



University of Nevada
Cooperative Extension

Column

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Pig manure – is it safe for gardens?

Recently a gardener called to ask me about using pig manure in her garden. I had always heard NOT to use pig manure because it may contain disease organisms such as *E. coli*, *Salmonella*, *Campylobacter*, *Yersinia*, *Cryptosporidium*, *Giardia*. I decided to research this further. I found that these pathogens and others survive not only in the manure of pigs, but also in that of other animals.

Yet, one test where swine manure was applied to potatoes revealed that there were no fecal coliform bacteria present on the harvested tubers. This is important from a food safety perspective. The researchers (Volker et. al., 2001) suggested that the soil environment did not present ideal conditions for the persistence of fecal coliforms.

Guan and Holley in 2002 point out that “based on actual data plus some data extrapolated from cattle manure environments, holding [pig] manure at 25°C [77°F] for 90 days will render it free from the pathogens *Escherichia coli* O157:H7, *Salmonella*, *Campylobacter*, *Yersinia*, *Cryptosporidium*, and *Giardia*. Yet, they point out that improper handling can still cause problems: “Root crops such as radishes and carrots as well as leafy vegetables like lettuce, where the edible part touches the soil, present a great risk for potential health problems.”

One possible solution to eliminating the disease organisms in manures is composting. “In the American organic standards and guidelines, composted manure is recommended for use by organic growers. Raw manure may also be used but not within 90 to 120 days before harvest, depending on the type of crop (Riddle et al., 1999). “Proper composting of manure can yield safe fertilizer... if a temperature of 55°C (131°F) or greater is maintained for at least 15 days during the composting period, and that during the period the compost is turned at least five times (Composting Council of Canada, 2002). However, before using manures ask yourself does the farmer from whom I’m getting this manure compost at hot enough temperatures for long enough periods of time with sufficient aeration (turning) and moisture? “A two- to four-month composting time has been suggested for backyard composts to get rid of *E. coli* O157:H7 (Environmental News Network, 1997).

A study in Canada found that *Cryptosporidium* seemed to be more prevalent in swine than in dairy manure (Fleming, 1999) with greater survival in fresh over old manure.

My colleague Ron Becker at Ohio State University offers: “animal manures can be used as fertilizer on vegetable gardens; however, manure should be incorporated into the soil during the fall prior to planting crops the following spring. Applying manures during the growing season is not recommended due to the chance of contaminating produce with disease-causing microorganisms. Hog manure is just as safe as any other if it is composted or in the ground for at least six months prior to harvesting a crop where the edible portion is in contact with the soil.” Wear gloves when working with manure; wash your hands and your produce thoroughly.



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Nevada Division of Forestry Nursery

With spring comes the desire to plant. If you are planning on planting property with an acre or more, you may want to purchase your plants from the Nevada Division of Forestry (NDF) Nursery. Each year the NDF Washoe Nursery grows specialty plants for conservation purposes and makes them available to the public.

The purpose of the nursery program is to provide technical assistance and native or adapted plant materials to encourage private landowners and public land management agencies to make conservation plantings for windbreaks, shelter belts, woodlots, erosion control or food and cover for wildlife. Seedlings offered by the NDF are graded and grown to sizes suitable for conservation plantings on private and public lands. Plants purchased at the nursery must be used only for conservation purposes as provided for by Nevada Revised Statutes 528.105. A minimum purchase of 25 plants is required.

Nursery prices are set by size of containers: supercells/4"pots - \$1.50, 1-gallon pot - \$3, D-pot container - \$2.25, 2-gallon pot - \$4.75 and T-pot container - \$3.50. The nursery does not accept credit cards, only cash or checks. They request that you help them conserve resources as well as hold prices down by returning empty growing containers (4 inches and up) to the nursery. Although the plants come fairly small to begin with, they are hardy and genetically adapted to the harsh growing conditions of northern Nevada. With proper irrigation they will outgrow many larger containerized planting stock.

Shrubs available include buffaloberry, chokecherry, cotoneaster, coyote willow, dogwood, lilac, sand cherry, and Wood's rose. Deciduous trees include black locust, bur oak, green ash, hackberry and honeylocust. Austrian pine, Baker cypress, Colorado blue spruce, eastern red cedar, incense cedar, and Scotch pine are a few of the evergreens you may purchase. The nursery even grows flowers such as blanket flower, blue flax, lupine and yarrow.

