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## Create a Beautiful **BAD SOIL** Border!

### Linda Dahl, Master Gardener Level 1

When my husband and I moved to our home on 20 acres in Helena 5 years ago I realized I had a challenge on my hands. We were assured by our realtor that the place didn't get much wind exposure. I was delighted that about one-half acre surrounding the house was fenced and that a raised bed vegetable garden already existed. I liked the fact we had full sun exposure. Even though I have been gardening for several decades it never occurred to me to check the soil or to question why there weren't very many trees. We just loved the place and named it the Tip Top Ranch.

After settling in, I took a more extended survey of what I had. The first thing I noticed was that the wind blew here! Oh well, this was Montana, after all. Another thing I noticed was that any area that had anything growing was a result of imported soil and raised beds. The two side borders on the house that were not container gardens were planted sparsely with heavenly bamboo and draft Korean lilac. The plants were stunted in growth and half dead. I took a spading fork to these areas and determined the problem with one push – rocky, impenetrable soil. Oh dear.

I had faced poor soil before. In northern California I moved into a home that had heavy red, acidic clay soil, with poor drainage, that was covered with manzanita and poison oak. It took me 13 years, but I conquered that place. I was determined to get growing at the Tip Top!



Was this place a rock quarry?

### The Design

I have always liked the look of a mixed flower border, and the use of tall grasses with wildflowers in this rural ranch house appealed to me. This was my plan for the border on the west side of the house. My thought was: if native wildflowers and grasses can survive poor soil, exposure to high wind, and drought outside the boundaries of my half acre, they will probably thrive in this border where I will provide extra attention.

### The Plan

Was I going to use transplants or seeds? My decision was a resounding vote for SEEDS, because they are less expensive, and, after all, this was an experiment.

Do I use individual seed species of grasses and wildflowers, or a regional wildflower mix? I consulted a couple of resources for this decision.

First, I found the "Recommended Species for Native Plant Landscaping in the Helena Area" guide put out by the Montana Native Plant Society. <http://mtnativeplants.org/filelib/130.pdf>. This article is a wonderful resource for native flowers and grasses,



Blanket flower



## Create a Beautiful **BAD SOIL** Border! - *continued*

shrubs and trees. I determined I wanted blue flax, blanket flower, yarrow, and rocky mountain penstemon in my mix.

Next, I found Wildseed Farms, [www.wildseedfarms.com](http://www.wildseedfarms.com), which specializes in native plants and sells regional mixes, as well as individual plant seeds. I ordered the Rocky Mountain Wildflower Mix which contains many Montana native wildflower species, but no grasses.

### Planting My Border

The germination of wildflower seeds depends more on precipitation than temperature. Therefore, it is recommended that in Zones 1 – 6, where harsh winters are expected and precipitation mostly occurs in the spring and early summer that wildflowers are planted in early spring. If there is inadequate precipitation, additional watering is necessary.

The directions for site preparation and planting come with the seed mixture, but are basically:

1. Remove all weeds, and mow the existing plant material as closely as possible, removing all the clippings;
2. Till the area to a depth of one inch;
3. Mix the seed mixture with 4 part sand or potting soil to 1 part seeds;
4. Broadcast half the mixture across the area as evenly as possible, then the remaining mixture in a perpendicular direction to the original sowing;
5. Foot press or roll the mixture onto the soil, making sure you don't cover it more than 1/16 of an inch.
6. Water thoroughly, and keep moist (not saturated) until seedlings are 1 to 2 inches in height, then gradually reduce watering and apply only when plants appear under stress.



The border in early spring



2009 border



2010 border with blue flax

### The Evolving Border

The first couple years, the border was comprised mostly of annual wildflowers. I did add hybrid gaillardia and some grasses.



2011 border with Shirley Poppies



2012 border

The last couple years, the perennials have taken over and now the border is primarily yarrow, blanket flower, penstemon and blue flax, the flowers I originally wanted.

I have added more transplants of grasses in the border and want to add more to complete my original plan for a mixed flower and grass border.



Current border with flowers and grasses

Maintenance of the border is simple. The area receives some irrigation from the lawn sprinklers, and I hand water occasionally when it is excessively warm. In the fall, I trim back the flowering plants to 5-6 inches. In the spring, I trim back the grasses. No fertilizing is necessary. Weeding is minimal.

All in all, I am very happy with the results and recommend this as an easy and inexpensive way to add beauty to an otherwise bad soil border. Things are now growing at the Tip Top!



## Gardening Indoors

**Betsy Pennington**



It was a wonderful outdoor gardening season, albeit hot and smoky!

Now is the time to turn your attention to your indoor gardens. Green growing plants in your home... Ah, a chance to play in the soil, with the rewards of interior house pollutants and carbon dioxide being 'recycled' into oxygen and moisture.

First off, if you brought outdoor plants into your home, be wary of insects that rode in on them. Wash them, and any cuttings brought in, with a soapy water mixture or other commercial soap mix. Isolate them from your other interior plants until insect-free.

