

**MARY ROBSON, AREA EXTENSION AGENT, ANSWERING YOUR
FREQUENTLY ASKED QUESTIONS ABOUT.....**

Vegetable Gardening

Is Manure Safe to Use in a Vegetable Garden? --I Am Worried about Organisms That Might Cause Illness, Such as the *E. Coli* Bacteria.

Before several well-publicized incidents of illness in the Northwest, California, and Japan, most people gave microbial food contamination little thought. Many different strains of microbes can cause human illness; one of the strains is *E. coli*, a bacteria normally present in animal intestines, including humans.

Although the majority of strains are harmless, certain others can cause diarrhea, vomiting, stomach cramping, and high fever. A few strains can be fatal and *E. coli 0157:H7* is one of those. Gardeners worry that manure of infected animals can contain these dangerous bacteria. Meat products can be well-cooked and remain safely edible. What about the garden lettuce?

If you use fresh manure, there is a small risk that disease pathogens may contaminate the vegetables. The risk is greatest for root crops and leafy vegetables where the edible part touches the soil. To cause infection the vegetable would have to come from a garden where fresh, raw manure was applied, and the manure would have to be from an animal infected with one of the dangerous *E. coli* strains.

WSU horticulturalists and food specialists suggest these precautions:

1. Apply fresh manure at least 60 days before harvesting any crop which will be eaten raw. Better yet, apply the manure in the fall to allow breakdown of the pathogens before spring planting.
2. Never apply fresh manure after the garden is planted. To be safe, avoid applying fresh manure at any time. Find a source of well-composted manure such as commercial bagged manure. Alternatively, layer the fresh manure into your compost and use only mature, finished compost in the garden.
3. Thoroughly wash raw vegetables before eating. Careful washing, and or peeling will remove most pathogens. Thorough cooking is even more effective.
4. Never use cat, dog, or pig manure in gardens or compost piles. Some of the parasites found in these manures develop resistant lifestages and may survive composting. They can remain infectious to humans for a very long period of time.
5. Keep small children away from fresh manure. When thumbs go back into mouths after they "play in the dirt," any pathogens present have direct access to a susceptible host. Wash your own hands well after handling manure.
6. People especially susceptible to foodborne illnesses should avoid eating uncooked vegetables from manured gardens. This group includes pregnant women, very young children, and folks with chronic diseases such as AIDS, cancer, diabetes, kidney illness, or liver disease.

Farmers and gardeners have been using manure on vegetables for a very long time. It is an excellent source of organic matter to build soil tilth, and also of many plant nutrients. If you choose to use manure, follow sensible rules and exercise caution. Handled with care, and used fully composted (broken down), it can help us produce abundant quantities of healthful food.

Material contributed by Dr. Val Hillers, Food Specialist; Van Bobbitt, Urban Horticulture Coordinator, and Holly Kennell, Horticulture Agent, WSU Cooperative Extension.

I've Had Trouble with My Tomato Plants for Several Years - Late Blight Problems. I've Tried Moving Them, but it Hasn't Helped.

Blight diseases are always most troublesome in cool, wet summers. Sanitation is very important. Immediately get rid of all the dead vines and fruit. The fungus can live in decayed plant refuse in the soil. Do not compost infected plants.

Planning is the next step. You were right to move or rotate the crop. See to it that next year your tomatoes get planted where no tomatoes, potatoes, eggplant or other related crops have been grown for at least two years.

Keep your garden well-weeded. Nightshade, which is a weed in the Solanum family just as tomatoes and potatoes are, and other weeds can carry the disease and spoil your rotation scheme.

Next summer space the transplants far enough from each other so that they can get good ventilation. This will allow them to dry quickly after a rain. Do not wet the foliage when you irrigate. Stick to a staked growing system rather than caging or allowing the plants to sprawl. With this method the plants are pruned to one or two vines which are trained up tall stakes. This system generally produces earlier and bigger fruit as well as less disease. Its disadvantages are that it is more labor intensive and the per-plant production is reduced slightly.

If you do all of this and still have disease, pick off and dispose of the affected plant parts as soon as you notice them. You may decide to apply fixed copper regularly as a preventative fungicide. Because copper is a naturally occurring element, its use is acceptable to many organic gardeners. It is only effective to prevent disease; it cannot cure an infected plant. Be sure to follow label directions and precautions. Other fungicides are also available and registered for use on tomato late blight.

Reference: EB0958 "Late Blight"

My Carrots Were "Grubby" Last Year. Can I Treat the Soil with Something and Replant?

Your carrots may have been infested with the larvae of the carrot rust fly, a common pest in our area. There are several things you can do to minimize or eliminate the problem this year.

First of all, rotate your garden. Consecutive annual planting of carrots in one spot will cause a build-up of the pest. Rust flies usually have three generations each year. Second, you may want to wait to plant your carrots until after the first generation of adults is dying out. Plant in mid-June and grow them under optimal conditions, so they mature quickly. Harvest them before the next rust fly generation can do much harm.

Unfortunately, microclimate, weather, and other factors can vary the time of rust fly emergence, so avoiding the rust fly maggots by specially scheduled plantings is always a risk. A much surer pest control method, which will guarantee worm-free carrots, is the use of floating row covers. In the past gardeners made frames over their carrot beds and covered them with screen or fabric netting. Now we have light-weight materials called floating row covers, which don't require support; the plants themselves hold them up. Sunlight and water can get through the row cover, but the carrot rust fly can't. Floating row covers come under various brand names and are available through garden catalogs and at better garden centers.

