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## GOT COMPACTION? HOW TO IMPROVE SOIL DRAINAGE

**Charlotte Germane**  
Nevada County  
Master Gardener

**D**o you suspect you might have a drainage problem in your garden? If your soil does not drain quickly enough, your plants will drown.

Layered soil occurs naturally (soil on top of rock or a clay pan) and can also be created by digging with rototillers and heavy equipment.

### Soils in the foothills

Your soil drainage may not be as bad as you think it is. There's so much talk in the foothills about clay soil that some gardeners assume they have poorly draining soil, and grumble about it, when they actually have pretty respectable loam.

### Check for poor grading, over-irrigation, and thatched lawns

Before you label your soil the culprit, walk your garden and evaluate the grading. It is possible that at the time of your home's construction, or during a later landscaping project, the soil was graded so the water drained toward an area with no easy outlet.

The USDA has mapped soil types and found that in the lower foothills the soil can be sandy loam over heavy sandy loam, or loam over clay loam. Above 2000 feet, it is typically loam over clay loam with cobblestones.



If you have an automatic sprinkler system, measure the output at each station. You might be providing (and paying for) the extra, unwanted water in your garden.

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An unusual feature of foothills soil is the serpentine outcropping. This combines poor drainage with toxic levels of magnesium. If you need to grow in a serpentine soil area, use raised beds. The serpentine soil under the beds will not provide adequate drainage.

Another foothill soil issue that makes for poor drainage is "layered soil". Soil naturally transitions from one kind to another, but layered soil means soil that changes abruptly, making it hard for water to move through easily.

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THE CURIOUS GARDENER

...A QUARTERLY NEWSLETTER PUBLISHED BY THE UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION AND THE UC MASTER GARDENERS OF PLACER AND NEVADA COUNTIES

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A heavily thatched lawn will not absorb a reasonable amount of water. Thatch builds up over time in turf, creating a barrier to the penetration of water. Renting a dethatcher and removing the thatch will help improve water absorption.

### Test your soil's drainage

The most important soil drainage information is available to you in your garden. The only tools you need to carry out two crucial diagnostic tests are your hands, a shovel, and a hose.

The **Drainage Test** is simple:

- Take your shovel and dig a hole 1-foot deep, and fill the hole with water. Allow to drain completely and then refill.
- Measure the amount of water that drains in an hour's time. If less than 2 inches per hour, you have poor drainage.

What do the test results mean? Clay soil is great at holding on to water, so much so that it may not let the water drain away fast enough. If your soil does not drain efficiently in the Drainage Test, then you need to take steps to improve the situation.

The good news? There are solutions to drainage problems!

### How to improve soil drainage

You have probably heard that soil in good physical condition has "good tilth" or structure.

*Soil Texture* is the proportions of sand, silt and clay in the soil and cannot be altered. But, the *Soil*

*Structure*, how particles in the soil aggregate, can be improved. Here's how!

### Add organic material

You can improve tilth by adding humus (finished compost) to the soil. Humus and other organic materials help create larger pores in the soil, which give both water and air more room to pass through.



Organic materials do break down over time, but the process of decomposition boosts microorganisms in the soil, and the microorganisms in turn improve soil structure.

Add 2-3 inches of finished compost to your beds and incorporate with a garden fork or shovel.

### Plant cover crops

"Cover" crops are a traditional farming method for enriching the soil. These crops, such as vetch or clover, are not grown to maturity, but are planted, then eventually tilled or dug back into the soil before they set seeds.

The crops assist in drainage both by breaking up the soil with their roots, and by acting as "green manure" when they are plowed back in.

### Build a French drain

One method of draining a water-logged area is to provide an artificial avenue for the water to go on its way. As we all know, water flows downhill.

You can capitalize on a downward

slope in your garden, or spend time digging, to create a trench with a 1 to 3 percent gradual slope.

Fill the trench with rock and be sure there is a good outlet at the foot of the French drain.

### Dig or drill through a hardpan or clay pan layer

In the foothills the hardpan issues can be man-made, as a result of mining or construction activity. If you're dealing with a hardpan situation, your topsoil drains well, but the water stops short when it hits a lower, impermeable layer.

Hardpan less than 2-feet thick can be double-dug during the dry season, then watered and allowed to settle. Hardpan over 2 feet thick may need deep "ripping" or drilling.

There are many reasons for poor drainage, and many cures as well.

Are you curious to see what your garden has to tell you about where the water is going?