As our daylight slips away, our plants respond by slowing down also. Shorter days will slow down all the plant processes including their need for water. Adjust your plant hydration as necessary. They may need half of their summer moisture rations.



If your plants are dusty, clean them! The more light a plant receives, the healthier it will be.

Add good quality potting soil to the top of your plants in their containers. Push down to eliminate air-spaces. This will add basic nutrients as well as improving the root zone composition.



Water soluble interior plant food may be beneficial during the high-light growing time of the year. October should be the last feeding this year until the longer daylight returns in March/April. The exceptions to this being blooming plants like African Violets and other nutritionally demanding plants.

Like-wise, any radical or major pruning should be saved until spring. However, a light 'tip' pruning for dense, woody species like *Ficus benjamina* will open up the canopy enough to prevent the drop of shaded interior foliage.

Interior gardening can be as rewarding as outdoor gardening, and it can help sustain our green thumbs until spring!

Betsy Pennington  
Outside In  
495-9698

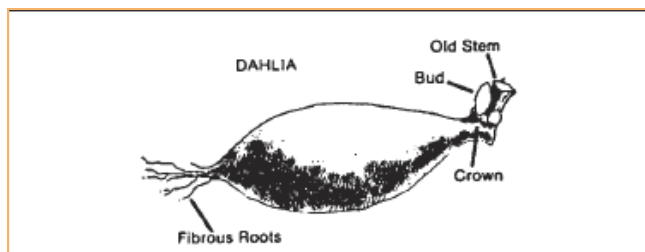
## Storing Bulbs, Corms, and Tuberos Flowers Over the Winter

Connie Geiger

Here are a few suggested methods for wintering over those “perennials” that are too tender for our winters. If you haven’t yet put those glads, dahlias, cannas, and tuberous begonias, to bed for the winter (or even if you have but want to be sure you did it effectively), read on...

**For most bulbs and tubers:** After the foliage has died back, remove the leaves and cut stems down to a few inches. Gently lift them from the soil with a fork or spade, then spread them out on newspapers to dry. Dusting with a fungicide can help prevent decay. Allow them to “cure” in a dry warm place, out of sunlight, for several days (2-3 weeks for glad bulbs and begonias). Remove clumps of soil but don’t wash them, and discard any that appear diseased or discolored.

**Dahlias and tuberous begonias:** After drying they can be placed in wood chips, saw dust, peat moss, or vermiculite, in a cardboard box or paper bag. Store in a dark, cool, dry place that won’t freeze (40-50 degrees F is best). Note: each root of a dahlia should have one “eye” or bud, to be viable (see diagram).

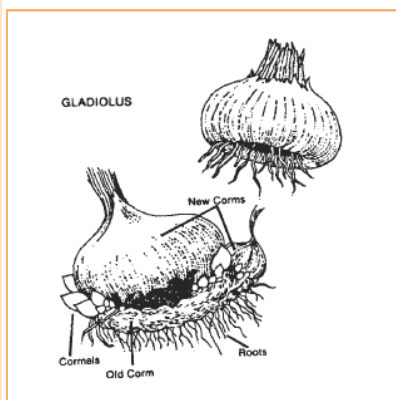


The tuberous root of dahlia resembles a sweet potato. Note the bud located at the base of the old stem, a region often called the crown.

**Alternative method for begonias:** After first frost, gently lift from the soil bed. Cut down to the soil line. Place the root mass, soil intact, in a dry, cool storage area. Allow to cure for 2-3 weeks with the soil remaining. Then remove soil, stalks, roots, and rotted areas. Dust with fungicide, and store as described above. It is also recommend that each individual tuber is individually wrapped or bagged, to prevent pests or diseases from spreading to other tubers.

In Spring: place tubers on damp peat moss in a warm environment. When roots and tops have started, plant them in rich potting soil. Another alternative is to soak them in water over night, so they plump up. Move the plants outside after danger of frost has passed.

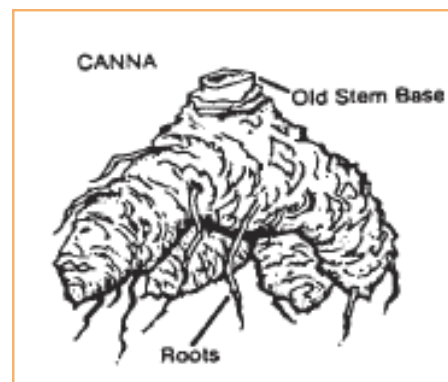
**Gladiolas:** Glads are often prone to thrips, which survive in the corms through the winter. A good preventative approach is to soak them in a mixture of Lysol and water (4 tsp per gallon) for 6 hours, prior to drying and storing them. (Other sources suggest doing this prior to planting in spring – if the bulbs still look healthy at that point). Another thrip prevention method is to include some moth balls in with the bulbs in storage, at 1 oz per 100 corms.



Gladiolus corms form immediately above the old corm. Small corms called cormels form around the base of the new corm. They can be planted but will require 2-3 years to reach blooming size.

