



# The Berry Basket

Newsletter for Missouri Small Fruit and Vegetable Growers

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## Missouri's Blueberry Acreage

By Ben Fuqua

The acreage of highbush blueberries in Missouri has remained essentially the same for the past decade. While some new plantings are being established and a few growers are expanding their acreage, several older plantings have declined or have been terminated. When compared to other fruit crops produced within the state, blueberries have the potential to be a major crop for Missouri growers. Most soils in Missouri can be sufficiently modified to grow highbush blueberries, the cultural requirements of blueberries can be met by most "green-thumbed" growers, and consumer demand for fresh blueberries far exceeds the current supply. However, getting into the blueberry business requires major investments in both time and money and is a decision that should only be made after carefully looking at the "whole picture".

**Marketing Plans:** A good marketing plan is essential for any successful blueberry operation. A good plan incorporates many factors, including: the number of potential customers within a 25-30 miles radius of your planting, the number of other blueberry growers and acreage in the same general area, the marketing scheme (i.e. U-Pick, on-farm markets, organized Farmer's Markets), availability of labor, operating facilities (cold storage, selling areas, parking), advertising and promotion outlets, and the location of the market in relation to customers. Selling "value added" blueberry products, such as pies, cakes, muffins, jams, and vinegars adds another option for expanding the marketing area. The marketing plan should be in place well before berries are ready for harvest. There is nothing more frustrating than a blueberry

## From the Editors

by Marilyn Odneal

We hope everyone is enjoying this colorful fall season. Our autumn issue gives good advice on end of the season clean-up and protecting plants this winter. There are also some ideas on how to get the jump on production in Spring with high tunnels.

Fall is also a good time to start making plans for next year. Make a note that the Missouri Small Fruit and Vegetable Conference will be held February 16, 17 and 18th, 2004 at the Clarion Inn in Springfield. Hope to see you there.

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plant hanging full of ripe berries and having no pickers or buyers.

**Capital Investment:** Blueberries require a rather large monetary investment for establishment and maintenance of the plants. The cost of establishing an acre of blueberries generally ranges from \$3000 to \$4000, NOT including cost of land, machinery, or an irrigation system. If wells or other water sources have to be developed and pumps, filters, water lines, or other equipment purchased, the total cost can easily exceed \$6000 per acre. On the other hand, the cost to maintain the planting should be much lower in subsequent years.

Blueberry plants are slow to produce a commercially harvestable crop; therefore, the payback period for blueberries is somewhat longer than most other small fruit crops. Blueberry plants should not be allowed to set fruit for the first 2 years after establishment in order for bushes to develop a strong framework for sustained production in the future. For the next few years, yields should steadily increase, reaching full production by the fifth or sixth year (longer for slower-growing plants). Healthy blueberry plants of the cultivars currently recommended for Missouri should produce berry yields of 6,000 to 10,000 pounds per acre when in full production.

The most important fact of the investment equation is that blueberry enterprises are generally profitable over the long run. Blueberry plants are perennials and should produce high yields of quality berries for many years. While no one knows exactly the productive life of blueberry plants growing in Missouri's soil and climatic conditions, there are blueberry plants in commercial and research plantings that are now approaching 30 years of age.

**Labor Availability:** Blueberry plants require care for 9-10 months during the year and labor requirements vary from one planting to another, depending on the age and size of the plants, plant productivity, and type of marketing plan used. While one or two people can handle most of the normal maintenance operations, such as fertilization, herbicide applications, mowing row middles, etc., additional labor may be needed at the time of establishment, pruning (January-March), and harvesting (June-July).

During establishment, enough labor to set the 1000-1100 plants per acre into the soil, spread mulch, and install irrigation lines will be needed. Digging holes for plants, mixing peat moss (or other decayed organic residues) in the rooting zone, and actually setting the plants normally requires 50 hours or more of labor per acre. Additional help to mulch plants and install irrigation lines may also be needed at this time.

The amount of labor to prune blueberry plants depends on the age and size of the plants. Young plants (establishment to 5 years of age) usually require only minor pruning and shaping and very few (normally less than 20) hours per acre will be needed. As the bushes get older and larger, more extensive pruning and shaping will be required to maintain a healthy, high producing plant. While some people are faster and more adapt to pruning than others, most mature plantings require 50+ hours of labor per acre for the annual pruning operation.

