



Disease Resistant Roses

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Rose is the most famous ornamental flower crop grown around the world as cut flowers in green houses and as whole plants in nurseries and gardens. Roses are being bred for flowering landscape shrubs, formal garden specimen, cut flowers, blooming potted plants, and sources of perfume. Despite their wide popularity as an ornamental plant, a number of diseases affect the growth and quality of roses. Chemicals are regularly used to control the diseases in rose, but their frequent usage as drenches and sprays are both ecologically and financially unsustainable. The susceptible varieties will have less chance of survival in a garden and they will always result in empty beds and pots. The first and most important step in the Integrated disease management process is the use of resistant cultivars or varieties. A number of rose species and varieties have resistance to these diseases. The available information on field tolerance and resistance of available varieties is given below for the utility of rosarians.

Black spot: *Diplocarpon rosae*

Symptoms: Circular or irregular black spots with fringed margins on the leaf. Yellowing and defoliation is observed in susceptible cultivars. Severe infection leads to appearing of bare stem having only few leaves at the tip. Warm and wet weather favours the spread of this disease. A number of cultivars were found resistant or having field tolerance to black spot.

Varieties resistant to black spot

Variety	Rosa species
Japonica	<i>R. multiflora</i>
Albo-plena, Belle Poitevine, Blanc Double, de Coubert, Frau Dagmar Hastrup, Hansa, Marie Bugnet, Thérèse Bugnet	<i>R. rugosa</i>
Basye's Thornless	<i>R. wichuraiana</i>
AC Marie-Victorin, AC William Booth, Allgold, All That Jazz, American Pride, Aunt Honey, Baby Blanket, Baby Love, Basye's, Wichurana, Bebe Lune, Belinda's Dream, Betty Prior, Blushing Knock Out, Bonica Brandy, Brass Band, Brigadoon, Brite Eyes, Brite Lites, Caldwell Pink, Carefree Beauty, Carefree Celebration, Carefree Delight, Carefree Spirit, Carefree Sunshine, Carefree, Wonder, Champlain, Charles Albanel, Cherish, Choo Choo Centennial, Chrysler, Imperial, Chuckles, Class Act, Coral Drift, Coronado, David Thompson, De Montarville, Distant Drums, Dortmund, Double Knock Out, Double Pink Knock Out, Dublin Bay, Earthsong, Electric Blanket, Electron, Ernest H. Morse, Escapade, Europeana, Everglades, Felicite Parmentier, Félix Leclerc, Fire Meidiland, First Kiss, First Prize,	<i>Rosa x hybrida</i>

Floral Carpet, Flower Carpet, Flower Carpet® Pink Supreme, Forty Niner, Fourth of July, Fragrant Spreader, Gene Boerner, George Vancouver, Golden Eye, Grand Opera, Grouse™, Happy Trails, Helmut Schmidt, Henry Kelsey, Home Run®, Honeysweet, Iceberg, Ice Meidiland®, Impatient, Ivory Drift, John Davis, Julia Renaissance®, Just Joey, Kashmir, Keepsake, Kent™, Knock Out®, Konigin von Danemark, Las Vegas, Le Vesuve, Linda Campbell, Liverpool Echo, Livin' Easy, Love, Lovely Fairy, Lucy Cromphorn, Magic Carpet, Maiden's Blush, Martha's Vineyard™, Matangi, Midwest Living, Mirandy, Mme. Hardy, Moje Hammarberg, My Girl, Mystic Meidiland®, Nashville™, New Dawn, New Year, Northern Accents® Lena, Northern Accents® Sigrid, Nozomi, Orangeade, Palmengarten Frankfurt, Paprika™, Peach Cream™, Peach Drift, Pearlie Mae, Perle d'Or, Peter Frankenfeld, Pink Drift, Pink Grootendorst, Pink Double Knock Out®, Pink Knock Out®, Pink Pavement, Pink Pet, Play Girl, Play Boy, Polarstern, Prairie Harvest, Prairie Sunrise, Precious Platinum, Pride N Joy, Purple Pavement, Queen of Sweden, Ragtime™, Rainbow Knock Out®, Ralph's Creeper, Red Cascade™, Red Climber, Red Drift, Red Gold, Red Knock Out®, Redwood™, Regensberg, Rosa Mundi, Royal Edward, Royal Sunset, Rugosa Ottawa, S-504, Santa Barbara™, Sarabande, Saratoga, Scabrosa, Sea Foam, Secret, Seniorita, Sexy Remy, Showbiz, Shreveport, Silver Jubilee, Simon Fraser, Simplicity, Sir Thomas Lipton, Snowy Pavement, Sophia Renaissance®, Sphinx, Sunny Knock Out®, Sunsprite, The Bishop, The Fairy, The Mayflower, Tiara, Topaz Jewel, Tournament of Roses, Trumpeter, Viva, Voodoo, White Dawn, White Drift, Widow of the South, Wildberry Breeze, Wild Spice, William Baffin, Yellow Submarine™

Powdery Mildew: *Sphaerotheca pannosa*

Symptoms: White powdery growth on the leaves, stems and buds. Distorted growth occurs when young tissues is infected while severe infection leads to stunted foliage. Fragrant varieties are more susceptible to diseases like powdery mildew when compared to others.

