



THE GARDEN SPADE



A monthly Gardening Publication of the University of Missouri Extension -- Southeast and East Central Regions

Moss In Lawns

By Katie Kammler

Moss is a very simple plant that lacks typical leaf, shoot, root, and seed-forming systems of most higher plants but they are some of the hardiest living organisms on the planet. It can reproduce sexually by spores or asexually by breaking off into smaller pieces that divide and multiply. Their numbers can increase rapidly under the right growing conditioning and sometimes can be seen as a problem in lawns.

There are certain conditions that favor moss growth and allow it to out compete turf grass and other plants. Combinations of



poorly drained, consistently wet soils, acidic soil conditions, low fertility, medium to dense shade, repeated scalping of turf on uneven terrain, and compacted soils provided favorable sites for moss to thrive. The key to moss control is to figure out which factors are limiting turf or other plant growth and correct those to get rid of the moss.

- Consider getting a soil test. Apply fertilizer at the right time and use proper amounts based on the soil test. Fertilize cool season grasses in the fall or warm season grasses

in the summer to encourage root development to make a stronger lawn.

- Find out what the soil pH is by doing a soil test and see if lime is needed. Try to maintain a pH of 6.0 to 6.8.

- Look to see if the site is poorly drained. If so install drainage or re-grade the area to promote the removal of water from the area.

- Lack of sunlight severely limits turf growth so cutting or thinning trees and shrubs can provide more light.

- If the moss occurs in a sunny location, scalping may be the cause. Scalping is when the mower blades cut the grass extremely short or leave a bare spot. Smoothing uneven spots will help prevent this.
- Compact soils can be alleviated by aerating the soil - taking plugs of soil out with a machine.

Another alternative is to enjoy the moss as a low maintenance groundcover that thrives in adverse conditions.

March 2012

In this issue:

Moss In Lawns	1
Freeze Damage vs. Frost Damage	2
Gardening Calendar	3
Flowers To Start Indoors	3
How To Stake and Plant Trees	4
Building A Better Soil	5,6
Colorado Potato Beetle	6
Group News - What's Happening!	9
Editor's Corner	10

UNIVERSITY OF MISSOURI
 Extension

University of Missouri, Lincoln University, U.S. Department of Agriculture & Local University Extension Councils Cooperating
EQUAL OPPORTUNITY/ADA INSTITUTIONS

Freeze Damage vs. Frost Damage

By Sarah Denkler

Frost damage is caused by moisture condensing on the leaf and forming ice crystals by drawing water from the plant. This dehydrates the plant causing what appears to be a burn on leaf margins. It can occur to plants that have not yet gone into dormancy in the fall especially when plants are pruned or fertilized too early in the fall and begin to produce new growth or on fresh growth that begins early in spring.

Woody plants begin to go dormant when short days and cooler temperatures induce the condition. If plants make it to dormancy then they will often remain immune to damage from cold weather as they must break dormancy first. If plants are exposed to freezing temperatures before they become dormant in the fall or after they have broken dormancy in the spring then severe damage can occur. Freeze damage is usually caused to plants when a warm day or week is followed by a sudden decrease in temperature in the winter. Either the cells burst from the rapid drop in temperature, which causes bark splitting or the plant swells during the warm period and

then contracts when the cold hits causing the outer trunk to crack. Damage from either creates areas where disease and insects can attack and weaken plants.

Damage should be pruned out when possible. If the area is in a location that can not be removed then cut along the wound to create a smooth edge that is able to heal faster. If it is on a large branch or trunk keep monitoring to see if the damage heals over time.

When this happens to perennial plants it causes the plant to die back. At the very least the plant loses tissue and must restart growth. If it is severe enough it can cause death.

Below left: Frost damage is caused by moisture condensing on the leaf and forming ice crystals by drawing water from the plant. Lower left: Damage is not always consistent even on the same plant. Below middle: Freeze crack to the trunk of a tree in winter. Below right: A freeze damaged apple blossom. Note the brown tissue which is dead from the freeze. - photo courtesy of Purdue University.