### References:

*Soil Survey of Nevada County Area, California, 1993*; U.S. Department of Agriculture, Soil Conservation Service and Forest Service. [http://soildatamart.nrcs.usda.gov/manuscripts/CA619/0/nevada\\_a.pdf](http://soildatamart.nrcs.usda.gov/manuscripts/CA619/0/nevada_a.pdf)

*California Master Gardener Handbook, 2002*, Dennis R. Pittenger, ed.; University of California, Division of Agriculture and Natural Resources, Publication 3382.

*Western Nevada County Gardening Guide, 2010*, UCCE Nevada County Master Gardeners.

Soil Drainage, Garden Note #219, 2009, Colorado State University Extension. <http://www.ext.colostate.edu/mg/gardennotes/219.html>

# INTEGRATING CULINARY HERBS INTO THE GARDEN

**Johanne Ryker**  
Placer County  
Master Gardener

Growing your own herbs can be fun, easy, and affordable. The most popular herbs to grow and use are the culinary herbs, which are used for both cooking and seasoning foods.

Culinary herbs are those whose fresh or dried leaves are used in cooking; some of the most common culinary herbs are basil, parsley, French tarragon, chives, rosemary and thyme.



Culinary Herbs can be incorporated into your existing flower and vegetable beds, or grown separately; preferably close to the kitchen or even in a sunny location in your kitchen.

## Tips for Growing Culinary Herbs

Growing culinary herbs is very similar to growing vegetables. Two important things to consider include: harvesting your herbs at full flavor, and *never* using any fertilizer or pesticide on them that isn't labeled for use on edible plants.

Culinary herbs can do double duty as ornamental plants. Parsley, especially the curly variety, makes a wonderful edging plant, if you don't have rabbits nearby.

Tall herbs, like bay laurel, can be potted and used as focal points. Herbs with variegated leaves, like golden or tri-color sage, are great in mixed containers, in flower beds, and other areas of interest.

The fact that you are growing herbs

for seasoning does not need to limit your use of them in various areas of your landscape and /or garden. Many of the new varieties of basil, for instance, provide colorful contrasts (burgundy, lime, and light green) in the landscape.

Herbs that tend to spread, like mint and oregano can be grown in containers. The containers can be sunk into the ground, in the garden, or used as accent pots. *Note: don't let the tips of the plants hang over and touch the ground, or they will root, grow, and spread.*

## Harvesting Culinary Herbs

Most annual herbs taste their best before they flower. Once the annual herbs flower, their older leaves begin to decline and new leaves are smaller and bitter.

Remember to pinch and use your herbs often. Even young plants need to be pinched back to encourage them to branch out and become full.



Annual herbs, like basil, can be pinched when they are 3-4 inches tall. If your herb plants begin setting flowers in earnest, shear back the whole plant by 1/3 and try to start using them more frequently.

## More Creative Tips

Since many culinary herbs are annuals, consider placing them in pots on your porch, or in your flower beds or even in window

boxes.

When selecting a planting location consider a southern or western exposure for both a sunny and warm location.

A good combination of both upright and trailing herbs includes creeping thymes and/or oregano.

One of my favorite and most versatile culinary herbs is Rosemary, which is a perennial that makes it a great ornamental as well as provides year round interest in the garden.



It is also known to be deer resistant and can be used as a border plant to protect other plants that are less deer resistant. Don't forget to enhance the flavor of your barbeque using Rosemary cuttings as skewers for Kabobs!

Integrating culinary herbs into the garden or landscape provides an opportunity to add colorful, fragrant, and useful plants in your garden!

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## References:

*Growing Herbs, Department of Horticulture: Purdue University Cooperative Extension Service*  
<http://www.hort.purdue.edu/ext/HO-28.pdf>

*Growing, Harvesting and Using Culinary Herbs*  
<http://www.uri.edu/ce/factsheets/sheets/herbs.html>

## BULLETIN BOARD

Nevada County Fair is coming!!!

August 10-14, 2011  
at the Nevada County  
Fairgrounds

“**Gold! Rush to the Fair**” is this year’s theme and we have five days of excitement and fun planned for Fair-goers of all ages. The Nevada County Fair is the perfect opportunity to enjoy live entertainment, delicious food, carnival rides, animals, and exhibits – in a community-friendly environment and at affordable family prices!

Come and visit the **Master Gardeners** in the “Agsperience” area at the Fair!!

