

A WORD OR TWO ABOUT GARDENING

What about growing roses in Miami-Dade County?

Ask a gardener about growing roses and you are liable to get some fairly strong language. There are those that have little time for roses: too much bother to end up with a bunch of prickly bare twigs could be one typical comment. At the opposite end of the opinion spectrum there are many more gardeners for whom a yard would not be complete without a rose bed. True, there is no escaping the fact that roses have a reputation as high maintenance plants, needing plenty of water, sunlight, regular feeding and constant vigilance to control disease and pests. For a committed rosarian this does not matter, and certainly at their best roses are aesthetically ideal shrubs. They offer attractive foliage (new growth is often a striking wine red color), colorful fruit (more especially on species roses) and most significantly the ultimate flower, a perfect combination of shapes, colors and more often than not, fragrance. This article is the first of two on growing roses in Miami-Dade, and will review some of the problems, and how to minimize their impact. The second focuses on how we can use roses as relatively low maintenance, landscape specimen shrubs.

There is no denying that for local gardeners, especially those new to Miami-Dade, roses can offer many challenges in addition to those faced in other parts of the country. It is not uncommon to see what was an attractive plant, when purchased in February or March, reduced by late summer to the clump of bare, spiny twigs alluded to above. More often than not these are hybrid tea roses (the most widely grown class of roses) that, though they may have been diligently watered and fed, have nevertheless failed to thrive. In order to have any hope of success the rose must be grafted on the correct rootstock for Florida, and their needs to be a regular spray program to control disease, especially during the wet months of summer and early fall.

Many roses offered for sale either in garden centers or through mail order, are grafted onto *Rosa multiflora* rootstocks, which perform poorly in Florida's sandy soils, or Dr Huey, which is only marginally better. Don't be surprised if roses such as these decline within 2-3 years of planting. If you grow hybrid tea roses in south or central Florida you must make sure that the rose is on *R. fortuniana* rootstock. From trials at the University of Florida during the 1960's, this was established as the rootstock of choice for Florida, and is now gaining in popularity in other parts of the U.S. south and desert southwest. *R. fortuniana* develops a far more extensive and vigorous root system, is more heat tolerant, and noticeably more resistant to root knot nematodes, than other rose rootstocks. In addition to disease, plant parasitic nematodes can be a serious limitation on rose growing in most of south and central Florida, thriving in the regions predominantly organically poor, sandy soils.

Soil nematodes are microscopic, none-segmented worms, and while many are free living, several different types are parasitic on plant roots. Within 1 – 2 years of planting in infested soil, susceptible roses will become stunted, with weak new growth, sparser, yellowish leaves and fewer and smaller blooms. On removal of the

affected plant you may be able to see root galls (evidence of rootknot nematodes, *Meloidogyne* spp., the most frequent cause of nematode damage to Florida roses). Often it takes microscopic examination of the roots to confirm nematode damage. If you suspect a nematode problem in your soil, contact the UF-IFAS/Miami-Dade County Extension Office (305 248 3311) for a soil test kit. You can then send a sample, together with the completed submission form (specifying that you intend to grow roses), and \$12 fee to the University of Florida Nematology Laboratory in Gainesville. You will receive a report listing the particular nematode problem, if any, present in your soil.

Incorporating plenty of organic matter into the soil and mulching the plants will help to control the number of plant parasitic soil nematodes. Because of either space or difficulty in digging a rose bed in our oolitic limestone, many local rose enthusiasts choose to grow roses in containers, and this will lessen the risk from nematodes. Place containers on blocks so that they are not in direct contact with the soil, and use raised beds that are sealed.

As well as ensuring that your roses are grafted onto *R. fortuniana* rootstock, you will need to commence a weekly spray program by late spring to control disease, principally blackspot. While there are diseases other than blackspot that affect roses, none are as widespread or potentially troublesome, and this is certainly true in south Florida. Powdery mildew can be a transient problem, during periods of warm dry weather, from late winter through spring and to a lesser extent late fall. Infected foliage becomes dry and distorted, with a conspicuous off-white powdery coating on leaf surfaces. In severe cases the disease is seen on flower stems, sepals and developing buds, causing reduced flower quality. Optimum conditions for powdery mildew are cool nights, with a temperature of about 60°F, and high humidity (foggy nights are particularly favorable), and daytime temperatures near 80°F. Disease development will not proceed however if there is a film of water on the leaf, and for this reason the risk of powdery mildew is much less during the wet months of summer and early fall. During this time blackspot becomes a far more serious problem.

Blackspot is only found on roses, and is seen on leaves as circular black spots with wispy, hair like projections radiating from their margins. Depending on their susceptibility, leaves can rapidly yellow and drop off infected roses, a reaction to ethylene produced by the blackspot fungus. For blackspot to develop, leaves must remain continuously wet for 7 – 12 hours, a frequent occurrence in south Florida following the numerous late afternoon thunderstorms of summer and early fall. The disease can develop at other times of the year, for instance if foliage remains wet after overhead irrigation. It is best to water roses around the base of the plant, and to avoid wetting the foliage. If you wet the leaves as an aid to controlling spider mites, make sure you do so early in the morning on days when the leaves can rapidly dry off. All roses are susceptible to blackspot infection, but some very much more so than others. A complicating factor is the existence of different physiological races of the blackspot fungus (*Diplocarpon rosae*) so that a variety of rose that might be susceptible to infection in one area could be less so in another. It is worth

enquiring of local rose societies and enthusiasts which varieties they have found to have good resistance to blackspot.

