

#26 August 2021

Green Thoughts

Conversations and ideas about growing at The Spring Gardens

For some cucumber growers this has been a wonderful bumper crop year. We have talked to several people who have done very well with their cucumbers. Last week we saw plot holder

<p><i>Cucumbers;</i> <i>GABA- tomatoes</i></p>	<p>Jerry with a bag-full of cukes he had just harvested and they have kept on coming. In previous years he was lucky to get a few cukes before the plants pooped</p>	<p><i>Endive/escarole;</i> <i>Hydraulics</i></p>
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out. This year he has harvested them for weeks. He loves eating them raw. My preference is eating cucumbers after they have been garlicked and pickled until they are sour. Yummy. We asked Jerry why was this year different? He wasn't sure but he thought there was an absence of cucumber beetles and also, he used a variety that was resistant to a bacterium that causes wilt. So Green Thoughts looked up about these beetles. They really are foes of cucumbers. The adult beetles attack stems and leaves and even the buds of growing plants. Adding to the misery, the beetles are vectors for carrying and spreading both a bacterium (bacterial wilt organism *Erwinia tracheiphila*) that causes leaves to wilt and a cucumber mosaic virus that infects the plants causing leaves to mottle. Ugh. The virus was first discovered in cucumbers but it also infects many other types of plants including spinach and tomatoes. When buying tomato plants or tomato seeds, I try to buy varieties that are labelled virus resistant. To add to the misery, the larvae of cucumber beetles can get into the soil and can infect roots. Cucumber plants are also attacked by aphids.

Beetles

Beetles are very common world-wide. The English biologist J.B.S. Haldane (1892-1964) used to give public lectures and was once asked what he learned about the Creator from studying biology. Without missing a beat, Haldane responded "He had an inordinate fondness for beetles." And indeed, there are somewhere between 350,000 and 400,000 different beetle species. Someone once estimated that beetles collectively are 25% of all the animals in the world. Most beetle species are benign and lady bugs, which eat aphids, are, despite the name, small beetles, not bugs.

Not all cucumber growers have been so lucky this year. They have gotten their plants to grow and set flowers and start producing fruit but then the plants wither away. So Jerry's choice of cucumber variety could be the ticket to success.

Channeling Dr. Budd?

Back in the 19th century typhoid fever was a menace and it wasn't clear how it was spread and why some people got it and others nearby did not. In 1840 physician Dr. William Budd studied 24 families living near each other in Bristol, England. He mapped

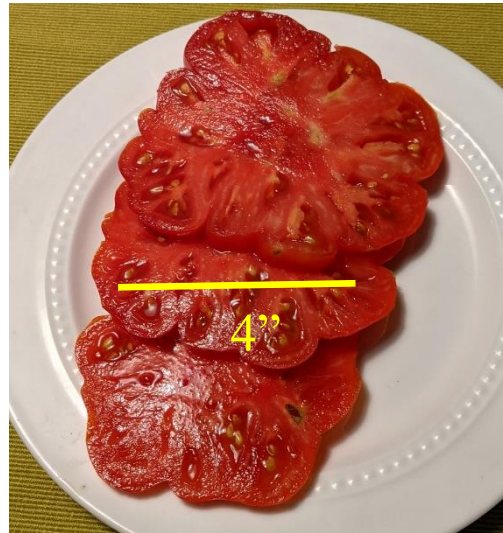
out where they were located and found that 13 families contracted typhoid fever and 11 families didn't. Even though they were all living next to each other, the ones who came down with typhoid all got their water from the same well. The other families, without typhoid, used other sources of water. Dr. Budd's study was an early triumph for epidemiology. Typhoid could be transmitted through the water. And not all water is harmful. We now know that typhoid fever is caused by a bacterium *Salmonella enterica*.

So what does this have to do with growing cucumbers at TSG? It might be interesting to map out where the successful cucumber plots are located and where the less successful are located. One (unlikely) possibility is which blue barrel is used for watering. Another possibility is the variety of cucumber grown.

For those cucumber growers interested, please send Green Thoughts your plot location, the type of cuke you are growing (especially if it was resistant to bacteria wilt), when you started the plants and how well the plants did. The results might be interesting, might not.

The harvest so far

Over-all it has been a fine year for gardening at the TSG. Beans and kale and peppers and basil and all kinds of flowers have done very well. People have been harvesting small tomatoes since early June and larger tomatoes since mid-July. And yes, we did have wonderful BLTs with that early beefsteak tomato (top, next column).



First beefsteak tomato of season. Bring on the B and the L to go with the T and please don't skimp on the mayo. Picked 12 July 2021

Escarole and Endive

Fellow gardener Jim Pavlock gives us the scoop on growing these crops

Escarole and endive are great, hearty, late season crops that can be enjoyed in several different ways, from salads and soups to sautéed side dishes.



Escarole and endive are cool season annual crops. Both have a slightly bitter flavor. Like

chard, kale, and radicchio, escarole is a hearty green that thrives late in the growing season. Escarole has smooth, broad, green leaves and endive is typically curly. The flavor of escarole is less bitter than other members of the endive family, very much akin to radicchio. It's very high in Vitamin K, A and folate, along with Vitamin C, zinc and copper.

