Black spot, a fungal disease, is one of the most common and destructive rose diseases in the world. Even though some roses are resistant to the disease, black spot affects every rose species and cultivar. De-foliation, decreased quality and quantity of blooms, and increased susceptibility to other stresses reduce overall plant health and cause significant losses to commercial growers and gardeners.

**Symptoms**

- Small brown to black leaf spots outlined with feathery, irregular borders appear.
- Spots may occur on either side of the leaves and on the canes, but usually show up on the upper leaf surfaces.
- As the disease progresses, chlorotic (yellow) rings develop around each spot, growing and merging and eventually causing the entire leaf to yellow before dropping prematurely (Fig. 1).
- Symptoms first appear on the lower plant parts, advancing upward until the roses become completely defoliated.
- The fungus does not kill infected roses outright, but the repeated loss of leaves weakens them so they produce fewer blooms and are generally less healthy.
- The fungus also makes the plant vulnerable to other stresses such as secondary infection by other diseases, adverse or extreme environmental conditions, and winter injury.

**Cause**

The fungus *Diplocarpon rosae* that causes black spot infects roses via tiny spores produced in structures within the leaf spots (Fig. 2). Splashing water, wind, insects, and even gardening tools spread the spores from plant to plant. Symptoms can appear within a few days after infection, generating more spores within a couple of weeks. This cycle of continuous infection throughout the growing season is why black spot is so destructive.

*D. rosae* survives unfavorable winter conditions on plant debris (dropped leaves) or on infested cane lesions until spring when they produce spores and rains disperse them. Because the spores are usually

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splashed first onto lower leaves closest to the fallen leaf litter, symptoms often appear first on the bottom of the plant and move upward throughout the season.

Environmental Factors

Water is essential for black spot development. *D. rosae* needs free moisture for spores to germinate, infect host plants, and produce more spores. Warm temperatures, abundant rainfall, and high humidity promote the development of the disease. Although the fungus can grow in a wide range of temperatures, intense hot and dry conditions in summer may limit the development of black spot symptoms.

Control

- Clean up dead leaves and prune infected canes to help reduce inoculum for the next season.
- Plant varieties that are resistant to the disease.
- Use watering practices that lessen leaf wetness since *D. rosae* spores need moisture to germinate and infect the plant.
- Promote rapid drying of the leaves by avoiding overhead watering and watering in early to mid-morning.
- Encourage good air circulation and prevent the spread of the disease to adjacent plants by not planting too densely and by planting roses in full sun.
- Prune and dispose of damaged and infected plant parts and remove infected canes and leaf litter to prevent re-infestation the following spring.
- Fungicides are available to help manage black spot. Conventional (products containing chlorothalonil or myclobutanil) or natural (products containing neem) fungicides are effective when used appropriately. Refer to product labels for proper rates and use.

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