After drying remove the dried shrunken base (see diagram), and any baby corms (cormels). Place loosely in a cardboard box, or a paper, cloth or mesh bag. Store in a dark, dry, cool but frost free environment. The cormels can be saved, sprouted the following spring, dug in fall, stored, and planted again, to later become larger flower-producing bulbs.

**Cannas:** After drying, store on a shelf, in a cardboard box, a mesh or paper bag, in a dark, dry, cool but frost free environment.



Canna tuberous roots do not have buds or growth points. Buds are located in the old stem base. When dividing, be sure a portion of the stem is included with each root division.

Diagrams from: <http://www.hort.purdue.edu/ext/HO-085.pdf>

## Aster Yellows

### Judy Halm

Every summer we anticipate the riot of color that arrives in our garden in the form of volunteer flowers, from plants that self-seeded in the fall and took root in the spring. This year was no exception – there were sunflowers, cosmos, larkspur, calendula and numerous other species of brightly blooming flowers.

As the season progressed, we noticed that some of the blooms on the calendula and cosmos looked a bit unusual – a little spindly, a bit discolored and with strangely shaped petals. We didn't think too much about it, other than to comment that maybe there had been some odd cross pollination, or possibly that hybrids had reverted back to their original shape and form after a couple of years of seeding and reseeding.

Then we began to notice that more and more of the flowers were affected. Unable to determine the cause of the problem by checking plant books, we took samples of the flowers to the County Extension Agent. He sent photos of the flowers to the Schutter Diagnostic Laboratory at MSU in Bozeman, and the diagnosis came back shortly: Aster Yellows.



Healthy calendula blossom



Unhealthy calendula blossom



Healthy cosmos blossom

### Cause

Aster Yellows is caused by a very small organism called a phytoplasma, which is similar to a bacterium but without a cell wall. Because there is no cell wall the organism only exists in a living host. The phytoplasma uses a 1/8<sup>th</sup> inch long aster leafhopper as a host to transport it from an infected plant to an uninfected plant. The leafhoppers overwinter in warmer southern regions of the country, become infected there, then migrate north. When the leafhoppers feed on a plant, the phytoplasma is released into the plant phloem, beginning a new infection. The phytoplasma may survive in perennial and biannual plants in our area, and then infect leafhoppers when they return and feed in the spring. This year's early warm spring may have contributed to an abundance of leafhoppers in the area.

Aster Yellows can affect over 300 species of plants, including vegetables such as carrot, cabbage, onion, lettuce, pea and squash; ornamentals such as asters, calendula, cosmos, gaillardia sweet pea and zinnia; field crops such as wheat, barley, canola and buckwheat; and weeds such as dandelion, plantain, purslane, cheat grass and thistles.



Unhealthy cosmos blossom

### Symptoms

The phytoplasma affects the plant's normal growth and development, leading to bundles of weak shoots known as witches' broom which develop on the plant or on flower stalks. Flowers are often the most obvious area of the plant to be effected, showing greening or yellowing, distorted petals or the appearance of leaf-like flower petals. Carrots may show bronze colored leaves and development of excessive hairs.



Unhealthy cosmos blossom

### Control

Control of Aster Yellows is difficult, since a leafhopper can infect plants during its entire life, and infected plants can pass the phytoplasma to leaf hoppers during their entire lives. Perennials may harbor the phytoplasma for many years, serving as a reservoir for the disease. The best control is to remove the infected plants as soon as they are discovered. This requires keeping a close eye on developing susceptible plants throughout the spring and summer growing seasons. Leafhoppers may be controlled with pyrethrins, a botanical insecticide, plus insecticidal soap, but this may kill beneficial insects, also. Planting resistant cultivars and planting crops in polycultures (beds of several species of plants) may reduce the occurrence of Aster Yellows.

### References:

Plant Diagnostics Database, Missoula County Extension Office  
North Dakota State University Extension Service  
University of Wisconsin Extension Service



## Master Gardener Level III Training

### Karen Semple

Where do I begin? Wow. Oh, wow! Master Gardener Level III was a Master Gardener fantasy come true! There were about 40 of us from around the state registered to take this amazing class. Cathy Morris, Kim Peterson, Judy Siler and I represented the Helena Area Master Gardeners.

Day one started at the Wingate Inn in Bozeman. A great dinner was followed by leadership training presented by Dr. Jill Martz. This wasn't your typical death-by-PowerPoint training, either. And, did I mention it was fun? Fun doesn't even begin to describe this very practical, relevant training that taught us more about ourselves than some of us may have wanted to know. What does leadership training have to do with being a Master Gardener (MG)? Everything, if you're a Level III MG. You are trained to be in a position to work with the public, organize volunteers and plan projects. It was fun and very memorable.



Potato lab at MSU

Day two began at 7:30 am at the Plant Growth Center on the MSU campus with a catered breakfast. We went on tours of the greenhouses, potato lab and had classes.

Toby Day and his awesome assistant, Dara Palmer, lined up an array of fascinating classes in plant diagnostics (disease and plant identification), tour of the Plant Growth Center, and plant propagation – in addition to learning how to, and then actually grafting tomato plants! These were all taught by highly qualified MSU staff, who understood very well how to convey dry facts and information in a digestible manner that leaves you hungry for more. As a result, my wish list for garden resource books has grown to include several they recommended.

