

Q & A: From 2020



Q. How do you start your sweet potato slips? Dana



You will find two entries for Sweet Potatoes on our Q&A link below beginning on page 4. The first treats growing slips, the second storage. We use April 27 as the target day to start slips. If you don't use heating pads to keep the jars warm, you could start earlier. At the time of the link below, we started slips too early, and the potted-up plants got root-bound while we waited for a warm day to plant. Soil temp should be at least 55 degrees. On several occasions we had to cover the bed with plastic sheeting due to late cold weather in the spring, or early cold weather in the fall prior to harvesting.

http://www.neo-terra.org/uploads/2/5/6/4/25644359/q&a-4_growing_specific_crops.pdf

Earlier we used a window sill. Now we use our plant stand with heating pads and grow lights. We change the water every 4-5 days. We tear off slips at 6 nodes and put them in a pint jar with water to root.



Here's a close-up of the slips sprouting roots. At some point, when we have our 40 slips rooted, we pot up in 4" square pots. When it warms up outside, we put them in our mini-greenhouse. Our target date for transplanting into the bed is June 2.

With good timing, you can transplant the rooted slips in your soil directly and save the potting up step.

Q. We found small holes in some of our sweet potato tubers during harvest this fall. Is this a pest? Gene

I found the following info on things that can cause holes in sweet potato tubers, and I suspect it is wireworms, which are the larvae of click beetles. We know we have click beetles around because they sometimes get into the house - here's a photo of the kinds we see around here (brown ones): <https://www.cirrusimage.com/beetles-click/>

The following web links show examples of the holes in the tubers and what the wireworms look like. It seems that by putting in a cover crop next to the sweet potato bed, we attracted this pest somewhat. Thankfully it's relatively minor damage in the case of our crop. Tania <https://milnergardens.viu.ca/what-causes-holes-or-tunnels-your-potatoes> and <https://blogs.ifas.ufl.edu/pestaalert/2017/09/19/wireworms-hidden-pests-sweet-potato-fields/>

Weeds in the Garden

Q. I'm never sure how to get my garden started first thing in the spring. There is always a lag between when weeds start to grow and when I get my plants in the ground. This always necessitates lots of weeding. I have used black plastic, but I'm not sure this is the best way to go. Any ideas on how to keep the weeding to a minimum? Thanks, Andy

Great hearing from you! On early season weed growth, I have three suggestions:

1. Get an oscillating hoe. These are great. Takes a few minutes to use. The idea is to uproot the young weeds so they lay on top of the soil and dry out in the sun. The blade runs parallel to the soil. You clip the weeds pushing and pulling the hoe, so it works in both directions. I couldn't find one at either Lowes or H. Depot, but found this one on Amazon which looks pretty good, and got high reviews:

https://www.amazon.com/True-Temper-Action-Hoe-2866300/dp/B00U2KG0KM/ref=sr_1_2?keywords=oscillating+hoe&qid=1583606942&s=lawn-garden&sr=1-2

2. vinegar-based weed killer. Helps if you have a 1-2 gallon garden sprayer. To your sprayer add:

- 1 gallon of ordinary white distilled household vinegar
- 2T vegetable oil
- 1T liquid dish detergent.

Set the spray nozzle to fine, and spray on a day forecasted to be warm and sunny all day and the next day. Spray late morning, early afternoon so the sun fries the weeds. Aim for above 70 degrees. You can ratio this down to 1-2 qts of vinegar. Make two passes. Get underneath the weeds, too. You will notice the weeds turn brown in a couple of days. New seeds will germinate, so you may have to repeat in a week or two. Great on driveway weeds, etc.

3. Standard organic practice is to use cover crops. We use fall planted cover crops to smother weeds, improve soil structure, and add organic matter. We use winter rye or wheat with vetch on late planting crops such as tomatoes, corn, cukes and squash, and oats on early crops such as lettuce, spinach and beets. On the rye-wheat combinations, we cut back in the spring two to three times when it gets tall to 6-8" and add the cuttings to our compost pile. Three weeks prior to planting we cut to the ground, skim the sod, and let it sit. The roots decompose in the soil, loosen it, and add organic matter. In our entire garden, we spend maybe an hour all summer weeding in the beds.

Burdock

Q. I know burdock is good for me, but I have trouble digesting it. Any suggestions? Tania

There are so many benefits to burdock, you might want to give it another try. It's possible the reaction you have to it may decrease with time as the burdock helps to clear toxins from your system: <https://www.organicfacts.net/health-benefits/herbs-and-spices/burdock.html>

Mutant Brassica

Q. Hope you guys are doing well. I found this vegetable planted amidst my Brussels sprouts. Any idea what it is? Andy



The greens are definitely from the brassica family, but the bottom looks like a mutant. Brassica candidates include turnip, rutabaga, kohlrabi, but yours is none of these, which is why I suspect a mutant.

The separate stems rising from the root resemble a kohlrabi, but that root is spherical and smooth. Turnips and rutabagas are also spherical with smooth skins. Your more pointed root resembles a parsnip, but parsnips are members of the parsley family, so that would not square with the leaves. There are some turnips with elongated shapes, so I

suppose it could be one of those, but again, those tend to have smooth skins. Cut a small slice and taste it. I suppose you could cook it up like potato, mash it with butter, salt and pepper. Yours looks like it might be fibrous or woody, possibly because it sat in the ground for so long.

If not palatable, compost it.