**Harvest Day** at the Fair Oaks  
Horticulture Center!

Saturday, August 6  
8am to 2pm

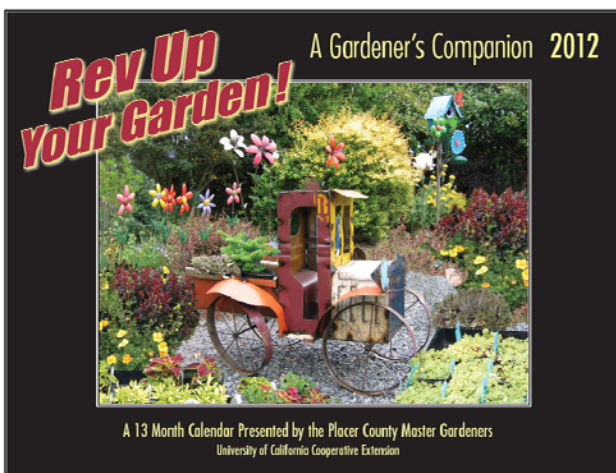
Listen to speakers, watch demonstrations, visit educational booths, and more!!

[http://ucanr.org/sites/sacmg/  
Fair\\_Oaks\\_Horticulture\\_Center/](http://ucanr.org/sites/sacmg/Fair_Oaks_Horticulture_Center/)

### **REMEMBER:**

A “pest” is an insect, disease or plant you don’t want. Go to UC Davis IPM for Pest Notes:

[www.ipm.ucdavis.edu](http://www.ipm.ucdavis.edu)



Coming Soon!!

Check it out!! The 2012 Placer County Master Gardener’s award-winning, “A Gardener’s Companion” calendar is coming soon!!! The calendar will be available at local Nurseries in September 2011.



**Trish Alderson**Placer County  
Master Gardener

## CREATING A SALSA GARDEN

**C**hips and Salsa, anyone??  
How about salsa on salad or adding salsa to a favorite dish?



These are just a few examples of how we might use salsa to enhance what we eat.

Salsa is a wonderful accompaniment to many dishes, which is why adding a salsa garden can be a tasty and creative addition to your gardening plan.

Not many people think of gardening with a theme. Most just figure they'll plant the usual staple crops or what the nursery has out for sale when the weather permits planting in their garden.

However, creating a salsa garden can bring an interesting perspective to gardening. Theme gardening can also really help engage kids in the garden.

By simply including a few common plants you may already know well to your garden planning process, such as tomatoes, tomatillos, bell peppers, onion, garlic, chilies and cilantro, you can initiate a salsa garden.

### Planning Your Salsa Garden

Start by designating a specific area that will accommodate the plants. Consider an area where the plants will get sunlight for at least 6 hours a day. Tomatoes and peppers love the afternoon sun and heat.

Other plants that desire less heat can be tucked a bit close to the

heat-loving plants to allow them to be shaded or have less direct sunlight.

Now decide what kind of salsa you want to make, then derive a list of the plants that will provide the ingredients.

This will help you determine the exact size of the space needed for your salsa garden. For instance, depending on how much salsa you want to produce, a small salsa garden may fit nicely in a 4'x8' raised bed.



Before planting, loosen the soil in the area you have chosen for your salsa garden, or consider utilizing a raised bed, as mentioned above.

For the best results, add plenty of compost and mix in with the native soil, even if you are putting a raised bed on top.

Don't forget to add some slow-release fertilizer to feed the plants throughout the growing season. Now you are ready to place the plants in your prepared area.

The location and spacing of your plants will depend upon the plant's needs and how the sun hits the designated space you have chosen to plant your salsa garden.

The tomatoes and peppers, for instance, are the tallest plants and depending on the need for shade or sunlight of the other plants will be positioned accordingly.

When planting cilantro, do so where the plant will receive more indirect sun in the afternoon.

Before adding the rest of your salsa garden plants to your designated area, read the sunlight recommendations on the plant's tag to determine where they will best fit and thrive with the other plants.

Now it's time to watch your garden grow. Remember, you can always create your garden based on a salsa recipe that appeals to you. There are many ingredients that can be considered when making salsa.

To derive a different twist, consider adding other ingredients, such as peach, lime or fresh corn. This is a great way to utilize those extra peaches you have from your tree!



After you have planted your garden and the plants have flourished, it's time to harvest those beautiful, ripe fresh vegetables and herbs and turn them into incredible homemade salsa.

High in flavor and nutrition and low in calories, homemade salsa is a tasty addition to meals and snacks. Try a salsa garden for your next garden adventure.

### References:

UCCE Placer County Master Gardeners, Hotline: 530-889-7388

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## SUMMER CARE OF FRUIT TREES

Your main task in the summer orchard is picking and eating all of the delicious fruit your trees produce. There are, however, a few other activities you need to complete to ensure that your trees stay healthy and productive this year, next year and for many years in the future. These include:

- Irrigation
- Summer pruning
- Regular inspections and pest control

### Irrigation

The heat and low humidity of a California summer mean that your trees will need to be irrigated to replace the water lost to evaporation and transpiration, the natural process by which a tree loses water through the pores of its leaves. Together, these are referred to as *evapotranspiration (ET)*. Irrigation can be a complex topic. This short article will be able to only touch the surface.

