soil.

## **Chemical Disease Control**

### **Powdery Mildew**

Mix ½ tsp Eagle 20 into 1 gallon of water and foliar spray over 1000 sqft. This product is extremely effective against powdery mildew.

Mix ¾ tsp Quintec into 1 gallon of water and foliar spray over 1000 sqft. This is effective in preventing powdery mildew. If powdery mildew is present, use the Eagle.

Mix 1 ½ tsp Daconil into 1 gallon of water and foliar spray over 1000 sqft. Daconil is a broad spectrum contact fungicide.

### **Fusarium**

Cleary's 3336 WP. Mix one pouch of wettable powder with 100 gallons of water and drench into the root zone over 2000 sqft. This product also effectively kills mykos and other beneficial microbes and should be applied if you have a history of battling fusarium.

### **Downy Mildew**

Mix 1 oz Subdue Maxx in 100 gal water and drench into root zone over 1000 sqft

Mix 1 TBS Quadris in 100 gal water and drench into root zone over 1000 sqft

Mix 12 oz Agri-Fos with 100 gal water and drench into root zone over 1000 sqft

### **Pythium**

Mix 12 oz Agri-Fos with 100 gal water and drench into root zone over 1000 sqft

Rootshield WP

### **Pytophthora**

Mix 1 ½ tsp Daconil into 1 gallon of water and foliar spray over 1000 sqft

Mix 12 oz Agri-Fos with 100 gal water and drench into root zone over 1000 sqft



# How BIG Will Your Pumpkin Get?



**G**iant pumpkins generally grow for between 75 and 110 days from the time they are pollinated. The amount of days you see growth depends heavily on genetics, weather, and overall plant health. You can estimate your weight gains by measuring as illustrated by this video:

<http://gpc1.org/index.php/resources/331-how-to-measure>

When there are mistakes regarding measurements, generally they deal with the circumference measurement. Please note it is proper to take the largest possible circumference that is parallel to the ground. This could be right over the stem/blossom or it could be very close to the ground. Do not measure the circumference on an oblique angle. This will give you an inflated circumference measurement.

The 2017 GPC weight estimation chart is available at:

[www.gpc1.org](http://www.gpc1.org)

Due to a myriad of factors, pumpkins grown in Utah generally weigh light when compared to the chart and this will be even more true with the updated chart. Please keep this in mind so you aren't disappointed!



Two simple rules of thumb for estimating where you'll end up at the end of the year:

1. Most pumpkins are about half grown around Day 40.
2. Most pumpkins end up about 40 times their peak growth weight. For example, a pumpkin that averaged 30 pounds a day for a week during peak growth, would end up around 1200 lbs.

Keep in mind, actual results vary quite a bit, but it may give you a glimpse into what kind of growth curve you are on. Plant health is paramount for late season growth. Don't let up on sprays, weeding, and climate control.

***Good luck, and keep 'em growing!***