The hours of labor required at harvest depends on the type of market the grower plans to use. U-Pick operations require the least amount of hired labor as customers harvest their own berries. One or two workers will usually be needed in the field to instruct pickers on how to harvest blueberries and direct them to the ripe berries. One or two workers will also be needed at the weighing or selling area. Growers who want to sell fresh berries at on-farm stands, road-side markets, or farmer's markets will need more labor to get the berries harvested and packaged for sale. The quantity of blueberries a worker can harvest depends on the skill and speed of the individual as well as the crop load on the bush. While only 2-4 pickers per acre may be needed at the beginning and end of the harvest season, 10-15 pickers may be required during the peak production period to get the berries harvested. One or 2 people will still be needed to actually sell and market the berries at the various locations.

**Grower Interest:** Good marketing plans, recouping capital investments, and securing available labor are major considerations when starting or expanding a blueberry planting, but the major ingredient in a successful blueberry enterprise

is grower interest. Successful blueberry growers must be both “learners” and “doers”. Blueberry growers must be willing to be advertisers, laborers, marketers, maintenance workers, as well as growers. Good PR skills and positive interactions with customers are absolutely essential!

**Summary:** Blueberries have been designated as the “healthy” fruit by many nutritional experts and Missouri growers (and potential growers) should capitalize on this “free” endorsement. At present, there are approximately 100-125 acres of commercial berries in production within the state and the demand for blueberries continues to increase. While the long payback period make blueberries somewhat of an unattractive investment, the long productive life of blueberry plants, the low maintenance cost (compared to establishment costs), and high demand for fresh blueberries by consumers make blueberries attractive in the long run. Growing blueberries in Missouri can be a profitable enterprise, but it takes dedicated and committed growers. Growing blueberries in Missouri is not for the “weak-hearted”!

## High Tunnel Vegetable Production

*By Gaylord Moore*

High tunnel vegetable production offers a new wave of opportunities to some vegetable producers. These unheated, plastic-covered structures provide an intermediate level of environmental protection and control compared to open field conditions and heated greenhouses. Dr. Lewis Jett, state vegetable specialist for University of Missouri Outreach and Extension has done extensive research the past two or three years with these structures and has found them to provide great economic potential benefits. Conventional high tunnels are unlike commercial greenhouses that are quite expensive to construct and maintain. Tunnels are much less expensive maybe costing as little as \$0.50 per square foot versus commercial greenhouses costing up to



*Relatively low cost plastic covered high tunnel structure at the Eastern Kansas Horticulture/Forestry Research and Education Center.*

Source: <http://www.hightunnels.org>

\$20 per square foot. Of course cost variations may depend upon structure and construction materials.

High tunnels are generally used for crop season extension. Compared to open field conditions, plastic-covered high tunnels result in a warmer production environment during late fall, winter and early spring seasons. This offers the advantage of starting crops earlier in the spring and harvesting them later in the fall. Offering the consumer earlier fresh produce or extending the produce season generally results in premium prices for tomatoes and other high ticketed items. Production during the winter season is possible, but this is restricted by severity of winter weather, what crops are grown, and the availability of supplemental heat.

Growers who are interested in high tunnel production are encouraged to check website <http://www.hightunnels.org> This non-biased research based information website provides many resources for this type of crop production and is must see site for those considering this adventure.

## Gooseberries on the Web

by Suzi Tegtmeyer

I admit, a few days ago I saw Autumn's heralds, geese, flying above and my mind went on a tangent...geese...goose...gooseberries...Berry Basket article! Consequently, I have highlighted a few choice websites exemplifying this nice *Ribes* fruit. I will insert a note of caution, here. *Ribes* species are the alternate host of white pine blister rust, and many states ban their culture. Consequently, I recommend you check with your local extension agent to make sure there are no growing restrictions for your area.

### TIRA: The International *Ribes* Association

<http://www.msu.edu/user/sleightd/tira/>

From their website, "TIRA was established to function as the international professional organization of *Ribes* growers. (The genus *Ribes* includes red, black and white currants, gooseberries and jostaberries.)" The site includes sections on *Ribes* history, health, and cultural aspects, regional and members' news, resources, and how you can become a member. Members receive a quarterly newsletter; with the index to the volumes available to everyone via a .pdf file over the Internet (articles are available from the TIRA secretary).