Do you direct seed your Brussels? You could send your pic to the seed company and ask them. That mutant seed may have come in that package. Include the seed packet info: number, lot, date and any other identifying info. They could contact the grower. You might find out something. I have done this with Fedco when I get off seeds, and they investigate.

[Andy replied](#). A mutant makes sense. I actually bought the Brussels sprouts as seedlings from a farmer in the neighborhood. Curious how it tasted, I cooked it up, added butter, salt and pepper with a little milk, and it was great!

Recipe for Elderberry Dressing

Q. The elderberry dressing you served at lunch was fantastic! Can you give me the recipe?
Sylvia

I start by making elderberry vinegar in the summer during elderberry season. I pick the elderberries and remove the berries from the stems (the stems contain cyanide so I do my best to remove all stem pieces). Give them a little rinse to clean off any debris and let them drip dry, or dry them by spreading them out on a towel. You want to remove excess water because it will dilute the vinegar.

Making the vinegar. Fill a glass jar 2/3rds of the way with the berries and then fill the jar to the top with organic apple cider vinegar. Select jar size to accommodate how many berries you have and how much vinegar you want to make. Cap with a non-reactive lid (or use plastic wrap - not optimal - on the top of the jar between the jar and lid) and shake the jar twice a day for two weeks. Strain the mixture and lightly press and mash the spent berries with the back of a spoon to squeeze out most of the liquid. If desired, strain through a finer mesh to remove any seeds or other organic residues. Store in a glass jar in the fridge for use over 1-2 years. [Note: elderberry is one of Stephen Harrod Buhner's top 7 antiviral plants; it makes a potent cold/cough remedy especially effective during the initial stage of illness. Mix with honey for a cough syrup, for example.]

Making the dressing. Use a small bowl or 2 cup glass measuring cup. Adjust amounts to your taste. Fill the measuring cup to the 1/3 cup line with elderberry vinegar. Add maple syrup until the liquid level is at the 1/2 Cup line. Add another 1/2 C of olive oil so that the total amount of liquid in the measuring cup is now 1 cup.

Stir in a clove of pressed garlic, some crumbled dried herbs to-taste. I used mostly thyme plus some purple basil). Whisk together and test-taste. Adjust with more elderberry vinegar if you want a stronger elderberry flavor.

Other additions that are lovely if not overdone: 1/8 tsp Dijon mustard or 1/8 tsp prepared horseradish. I did not use them in the version you tried. Tania

Pruning Black Currants

Q. Regarding our discussion of black currants, I'm happy to have you tell me what to do! Will check them out today and prune. (Kathy likes them even if I'm ambivalent.) Glenn

Since you may not have pruned recently, this first year of pruning an old shrub may seem severe. Push ahead.

Black currants fruit on 1 year old cane -- cane that grew from last year. This cane has a lighter colored bark -- light gray on ours. You will find new cane growing either from the ground, or from older cane as side shoots.

First, remove all dead cane by pruning to the ground. Avoid damaging new cane coming up next to dead cane.

Next, assess how much new cane you have. As mentioned above, you will find thesea growing either from the ground or from older cane as side shoots. Since you haven't pruned in a while, you may find you have few new shoots growing from the ground, and lots of small side shoots from older cane. Really old cane with lots of small side shoots will not be productive. If any of these older canes have a long new side shoot (say, over 8", hopefully near the bottom), prune down to that. Otherwise, prune the older canes to the ground.

At this point, you may have removed 2/3rds of the shrub! Not to worry. Hopefully, the shrub will put its efforts into fruiting last year's new growth and new cane for this year.

Next, consider judicious pruning of thin, damaged or weak looking new cane from last year, usually to the ground.

Cultivation tip. Black currant roots are fibrous with many fine root hairs lying close to the surface. These may grow 2-3' from the shrub. These are easily disturbed and damaged. Ideal conditions consist of rich, loose loamy soil well composted and mulched on top to retain soil moisture (I use 1" of wood chips). I seem to recall your shrubs grow amidst grass. If the shrubs have done well under this regime, you might want to leave well enough alone and focus on annual pruning.

Finally, currants are heavy potassium feeders. In the spring, I pull away the old mulch, sprinkle 1/2 cup of sul-po-mag, and then add compost mixed with sphagnum peat moss to counteract the high pH of our soil. I move the old mulch back and add new mulch if necessary. I water well to resettle roots disturbed. In your case, adding fertility to grass may help the grass more than it helps the currants. Your shrub will do better if you get rid of the grass. Figure a 2' radius.

Trellising Peas

Q. How do you trellis your spring peas? Dan

Scroll down to "Planting peas in beds" in the link below which describes two alternatives: a collapsible one which you've seen in our garden, and a simpler one that may work for you: (http://www.neo-terra.org/uploads/2/5/6/4/25644359/q&a-3_growing_practices.pdf).

Consider making one frame and stapling nylon garden trellis mesh to it. The frame could be the width of your raised bed, and the height 6' to be safe. Use 1x2" pine strips. Hold in position with two metal garden stakes to which you can screw the frame.

Plant peas in rows on both sides of the frame. At 3" apart you can fit 15 on one side of the frame and 15 on the other, probably more than you have peas. This will get you through the season. You may have to help the peas attach to the netting, but they will cling to it as they grow with occasional help from you. Makes for easy maintenance and picking.

High Yielding Calorie Crops

Q. If I wanted to grow high calorie crops biointensively, what would be your recommendations? Karl

In the table below I compare Jeavons' low yields with our yields for a variety of crops. You will note that the ones in yellow highlight are all root crops! Root crops out-yield grains – compare with wheat on the last row.