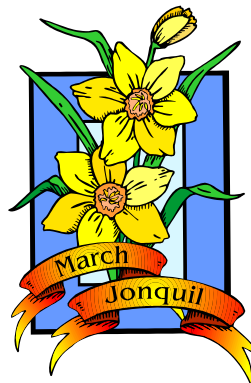


March Gardening Calendar

By Donna Aufdenberg

Outdoor Plants and Ornamentals

- To help control Iris borer, clean up and destroy the old foliage before new growth begins.
- Loosen winter mulch from perennials after frosts lighten.
- Clean up beds by removing all weeds and dead foliage at this time.
- Apply superior oil spray to control scale insects & mites on landscape plants.
- Divide and transplant perennials, such as ajuga, Shasta daisy, daylily and liriopse. Rework beds before planting, adding organic matter and fertilizer.



Vegetable Gardening

- Cultivate weeds and remove the old, dead stalks of last years growth from the asparagus bed before the new spears emerge.
- Plant peas, lettuce, radishes, kohlrabi, mustard greens, collards, turnips, Irish potatoes, spinach and onions outdoors.
- By the end of the month, plant beets, carrots, parsley and parsnip seeds outdoors. Set out broccoli, cabbage, brussels sprouts, chinese cabbage and cauliflower transplants into the garden.
- Start tomatoes indoors now for transplanting around May 1st.

Fruits and Nuts

- Gradually remove mulch from strawberries as the weather begins to warm.
- Continue pruning grapes. Bleeding causes no injury to vines. Tie vines to the trellis before the buds swell to pre-vent bud injury and crop loss.
- Continue pruning apple trees. Burn or destroy all pruning to minimize in-sect or disease occurrence.
- Peaches and nectarines should be pruned just before they bloom.

Indoor plants

- As day lengths increase, plants begin new growth. Repot root bound plants, moving them to containers 2 inches larger in diameter than their current pot.
- Check for insect activity and apply controls as needed.
- Leggy plants can be pruned now.

Turfgrass

- Apply crabgrass preventer now before it starts to warm and before seeds germinate.
- Thin spots and bare patches in the lawn can be overseeded now.
- Take care to keep off soft and soggy lawns. Lime spreaders, wheelbarrows and other equipment will leave compaction marks. Seed new lawns and do repairs after the land has drained and dried a bit.

Flowers To Start Indoors

Ageratum
Aster
Begonia (Fibrous)
Celosia
Coleus
Cosmos
Dianthus
Dusty Miller
Geranium (Seed)
Impatiens
Lobelia
Marigold
Melampodium
Nicotiana
Pansy/Viola
Petunia
Phlox (Annual)
Portulaca
Salvia
Snapdragon
Torenia
Verbena
Vinca
Zinnia

How to Stake and Plant Trees

by Sarah Denkler

The importance of planting a tree properly can not be stressed enough. When planting consider the variety, soil, location, depth, timing and root development. Consideration of these steps when planting can be the difference between life or death.

When considering a tree for your yard think about its location and the purpose it will serve. A tree used to provide shade to the house should be at least 40 feet tall for a single story home. If a power line is near the planting location then a large shade tree is not possible. Select the right tree for the right place.

The type of soil must also be considered. Most trees prefer well drained soil. If your site is high in clay build a berm to provide organic matter and drainage for the tree roots. Larger trees will eventually root into the clay soil.

The best time of year to plant a tree is in the fall. This provides the tree with three to four months of root growth before vegetative growth begins in spring. By the time hot weather hits the tree has had six months to begin its root system. Trees can also be planted now, in spring. This should be done as early as the ground will allow you to plant providing as much time as possible to grow roots before the heat of July and August arrive.

When planting dig the hole as deep as the root ball or pot that it was purchased in. The hole should be at least three times wider than the root ball. This combination requires work because we tend to dig down when we make a hole wider. If the hole is too deep the tree will drown.