The fundamental questions are how much water to apply and how often to apply it. To answer these questions you need to know three things and perform some calculations: soil type, how much water is lost through ET, and how much water your irrigation system is delivering.

A simpler approach, which is generally adequate for the home orchard, is to refer to a chart that has done the calculations for you. Such a chart is available in the UC publication *Home Orchard*. As an example, according to the chart, a 15-foot diameter tree growing in an inland area requires a surprising 47

gallons of water *per day* in June, July and August. This is a starting point. If your tree is in shade part of the day, it may require less water. If it is mulched, it may also require less water. If it is over pavement or receives reflected heat from a building, it may require more water.

### Summer Pruning

Many people with a home orchard prune only in the winter. Pruning in the summer, if done correctly, has many benefits and will not harm the tree.

Summer pruning will tend to slow a tree's growth whereas winter pruning encourages growth. Because many fruit trees actually grow too vigorously, especially the stone fruits such as peaches and plums, summer pruning can be beneficial.

Summer pruning should remove branches that are:

- Dead
- Rubbing on each other
- Water sprouts
- Excessively shading the interior of the tree.

If the interior receives too much shade, the buds needed to produce fruit the following year will not develop properly. You do, however, want to leave enough foliage to shade the interior branches during the hottest part of the day.

It is also a good practice to paint the tops of interior limbs with whitewash or white interior latex paint thinned 50/50 with water once you have finished the pruning.

### Regular Inspections and Pest Control

There is a Chinese saying that "the best fertilizer is the gardener's shadow." The same is true for your home orchard. Regular inspection of your trees to determine whether there is a pest problem or nutritional deficiency will allow you to address these issues before they become bigger.

If you see unusual critters on the leaves or branches, leaves discoloring or wilting on some or all of the branches or dead or dying branches, it is best to figure out what the problem is early.

You can seal an affected branch in a plastic bag and take it in to your local nursery or to your Master Gardeners during office hours. Early identification of the problem can allow for easier and less toxic control.

Now, get ready to eat and share all of the fruit you are going to grow this year and for years to come!!

### References

*The Home Orchard, Growing Your Own Deciduous Fruit and Nut Trees*, Ingels, Geisel and Norton Technical Eds., University of California Agriculture and natural Resources Publication 3485, 2007

*A Guide to home Orchard for the Sierra Nevada Foothills*, Garth E. Veerkamp University of California Cooperative Extension Publication 31-701, 2001

*Micro-Irrigation of Trees and Vines*, Schwankl, Hanson and Prichard, Univ. of Calif. Irrigation Program, 1996

<http://ipm.ucdavis.edu>



# SUMMER 2011 CALENDAR



**SATURDAYS, year round, 8 AM – Noon**  
*Foothill Farmers' Market, Courthouse parking lot, Auburn*  
**SATURDAYS, year round, 10 AM – Noon**  
*"Master Gardeners & Friends" Radio Talk , KNCO Radio, 830 AM*

## JUNE

Saturday, June 25th from 10am-Noon at NC Master Gardener Garden (1036 W. Main, GV):  
***Organic Pest Control: Vegetables and Ornamentals***

Saturday, June 25th from 10am-11am at PC Master Gardener Garden (11477 E Ave. Auburn):  
***Composting Basics***

## JULY

Saturday, July 23rd from 9am-11am at PC Master Gardener Garden (11477 E Ave. Auburn):  
***Growing Fall and Winter Vegetables and Cover Crops***

Visit the Master Gardeners at the Farmers Market in Auburn (Placer) and Grass Valley (Nevada Co.)

## AUGUST

August 10-14 at the Nevada Country Fairgrounds in Grass Valley:  
***Come visit the Nevada County Master Gardeners at the AG-SPERIENCE area.***  
***There will be daily workshops on various topics and also composting demonstrations.***

Saturday, August 20th from 10am-Noon at NC Master Gardener Garden (1036 W. Main, GV)  
***Start Your Winter Garden Now! Easy, Cool-Season Vegetables for the Sierra Foothills***

Saturday, August 27th from 10am-11am at PC Master Gardener Garden (11477 E Ave. Auburn):  
***Composting Basics***

## SEPTEMBER

Saturday, September 10 from 10am-1pm at NC Master Gardener Garden (1036 W. Main, GV)  
***"Bite Me" Tomato Tasting and Open House.***

Vote for your favorite tomato, tour the demonstration garden, and attend these two workshops:  
 - 11am to Noon, Composting Basics  
 - Noon to 1pm, Fall Care of Tomato Plants  
 and Using Green Tomatoes





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