How to Grow Escarole

Plant escarole in full sun in well-draining soil that is amended with compost to aid in water retention. The soil should have a pH of 5.0 to 6.8.

According to some sources, propagation from seed should start four to six weeks before the last average frost date for your area, though I think getting seeds into the ground in our area should start in mid-July or early August. Otherwise, you run into November frosts when harvesting. Although escarole is more tolerant of heat than lettuce, you should plan to harvest when temps are cooler. It takes 70 to 90 days to harvest escarole and slightly shorter for endive.

Sow the seeds ¼ inch deep and 1 to 2 inches apart. Thin the seedlings weeks before harvesting when the exterior leaves are 4 to 5 inches long. You can blanch when they are 6 to 12 inches long. Escarole plants should be spaced 18 to 24 inches apart.

Escarole can be also sown every two weeks beginning in midsummer for continuous crops through the growing season or in areas with mild winters, in the spring, fall, and winter.

Care and Blanching of Escarole

Keep the escarole plants consistently moist. Allowing the plants to dry out too frequently will result in bitter greens. You can also side

dress the escarole plants with compost midway through their growing season.

Escarole is best blanched when plants begin to mature. Blanching means covering the plant or tying them to deprive the interior leaves of sunlight. This slows the production of chlorophyll, which can make the greens bitter.

My dad and grandfather always blanched their escarole to guarantee tender leaves. Blanch escarole two to three several different ways. The most common method is to simply pull the outer leaves together and secure them with a rubber band or string (see below). Make sure the leaves are dry so they don't rot. You could also cover the plants with a flower pot. This method is also great late in the season to protect from frost. My dad often saved escarole from frost, even to Thanksgiving!

The point of blanching is to deprive the escarole of sunlight. Blanching takes between two and three weeks at which time you can begin harvesting.



Recipe ideas

Escarole and endive are great in salads, soups and as sides. Consider a delicious fall salad

of escarole and shaved onions with a hot sweet and sour (cider vinegar and sugar) bacon dressing. Even add figs or blue cheese! The hearty escarole holds up well with the dressing. Escarole is a healthy side sautéed in olive oil with garlic and red pepper flakes, and of course escarole is wonderfully paired with Italian sausage, white cannelloni beans



and parmesan cheese, as a chicken stock-based soup or over pasta!

Enjoy!!

<https://www.foodnetwork.com/recipes/giada-de-laurentiis/escarole-and-bean-soup-recipe-1914906>

<https://www.health.com/recipes/wilted-escarole-salad-with-figs-bacon-and-blue-cheese>

<https://www.foodnetwork.com/recipes/ellie-krieger/pasta-with-escarole-white-beans-and-chicken-sausage-recipe-1949665>

<https://www.shelovesbiscotti.com/sauteed-escarole/>



An inordinate fondness for psychotropics

Have you heard of a tomato called Sicilian Rouge High GABA? I never did until I read a little story about this tomato in Science magazine 28 May 2021. This tomato is a genetically modified organism (GMO) “that makes more of an amino acid [GABA] said to promote relaxation.” It was approved for sale in Japan. Hm.

Animals and non-animals have been co-evolving for millions of years. So it is not surprising that we are able to change our moods and perceptions by ingesting particular molecules produced in poppies, mushrooms, tobacco, coffee beans, ergot, etc. For example, certain poppies produce significant amounts of opium. When the opium is purified to morphine it is a potent pain reliever. The Bayer company in the late 19th century added two acetyl groups to the morphine molecule to make what they called “heroin.” Heroin was initially assumed to be less addictive than morphine. There is an apocryphal story (told to me by someone who was there) that when Dr Haldane (see above) was visiting the US in the late 1940s he came down with a headache and asked an American guide where the local chemist (drug store) was. He wanted to buy a small dose of heroin to alleviate his headache. When told that heroin was illegal in the States, he was shocked. He looked at heroin as a benign pain-relieving substance. By all accounts he was not an addict. We now know that our brains have opioid receptors on some of our neurons and these neurons respond in complicated ways to opioids. We ourselves produce opioid-like substances such as various enkephalins, dynorphins and



endorphin, which are released by neurons in response to pain. Many people abuse opioids. Last year 92,000 people in the US died of overdoses to opioids including artificially synthesized OxyContin, which is especially lethal when it is laced with another potent artificial opioid Fentanyl. For comparison, close to 40,000 people each year die in motor vehicle accidents and another 40,000 people die of gunshots (about half self-inflicted). Michael Pollan in his new book *This is Your Mind on Plants* argues that not everyone who takes opioids gets hooked. It is context related. Sure, but given 92,000 opioid deaths in one year, how reassuring is that? And of course, tobacco produces nicotine, which is addictive. We have many receptors in our brain and in our peripheral skeletal muscle that respond to nicotine, so called nicotinic acetylcholine receptors. Such cells respond to the neurotransmitter acetylcholine and can also respond to nicotine (other neurons, particularly in the visceral nervous system respond to acetylcholine and can also respond to muscarine but not nicotine). The poet Allen Ginsberg wrote a mantra about cigarette smoking – “Don’t smoke, don’t smoke, gonna make you choke, choke, choke, US official dope, dope, dope”. Coffee beans produce caffeine to which some people get “addicted” and really need their daily java. And then there is the catnip plant. Cats respond to catnip as if it were a psychedelic

by “drooling, sleepiness, anxiety, leaping about, and purring. Some growl, meow, scratch, or bite at the hand holding it”. Some biologists have shown that when cats rub catnip on their fur it reduces the likelihood of getting mosquito bites. So maybe having an affinity to catnip gave certain cats a selective advantage.