A favorite image site of mine is the **Small Fruits of New York**, one of the classic tomes of U. P. Hedrick.

<http://www.ars-grin.gov/cor/sfny.html>

This site isn't the complete work, but does offer beautiful, hand painted images of 14 older varieties. They make very nice computer wallpaper!

### Mark's Fruit Crops: Currants and Gooseberries

<http://www.uga.edu/fruit/ribes.htm>

Dr. Mark Rieger at the University of Georgia has compiled many interesting facts about *Ribes* at this site, including world production numbers, botanical descriptions, propagation techniques, nutritional components, and of course cultural



practices. Much of this information can be used in advertising as "interesting facts of *Ribes*" and "why eat *Ribes*."

### Gooseberries and Currants (*Ribes* spp.)

<http://ssfruit.cas.psu.edu/chapter10/chapter10a.htm>

Gooseberries and currants are featured as Chapter 10 in the online book, **Small Fruit Production**, issued by Penn State. Contrary to many of its other fruits, the *Ribes* chapter leads with "Legal restrictions." This refers to the restrictions once placed on growing *Ribes* spp. due to white pine blister rust. Beyond this, the site is well developed and provides detailed cultural methods for both home and small commercial growers.

**Currant and Gooseberry Pests** by Kim Hummer and Joseph Postman of the USDA/ARS National Clonal Germplasm Repository

<http://www.ars-grin.gov/cor/ribes/ribsymp/ribsymp.html>

The upper part of this bisected page is a table divided into three categories, Cane and Stem Symptoms, Leaf Symptoms, and Flower and Fruit Symptoms, and within each is a list of ailments. Those ailments link to either another questioning choice, or a diagnosis, which leads to the name of the problem and a representative image. Beneath this "key table" are categorized descriptions and images of disease and insect problems. I would recommend this site to those who are experiencing a problem with their gooseberries (or currants) but don't know if it is a disease, insect, or some other affliction or deficiency, and are diagnosing by visual symptoms.



**Currants, Gooseberries and Jostaberries** by H. Hughes and J.E. Ells of Colorado State University Cooperative Extension.  
<http://www.ext.colostate.edu/pubs/garden/07005.html>

This site is often referenced by other berry sites because it's very concise and facts are clearly stated. For the person who likes details and explanations though, this site may be too thin. Either way, it is worth scanning to refresh the memory and possibly learn something.

For those who are contemplating growing *Ribes* at a large home- or commercial-sized system, I recommend reading the article, **From Plant to Plate: How can We Redesign *Rubus* and *Ribes* Production Systems to Meet Future Expectations?** by horticulturist Dr. Marvin Pritts of Cornell.  
<http://www.hort.cornell.edu/departement/faculty/pritts/scotland1.htm>

The article describes the need for an improved cultural and economical system of producing *Ribes* and *Rubus* species. Dr. Pritts outlines seven areas that researchers should investigate to do so. Growers may not be able to implement all of the steps themselves, but there may be small steps or ideas that can be practiced locally.

Two quick mentions:

**Gooseberry from the California Rare Fruit Growers**  
<http://www.crfg.org/pubs/ff/gooseberry.html>

Describes the species botanical as well as cultural aspects.

**The USDA Crop Profiles of Gooseberries; New York**  
<http://pestdata.ncsu.edu/cropprofiles/docs/nygooseberries.html>

After noting the growing restrictions per New York county due to white pine blister rust, the site describes insects and diseases of the plant and their countermeasures.

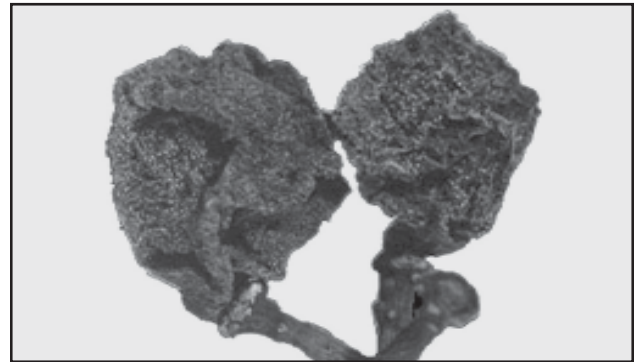
These websites and many others are listed on my Fruit Science: Pomology Links website at the address:

<http://library.smsu.edu/paulevans/fruitlinks.shtml>  
 Please surf by!