Top Vegetable Crops for Caloric Yield Per 100 sq.ft. (from Jeavons)	Calories per 100 sq.ft. (low yield)	Our calories/ 100 sq.ft.
Rutabaga	35,400	6,669
Parsnips	34,870	17,533
Garlic	32,820	33,900
Sweet Potatoes	32,800	31,300
Burdock	30,000	51,900
Leeks	29,520	-
Irish Potatoes	27,900	28,000
Swiss Chard (moderate oxalates)	20,800	-
Lima Beans	18,000	32,000
Field Corn	17,380	-
Collards	17,200	27,200
Onions	15,700	15,500
Carrots	15,600	22,000
Cylindra Beets	15,070	10,600
Brussels Sprouts	13,350	7,097
-- other crops here		
Wheat – Durum	6,000	-

Vitamin B for Plants?

Q. Hi Gene, It is scorching hot here, so Chris has been cleaning out the garage. We have a jug of Vitamin B for plants. Why would I have bought this? Should I use it on something? Lori

I had never heard of using vitamin B, so I looked it up and found a short but revealing article, one of several making the point, that use of vitamin B-1 is a garden myth. Here is the link: <https://s3.wp.wsu.edu/uploads/sites/403/2015/03/vitamin-b1.pdf>

Does the label on your jug mention B-1? What else is in the formula? Does the label contain directions? Is it a concentrate or ready to use? I suggest you dilute it and spread it around one of your growing areas.

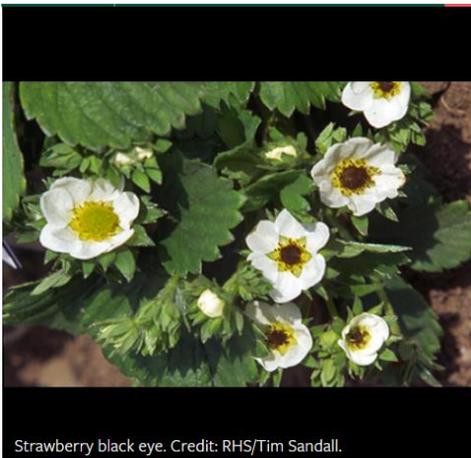
Growing Strawberries

Q. Do you have any practical guides to growing strawberries? Alice

Jean Stark recently sent me her guide from her DIY home site. She writes in an engaging no-nonsense “just the facts, Ma’am” style here: <https://happydiyhome.com/growing-strawberries/>

Strawberry Black Eye

Q. The blossoms on some of our strawberry plants have a black center. This a disease? Joe



Strawberry flowers often open before the last frost. Black eye results when frost kills the reproductive parts of the flower. As a result the flower will not set fruit. Partial frost damage to the flower tissues will not cause black eye symptoms, but the resulting fruit may be distorted.

We suffered similar damage this spring, as the plastic sheeting we used to protect the plants wasn't enough, but saved most of the crop. Not to worry: it isn't a fungal infection. For more information, see this article: <https://www.rhs.org.uk/advice/profile?pid=470>

Leaf Miners on Spinach



Q. One morning we found our spinach, chard & beets covered in leaf miner trails. I am going to clip off the infected leaves but have you had this problem? Any suggestions on how to deal with this? On the plus side we have amazing lettuce! Dan

With a small number of plants, you can control these in three ways: (1) squishing the larvae; (2) surveying the undersides of the leaves for tiny eggs, which you can scrape off with your fingernail; (3) surveying your garden for host plants showing similar damage, and doing the same with those. Candidates include beets and chard, lambs quarters (a weedy but edible plant) and columbine. On spinach and beets, we use our mesh cages to keep out the leaf miner fly, whose larvae tunnel through the leaves, causing the damage you see.

Tipburn of Lettuce Leaves

Q. Some of my neighbor's lettuce plants are developing a blackened edging on the leaf margins. Is this a disease? I'm concerned about her plants infecting mine. Lois

I looked it up online and it is NOT a disease or fungus, but is most likely related to an inability for the plant to uptake calcium fast enough during its growth. Myriad factors can cause it and it even occurs in hydroponically grown lettuce! See, for example:

<https://ag.umass.edu/greenhouse-floriculture/photos/hydroponic-lettuce-tipburn>

This article treats it in more depth:

<https://agriculture.vic.gov.au/biosecurity/plant-diseases/vegetable-diseases/tipburn-in-lettuce>

Suggestions: (1) Make the soil more acidic; (2) add more potassium. One mineral that contains both is sul-po-mag, which contains sulfur, potassium and magnesium. You may want to get a soil test done, as this problem may recur as you rotate your lettuce to other areas. If your soil ends up having a high pH, you may want to add elemental sulfur in the recommended amounts. Get the pellets, also called pastilles. These look like split peas. These break down and spread through the soil slowly. Pellets are better than powdered sulfur, as the latter blows around in the breeze, and is hard to mix in, as it sticks to cloddy soil. We add sulfur every year due to the high pH of our compost, the bulk of which raw material consists of leaves from trees growing on high pH soil over limestone. Consequently, the tree roots take up calcium and deposit it in the leaves. Tania

Fuzzy White Insects

Q. There are fuzzy white insects on our vegetables! What are these? Kristine

There are two categories of possibilities: psyllids, or jumping plant lice; and woolly aphids, of which woolly adelgids are a family. All are sap suckers that can debilitate a plant. Some can inject toxins or pathogens through their saliva when they bite into the leaf or stem. Others produce curled leaves or leaf galls -- raised growths on the leaves or stems. The gray ones, at least in woolly aphids, may be juvenile forms. There are also whitish cottony scale insects.