So, what about those GABA tomatoes? GABA is widespread in the brain. It is an amino acid neurotransmitter released by some neurons and inhibits adjacent neurons that have GABA receptors. GABA is derived from glutamate, an amino acid that we obtain from eating proteins (which are a string of various amino acids, not including GABA). Glutamate is released from certain neurons and has an excitatory effect on many of its neighboring neurons. So, the simplistic argument is that if you ingest more GABA, there is more inhibition and this should be calming. The problem is that the brain is surrounded by a barrier that tends to block most substances entering from the blood. Also, brain circuits can be very complicated. GABA can inhibit adjacent neurons but in some instances those neurons can in turn inhibit the next set of neurons which, if they too are inhibitory, the effect can be to excite the overall circuit –the effect of an inhibition of an inhibition. [by analogy to inhibitory neural circuits, in speech and song there are double negatives, where the two linked negatives make a positive, e.g., ‘the results

are not inconclusive’ or, in Mick Jagger’s immortal lyrics ‘I can’t get no satisfaction’. The English philosopher J.L. Austin once made the observation that while two negatives can make a positive, two positives can’t make a negative. In response, the Columbia philosopher Sidney Morgenbesser replied ‘yeah, yeah’]

What happens to test subjects when given oral doses of GABA? In a recent article in Trends in Neuroscience a group of scientists (P. Hepsomali et al.) reviewed the literature and found that there was little effect of oral ingestion of GABA on either stress or sleep. So those Japanese-approved GABA tomatoes are probably expensive and ineffective. However, before we rule those tomatoes out, there is the placebo effect. If someone says that if you eat a certain type of tomato you will get calmer, then maybe you will.



Hydraulics: subsidence continues

The southeast part of TSG has continued to sink. Each year more soil has to be added to prop up the plots over there. The best guess is that there is an underground stream bed that originates at the Francisville playground, a high spot a few hundred feet north of TSG (see Green Thoughts issue #7) and runs under the southeast of TSG. The stream bed fills with water after a rainfall and erodes the overlying ground which slowly caves in. In the fall we may learn more what is going on underground. New water pipes will be installed 3 feet under the ground along the two main east/west paths. The blue barrels that currently store water will be replaced with above ground “hydrants” attached to those underground pipes. Gardeners will fill their watering cans at the hydrants. At the extreme south eastern end of the excavation a hole will be temporarily dug to see if the underground stream bed can be found. Is it always wet down there with a trickle of water moving downstream? Or does the streambed dry out if it hasn't rained for a while? For obvious reasons the streambed can't be diverted. Where would the water go otherwise? But we can dream.

The new hydrants will take getting used to. Right now if you want to fill your watering

can with water you just immerse the can in a blue barrel and it quickly fills. It is a pretty good system except the water barrels have limited holding capacity. They can run out of water despite the wonderful efforts of the Water Committee to replenish the water in the barrels. The new hydrants will have their own limitations. It begins with a practical application of *Poiseuille's* law:

Flow through a pipe is proportional to the difference in pressure at the two ends of the pipe $\times D^4/L$ where D is the diameter and L is the length of the pipe.

As water flows in a pipe the pressure gets less the further along you are. The hydrants furthest from the source of the water (a City water main on the North St. side of TSG) have the least pressure. But the larger the diameter of the pipes, the less the pressure drop. Note that flow is proportional to the diameter of the pipe raised to the fourth power (!!). Pressure drops more if other people are also drawing water from hydrants closer to the water source. Filling a water can will be equivalent to opening a tap on a faucet and putting the can underneath. It will require patience while cans fill. It might also require that only some hydrants can be drawn from at a particular time. It will be interesting to see how the system actually works once it is in operation.



Next issue

We hope to describe the many contributions that Doris Stahl and her Horticulture Committee have made to enhancing the periphery of the Gardens.



artichoke in flower about 3" dia.



Photos shown in this issue, except for the ones for the escarole/endive article were taken between mid-July and the end of July 2021. And all these photos were taken in TSG except for the sliced beefsteak tomato.

Please send your ideas, thoughts, suggestions and observations to:
e.gruberg@temple.edu
that address can also be used for getting on the mailing list for **Green Thoughts**, or getting off.

Prepared by Ed Gruberg

Most back issues and a partial index of Green Thoughts subjects can be found on The Spring Gardens Website under Resources