After most of the day in the classroom, we headed out to the MSU Horticultural Farm in late afternoon, where we got to see research gardens, a test garden, and heard from the president of the Gallatin Valley Gardener's Club about how they operate. It was quite inspiring. We had a "Happy Hour" in a grove of trees followed by a dinner that was an amazing feast created by The Bountiful Table, using mostly locally-produced foods.

As if that wasn't enough, we then loaded back up on the bus and headed off to the MSU Insect Lab for a fascinating talk on insects and a privileged tour of the MSU



Cathy Morris inspects plants at the Horticultural Test Gardens

Insect Collection by Curator, Dr. Michael Ivie. What that man knows about insects was incredible! Did you know there are approximately 12,000 different species of insects in Montana? (Ninety percent of them are never seen.) I didn't imagine there were even half that many. I had never viewed an insect under a microscope before this tour. It was amazing how beautiful some insects can be up close.



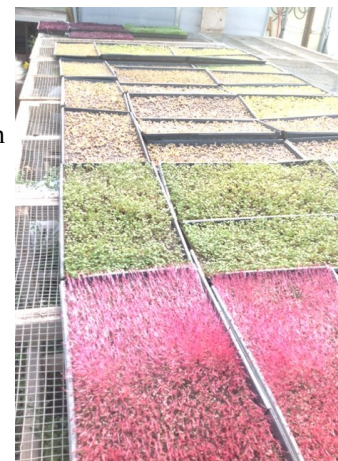
At the MSU Insect lab

Friday was a long day and we were very tired by the end of it.



We started Day Three by visiting the Bozeman Farmer's Market where the Gallatin Valley Master Gardeners had a booth similar to the one we staff at the Helena Farmer's Market – with one big exception: The Gallatin Valley Gardener's Club had given them a \$1000 donation to order a custom shelter and custom banner. Those were very nice!

We then went to tour Gallatin Valley Botanical and Rocky Creek Farms where we got some exercise in the sunshine and were inspired by the owners of both operations as they described what it took to keep their farms going in the face of bears, early frosts and weeds. Gallatin Valley Botanical is a Community Supported Agriculture (CSA) organic garden that supplies produce to locals through annual subscriptions. We learned about their love of what they do and how they rely on a bristling micro green business to keep the operation afloat financially. Rocky Creek Farms is an established "U-Pick" operation where families come to pick raspberries, strawberries and apples. You can "Like" them both on Facebook to learn more.



Micro greens being grown at Gallatin Valley Botanicals

The tours were followed by lunch and graduation. The time went so fast and we learned so much, making new gardening friends from throughout the state. While Level III is more expensive to take than Levels I & 2, it was definitely money well spent. If you've completed Level II, start planning now to attend the 2013 Master Gardener Level III class. You won't regret it!

## Improving Your Garden Soil in the Fall

### Judy Halm

Your garden produce has been harvested and put away, the flowers have died back and the leaves have fallen from the trees. You may think this is a good time to head for the easy chair and watch the latest reruns on TV while awaiting the arrival of the first spring seed catalogs. But your garden will appreciate one last bit of effort from you before winter sets in. Fall is a great time to improve the quality of the soil in your garden or flower beds. And best of all, you can make the improvements using material you grow in your own yard or garden or create in your kitchen.



Most soil in our region will benefit greatly from the addition of organic matter in the fall. Organic matter helps improve soil structure, increases the drainage of heavy clay soils, allows sandy soils to hold water more efficiently, and provides food for the microorganisms in the soil which break down the organic matter, adding nutrients that your plants can use in the spring.

### Compost

The easiest way to add organic matter to your soil is to use compost. You can create your own compost from grass clippings, garden refuse, or kitchen vegetable scraps, using methods explained in previous issues of this newsletter. If you use grass clippings, make sure not to use any that have been sprayed with herbicides. Some herbicides will persist in the clippings even after they have been composted, and can harm your plants later when you spread the compost on the garden.

Compost may be purchased from local sources, such as nurseries, home improvement stores, local composting operations or farmers and ranchers in your area. Locally available compost may include yard trimmings, leaves from deciduous trees, crop waste, and manure from cattle, horses, chickens or sheep. Here again, ask if any of the materials included in the compost have been treated with herbicides, and avoid those that have.



Leaves and aged manure are added to a garden plot

### Raw Organic Matter

If you have garden, flower bed or raised bed areas that will remain free of plants over the winter, you can use the space to give the soil a boost by adding yard waste directly to the soil. Grass clippings, leaves, spent flower and vegetable stems, or any other materials that can be composted are all good sources of organic matter. Raw material will break down more easily if it is in smaller pieces, so chop it with a mulching mower before adding it to the soil. It is best to turn or till the material into the soil, so decomposition can begin as soon as possible. The microorganisms that decompose organic matter require nitrogen for the process, and waiting until spring to till in the material may cause a temporary nitrogen deficiency in your soil while the microorganisms break down the organic matter.