There is a location at the base of the tree where the

root meets the crown. This is where you want the surface of the soil to be when you have finished planting. It is often easy to see because the trunk will be a slightly different color than the root. If the new tree came in a pot the discoloration may be above the soil line as soil tends to settle in a nursery pot.

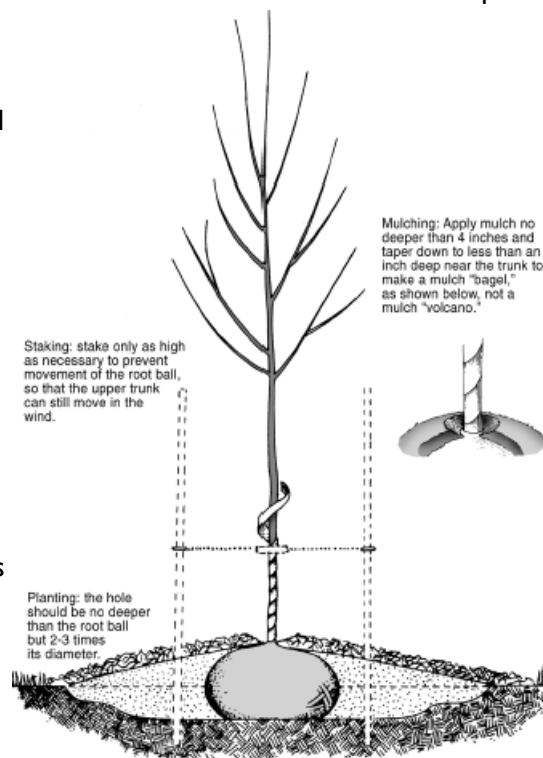
The soil used to fill the hole should be similar to the soil immediately surrounding. Fertilizer can be added if needed and organic matter used to add porosity and increase water drainage. The soil that is placed back into the hole should be dry and loose.

Do not just throw the root ball in the hole and repack the soil. Loosen the roots from the ball and spread them around the hole. Repack the hole and make sure to remove all the air by placing soil into every free space. Once the hole is full then tamp

the soil to ensure contact with the roots. If air pockets are left in the hole the roots will dry out.

Trees can be staked to prevent them from falling over after planting. This must be done if the tree is planted in a berm as the soil is loose and cannot support the weight of the tree. Do not wrap the wire tightly around the tree but leave enough room for the tree to lean with the wind. This will help the tree to establish a strong root system that will hold the tree in place once the stakes come off. Remove the stakes after 6 months to prevent damage to the tree. If the tree is still unable to hold itself in place new supports can be installed leaving room for the tree to sway.

If trees have not been planted by May then wait until fall to provide enough time to establish a root system that can maintain the tree in the summer heat.



Building A Better Soil

by Donna Aufdenberg

In Missouri, many gardeners live in areas where soil conditions are not so great. With either clay, rocky or sandy soils, many of us gardeners are left dreaming of a fertile, easy to work soil that will grow anything. For those who do garden with great soil, a better soil is a work in progress. They are always soil testing, adding amendments, incorporating organic matter, and limiting the cultivation of the soil. Here are some tips for a road to a better garden soil:

- First and foremost, soil test every 2-3 years! Knowing what is in your soil, and what the possible problems are is a giant step toward a better soil. A soil test will give the pH, phosphorus, potassium, calcium and magnesium levels.
- A good topsoil is relatively dark in color. It is active with microorganisms, plant nutrients and organic matter. It also has a pH between 5.5 to 7.5 (can depend on what you are growing!)
- Limit your roto-tilling. Tilling can do a good job of incorporating old plant residues or amendments creating a good seed bed for planting; but tillers can be greatly overused. For starters, tilling brings dormant weed seeds to the surface where they will germinate. Secondly, it can destroy soil and cause crusting of the soil surface. This will impede water infiltration, increase runoff, reduce germination rates of seedlings, and can lead to soil compaction. Continual tillage at the same depth will also create a hard pan beneath the tilled surface of the soil. This hard pan can become quite dense, reducing water and root movement downward through the soil, thus



restricting plant growth.

