

ENVIRONMENTALLY FRIENDLY ROSE CARE

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Roses are among the most common plants in our gardens, but their care may be the most dangerous to our health and environment. Many rose enthusiasts believe that successful rose culture requires intensive pesticide use. Pesticides commonly used on roses are among the most toxic pesticides allowed by law, and can have serious environmental and human health impacts. There are, however, many rose lovers who grow beautiful roses without these toxic materials.

ROSE VARIETIES

Variety selection is key to successful, environmentally friendly rose care. Rose varieties vary greatly in their insect and disease susceptibility. For example, floribunda and polyantha varieties are more disease resistant than many of the hybrid teas and grandifloras. Many landscape roses have been bred for disease and insect resistance, and are available in various growth forms. Light colored flowers are more attractive to some pests, so color selection may also be important.

PLANTING

Plant bare-root roses in the spring before temperatures rise above 70°F. Roses from container stock may be planted throughout the summer. Be sure to choose this

year's stock. Most roses do not do well when they have been held in containers for more than a year.

FERTILIZING

Plant roses in well-drained soil with plenty of organic material. Roses usually need a small amount of supplemental nitrogen. Apply nitrogen twice a year, in the spring and fall, at the rate of 1 lb. of actual nitrogen per 1000 ft². It should be applied as slow release fertilizers or in organic forms to minimize nitrate contamination of water sources. Excessive nitrogen leads to vigorous, tender, green growth that is attractive to pests and may be more susceptible to disease.

CULTURAL PRACTICES

Appropriate cultural practices maintain rose health and minimize pest problems. Planting location is important. Roses can be planted in full sun to part shade, but they do best with at least six hours of sun per day. Space them far enough apart for good air circulation.

Roses need to be irrigated, especially in our hot, dry, summers. Watering frequency and amount depends on weather and soil texture. Deep watering once or twice a week should be sufficient even in the warmest areas of our counties.



Overwatering can contribute significantly to disease incidence.

Mulching will reduce water loss, lower soil temperatures, and reduce weeds. Mulch with two to four inches of organic material such as wood chips. Mulch also reduces soil splash, which can be an important factor in disease transmission.

PRUNING

Pruning is a valuable tool in maintaining healthy roses. Pruning should be done in late winter or early spring before bud swell. The first step in pruning is to remove all diseased or damaged wood. The second step is to shape and create a plant architecture that will minimize pest and disease problems. This means an open form that permits good air circulation and allows sunlight to reach all the leaves.

INSECT PEST MANAGEMENT

Roses are favored by a wide variety of pests, but most can be managed with very low toxicity options. Many common pests



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have natural enemies that will rapidly reduce their numbers if you avoid using pesticides. Learn who your friends are by looking at the websites at the end of this article.

Many homeowners are convinced that the systemic insecticide, Disyston® (disulfoton) is essential to rose care. While it may be effective, it is a Class 1 (Danger) pesticide and is extremely toxic to human beings. Other commonly used insecticides such as carbaryl, Orthene®, and malathion are also very toxic and not really necessary to rose care. In addition to environmental and health impacts, broad-spectrum pesticides often exacerbate your pest problems.

If you feel it is essential to spray a pesticide, there are many effective materials that are much less toxic to you and your environment. Lower toxicity recommendations follow each pest described. These pest and disease recommendations are summarized in the table on the last page.

Aphids are the most common rose pest, and are fairly easy to control without pesticides. Spraying a hard stream of water to wash aphids off buds and branch tips is very effective. Natural enemies such as syrphid flies and soldier beetles will be attracted by the aphid population and will rapidly reduce their numbers. As a last resort, use neem oil or insecticidal soap.

Spider mite control relies on adequate irrigation, reducing dust, and conserving natural enemies, especially Minute Pirate Bugs. Overhead irrigation or washing leaves also helps. If treatment is necessary, use insecticidal soap, horticultural oil, or neem oil.

Thrips are tiny rasping insects that cause distortion or brown streaks on petals. Usually the damage is minor because they are kept in check by natural enemies such as Minute Pirate Bugs. Deadhead frequently and dispose of spent blossoms. Thrips should be tolerated, if possible, because the nymphs are spider mite predators.

The Fuller rose **beetle** and the *hoplia* beetle chew holes in flowers and leaves. Light colored flowers are particularly susceptible to beetle attack. Hand picking, clipping off and disposing of infested blooms; and using sticky material on stems are effective controls. There are no effective insecticides for either beetle. Parasitic nematodes, available from biological control suppliers, can be applied to soil to control Fuller rose beetles.

Many different **caterpillars** feed on rose leaves and flowers. Hand picking and clipping infested blooms are usually sufficient controls. If treatment is necessary, use Bt (*Bacillus thuringiensis*).

DISEASE MANAGEMENT

Fungal diseases are the most common disease problems, and resistance varies greatly among the different rose types. Landscape roses and glossy-leaved varieties are usually the most resistant to fungal diseases.

Sanitation practices such as pruning out diseased or damaged stems, picking up fallen leaves, and deadheading prevent disease spread. Managing water and fertilizer properly are also important. Overhead watering is an effective tool in control of powdery mildew and spider mites, but it should be completed by

midday in order to avoid problems with rust and other diseases.