Aged animal manures are also good sources of organic material, and usually can be found locally. Incorporate the manure into the soil in the fall, to allow decomposition and mineralization to begin. Fresh manure may be added to a garden at least four months before any vegetables will be harvested, but make sure to till it into the soil right away. Be aware that non-composted manures may still retain weed seeds which will sprout in the spring.

### Cover Crops

In late summer or early fall you can plant cover crops to protect the soil over the winter, and to add organic material, nutrients and biomass to your soil in the spring. Legumes, such as white and crimson clovers, hairy vetch and cool-season peas, produce root systems which break up compacted soil. Some fall planted cover crops can also act as weed blockers, shading and smothering weeds with rapid growth. Winter rye produces chemicals that prevent weed seeds from germinating. Winter rye should be tilled into the soil early in the spring so it doesn't prevent wanted seeds from sprouting. Other cover crops can be incorporated into the soil in the spring, before garden or flower seeds are planted.



Buckwheat used as a cover crop is being tilled into the garden soil

For more information about soil improvement, contact your local MSU Extension Agent.



## Recipes of the Month: *Bountiful Root Vegetables*

### Alice Hinshaw

One of my favorite memories from growing up on a ranch in the Rocky Mountains is the root cellar, tucked into the hillside near the old farmhouse. A trip to the root cellar was an adventure, and the rich earthy smells of sandy soil and stored vegetables reminded us that the winter was not forever—summer's bounty remained intact. Root cellars are not so common these days, and that winter haven is just a fond memory to many gardeners.

Currently garden covers, storage bins and modern canning methods provide today's gardener with the ability to enjoy the summer garden's rich bounty throughout the year. Community farmers markets extending into late fall and year-round availability at the local supermarket have all but eliminated the necessity for storage of root crops for sustenance.

While most of us do not store root vegetables throughout the winter months, we still can put the crops to good use and create some great family memories along the way. At our house, pickling root vegetables is an annual tradition. The process is not complicated, and the grandkids can take part in all phases, from growing to preserving. And, of course, they love snacking on the vegetables freely with no restrictions! Holiday dinners are not complete without the coveted pickled carrots or beets.

One of the best perks to the fall pickling is gift giving. A jar of pickled vegetables makes a wonderful hostess gift or a thank-you to a friend, neighbor or co-worker. Just add a label or a ribbon, and you have a personal and economical gift, whatever the occasion!

### Pickled Beets (from Ball Blue Book of Canning, circa 1932, and still the best)



**Beets:** Cook several pounds of uniform-sized beets until tender. To reduce "bleeding" of juice and color, leave the entire root end and about 1 inch of top during cooking process.

When beets are tender, dip them in ice water and slip the skins off. Remove tops and narrow root, and slice beets approximately  $\frac{1}{4}$  inch thick.

The amount of syrup depends on how the beets are trimmed and cut. Very generally, we start with a double batch of syrup for 5 or 6 pounds of fresh beets, and add to the syrup as needed.

#### Syrup:

Combine the following and bring to simmer.

2 C Sugar

2 C Water

2 C Vinegar

1 Lemon, sliced thin

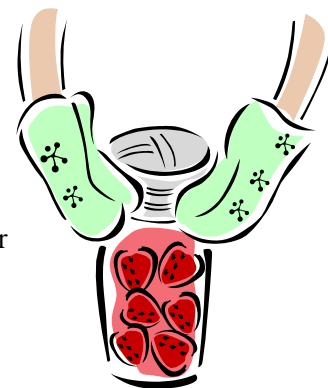
1 Tbsp. Cinnamon

1 tsp. Cloves

1 tsp. Allspice

Add beets to syrup and simmer approximately 15 minutes. Seal in sterilized canning jars.

Note: some recipes call for water bath. When using water bath, process jars in a boiling water bath for approximately 15 minutes for pint jars and 20 minutes for quart jars with jars just covered by water.





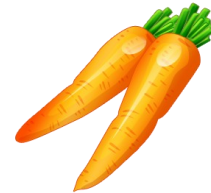
## Recipes of the Month - *continued*

### Pickled Carrots

Ingredients:

Vegetables: Pack tightly in hot sterilized jars.

Red and green peppers, sliced lengthwise, two or three slices for each jar  
 Carrots, sliced lengthwise  
 2 cloves garlic per jar  
 4 or 5 dried hot chili peppers per jar



Brine:

1 ½ C vinegar  
 1 ½ Tbsp salt

Bring brine to boiling point, and pour over vegetables. Leave approximately ½ inch head-space in jar. Seal immediately with sterilized canning lids. Process in a water bath canner, 15 minutes for pint jars and 20 minutes for quart jars. Store for 6 weeks before opening to develop more flavor.

The amount of brine varies depending on how vegetables are packed. We start 4 ½ cups of brine for 5 pounds of carrots and add to the brine as needed. Just brine returns to boiling point before pouring into jars.