## Destroy All Mummies

By *Susanne Howard*

One of the most common questions in the middle of the growing season is: Why did my grapes just shrivel and dry up? What happened and how can I prevent this from happening again? The answer is: your grapes were infected with black rot and it is too late to do anything for this year's crop.



*Shriveled mummies that once were berries will carry the fungal spores over the winter to infect next spring. Photo source: <http://fpath.cas.psu.edu/Grape/BR.html> Penn State College of Agricultural Science, Fruit Pathology, Jim Travis, Jo Rytter, and Ken Hickey.*

Black rot is one of many fungus diseases that can affect grapes in Missouri. It is also the one single disease that you can count on occurring every year and the one that can completely destroy the entire crop if not controlled. It affects all grape varieties, though some are less susceptible than others. The fungus responsible for the disease symptoms is *Guidnardia bidwellii* and the most striking symptom, one that you can use to identify the disease with, are the shriveled, hardened, mummified berries that remain on the vines even after leaf fall.

The fungus over-winters in these berries, on the vines or on the ground. Once the weather turns warm and moist in the spring, fungus spores are released from these mummy berries. The spores land on the new shoots of the grapes and infect them when the leaves are wet. Leaf symptoms appear soon after this initial infection. These are irregular, tan colored spots, with a black border, mostly small  $\frac{1}{8}$  to  $\frac{1}{4}$  inch diameter.

Close inspection with a hand lens reveals little black dots at the edges of the spot. The ‘dots’ contain fungus spores. The leaf spots can easily be overlooked early in the season, but from these spots new fungus spores are released, which then infect new growth and also the young berries. Berry symptoms start as little white spots, which turn brownish purple within a few hours. These spots spread rapidly and the affected side of the berry sinks in. Berries mummify within a few days. With spores being released from both the berries and the leaves, even if the initial infection was not severe, the disease can multiply rapidly if left untreated, especially during warm periods with occasional rain that keeps the foliage wet for a long time.

Considering that this describes Missouri springs perfectly, what can you do to control the disease?

Fungicide applications on a regular basis, starting as soon as the shoots start to develop, are needed to control black rot. The emphasis has to be on “as soon as the shoots start to develop”. Most fungicides can only prevent an infection from occurring, but they cannot eliminate the infection once it has occurred, because by then the fungus is embedded inside the leaf or berry tissue. That is why it is important to maintain a regular schedule of fungicide applications, even if you do not see any symptoms. Depending on the pattern of rainfall and dew in the mornings and on how fast new, susceptible tissues are growing, applications to control black rot have to be made every two to three weeks, sometimes even in shorter intervals. If you spray and rain falls before the spray has dried, the application may have to be repeated. Captan is one fungicide that gives good control of black rot, but some grape cultivars can be sensitive to it, resulting in leaf burn especially if used during periods of high temperatures (above 85°F). For commercial grape production, other fungicides are available. Some of these have some “kick-back” action, meaning they can be used shortly after conditions have been favorable for black rot infection (wet leaves for several hours).

Several cultural practices can help with black rot control. Since the leaf surface has to be wet in order for the fungus spores to ‘germinate’, any practice that allows the leaves to dry quickly



*Leaf spot symptoms of black rot. Note the black border around the tan spots.*

shortens the possible infection period. Shorter drying times can be achieved by avoiding a dense, matted canopy, both by pruning the vines adequately and by practices such as shoot positioning and partial leaf removal. Placing a vine away from obstructions to wind movement, i.e. not training them up the side of a house, allows for air movement around the entire canopy. Since the fungus spores over-winter inside the mummified berries, removal of these berries really helps to cut down on the amount of spores released in the spring. Berries can be removed from the vineyard entirely or can be disked in and covered with soil.

So if you noticed mummified berries on your grapes this summer, now is the time to start breaking the disease cycle by ‘cleaning up’ your vineyard. And if you remember to spray on a regular basis before disease symptoms are visible, you should be well on your way to control black rot in your grapes.

For additional information about the disease, one source is *The Compendium of Grape Diseases* edited by Pearson and Goheen. This book contains detailed information and good pictures. A lot of information is also available online; see <http://mtngrv.smsu.edu/GrapeDisease/blackrot.htm> on our website. This page shows pictures of the various stages of symptoms in infected berries.