One reason many modern roses are especially prone to blackspot can be traced back to the year 1900, when the famous French rose breeder Pernet-Ducher introduced the first truly yellow hybrid tea rose (Soleil d'Or). This achievement involved as a first step, more than five years of unsuccessfully crossing many hundreds of hybrid perpetual rose varieties (a then widely popular class of rose) with the Persian yellow rose (a double form of *Rosa foetida*), using pollen from the latter. Despite the fact that the Persian yellow rose was well known to have highly sterile pollen, Pernet persevered and a successful cross was eventually achieved with 'Antoine Ducher', an unspectacular red hybrid perpetual. Further Pernet roses (as they became known) were subsequently bred from this initial cross. It was from crosses with these roses, that the modern hybrid tea rose developed, for it was now possible to introduce a far greater range of colors into the existing hybrid teas. This resulted in an explosive gain in the popularity of hybrid teas. Genetic material from Pernet roses can now be found in most modern roses, especially yellow, orange and flame colored cultivars including those with blended or multi-colored flowers. Unfortunately, associated with these desired color traits were some undesirable features.

The Persian yellow is an attractive, vigorous shrub with double, bright yellow flowers, and is native to SW Asia (mainly Iran). It does well in other arid areas of the world where it has been introduced, such as Australia, South Africa and parts of the western U.S. However in wetter, more humid climates it is highly susceptible to blackspot. This susceptibility, by way of the Pernet rose, was to rapidly find its way into the hybrid tea gene pool, as breeders sought to exploit the greatly increased color palette that had become available to them. It is best to be cautious when choosing roses with yellow, orange or flame colored blossoms, especially the earlier hybrid teas. With the realization of this susceptibility to blackspot, there have been efforts to breed hybrid tea roses that are more disease resistant, though this is complicated by the different strains of the disease referred to above. Most recently, studies have begun to map the genes responsible for resistance to blackspot, using resistant roses such as *R. rugosa*. Another approach has developed genetically modified roses that incorporate an anti-fungal gene from rice. For now however, blackspot continues to be a fact of life for those who grow roses.

One other disease problem that can be severe in south Florida is stem canker (and the resulting dieback), caused by a number of fungal pathogens. Canker is usually first noticed on rose canes as reddish purple spots, often below a pruning cut, however it is by no means limited to such locations. As the spots expand they become brown, spreading down the infected stem. Frequently the canker progresses more rapidly down one side of the rose cane, and may escape notice, until the leaves above the canker begin to look pale (this may be mistaken as a need for more fertilizer). Remove infected canes as soon as symptoms are noticed, making a cut at least an inch below the infected area, and just above an outward pointing bud. Cankers and the resulting dieback are more likely on roses weakened through blackspot, poor nutrition or improper pruning. Disease is also more likely

where canes remain wet, such as in shaded areas, or closed in sites where there is poor air circulation. To minimize the risk of both blackspot and canker, roses should always be planted in an open site with full sun to permit rapid drying of all plant surfaces after rain/irrigation.

Correct pruning can help to discourage disease by opening up the interior of the bush - the increased exposure to sun and improved air circulation will lessen the length of time the rose remains wet. Stem abrasions due to prickly stems rubbing against one another can provide a portal for the entry of fungal pathogens. Prune out crowded growth, and avoid making pruning cuts that encourage canes to grow so that they cross one another. Never prune plants when they are wet or if rain is imminent. When removing diseased growth, use sharp by-pass pruning shears that will not crush the stem, leave no stubs, and sterilize the blades (e.g. with alcohol) after each cut. Do not use pruning sealers, since they can trap moisture and encourage disease - pruning cuts that are correctly executed will dry out without becoming infected.

Rose canes can also die back when infection spreads from diseased blossoms – infected blossoms should be removed promptly and spent flowers deadheaded. Deadheading is normally done to prevent the rose from expending energy in developing hips, but in our wet humid climate spent flowers can rot and this can spread down the stem. There are other leaf spotting diseases that affect roses, but none are as serious as blackspot. Rust is another serious disease of roses, though fortunately it is of minor concern here, being of far more importance in regions where cool temperatures (65 - 70°F) coincide with high moisture levels (e.g., coastal California).

Roses that are receiving adequate water and nutrition will be less susceptible to disease. Roses planted in the ground should receive 2-3" of water per week, including rainfall, more if in raised beds where water is lost through the sides of the bed. Modern roses are heavy feeders and require regular applications of fertilizer, preferably a slow release type. Organic amendments can be used to build up soil fertility over time: for instance alfalfa or cottonseed meal are slow-release source of nitrogen, whilst greensand is a naturally occurring mineral source of slow-release potassium. Pull back the mulch and lightly work in the soil amendments, so as not to disturb the root system, then rake the mulch back, making sure there is a 2-3" layer covering the entire rose bed. For information on currently recommended pesticides for roses, consult the UF-IFAS/Miami-Dade Extension Office (305 248 3311).

Despite what you have just read, it is possible to grow vigorous, attractive rose bushes with healthy foliage, as specimen landscape shrubs, without recourse to the spray can. In addition some of the roses to be discussed in my concluding article on roses can be grown successfully on their own roots, at least in the oolitic limestone of south Dade, and require less water and fertilizer than hybrid tea roses. Be prepared to step back in time and revisit some of the roses familiar to our ancestors.