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### Pickled Turnips (refrigerator pickles)

3-4 Turnips, medium size, peeled and slice very thin  
 ½ C quartered and thinly sliced red onion  
 3 Cloves garlic, peeled and minced  
 1 C White-wine vinegar  
 1 C Hot water  
 1 Tbsp. Sugar  
 10 Whole black peppercorns  
 1 tsp. Salt  
 ¼ tsp. Crushed red pepper (or to taste)



Each recipe will make approximately 3 cups of pickles.

Layer turnips, onions and garlic in a container that seals.  
 Mix remaining ingredients until salt and sugar dissolve.

Pour mixture over vegetables, and turn container a few times to insure vegetables are completely covered. Store in refrigerator for up to 3 weeks.

These pickles make a quick and crispy addition to a holiday meal or BBQ.

## Gardening Calendar - Connie Geiger

Conditions during each spring in your location will determine the actual timing of your garden work. If you have questions regarding the timing of garden activities in your area, please feel free to ask a Master Gardener at [HelenaMasterGardeners@hotmail.com](mailto:HelenaMasterGardeners@hotmail.com).

### November:



- Drain hoses and sprayers.
- Store garden chemicals properly for the winter. Check product labels to see if freezing will harm the products.

#### If ground has not yet frozen:

- Pull dead annual flowers from beds and pots. Pull out old vegetable stems and /or turn over in bed.
- Dig up gladiolus, tuberous begonias, cannas, and dahlias and store in cool dark location. (see article on page 4 )
- If dry conditions exist, water (early in the day) lawns, trees (especially evergreens), and shrubs to prevent winter desiccation; if soil is dry one inch down, water perennials.
- Fall tilling helps improve soil structure and usually leads to soils warming up and drying faster in the spring, allowing for earlier planting.
- Dig out new beds, adding compost, organic matter and raked up leaves.
- Plant spring bulbs including daffodils, crocus and tulips.
- Apply winter mulch to strawberries when plants are dormant but before temperatures drop below 20°F.
- Protect the graft union on rose bushes by mounding soil up 12 inches around the plants and adding mulch on top. Wait until after several killing frosts have occurred so that plants will be dormant when covered. Plants covered too early may be smothered.
- Trim chrysanthemums to 4 to 6 inches after they finish blooming.
- Cut back dead perennial stems and remove all diseased debris such as powdery mildew, but leave ornamental grasses. Bag diseased debris and discard.
- Renew mulch to cover bare ground around perennial flowers, especially those exposed to winds or lots of sun. As a general rule do not mulch perennial beds until after the top inch or two of soil has frozen, to discourage rodents from nesting..
- Cover rhubarb and asparagus beds with composted manure and straw.
- Protect tender evergreens from drying winds with burlap or other type of shield.
- Prune dead, diseased, or damaged branches from trees and shrubs.
- Clean, sharpen, and oil garden tools. Change the oil in the lawnmower and add a fuel stabilizer to the fuel in the tank; check owner's manuals for how to winterize mower and other power equipment.
- Prevent rabbit and rodent feeding damage by erecting physical barriers, such as metal mesh (1/4") hardware cloth. Pull mulch away from the trunk a few inches because the mulch provides a warm winter home for rodents.
- Prevent frost cracking (or sunscald) by wrapping tree trunks with tree wrap or painting the south and southwest facing sides of the trunk with white latex outdoor paint. Young, thin-barked trees such as maples and many fruit trees are especially susceptible.
- Watch for aphids and other pests on container plants that will spend the winter inside. Rinse with steady spray of water and treat with insecticidal soap thoroughly. Consider re-potting in new soil.
- Reduce fertilizer applications to houseplants.

### December

- Check stored flower bulbs, vegetables, fruits for rot and fungus problems. Discard any showing signs of rot. Inspect stored vegetables, fruits and bulbs for any damage. Remove sprouts from potatoes.
- As dry spells occur, check the soil around trees and shrubs and other perennials and water (early in the day).
- Take seed inventory and plan next year's garden. Plan on rotating crops to discourage pests and diseases.
- Protect poinsettias from cold, place in sunlight, don't let leaves touch cold windows; fertilize with houseplant fertilizer to maintain leaf color.

If you have an overpowering urge to grow vegetables during the winter, try sprouts for salads. Most health food stores carry them. For instructions see [http://anr.ext.wvu.edu/lawn\\_garden/winterizing/](http://anr.ext.wvu.edu/lawn_garden/winterizing/)

## Ask the Experts

We all have questions about our gardens, lawns, trees, flowers or other landscape projects from time to time. Ever wish you could ask an expert in the field for answers to your questions? Here’s your chance! In each issue of the newsletter we will answer one or more questions posed by our readers. Send in your questions to [HelenaMasterGardeners@hotmail.com](mailto:HelenaMasterGardeners@hotmail.com) and we will pass the questions on to our expert panel for answers.