- You should also be mindful of the soil conditions when you till. If the soil is too wet, then clods can form. These clods are very dense and hard to break down once they dry out. Plus, tilling wet soil can lead to compaction. To make sure the soil is dry enough to till, take a handful of soil in your hand and squeeze it to form a ball. Then apply slight pressure to the soil ball with your thumb and finger. If the ball does not crumble easily, then the soil is too wet to till and you should wait until it dries further.
- Spring provides a great time to add amendments to the soil. Organic amendments are a great way to improve your soil. Adding organic matter improves water infiltration, soil tilth, increases drainage in clay soils, supplies plant nutrients and improves the physical conditions of the soil. There are a number of amendments to add to the soil: peat moss, manure, humus, compost, grass clippings, leaves, etc. Be careful when adding high carbon items such as wood shavings or sawdust. Adding large amounts can cause problems.
- Sand should **not** be used as a soil amendment. Many people add it to a heavy clay soil, thinking it will improve drainage when it actually compounds drainage problems. Instead of creating pore space, adding sand to clay will fill in the pores and you will end up with soil that resembles concrete! Choose an organic amendment instead.
- During the growing season, take advantage of grass clippings, leaves, vegetable scraps, or any

Colorado Potato Beetle

By Katie Kammler

With the warm winter we have been experiencing, insects are likely to be more problematic than usual.

Colorado potato beetle is a huge problem in vegetable gardens and is hard to control. It is found in most regions of the country and feeds exclusively on the foliage of cultivated and wild

plants in the nightshade (Solanaceae) family. It is a major pest of potatoes, eggplant, and tomatoes with alternate hosts of weeds such as horse nettle.

Colorado potato beetle overwinters in the soil as an adult and emerges about April to feast on potatoes, which is usually the first host plant during the cool spring

temperatures. Female beetles may lay several hundred eggs in her lifetime, 30 to 60 at a time on the underside of plant leaves.

The eggs hatch within four to nine days and start feeding immediately. The larva mature in two to



Colorado Potato Beetle Adult (Left) and Larvae (Right)



Colorado Potato Beetle Eggs



Colorado Potato Beetle Damage

three weeks before going into a pupal stage that lasts five to ten days before becoming adults in June. The higher the temperatures are, the faster the lifecycle completes.

Adults and larva feed on the foliage in the same manner, consuming large portions of the foliage. Large larva and first generation adults are the

stages that do the most damage. They can completely defoliate the host plant and feed on the stems. Loss of foliage weakens the plant and results in a reduction of yield, whether it is tubers or fruit.

There are some biological control options but they are not effective on large

populations. Spined soldier bug, two-spotted stinkbug, ladybird beetle, and carabid beetles are beneficial predators that prey on eggs and larvae. Crop rotation and thick straw mulch are cultural control measures that help. Since Colorado potato beetle have a high reproductive rate and they feed on only a few plants, they have the ability to become resistant to insecticides.

Rotating chemicals with different modes of action helps prevent resistance.

Building A Better Soil

By Donna Aufdenberg

green or brown organic material that may come your way. Start your own compost pile that can be added to your garden soil at the end (or beginning) of the gardening year.

Organic matter is the best thing you can add to make your soil a "Healthy Soil."

- Plant a cover crop! Cover crops are plants that you sow in your garden when it is laying fallow. After the crop gets about 6-10 inches high, it is incorporated into the soil or mowed to lay on top of the soil. For example, after

removing cabbage and broccoli, instead of leaving the area empty, plant buckwheat. At the end of the year when the plants are pulled, plant a cool season cover crop such as winter wheat or winter rye. Cover crops cover the soil, prevent erosion, add organic matter, improves the soil tilth, aeration and structure, and much, much more.

Building up "good" soil is a process that takes many years to accomplish and adding organic amendments is a key step in improving your soil.