I have a great insect guide in case you want to look at pictures to help narrow down your observations, or you can investigate further online under "psyllids" or "woolly aphids". Adelgids hang out in pines, spruces, hemlocks.

Harvesting Garlic

Q. We got a great haul of garlic – 62 bulbs! Now what do we do?? Kristine

WOW. Additional tips required:

1) Lay the stalks out to dry out of the sun with good air circulation.

- 2) Determine when they are dried by cutting a small sample of stalks back to 1.5" or so and feeling the cut end to see if it is dry, not wet.
- 3) If dry, cut off remaining stalks, and prune roots back to base of bulb. Store in a cool, dark place, say, in garden flats or cut-off cardboard boxes 1 layer deep. Use first the ones that are damaged or the cloves have pulled away from the bulb skin. Reserve the biggest and best bulbs for replanting in the fall. Figure 5 nice cloves/bulb, meaning if you want 60, put aside 12 bulbs.
- 4) We plant on October 1 into a prepared bed section with compost. Later also ok, but our garden is shady, so we plant earlier so bulbs start growing during the warm fall. Three weeks before planting, put your reserved 12 bulbs in a paper bag in the refrigerator. This stimulates growth when you plant. When it gets cold -- say, by early December -- mulch with leaves or straw. Keep mulch in place using a piece of old fencing weighed down along the edges with boards, stones, etc.
- 5) By the year's end, the bulbs begin to dry out and you will find the cloves start to turn brown. Not good. By January's end or early February, the remaining bulbs may begin to sprout. Not good. To forestall browning and sprouting, we store the remaining garlic in olive oil in glass jars and put these in the freezer. You must freeze to prevent botulism from forming anaerobically, as storing in oil drives out oxygen, allowing anaerobic bacteria to take up residence. Break apart the bulbs, take the skins off the cloves, and cut the ends that were attached to the roots. Freeze only the best ones. Reserve the rest for immediate use, storing these in a container in the refrigerator. When these run out, defrost a jar and store in the refrigerator for use.

Cover Crop Info

Q. We've never used cover crops before. What do you recommend? How do we start? What do we do? Donna

PRELIMINARY INFORMATION

1. Seeds. You can get the three fall cover crop seeds I recommended in 2# bags at <https://www.fedcoseeds.com/ogs/farm-seed>; oats (8085), vetch (8139), and winter wheat (8148). In addition, you will require an inoculant for the vetch, a black bacterial powder: <https://www.fedcoseeds.com/ogs/field-pea-vetch-inoculant-8161>
2. Which to Use. Plant oats and vetch in areas where you will be planting early crops next spring: lettuce, spinach, beets, etc. Plant wheat and vetch in areas where you will be planting later crops: tomatoes, squash, corn, potatoes, etc. A fine point: avoid using vetch where you will be planting another nitrogen producing plant such as beans. This is to prevent diseases common to both from manifesting. We have never had a problem when I accidentally forgot, or had to change the garden plan later.

3. When to Use. Broadcast oats and vetch from late August to late September. Broadcast wheat and vetch September to mid-October.

4. How to Use. (a) Clean beds. (b) Loosen soil surface with a spading fork. We use a twisting motion with the tines, driving the tines in a few inches and twisting the handle and shaft. Break up clumps. (c) Broadcast seeds separately -- the oats and vetch, or the wheat and vetch. Broadcast as evenly as you can. Chop in lightly with a garden rake. You are simulating the action of a farmer's seed drill. Not too deep.

Vetch is harder to germinate, and benefits from soaking in warm water for 24 hours. Rinse 2-3 times and use fresh warm water each time. After last soak, just prior to use, pour out all the water, Sprinkle a bit of the inoculant onto the wet seed and mix so seed is covered. Your inoculant bag is enough for 50# of seeds, so you can be generous. The inoculant is only good for this season.

5. How Much to Use. USED ALONE: Wheat and oats: 8#/1000 sq. ft.; Vetch: 6.8#/1000 sq.ft. Since you will be mixing the vetch with each, use HALF this amount/1000 sq.ft. A more convenient way is to measure by the cup. For the oats and vetch, or wheat and vetch combinations: 2/3rd cup/100 sq.ft. of oats or wheat, and 4/5 th cup of vetch/100 sq.ft. If you are putting your entire garden beds (~ 1,000 sq.ft.) to cover crops, you will require 3.4 # vetch and 4# of wheat or oats. If half your garden will be planted in early crops and half late, you will require 2# each of wheat and oats to give you the 4#.

6. Water lightly to keep seeds moist. You should see germination in 7-10 days, faster in warmer weather.

ADDITIONAL CONSIDERATIONS

1. Bed vs Row Gardens. Tania and I are bed gardeners. Our beds are 5' x 30' with 2' paths of grass between. We only put cover crops in the beds, not the paths. Some row gardeners we know till the entire garden area each season, then lay out their rows and paths after. Thus, you are tilling soil which, for that season, ends up as paths. Are you row gardeners or bed gardeners? Are your paths permanent? Your 1,000 sq.ft. of total area translates to a lower amount if you subtract paths.