Resistant Varieties for Powdery Mildew

Colour	Variety
Orange	Command Performance, Flaming Sunset, Folklore, Galia, Just Joey, Montezuma, Nayika, Orient Express, Raja Surendra, Singh of Nalagarh, Sonia Meilland, Super Star, Sylvia, Angelique, Celestial star, Flamenco, Suryakiran, Zambra, Zorina
Red	Atol, Chitrlekha, Fragrant Cloud, Gladiator, Gulzar, Happiness, Henkel Royal, Jawani, Lalima, Mechak, Norma, Oklahoma, Papa Meilland, Precious Platinum, Raktagandha, Ranjana, Deepika, Happy Wanderer, Jantar Mantar, Mercedes, Nordia, Pandit Nehru, Shola, Sindoor
Pink	Belle of Punjab, Carina, Chambe de Kali, Catherine Deneuve, Eiffel Tower, First Prize, Homage, Jadis, Medallion, Nurjehan, Priyadarshini, Romantica, Sabine, Surabhi, Emperor, Kavita, Loree, Queen Elizabeth, Sadabahar
Yellow	Black Lady, Cherry Brandy, Chitwan, Dutch Gold, Golden Splendour, Arthur Bell, Lahar, Playboy
White	Honor, Neelam, Prestine, Sweet Afton, White Christmas, Akito, Shabnam, Summer Snow
Bicolors	American Heritage, Anvil Sparks, Double Delight, Garden Party, Rose Gaujard, Surkhab, Banjaran, Chitchor, Judy Garland, Pink Parfait, Prema, Sea Pearl

Downy Mildew: *Peronospora sparsa*

Symptoms: Appearance of greyish spore mass on the lower surface of the leaves. Purplish-red to dark brown, irregular spots on leaves. Leaflets may become yellow but contain “green island” areas.

Resistant sources: Wild genotypes of rose such as *R. agrestis*, *R. corymbifera* "Laxa", *R. gallica officinalis*, *R. glutinosa*, *R. majalis*, *R. nitida*, *R. rubiginosa* and *R. rugosa* rubra were found to have resistance against downy mildew.

Rust: *Phragmidium mucronatum*

Symptoms: Small orange pustules (aecia) appear early in spring on both leaf surfaces. Later, the pustules enlarge and become more numerous on lower leaf surfaces. Mottled and chlorotic areas may develop on upper leaf surfaces opposite the spots (uredinia) on the lower surfaces. In late summer and fall, the small pustules turn black (telia) and contain the winter spore stages of the rust. Stems occasionally are infected.

Resistant Varieties**Variety**

Altissimo, Blue Nile, Bonica, Carefree Spirit, Cherish, Class Act, Coral Drift, Dortmund, Dublin Bay, Electron, Europeana, Eye Paint, Fragrant Cloud, Handel, Helmut Schmidt, Iceberg, Impatient, Intrigue, Ivory Drift, Just Joey, Keepsake, Liverpool Echo, Love, Marina, Matangi, New Day, New Year, Olympiad, Pascal, Peach Drift, Peter Frankenfield, Pink Drift, Playgirl, Playboy, Polarstern, Precious Platinum, Princess Margaret, Pristine, Prominent, Red Devil, Red Drift, Redgold, Regensberg, Royal Sunset, Sarabande, Sexy Remy, Showbiz, Silver Jubilee, Sun Flare, Touch of Class, Tournament of Roses, Trumpeter, Viva, Voodoo, White Drift

Rose Rosette: *Emaravirus rosae*

Symptoms: Witches' broom, hyper-thorniness, enhanced red shoot coloration, straggled leaves, and distorted flowers, poor growth leading to mortality.

Resistant Varieties**Variety**

Chuckles, Fair Molly, Fuzzy Wuzzy Red, John Davis, Moore's Striped Rugosa, Morden Blush, Purple Pavement, Sir Thomas Lipton, Star Delight, Theresa Bugnet, Winnipeg Parks