The NDF Washoe Nursery opens for plant sales May 13 and will close Oct. 16. The nursery hours are 8:30 a.m. to 3 p.m. Thursdays through Saturdays. Experts will be on site May 13-15 to answer questions about windbreak construction, pest and disease identification, fire-safe landscaping and general planting practices.

The nursery is located at 885 Eastlake Blvd. in Washoe Valley. For more information: 849-0213. You can check them out online at <http://www.forestry.nv.gov>.



Column

Date: May 17, 2010

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Edible Flowers

Gardeners love flowers. We also like growing things to eat. Why not combine these two passions and eat our flowers? An advantage to planting edible flowers is that all the water used to sustain them is then reused when we eat the blooms rather than wasted as the blossoms die away.

Have you tried lavender petal ice cream or zucchini flowers stuffed with ricotta cheese? Have you ever sautéed rose buds in butter. Have you candied pansies? Try garnishing rice with calendula petals or tossing pansy petals in a salad.

Other edible flowers include Johnny-jump-ups, nasturtiums, tuberous begonias, geraniums, violets and fuchsias. We can also eat daylilies, tulip flowers and apple blossoms. Many of our vegetable plants such as broccoli and mustard have edible flowers too according to author Rosalind Creasey in "The Edible Garden – Herbs and Flowers" – a good resource for edible plants. Although many flowers are edible, such as marigolds, Creasey reports that while some marigolds taste lemony, others have no taste, and still others taste like a skunk smells! While carnation petals are edible, they are quite astringent. It is important to know what flower parts to eat and how to prepare them. Creasey's book has a listing of edible plants at the end.

Most plants we buy were not bred for the taste of their flowers, so if you can try flowers out for taste before buying, do so. However, be cautious, because you will not want to eat anything that has been sprayed with pesticides unsafe for human consumption. You might try tasting flowers at friends' homes where you can ask if pesticides were used.

Always positively identify a plant before eating it. For safety, identification is crucial. Also, do your research. Know what plants or plant parts are edible and which are poisonous. Rhubarb stalks and potatoes tubers are edible, but their leaves are poisonous. Plants may be poisonous at one stage of growth, but not another. Some plant family members may not be poisonous while other family members are. Look plants up on a poisonous plants list before eating. If you are at all in doubt about the safety of a plant, don't eat it. Don't use non-edible flowers as a garnish. Your guests may assume they are edible if there are edible flowers or herbs in the dish.

Augment your culinary dishes with edible flowers. Please the eye and the palate.







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Pizza gardens and more

Nontraditional vegetable gardening is a rewarding creative outlet. Whether you plant your veggies in the ground or in containers, think outside the box. Think ethnic, global, regional or thematic. Try an Italian (tomato, garlic, radicchio, bell pepper, parsley), Asian (Japanese eggplant, Chinese cabbage, pea pods, coriander), Greek (tomato, eggplant, cucumber, garlic, fennel) or Mexican (hot peppers, summer squash, tomatoes, garlic, onions) theme. Do a pickle barrel (pickling cucumbers, garlic, dill) or summer salad garden (arugula, lettuces, cherry tomatoes). Plant a pizza (tomatoes, garlic basil) or salsa garden (cilantro, peppers, tomatillos, tomatoes). The combinations of plants are endless.

These thematic gardens could be beautiful in a container. You can plant more than one plant in larger containers using trellises and tomato cages and create beautiful floral displays with the different veggies. Containerized veggie success starts with the right size container. Pots 9 to 12 inches deep work well for beets, leaf lettuce, onions, radishes, spinach, Swiss chard or carrots. Twelve to 16 inches in depth are best for broccoli, cabbage, cauliflower, eggplant, peppers, peas and cherry tomatoes. The largest containers, with depths of 16 to 18 inches deep will be perfect for beans, cucumbers, potatoes, tomatoes and summer squash. Any container should have several drain holes in the bottom.

In containers, soil should hold water, but not be too heavy. Native soils don't work in pots, unless mixed 50/50 with compost. These soils compact and roots can't grow through them. Soilless mixes are designed for containers. Purchase one that's sterilized to reduce damping off disease in seedlings. In-ground success depends on good soil preparation including digging the soil to a depth of 12 inches to loosen it and mixing in compost.

You can plant some of the thematic veggies in one container; complimentary herbs in another or all next to each other in the garden. If doing a pizza bed, arrange the plants in the shape of a pizza. Doing a thematic garden is a great way to interest children in gardening, especially if one container or plot in the garden is theirs.

No matter what you choose to plant to eat this year, have fun with it.