When rust flies are screened out of carrot plantings, they can't lay their eggs at the base of the plants. These eggs are the source of the offending maggots that eat through the carrot, leaving rusty brown tunnels.

Reference: EB0921 "Carrot Rust Fly" and Community Horticulture Fact Sheet #13 "Organic Pest Control in Vegetables."

I'm a New Western Washington Gardener. How Do I Grow Tomatoes, Zucchini, Squash, and Beans?

All the crops you named are heat-lovers. In our area they are best planted in mid-May after the soil has warmed and the weather stabilized. (If you are using cloches, coldframes or rowcovers, you can get them in a couple of weeks earlier.)

Beans are seeded directly into the garden. Most varieties will do well here and they are relatively easy crop to grow.

Zucchini and other squash can be started in the house or directly in the garden. If you are going to grow transplants, sow them 2 weeks before you want to put them out. Squash resent transplanting, so use a large pot (4 inches in diameter) and handle the roots carefully. Be sure to harden them off. Expose them to outdoor conditions during the day and bring them back in at night for at least 4-5 days before planting. The transition from warm indoor temperatures to cool nights can set plants back if they are not hardened off.

Tomatoes are long-season crops, so you must use transplants to get a running start. Choose one of the shortest-season varieties you can find. If started inside they should be planted in mid- to late March. This year you may want to buy transplants. Varieties that produce dependably and have done well in our taste tests include: Early Girl, Champion, and Stupice. Excellent cherry-type varieties are Sweet 100, Sweet Million, Sun Gold, and Yellow Pear.

Each year I plant my tomatoes in early May but they don't usually start producing until September. If I construct a protective tent out of clear plastic, can I plant them out earlier?

A plastic cloche will allow slightly earlier planting, but only a week or two at most. The real benefit will be that the extra warmth under the plastic will make the plant grow better and set fruit earlier. Peppers, eggplants, cucumbers and squash also benefit from this kind of protection in spring. Make sure you are growing a "short season" or "early" variety of tomato. Many of the big, beefsteak types, that are popular elsewhere, will not mature in our area. 'Early Girl,' 'Stupice' and 'IPB' are three reliable, short-season varieties.

Is it True That Peas Should Be Planted on February 22nd, Washington's Birthday? That seems awfully early.

Some gardeners with light, well-drained soils may want to plant on this traditional date. Most of us with typical, heavy, western Washington soils should wait until early to mid-March. The extra time will allow the soil to dry and warm a bit more.

Peas are quite hardy, but they will rot if planted in cold, soggy soil. Last year on February 22nd I took a picture of ducks wading in a big puddle in the middle of a Seattle community garden. With the unusually wet winter we have had so far, a delay will probably be needed again this spring for many of us.

Holly Kennell, Extension Agent, WSU

I'm tilling up an area for a vegetable garden. What kind of fertilizer do you recommend for Seattle area soils?

A soil test will tell you what nutrients are present in your soil. Choose a soils lab that interprets the results and you learn what nutrients are needed by your soil and in what quantity. Then you can accurately add exactly what your vegetables will require. (Shop around for a soil test lab. Their services and prices vary considerably.)

If you don't have time to have a test done, try about 2 pounds (4 cups) of 5:10:10 per 100 square feet or 100 feet of row. In most organic fertilizers the nutrients will not be as concentrated, so you must compensate by using more. I usually mix up my own organic fertilizer. A good recipe is:

4 cups of blood meal (or 7 cups cottonseed meal)

and 4 cups of bone meal

and 4 cups of kelp meal (or 8 cups wood ash)

This recipe makes enough fertilizer for 100 square feet or about four 4-foot by 6-foot beds.

Holly Kennell, Extension Agent, WSU

The seed catalogs are tempting, but I have a whole shoe box of left-over seed from previous years. How long does seed stay good?

Seed viability depends a little on what kind of seed it is and a lot on how it is stored. With cold, dry storage most seed will last for several years.

Holly Kennell, Extension Agent, WSU

I read that after I grow my garden transplants indoors, I should harden them off before planting them out. Exactly what does this mean and what's the best way to do it?

Seedlings raised in our homes or greenhouses must be gradually acclimated to the stress of life outdoors. Cold, wind and sun take a little getting used to!

Gardeners usually find a protected spot, where the plants will only get a few hours of morning sun. The transplants are put out after breakfast and taken in before dinner. After about a week of this treatment, they can be planted out if the weather forecast is mild enough for that specific crop.

Holly Kennell, Extension Agent, WSU

I've tried growing my own transplants in my kitchen window last year and it didn't work. The seeds sprouted (tomatoes, broccoli, etc.) and the little stems got about 3 inches tall with only one set of leaves. The plants were so weak that I threw them out. What's the secret?

The missing ingredient was almost certainly light. In February and March we get lots of gray, dark weather. Even when the sun shines, the days are pretty short still at our latitude. If you have a south-facing window (unshaded by tall Doug firs) you might just get enough light to do a decent job with transplants. But why gamble? An inexpensive, fluorescent shop light fixture can guarantee sturdy transplants every time. Rig it so that it can be raised and lowered.

Holly Kennell, Extension Agent, WSU

Source: WSU Extension. <http://gardening.wsu.edu/text/faqvege.htm>