Group News - What's Happening

March 2012

Sun	Mon	Tue	Wed	Thu	Fri	Sat
<p>Contact your local Extension Center if you have questions about any event on the calendar.</p>				<p>1 Core Training: 4:30pm Butler Co. Ext Center</p> <p>Core Training: 6:00pm Cape Co. Ext Center</p>	<p>2</p>	<p>3 Native Plant Seminar; Cape Girardeau Conservation Nature Center</p> <p>Garden Symposium; Mineral Area College in Park Hills, MO</p>
4	<p>5 Parkland MG, 6:30pm @ Farmington Courthouse Annex - 3rd Fl.</p>	<p>6 Poplar Bluff MG, 6:00pm @ Ext. Center</p>	7	<p>8 Core Training: 4:30pm Butler Co. Ext Center</p> <p>Core Training: 6:00pm Cape Co. Ext Center</p> <p>Delta Area MG, 7 pm, Sikeston</p>	9	10
11	12	13	14	<p>15 Core Training: 4:30pm Butler Co. Ext Center</p> <p>Core Training: 6:00pm Cape Co. Ext Center</p> <p>Cape Girardeau Co. MG, 7 pm, Cape Co. Ext. Center</p>	16	17
18	<p>19 Ste. Genevieve MG Meeting, 6:30pm, at the Ste. Genevieve Co. Ext. Center</p>	20	21	<p>22 Core Training: 4:30pm Butler Co. Ext Center</p> <p>Core Training: 6:00pm Cape Co. Ext Center</p>	23	24
25	<p>26 Perry Co. MG 6:30 pm, Perry Co. Ext. Center</p>	<p>27 Bonsai; Advanced Training, Mineral Area College in Park Hills, MO; 1-4pm</p>	28	<p>29 Core Training: 4:30pm Butler Co. Ext Center</p> <p>Core Training: 6:00pm Cape Co. Ext Center</p>	30	31

April

- 2 - Parkland MGs 1st Monday at 6:30pm, Farmington Courthouse Annex (3rd Floor)
- 3 - Poplar Bluff MGs 1st Tuesday at 6:00pm, Butler County Ext. Center
- 12 - Delta Area MGs 2nd Thursday at 7:00pm, Medical Arts Building, Sikeston, MO
- 16 - Ste. Genevieve MGs 3rd Monday, at Ste. Gen. County Ext. Center at 6:30pm.
- 19 - Cape Girardeau County MGs 3rd Thursday at Cape County Ext. Center at 7pm.
- 23 - Perry County MGs 4th Monday at the Perry County Ext. Center at 6:30pm.

Upcoming Events

- April 19 to 22 - Dogwood Azalea Festival; Charleston, MO
- May 6 to 7 - Baker Creek Spring Planting Festival, Mansfield, MO

if you have a horticultural related event for the calendar call 573-686-8064 to add it.

Editor's Corner

The Garden Spade is published monthly by University of Missouri Extension staff for individuals and families living in Southeast and East Central Missouri. This newsletter is provided by your local extension council.

Editors:

*Katie Kammler, Plant Science Specialist
255 Market St., Ste. Genevieve, MO 63670
573-883-3548*

*Sarah Denkler, Horticulture Specialist
222 North Broadway Street, Poplar Bluff, MO 63901
573-686-8064*

*Donna Aufdenberg, Horticulture Specialist
304 High Street, UNIVERSITY OF MISSOURI PO Box 19,
Marble Hill, MO  Extension 63764*

We welcome and encourage Master Gardener groups and individuals to submit items to the newsletter. We encourage the submission of any news such as upcoming volunteer opportunities, community events related to gardening, warm wishes or congratulations to fellow gardeners. We also encourage Master Gardeners to share experiences and write articles on timely topics.

All entries into the group news sections must be received by 4:30 on the 15th of each month to be included in the following months news.

Email News to: kammlerk@missouri.edu, denklers@missouri.edu, or aufdenbergd@missouri.edu

Disclaimer: No special endorsement of mentioned products is intended, nor is criticism implied of similar products not mentioned.

UNIVERSITY OF MISSOURI
 **Extension**
Master Gardener

March 2012 Garden Spade