2. Cutting Cover Crops. The oats will winter kill. The vetch and wheat will overwinter and grow next season. Farmers mow their cover crops. Backyard gardeners do not have access to farm mowers, and lawn mowers cut too close. We cut with grass shears down to 6-8" each time, getting 1-3 cuttings depending on spring rains. We put the cuttings, chopped into 3-6" lengths, into our compost pile and mix the bright high nitrogen greens with the browns from last fall's leaves. How would you cut the cover crops? I use grass shears and Tania uses her Felco pruners. The best grass shears are from Lee Valley Tools: <https://www.leevalley.com/en-us/shop/garden/lawn-care/shears/10197-adjustable-grass-shears?item=EC807> . Lee Valley Tools also sells Felco pruners. She uses a #2 which I recommend, but you may prefer a different one: <https://www.leevalley.com/en-us/search?q=felco%20hand%20pruners&sort=relevancy&numberOfResults=24> .

3. Turning Under Cover Crops. At the last cutting, farmers turn under their cover crops with a plow. Backyard gardeners can use rototillers. Tania and I do not use rototillers. We cut down to the ground, leaving a stubble and then skim. This entails slicing the turf about an inch or two beneath the surface to sever the turf from the roots below. Would you be using a rototiller? Tip: We have used a weed wacker on the last cutting. While fast, it creates a bit of a mess which we rake up. It also leaves a ragged stubble. Weed-wacking earlier cuttings leaves a tangled mess. The cut grass falls on top of the remaining grass, and mats down. I have not seen this done successfully, but you may have better luck.

4. Timing. Regardless of how you turn in the cover crop, it is important to leave at least 3 weeks for the roots and turf to break down before you plant. During this phase, the soil microbes are using nitrogen to help break down the organic material for later use. Once incorporated, the organic material releases nitrogen slowly during the growing season. If you plant too early after turning under, the soil will be cloddy, and may turn your plants yellow, as your plants will not have enough nitrogen to flourish.

All for now, Gene

Repelling Raccoons with Cougar Urine

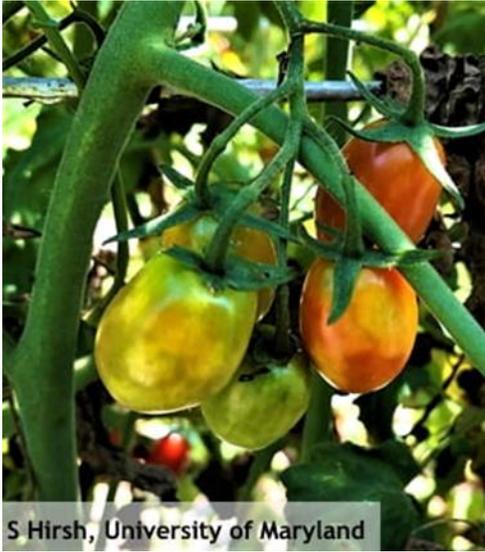
Q. We have raccoons climbing over the fence to get into our garden just as our corn is coming in. Then, in the fall, they enter again to climb our pawpaw trees to get fruit! I read somewhere that cougar urine works. What can we do?? Tricia

Cougar urine is expensive. Here are links:

1. On this one, click on "RACCOONS" in the left hand column. On that page, click on "The Concept -- How Much You Need -- How to Use It" line under the first paragraph:
<https://www.predatorpeestore.com/Application-Instructions.html> To do the entire perimeter of 400', you would require 2 16-oz bottles and 30 all-weather dispensers. Alternatively, create a floppy top on your fencing.
2. Substantially cheaper on Amazon: <https://www.amazon.com/Predator-Pee-100-Mountain-Urine/dp/B01AH4RV32> and the dispenser packs.
3. Even cheaper here: <https://thepeemart.com/product-category/predator-urine/mt-lion-cougar-panther-urine/> \$70 will do ~ 200'

We have found another solution which we have now tried for two consecutive seasons to great success: a radio tuned to a loud rock station with the disk jockey coming in from time to time. The voice mimics humans in the garden, and the loud music shields noise from potential predators, making the raccoons apprehensive about entering. The first year we used a portable radio, but the expense of batteries came to \$50 by the end of the season. This year we got an old electric radio at Goodwill and ran an extension cord from the garage. Tania made a box to protect the radio from rain, and she taped wire connections with duct tape to keep out water.

Stink Bug Damage on Tomatoes



Q. I found what looks like what we've got on the Borghese tomatoes. At first I thought it was a disease, but this University of Delaware Extension site confirms stink bug damage. Tania

<https://sites.udel.edu/weeklycropupdate/?p=13736>

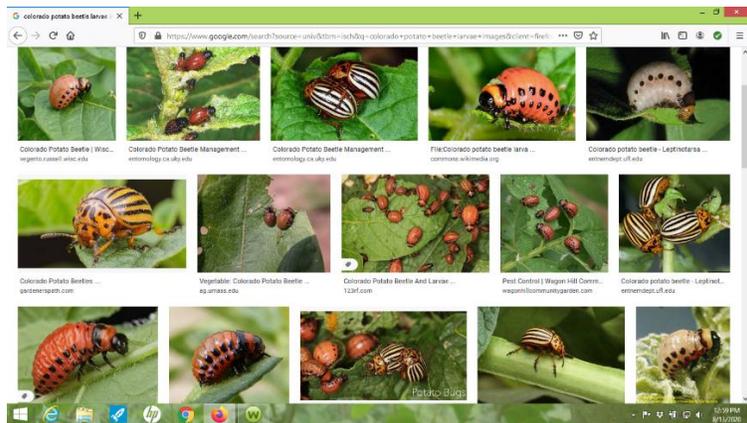
Thanks, Gene

Potato Beetle Larvae



Q. We have these disgusting whitish bugs with dots along the sides eating our eggplants? What are these? Deb

Potato beetle larvae. The striped versions are the adults.