**Brent Sarchet**, Lewis & Clark County Extension Agent

**Q. There are so many different varieties of tomatoes and bell peppers to choose from. Do you have a recommendation on some varieties to plant that will do well in the Helena area?**

### A. Tomatoes

The modern day tomato originated in the Andes Mountains of Bolivia and Peru where the Aztecs and Incas developed the crop. Early explorers carried the seeds to Italy in the early 1500s and the popularity of the plant “grew” from there. Tomatoes were not generally cultivated in the United States until about 1835. This may be do to the fact that the British thought them to be poisonous probably because there are other plants in the nightshade family that are poisonous. But enough with the history, fascinating as it is. There are many varieties of tomatoes that will do very well in our climate. When deciding which varieties of tomato to choose, first ask yourself what kind of tomato you like to eat (sweet, acidic or something in-between), and what you will do with them (fresh eating for salads or slicing for hamburgers, making salsa, canning whole, etc.). You must also decide if you want determinate or indeterminate plants. A determinate tomato is a compact plant that has a concentrated period of ripening. Where as an indeterminate tomato has a central shoot that continues to grow throughout the season, and the fruit ripens over a long period of time.

Looking at some of the variety’s individual characteristics may help you in narrowing down your selection. At the People’s Garden, which is located at the fairgrounds, we are testing tomato and sweet bell pepper varieties. Below is a table of the results from this year’s tomato trials. Keep in mind that the results are useful only as a guide or an approximation, and there are many varieties that were not tested. Each garden will have variations in yield, growth habit, and fruit size based upon the soil, garden location, use of season extension techniques or not, etc.

Tomato Variety	First Harvest Date	Average Size (oz)	Average Yield per plant (lbs)	General Characteristics
<b>Early Girl</b>	July 31 <sup>st</sup>	4.5	15	Indeterminate, good yield, uniform fruit size, very few blemishes
<b>Brandywine</b>	August 13	5.5	12	Indeterminate, heirloom, large fruit size
<b>Oregon Spring</b>	July 30 <sup>th</sup>	4.5	9.25	Determinate, compact plant size
<b>Beefsteak</b>	August 9 <sup>th</sup>	4	9.25	Indeterminate, heirloom
<b>Stupice</b>	July 17 <sup>th</sup>	1.4	12.75	Indeterminate, heavy yielding, early yielding
<b>Roma Hybrid</b>	August 13	1.9	16.5	Indeterminate, heavy yielding, paste like, late maturing
<b>Gold Nugget</b>	July 5 <sup>th</sup>	0.5	4.75	Determinate, early yielding, heavy yielding, cherry type, yellow color
<b>Sweet Million</b>	July 17 <sup>th</sup>	0.4	2	Indeterminate, cherry type, red color, very sweet
<b>Yellow Pear</b>	August 8 <sup>th</sup>	0.4	2	Indeterminate, cherry type, yellow color, shaped like little pears





## Ask the Experts - continued

### Peppers

Peppers are native to Central America and have been cultivated for at least two thousand years. Peppers have been highly valued throughout history. Jalapenos were bartered and used to pay taxes during the Spanish conquest of Mexico. Peppers are very sensitive to cold temperatures, which makes growing them a challenge for some areas. There are many different kinds of peppers including: bell types, pimento, celestial, cayenne, cherry, tomato and Tabasco. Each has its own unique characteristics. We tested three bell pepper varieties at the People’s Garden this year. Below are the results.



Bell Pepper Variety	First Harvest Date	Average Size (oz)	Average Yield per plant (lbs)	General Characteristics
California Wonder	August 9th	4 to 5	2.05	Small fruit size, later maturing
Red Bell	August 9th	6 to 9	2.58	Big fruit, early maturing
Green Bell	August 24th	8 to 10	3.95	Big fruit, heavy yielder

If you have a favorite tomato or bell pepper variety that you would like to see put in next year’s variety trial, email the variety’s name to me at [bsarchet@montana.edu](mailto:bsarchet@montana.edu), and we will add it to the list.

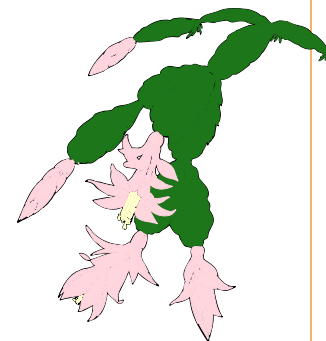
### Plant Profile—*Christmas Cactus*

#### Judy Halm

The popular Christmas Cactus is a welcome addition to many of our homes during the late fall and early winter months in Montana. Who hasn’t admired the brilliant red, rose, purple, lavender, peach, orange, cream, or white blossoms that appear this time of year?

#### Types

There are actually two types of the cacti, both in the genus *Schlumbergera*: the Thanksgiving cactus (*Schlumbergera truncate*), which blooms around Thanksgiving, and the Christmas cactus (*Schlumbergera bridgesii*), which blooms around Christmas. A third cactus species, which looks similar to the *Schlumbergera*, is *Hatiora gaertneri*, the Easter cactus. It blooms around Easter.



#### History

The Christmas Cactus belongs to the genus *Schlumbergera*, a group of cacti that is native to the rain forests of Brazil. They are named for the Belgian cactus collector and nurseryman Frédéric M. Schlumberger, and were hybridized by William Buckley in Rio de Janeiro around 1840.