Detailed information about specific fungicides is available in spray guides, available both for homeowners and commercial operations in most states from extension services.

## The Wilds of Missouri

*By Marilyn Odneal*

A vintage garden border in front of Faurot Hall, the historic administration building at the Fruit Experiment Station at Mountain Grove, is being developed to honor the Southwest Missouri State University Centennial in 2005. The first steps in planning this garden involved research into turn-of-the-last century gardens. Roses, daylilies, peonies, species geranium, lavender, yarrow, coreopsis, sedum and ornamental grasses are some of the plants used at the time. While looking for sources of old fashioned plants, we luckily discovered a treasure trove of vintage peonies right here in Missouri at Gilbert H. Wild and Son Nursery in Sarcoxie.



*The nursery office in Sarcoxie, Missouri.*

Gilbert H. Wild and Son, America's largest grower of daylilies, iris and peonies, has been raising peonies since 1885. Presently over 600 varieties of peonies are grown. Some of the first introductions of 'Carl Rosenfield' and 'Festiva Maxima', came to the US in as early as 1850. Peonies were the main crop at the nursery until the 1950s when floods and heavy rains destroyed the crop and Wilds diversified to include daylilies and irises.

Although we missed the mid-May peak for peony blossom, we arranged a tour with Greg Jones, the owner and operator, during peak daylily blossom. Adelle Barbe, Dallas Dawson, and I drove to Wilds Nursery on June 25. Adelle is a



*Greg (left), Adelle, and Dallas in front of one of the old stone barns on the property.*

horticulture student at the University of Missouri, Columbia and Dallas is a Master Gardener – both were working on the Centennial Garden project.

Greg Jones holds degrees in horticulture, entomology, and plant pathology and worked for White Flower Farm and Michigan Bulb Company before he purchased Wilds nursery.

Wilds nursery has introduced many cultivars through the years. The original "Wilds" style daylily was a large-sized, star-shaped blossom without an eye. Greg now concentrates on selecting daylilies for marking at the eye (center), for contrasting color at the edge, for good texture and thickness, for double form, and for resistance to thrip (insect) damage. The bud count of a fully mature (4 – 5 year-old) daylily ideally is from 20 – 30.



*The traditional daylily developed by Wilds is large, star-shaped and without markings.*





*A character currently selected in the breeding program is a contrasting colored edge.*



*The double character is another newer trait selected in the Wild breeding program.*

At Wild's, there are about 400 acres in flower production on several farms. Irrigation water is applied in a pivot system. Flower crops are rotated with cover crops of oats or soybeans. The focus of the operation is to produce high quality plants and to insure trueness to name. In fact, Greg has two full-time employees who continually inspect the fields and remove any plants that are not true to name during blossom. To further insure quality and trueness to name, every order is fresh dug by hand.

Although plants are dug for sale by hand, planting and dividing are mechanized operations.

We observed both the planting and dividing operations in the field the day we visited. Greg commented on dividing the three main flower crops that he grows: "To divide irises, you just break them apart by hand; to divide daylilies, you may need to pry them apart with a knife, but you don't have to cut them, just stick the knife into the center of the clump and twist it; peonies, however, must be cut apart to divide."

Gilbert H. Wild has display fields open to the public, so you can visit during the growing season to see the large selection. Each year Wild sells more than a million daylilies. Orders are shipped to all 50 states and 40 countries. Gilbert H. Wild's show garden is located in southwest Missouri on Highway 37, 1 mile north of Interstate 44 exit 26. For more information call (417) 548-3514 or visit Wilds at [www.gilberthwild.com](http://www.gilberthwild.com) on the web.

We appreciated the time Greg spent with us on our wonderful tour of the nursery. On the drive home, I asked Adelle and Dallas what their favorite part of the tour was. Adelle, who had worked on a list of peonies and daylilies for the public garden project, was very happy that after discussing the choices with Greg, he offered to donate them to our project. Dallas thought awhile and then decided "what impressed me the most was how enthusiastic Greg was about his operation and how proud he was of his employees. He really appreciated the people who worked for him and totally enjoyed doing what he was doing."