Insects in Our Garden

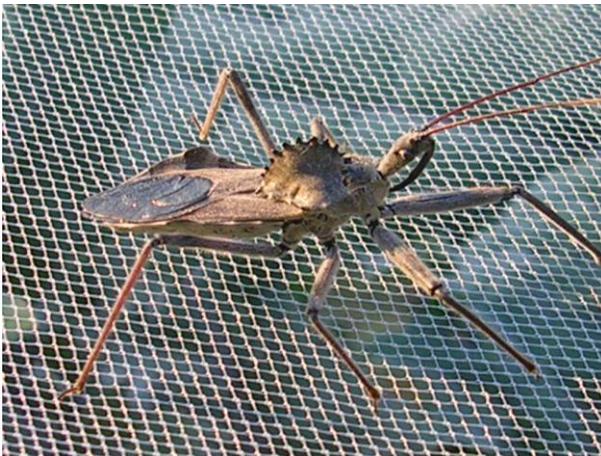
Dear Gene,

For the annals of Neo-Terra, our giant wasp friend is a non-stinging, non-aggressive "horntail"... not quite a wasp after all!

<https://www.insectidentification.org/insect-description.asp?identification=Pigeon-Tremex>

Attached is the horntail pic. Plus a few other recent bug pics for the Neo-Terra annals....a real wasp helping itself to a tomatillo (slurp!), Praying Mantis on corn, Wheelbug atop the broccoli

netting, kale lace thanks to our industrious zebra caterpillars (two pics), stink bug nymph on Amla paprikas, and a Walking Stick on our house siding. Tania





Kale in a Smoothie?

Q. If you were going to put kale in a smoothie, would you blanch it first? Karl

Yes. Raw kale contains goitrogens, which cause an enlargement of your thyroid (hypothyroidism), though you would have to eat a lot of raw kale or other cruciferous vegetables over a long period of time to cause this condition. Since I am hyperthyroid already, and taking a natural thyroid medication, I would not eat raw cruciferous vegetables.

Heat destroys some of the goitrogens. Blanching, as you call it (short term 5 minutes) helps the myrosinase enzyme break down the sulfur compounds into forms that your body can use, so I would blanch kale before using it in a smoothie. Steaming would be better, as the temperature is lower than blanching in boiling water. Temps above 140 F or so for longer than 5 minutes inactivate the myrosinase.

Small detail: I would imagine you would chop the kale before steaming. Let the cut kale sit for 5 minutes before steaming. This gives time for the myrosinase to begin its work.

More reading: <https://www.shape.com/healthy-eating/could-kale-cause-hypothyroidism>

Breadfruit: A New Plant for Farmers to Grow in Central America

Q. Gene, thanks for showing Ana Maria around your garden. The organization for which she is a board member is interested in introducing breadfruit as a cash crop for farmers in Central America to grow. Can you give me your take on this idea? Karl

Karl, knowing nothing about breadfruit, I looked it up and found the following:

1. A nice summary: <https://www.nutrition-and-you.com/breadfruit.html>
2. Circular produced by the Hawaii Dept. of Agriculture featuring comparisons with white potato and rice, and examples of products and prepared dishes:
<https://hdoa.hawaii.gov/add/files/2014/05/Breadfruit-Nutrition-Fact-Sheet.pdf>

3. Article touting breadfruit as a superfood to alleviate hunger in 3rd world countries:
<https://sciencemeetsfood.org/breadfruit/>

Bottom line: lots of uses beyond flour. Keep me posted. Gene

[Reply from Ana Maria, Wow!!! This information is amazing! I had no idea of all the uses and benefits of the breadfruit. Thank you so much Gene for the links. Ana Maria](#)

Ana Maria, as you proceed, keep in mind the distinctions among need, demand and market. **Need** is often prescribed by "authorities" on a dependent population, e.g., minimal caloric requirements, square footage of apartments, health care minimums. **Demand**, the next step up so to speak, is the willingness and ability to pay for something. Demand does not mean that there is necessarily a supply at hand to satisfy the demand. **Market** refers to an active collection of buyers and sellers, that is, people who demand something, and have the ability to actually purchase what they want from suppliers. You can think of market as a concrete location, say, a farmers' market. Market can also refer to an abstraction -- the market in used cars, rental apartments, beauty care products, health food, etc.

Regarding breadfruit, what the links I sent show, and there are others, is that there is already a market for breadfruit products. This is a plus for new entrants. Of course, there will be competition, too. Therefore, what counts is introducing new products, undercutting prices of existing products, and carving out niches in the market through brand identification, superior products, ethnic labeling, etc.

I remember, for example, the small tortilla stand in Santa Barbara in the Hispanic section. It was run by two Mexicans. The mother made the tortillas and pressed them one at a time in a little hand press. The son prepared the fillings. The finished product with appropriate fillings were heavenly.

Around the corner was a local company that made tortillas in a huge machine, packaged them, and sold them in supermarkets. I bought a package of these once. They were terrible – terrible in comparison to the real McCoy. Yet most gringos never went to this little stand on Milpas Street. Notice here how "educating" the potential customer on the superiority of your product is essential. Keep us posted on your project. Gene

[Additional post from Karl including recipes for using breadfruit flour to which Tania and Gene reply as follows:](#)

Karl, as I've never heard of breadfruit nor breadfruit flour, I have no sense of its digestibility. When I read how it causes a "sense of fullness" I had to chuckle... in my case it could just be gas! ha ha ha! Yes, lots of insoluble fiber could prove digestively challenging for folks like me who cannot even digest beans. I do not know if it would be like Jerusalem fartichokes... sorry can't be of more help! If you get a sample in the mail, give it a try & let us know! Tania

Karl, the key ingredient in Jerusalem artichokes which may contribute to gas is inulin. It is one of the finest sources of dietary fibers, especially high in *oligo-fructose inulin*, which is a soluble non-starch polysaccharide. This causes gas in some people.