#### Botany

All three of these cacti are epiphytes, meaning they grow on other plants for support but do not take nutrients from them. They get their nutrients and moisture either from the air or from small pools of water which collect on the host plant. Other epiphytes include some orchids and Spanish moss.

These true cacti are unlike others, lacking spines and the round body normally associated with cacti. The stems are made up of flattened stem segments called phylloclades, which are the photosynthetic organs of the plant. The stems are the first place to look for the differences. Thanksgiving cacti have margins that have 2 to 4 serrations or projections on the



## Plant Profile - *Christmas Cactus* - continued



Thanksgiving cactus has pointed lobes at the margin, while the margins of Christmas cactus has rounded lobes. *Kathy Zuzek*



Christmas Cactus blossom; note pink anthers. *Wikipedia*



Thanksgiving cactus; note yellow anthers

James H. Blake, ©2011 HGIC, Clemson Extension

lobes, while the Christmas cacti have more rounded margin lobes. Additionally, the anthers of the Thanksgiving cactus are yellow, whereas the anthers on the Christmas cactus are pink to purplish-brown.

### Flowering

The difference in blooming times between the Thanksgiving cactus and the Christmas cactus is due to number of hours of daylight – or darkness - to which the plants respond, called the photoperiod. Both cacti produce flowers in response to the shortening of the days in the late summer and fall, thus earning them the term short-day plants. If the hours of daylight are longer than a plant's required photoperiod, it will not bloom. The Thanksgiving cactus requires about 12 hours of darkness for 6 weeks before it will set buds, while the Christmas cactus requires more than 12 hours of darkness.

Temperature can also affect cacti blooming. Plants grown with night temperatures between 50 and 59 °F will set flower buds regardless of day length, but growth will be slower and bud drop may occur at 50 °F.

### Culture

**Light:** The *Schlumbergera* cacti grow best in light shade, although full sunlight is beneficial during fall and winter.

**Temperature:** Summer growth occurs best at temperatures between 70 to 80 °F during the growing season, from April to September. Nighttime temperatures of 55 to 65 degrees are ideal. Maintain cooler temperatures in the fall to encourage bud set.

**Water:** Water the soil when it is dry to the touch. Do not let the soil become waterlogged, especially during the dark days of winter, but do not let the soil completely dry out either. After bud set in the fall, keep the soil evenly moist to prevent buds from dropping off.

**Fertilizer:** Fertilize monthly during the growing season (late winter or early spring, and throughout the summer), but stop fertilizing during blooming. Using a half-strength soluble fertilizer, such as a 20-10-20 or 20-20-20 with trace elements.

**Soil:** well-drained with good aeration and drainage, A good mix may contain 60-80% potting soil with 40-20% perlite.

### Propagation

In May or June pinch off sections of stems with 3 to 5 segments on each and allow them to harden for a day or two in the shade. Place the cuttings about an inch deep into the potting mix in a container, water well and cover the entire container with a clear plastic bag secured with a rubber band at the base. The plastic bag acts as a miniature greenhouse to keep the relative humidity high to encourage rooting. Place the container in bright, indirect light until roots have formed in three to eight weeks. At this time the plastic bag can be removed, and a dilute fertilizer solution can be used at watering.

## Event Schedule

### Know of an upcoming event related to gardening?

Let us know at [HelenaMasterGardeners@hotmail.com](mailto:HelenaMasterGardeners@hotmail.com)!

#### Helena Garden Club's Monthly Meeting

January 19, 2013 at 10:00 am  
MT Wild Center

#### Northwest Flower & Garden Show

February 20-24, 2013  
Washington State Convention Center  
Seattle, Washington  
Contact Toby Day at [toby.day@montana.edu](mailto:toby.day@montana.edu) for information about the Master Gardener trip package

#### Spring Poultry Workshop Series

March 15th - 16th  
Upper Conference Room at the Fairgrounds

#### Heritage Poultry Cooking Event

Sunday, March 17th  
Fairground's Kitchen

#### Level I Master Gardener Classes

Thursdays, April 4th - May 30th  
5:30 pm - 8:00 pm  
Upper Conference Room at the Fairgrounds

#### Hands-On Fruit Tree Grafting Workshop

Saturday, April 6th  
Upper Conference Room at the Fairgrounds

## Useful Links

MSU Extension Yard & Garden: <http://www.msuextension.org/category.cfm?Cid=5>

Missoula Plant Diagnostics Database: <http://www.co.missoula.mt.us/extension/plantdata/>

National Center for Appropriate Technology gardening publications: <http://www.attra.org/horticultural.html>

National Garden Association: <http://www.garden.org/>

Helena Garden Club: <http://helenagardenclub.wordpress.com/>

Lewis & Clark County Extension Office Web site: [www.lccountymt.gov/extension.html](http://www.lccountymt.gov/extension.html)

MSU Master Gardener Program: <http://www.mtmastergardener.org/>

Helena Community Gardens: <http://helenagardens.org>

## Contact Information

Helena Master Gardeners: [HelenaMasterGardeners@hotmail.com](mailto:HelenaMasterGardeners@hotmail.com)

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