*The majority of daylilies were blooming in the fields on June 25.*



## Winter Protection for Strawberries

By *Patrick Byers*

Strawberries are considerably less cold hardy than many other fruits grown in Missouri. Observations in research plots suggest that damage can occur to plants if crown temperatures reach 23°F, and plant death may occur when crown temperatures reach 4°F. Strawberry plants are also susceptible to damage from cold, desiccating winds, as well as damage to root systems from alternate freezing and thawing. Dependable snow cover (6-8 inches for the entire winter) will provide adequate winter protection. However, snowfall in Missouri is sporadic, usually does not persist on the ground, and cannot be depended on to provide adequate protection. Strawberry growers should consider a strategy to protect plants from cold temperatures and the effects of winter winds.

The traditional protection strategy in Missouri is mulching. A layer of mulch, usually grain straw, is applied over the strawberry bed in late fall. Wheat straw is most commonly used, but rye and sudan straw are also appropriate. Ideally, the straw should be free of weed and grain seed; strawberry growers often grow wheat specifically for mulch production, and cut and bale the straw before seed formation. The best mulches will remain light and fluffy over the bed. Avoid mulches that pack or settle. Straw mulch



is commonly applied with machines that chop the bales and spread the cut straw over the bed. Machines are available that handle both small square bales as well as larger round bales. Plan to apply a mulch layer of 4-6 inches over the bed; a layer this thick will require 3-4 tons of straw per acre. Raised bed plantings will require additional straw; usually 4-5 tons per acre. Maintain the mulch layer at 4-6 inches. Winter winds can redistribute the mulch; spread the mulch back over any exposed areas.

Row covers are increasingly used for winter protection, particularly for annual plasticulture plantings. Spunbonded plastic heavyweight rowcovers, usually rated at 1.25 to 1.50 ounces per square yard, are spread over the strawberry bed. The edges are anchored (tube sand or posts work well) or covered with soil. Rowcovers come in varying widths, usually in 15 foot multiples. At the SMSU Fruit Experiment Station we have successfully used floating rowcovers for winter protection. Row covers, however, will not give as much protection from extreme cold temperatures as a straw mulch. With proper care and storage, a heavyweight row cover is useful for several seasons.

Do not apply winter protection, either mulch or row cover, too early. Strawberry leaves are photosynthetically active well into the fall, and covering the plant too early will reduce the ability of leaves to manufacture carbohydrates needed for winter survival. As a rule of thumb, protection may be safely applied when the leaves attached to the crown begin to flatten, which usually occurs after several frosts. Research at the University of Illinois suggests that winter protection should be in place soon after 3 consecutive days of a soil temperature (at 2-inch depth) of 40°F. In most years protection is applied in mid-November in northern Missouri, and in late November in southern Missouri.

### References

- Pritts, M. and D. Handley. 1998. Strawberry Production Guide. NRAES Publication 88.
- Otterbacher, A. and R.M. Skirvin. 1999. Winter Mulch Removal and Application. Proceedings Missouri Small Fruit Conference 19:47-50.

## Fall Care and Clean-Up of the Garden And Landscape

*By Jennifer Barnes*

Fall is the time to get the outside garden and chores wrapped up. To avoid getting caught unprepared, plan tasks just ahead of nature's time table.

- Bring in houseplants that were kept outside during the summer. Inspect them closely for insects before bringing them in the house.
- Dig up tender corms and bulbs such as dahlias, gladiolus, and tuberous begonias. Dig the bulbs carefully, and retrieve any offsets that may have developed, and leave the foliage intact.
- Finish planting spring flowering bulbs (tulips, daffodils, crocus), and dormant, deciduous nursery stock while the soil remains manageable.
- Lawn care in the fall will yield maximum results the following growing season. Apply herbicides to control weed infestations. Aerate if the soil is compacted or if thatch is a problem. Apply fertilizer as indicated on a soil test report.
- Drain garden pools to avoid freeze damage.
- Protect roses. After a deep freeze, cut the canes back to about 6-12 inches and mound the plants with soil and mulch.
- Protect young trees from rodent damage. Wrap trunks with light colored wrappings.
- After a heavy frost, remove all dead plants and destroy any perennials which may have diseased foliage (i.e., peonies and lilies).
- If there is time, turn the soil over in the vegetable and flower garden. Litter-free areas in the garden or under fruit trees will help eliminate many disease and insect problems the following season.
- Keep trees watered. Trees tend to lose water and dry out more during the colder months. Late fall is a good time to fertilize deciduous trees.