Many people rely on Triforine (Funginex, Orthenex) for control of fungal diseases. Triforine is, however, a Class 1 pesticide (signal word Danger) primarily because of its inhalation toxicity. There are many safer options to use.

For **powdery mildew**, and **black spot**, use potassium bicarbonate (Remedy®, Armicarb®) household baking soda, or neem oil. For **anthracnose**, no effective management tools are available, so prevention is essential. **Rust** should be managed through sanitation and pruning. A sulfur spray while the plant is dormant can kill overwintering spores.

Remember that safe, environmentally friendly rose care relies on healthy plants growing in a healthy soil in the right place. Enjoy your roses!

REFERENCES

UC IPM Pest Notes on Roses. UC ANR Publications 7463, 7465, and 7466.

Healthy Roses. 2000. M.L. Flint and J. F. Karlik. UC IPM Publication 21589.

<http://ccvipmp.ucdavis.edu/insects/index.html>. Click on "Good Guys" for photos of many natural enemies.

<http://www.ipm.ucdavis.edu/PMG/selectnewpest.home.html>.

Click on the pest and go to biological control to find natural enemies.

LOW TOXICITY ROSE CARE

ARTHROPOD PEST	RECOMMENDED CONTROL	LAST RESORT PESTICIDE
Aphids <i>Feed on tender young tissue causing distortion</i>	<ul style="list-style-type: none"> • Spray off with a hard stream of water • Many natural enemies 	<ul style="list-style-type: none"> • Insecticidal soap • Neem oil
Spider mites <i>Tiny, eight-legged arthropods that suck plant juices. Cause stippling and yellowing</i>	<ul style="list-style-type: none"> • Conserve natural enemies, esp. Minute Pirate Bugs • Reduce dust • Overhead irrigate, wash leaves 	<ul style="list-style-type: none"> • Insecticidal soap (with or without sulfur) • Horticultural oil • Neem oil
Thrips <i>Tiny rasping insects that cause distortion or brown streaks on petals. Attracted to fragrant and light colored blossoms.</i>	<ul style="list-style-type: none"> • Conserve natural enemies • Deadhead and dispose of blooms frequently • Tolerate minor damage because nymphs are predators of spider mites 	<ul style="list-style-type: none"> • No effective insecticides
Beetles Fuller rose beetle Hoplia beetle Rose curculio	<ul style="list-style-type: none"> • Hand picking • Clipping off infested blooms • Use sticky material on stems • Parasitic nematodes applied to soil help control Fuller rose beetles 	<ul style="list-style-type: none"> • No effective insecticides for Fuller rose and Hoplia beetles
Caterpillars <i>Many species</i>	<ul style="list-style-type: none"> • Hand picking • Clipping off infested blooms 	<ul style="list-style-type: none"> • B.t. (<i>Bacillus thuringiensis</i>) microbial insecticide
DISEASE	SANITATION AND PREVENTION	PREVENTIVE TREATMENT
Powdery mildew <i>(<i>Sphaerotheca pannosa</i> var. <i>rosae</i>)</i>	<ul style="list-style-type: none"> • Overhead sprinkle or wash leaves at midday • Prune and dispose of infected leaves and canes promptly 	<ul style="list-style-type: none"> • 4 tsp. baking soda + 2 Tbs. narrow range oil per gallon of water • Potassium bicarbonate (Armicarb®) • Neem oil
Anthracnose <i>(<i>Sphaceloma rosarum</i>)</i>	<ul style="list-style-type: none"> • Plant in full sun • Keep foliage dry - avoid overhead watering • Prevent water splash • Prune & dispose of infected leaves and canes 	<ul style="list-style-type: none"> • No effective management tools
Black spot <i>(<i>Diplocarpon rosae</i>)</i>	<ul style="list-style-type: none"> • Be sure foliage is dry by midday • Provide good air circulation • Prune and dispose of infected leaves and canes promptly 	<ul style="list-style-type: none"> • 4 tsp. baking soda + 2 Tbs. narrow range oil per gallon of water • Potassium bicarbonate (Remedy®) • Neem oil
Rust <i>(<i>Phragmidium disciflorum</i>)</i>	<ul style="list-style-type: none"> • Avoid overhead watering • Prune back severely infected canes 	<ul style="list-style-type: none"> • Sulfur spray while the plant is dormant
WARNING ON THE USE OF CHEMICALS		
<p>Pesticides are poisonous. Always read and carefully follow all precautions and safety recommendations given on the container label. Store all chemicals in the original labeled containers in a locked cabinet or shed, away from food or feeds, and out of the reach of children, unauthorized persons, pets, and livestock.</p> <p>Confine chemicals to the property being treated. Avoid drift onto neighboring properties, especially gardens containing fruits and/or vegetables ready to be picked.</p> <p>Dispose of empty containers carefully. Follow label instructions for disposal. Never reuse containers. Make sure empty containers are not accessible to children or animals. Never dispose of containers where they may contaminate water supplies or natural waterways. Do not pour down sink or toilet. Consult your county agricultural commissioner for correct ways of disposing of excess pesticides. Never burn pesticide containers.</p>		