"Inulin does not get digested in the gut and passes as it is in the bowel movements. Sometimes, this may cause troublesome indigestion problems, especially in those who are new to use them in the food. Eating large quantity of roughage may cause gaseous distension and gripping pain in the stomach." I searched under "breadfruit, inulin" to find if there was a connection. I found the following:

1. An abstract linking inulin in breadfruit to prebiotic activity, considered a plus in digesting food:
<https://journal.uniswa.edu.my/agrobiotechnology/index.php/agrobiotechnology/article/view/168>
2. A set of citations revealing a lot of scientific interest in improving breadfruit. One effort is to reduce storm damage during hurricanes in tropical regions by producing smaller trees.
<https://www.science.gov/topicpages/b/breadfruit+artocarpus+altilis>
3. An abstract on the importance of using inulin in baked goods to improve functional digestion, but no particular link to breadfruit:
<https://www.tandfonline.com/doi/full/10.1080/10408398.2017.1355775?src=recsys>
4. Use of breadfruit flour to improve palatability of beef patties by improving color compared to other flours: <https://www.iastatedigitalpress.com/mmb/article/id/9080/>

Experimentation necessary. The pdf you sent has many recipes. Let us know what you experience eating it. Gene

Toxicity of Paw Paws

Q. We love your pawpaws and look forward to these every fall. I came across an article in the NYT, "How to Grow (and Eat) a Pawpaw" which lavished praise on this fruit, but contained the disquieting comment that the seeds and skin contain toxic compounds and should not be eaten. What do you make of this assertion? Michael

<https://www.nytimes.com/2020/10/19/dining/how-to-grow-pawpaw.html>

Michael, I searched online and several generic articles make this claim but only one made reference to a Purdue University fact sheet that says the seeds, twigs, leaves & bark contain toxins which have anti-tumor properties, but no mention of the skins.

<https://hort.purdue.edu/newcrop/CropFactSheets/pawpaw.html#Uses>

I also found articles in the science literature that I will study more when I have time:

Neurology Clinical Practice, April 2020, "Progressive Supranuclear Palsy and Pawpaw" with the quote, " Consider consumption of annonacin-containing plant products, including pawpaw, as a possible environmental risk factor for atypical parkinsonism."

<https://cp.neurology.org/content/10/2/e17>

Here I note that my tremors became noticeable near the end of June, well before pawpaw season this year, and well AFTER pawpaw season last year, so it seems unlikely to be related to my pawpaw ingestion.

Neurotoxicology, Jan 2012, "Annonacin in Asimina triloba fruit: implication for neurotoxicity"
<https://pubmed.ncbi.nlm.nih.gov/22130466/>

Introduction: The acetogenin, annonacin, from the tropical annonaceous plant *Annona muricata*, is a lipophilic, mitochondrial complex I inhibitor reported to be more toxic than rotenone to mesencephalic neurons. The temperate annonaceous plant *Asimina triloba* (pawpaw) is native to the Eastern United States and products are available online. This study determined whether annonacin is in the pawpaw fruit pulp and whether it or the crude ethyl acetate extract is toxic to cortical neurons.

Results: The average concentration of annonacin in the fruit pulp was 0.0701 ± 0.0305 mg/g. Purified annonacin (30.07 µg/ml) and crude EtOAc extract (47.96 µg/ml) induced 50% death of cortical neurons 48h post treatment. Annonacin toxicity was enhanced in the presence of crude extract.

Discussion: Pawpaw fruit contains a high concentration of annonacin, which is toxic to cortical neurons. Crude fruit extract also induced neurotoxicity, highlighting the need for additional studies to determine the potential risks of neurodegeneration associated with chronic exposure to pawpaw products.

Journal of Natural Products, Aug 2018, "Antiangiogenic Activity and Chemical Derivatization of the Neurotoxic Acetogenin Annonacin Isolated from *Asimina triloba*." The article concludes compounds in pawpaw fruits inhibit the growth of new blood vessels. [Antiangiogenesis]
<https://pubmed.ncbi.nlm.nih.gov/30028612/>

Journal of Natural Products, July 2008, 2008 article, "Paw paw and cancer: annonaceous acetogenins from discovery to commercial products." This is the article referred to above in the Purdue U fact sheet of the anti-cancer compounds in paw paws. Thanks for the note. Lots to investigate. Tania <https://pubmed.ncbi.nlm.nih.gov/18598079/>

Deleterious Effects of Nightshade Family Plants

Q. What are your thoughts on nightshades -- health wise, arthritis. I've read conflicting information. Karl

Members of the nightshade family can cause inflammation in some people that feels like arthritis, affecting one's joints and nerves. Tania realized this a few years ago. For her, the effects are especially acute and immediate when eating raw tomatoes and peppers, and eggplant in any form. She has cut back substantially on eating these three. She has to boil her Irish potatoes and throw out the water to get rid of the solanine. She feels pain in her hands,

feet, lower legs, forearms and sometimes sternum. With this latter, before she realized what was going on, it actually hurt her to breathe.