## Mulch and Wrap Trees in Fall

*By Marilyn Odneal*

Permanent mulch around trees and shrubs is a good idea for several reasons. Mulch conserves water, helps moderate soil temperature both in summer and winter, helps keep weeds from competing with the plant, and helps keep trees safe from mower blight and string weeder attacks.

Organic mulches, like bark chips, are preferred for the landscape and should be applied 3-4 inches thick. Inorganic or other organic mulches can also be used, but they should be heavy enough to stay in place and should not break down quickly like shredded leaves.

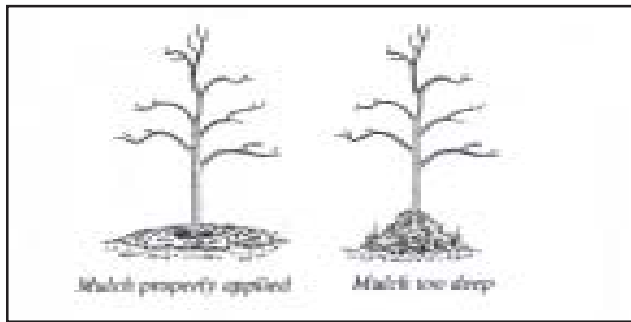
Mulch should be applied when you plant trees and should be replenished as needed. If fall planting, mulch a four foot diameter circle around new trees and shrubs. Increase the circle as the plants grow in subsequent years.

The root systems of plants extend beyond the branches of established trees and shrubs (drip line), so mulches should cover this area. This allows the tree to realize its natural shape. When mulch is not used out to the drip line of the tree, trees may be pruned improperly to afford access by riding lawn mowers under the branches.



*Lower limbs of this linden tree were improperly pruned to accommodate a riding lawn mower. If mulched to the drip-line (outer reach of the branches) and left un-mowed, the natural shape of the tree could have been preserved.*

Fall is an excellent time to replenish mulches. It is important to keep mulch a few inches away from the trunks of trees and shrubs. Do not mound the mulch around the trunks of trees and shrubs because this will result in insect, rodent and/or disease problems. If mulch is against the base of the tree, pull it at least 3 inches away. Rodents do not like to travel over bare soil to reach the bark.



Source: *Mulching for a Healthy Landscape*. 2001 (revised). Virginia Gardener. VA Coop. Ext.

Wrapping the trunks of young, smooth-barked trees is another fall chore that will offer protection from winter sunscald or “southwest injury”. Trees should be wrapped by Thanksgiving. Sunscald occurs when the bark on the south side of the tree is warmed by the sun during the day and then cracks when the temperature drops at night. It is important to wrap trees every year until the bark becomes rough.

Whether you choose the paper tree wrap or a plastic tree guard, wrap the trunk at least to two feet high or to the point where the first branches come off. Remove any tree wrapping by late March to prevent girdling of the trunks.

Young trees may be susceptible to damage from the gnawing of mice and rabbits. Surrounding the trunk or stem of a newly-planted tree with a cylinder of hardware cloth can reduce this hazard. You need 1/4 to 1/2-inch metal hardware cloth, fine-gauge wire and a pair of wire cutters. Cut the hardware cloth two feet high by whatever length is needed to encircle the tree trunk or shrub, with room for extra growth (about six inches in diameter for newly planted trees.) Bend the hardware cloth to form a cylinder around the tree or shrub and bury it two inches in the ground. Put some gravel around the base of the guard. Use wire to close the seam.

White latex paint can also be applied to tree trunks helps protect against killing of cambium or bark from southwest injury. Mix one gallon of *white interior latex paint* into 4 to 5 quarts of water. Do not use oil-based paint. Mix well and either paint or spray on the trunks. Filter the mixture through a nylon stocking if you use a sprayer. Apply to the south half of the trunk and lower scaffolds. For best weather resistance, latex paint should be applied during mild (50°F or higher) dry weather.

Evergreens don't have a problem with southwest injury, but are sensitive to desiccation or drying out in the cold winter winds. A barrier of burlap or freshly cut boughs should be placed on the south and windward exposures of newly planted evergreens to help them keep from drying out.

Mulching trees and shrubs out to the drip-line is beneficial by promoting proper growth and allowing the tree to realize its natural form by avoiding conflicts with mower access. If you protect your young trees with trunk wraps and/or trunk paint in fall you can rest easy through the winter knowing that you are helping to insure a healthy spring.

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