This is easy to test on yourself, so if you experience the above symptoms after eating nightshade vegetables, and the symptoms disappear when not eating these, you have valid evidence. I am not bothered by nightshades, though I eat these in moderation. Putting it another way, my symptoms of pain and inflammation from other causes easily swamp what may be contributed by nightshades.

Different individuals react differently. For example, a fellow gardener realized that eating pawpaws caused terrible outbreaks of pustules on her face and neck, which broke and exuded weeping liquid. There is some scientific literature (see above Q&A) that connects pawpaw fruit to Parkinson-like nerve tremors (in some people). Doesn't seem to deter our raccoons, but maybe they get the shakes after eating a bellyful.

These examples give credence to the powerful chemical compounds plants produce to protect themselves, and underscore the efficacy of plant-based medicine. For example, pawpaws do not suffer from diseases or (insect) pests. Reportedly, Japanese beetles die after ingesting leaves of 4 o'clocks, which is why we plant them beneath our grape vines.

Gene

Japanese Persimmons



Q. Did our box of persimmons arrive safely? Chris and Lori

Your box arrived, all nice and tidy. The attached pic shows my breakfast. Lacking jam this year, due to May frost that killed our fruit tree blossoms, I am finding your persimmons a more than delectable replacement. I put them on top of my muffin, cut in half, and spread with almond butter, with the persimmon on top.

Chris replies. Can you give a description of the rest of the breakfast — beans, spinach? tomatoes, etc.? It looks delicious!

I start with (acidulated) oatmeal, put some cooked kidney beans on top, followed by steamed collards from our garden. I drizzle an herbal dressing made from three of our herbs shown to improve short term memory (lemon balm, rosemary and sage) plus garlic, stevia and apple cider vinegar. The 4-grain muffins contain flour from oats, millet, brown rice and sorghum, all non-gluten and acidulated; molasses; cinnamon; powdered ginger and eggs. I've already mentioned the almond butter.

Acidulating grains with ground rye flour and vinegar in a warm oven for 8 hours releases the enzyme phytase from the rye and works to break down the phytates in the grains. Phytates bind important minerals (iron, calcium, potassium, magnesium) which otherwise pass through our digestive system without being absorbed. Plant seeds use these minerals when they sprout. Acidulation releases these minerals for our own digestion and absorption.

We got off wheat some years ago. Tania had overt symptoms of gluten intolerance. Mine were milder, but nonetheless, a blood test of inflammatory markers revealed inflammation tied to gluten. By the way, sourdough bread is healthier because the acidulation process is set to occur naturally through use of fermentation (the starter). Rye flour has the highest levels of phytase, so sourdoughs made with rye flour mixed in are the best. Rye has little gluten. On occasion we get sourdough bread from our neighbor Michael, an accomplished baker, with whom we trade peaches and pawpaws.

[Further exchange with Chris. You mention acidulating grains with ground rye flour and vinegar. Is it contained in the oatmeal mixture?](#) Yes. I acidulate the rolled oats in warm water, vinegar and rye flour made from freshly ground rye berries. Otherwise the phytase degrades quickly on grinding, so grind just before adding it to the warm oats slurry (warm to < 115 F). I place the pan in a warm oven overnight (< 115F) and keep the oven light on to retain heat overnight. By the way, I make a batch of oatmeal, enough for 4 breakfasts, eat one fresh, and store 3 in containers in the fridge. Use 1T rye berries, freshly ground, for every cup of grains. Add a heavy splash of vinegar to the water in which you soak the grains and rye flour.

[How long does it take you to prep this meal?](#) The oats are prepared in advance. I cook the kidney beans in advance, enough for a week. I make a batch of a dozen muffins and have 1/day. Collards are steamed in advance. I make dressing in a quart bottle. So, on an "easy" day assembly takes 15 minutes. On other days, I have to prepare and acidulate the oats or muffin batter, which I do the previous night, and then cook or bake in the morning. Thus, during one cycle of muffins (12 days) I go through three preps of oats. That means I can double up on the oven. Lunch grains intervals are more variable, so sometimes I face a "triple conjunction" where I must acidulate the oats, muffin batter, and lunch grains the same night

By the way, beans contain 3 anti-nutrients which you can remove by soaking in warm water in three water changes over a 24 hour period. I first came across this when I was teaching in Ghana. Later I had it confirmed by an Eastern Indian who does likewise with black-eyed peas before making pooras. I also read this procedure in a US Government Printing Office circular decades ago, and came across details in a discussion thread years ago. I suspect this procedure for beans, and acidulation of grains, are not followed, even by many foodies. I never come across either when I go online to search for recipes.

[Chris continues. Does eating this allow you to eat a less substantial lunch? Or is your lunch similar in size to this?](#) I finish eating breakfast around 10 am. I am not hungry for lunch until 2 or 3 pm. Lunch is only slightly smaller. I have acidulated millet and quinoa topped with (lactaid) cottage cheese on which I sprinkle 2T of hemp seeds. I surround this with greens and my dressing. I may have sauteed burdock on the side, with seasonal vegetables -- e.g., fresh tomatoes. I add fermented vegetables – summer green beans, beets. I sprinkle a dozen

soaked and dried walnuts on top. Keeps me going until a late dinner at 8 or 9 (after working outside till dark). Dinner is lighter. In the winter we eat dinner earlier. The principle I follow is a relaxed version of breakfast like a king, lunch like a prince, dinner like a pauper.

END Garden Qs 2020