Diagnosis of problems

A wide range of fungal diseases attack plants. If these are not controlled or prevented, plants will quickly deteriorate and possibly die. It is particularly important to take action quickly when disease problems are spotted, as they can spread rapidly to other plants. Where plants are very badly affected, they should either have the most diseased parts removed or destroyed, depending upon the circumstances and plant type, to prevent the disease spreading to healthy plants. If surrounding plants are likely to be affected they should be sprayed to avoid further problems.

Examples of the types of damage caused to various parts of plants by different fungal diseases are given in the following sections.

**FOLIAR SYMPTOMS**

*‘Fluffy’ growth*

**Botrytis or grey mould**, as it is commonly called, affects strawberries and many greenhouse plants. As the name suggests, it covers leaves with a fluffy mould which is greyish in colour. **Downy mildew** can affect brassicas, lettuce and onions. It is less common than powdery mildew (see next section) and its symptoms are a fluffy grey or purplish mould on the underside of the leaves. The upper surface of the affected leaves usually has corresponding yellow areas.

**Powdery deposits**

**Powdery mildew** can affect a wide range of plants, including roses and other ornamentals, and most fruit trees and bushes. Unlike downy mildew, the fungus occurs mainly on the top surfaces of the leaves as powdery, white deposits. **Rust** initially appears as orange or reddish brown powdery deposits on plant leaves. Roses, leeks, hollyhock, fuchsia, pelargonium and chrysanthemum are among the plants which are most likely to be affected.

**Spotting/discolouration of leaves**

There are many types of leaf spots which affect plants, ranging from celery, currants and gooseberries to many ornamentals. One of the most common types of leafspot is **blackspot** of roses. This causes blackish spots to appear on the leaves which eventually become yellow and are shed early.

**Blight** can affect both tomatoes and potatoes. On potato plants it causes the leaves to turn brown and the plant eventually dies. Affected tubers also rot in the ground or in store. The same symptoms occur in affected tomato plants and the fruits develop hard, black areas.

Although **apple and pear scab** is a disease which is most evident on the fruit, it also causes black areas to develop on the leaves. **Peach leaf curl**, which can cause problems on other stone fruits and almonds, as well as peach trees, results in the leaves becoming thickened and either red or purple.

**Seedlings**

Damping off is a common problem with seedlings, causing them to collapse/topple over. It is exacerbated by sowing too closely together and/or through very damp growing conditions.
Roots, stems and tubers
Club root is a particularly serious disease which affects all types of brassicas, stocks and wallflowers. The roots of affected plants become swollen and growth is severely impeded. Crop rotation will help to prevent build-up of fungal spores, which can persist in the soil for many years. Where brassicas are to be grown it is also advisable to lime the soil beforehand, as the club root fungus thrives in acid conditions.

Hard, brown corky areas on potatoes may be indicative of potato scab. There is no chemical treatment for this. Avoid liming where potatoes are to be grown to help prevent scab.

Fungal and bacterial wilts such as Verticillium Wilt and Bulb and Corm rots, can affect the stems and bases of plants, causing them to become dark, sometimes slimy, and lead to plant collapse. Control is difficult in most cases. Badly affected plants should be destroyed and the remainder treated with a suitable fungicide. Bacterial Canker can affect stems as well as leaves and causes red/brown oozing oval wounds.

Fruit problems
Top fruit, cane fruit, stone fruit, bush fruit and soft fruit are all prone to fungal attack. Some examples of fungal problems affecting the different types of fruit are given below.

In the same way that it is wise to spray fruits regularly to tackle insect pests, it is also sensible to have a fungicide spraying programme to help prevent fungal diseases of fruit. Details of development stages to apply sprays for various types of fruit are given later.

FRUIT KEY

APPLES
APRICOTS
HYBRID BERRIES
PEAR
PLUMS
RASPBERRIES
ALMONDS
BLACKBERRIES
STRAWBERRIES
CHERRIES
CURRENTS
GOOSEBERRIES

NOTES
Fruit diseases

**Powdery mildew**
Symptoms: White, powdery patches on leaves, flowers, stems and buds.

![Powdery Mildew](image1)

**Scab**
Symptoms: Black, cracked area on fruit, dark spots on leaves.

![Scab](image2)

**Apple Canker**
Symptoms: Swollen areas on shoots and stem lesions.

![Apple Canker](image3)

**Cane spot**
Symptoms: Small purple spots on canes which enlarge to form white pits with a purple border.

![Cane spot](image4)

**Bacterial canker**
Symptoms: Flat cankers which ooze gum.
Affected branches produce few leaves and die-back occurs. Leaves can develop a 'shot-hole' appearance.
Serious disease of stone fruit.

![Bacterial Canker](image5)

**Spur blight**
Symptoms: Purplish patches appear around the buds in early autumn. The patches become silvery and the buds are killed.

![Spur Blight](image6)

**Peach leaf curl**
Symptoms: Thickened, distorted red or purple leaves.

![Peach Leaf Curl](image7)

**Storage rots**
Symptoms: Affected fruit becomes brown or blue/grey and soft in store. Remove affected fruit to prevent problem spreading to other fruit.
Only store sound, unblemished fruit.

![Storage Rots](image8)
# Fruit and rose spray programmes

Spray fruit at the following developmental stages for the disease concerned with a suitable product. (Some varieties of grapes and gooseberries may be sensitive to sulphur based fungicides. Users should check with the manufacturer or plant supplier). On fruit and vegetables, always check the use recommendation and harvest interval for the crop.

### Top fruit

<table>
<thead>
<tr>
<th>Timing</th>
<th>Disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bud burst</td>
<td>Mildew, scab</td>
</tr>
<tr>
<td>Green/white/pink bud</td>
<td>Mildew, scab</td>
</tr>
<tr>
<td>Petal fall</td>
<td>Mildew, scab</td>
</tr>
<tr>
<td>14 days after petal fall</td>
<td>Mildew, scab</td>
</tr>
<tr>
<td>Fruitlet</td>
<td>Mildew, scab</td>
</tr>
<tr>
<td>14 days intervals in June/July</td>
<td>Mildew, scab</td>
</tr>
</tbody>
</table>

### Stone fruit

<table>
<thead>
<tr>
<th>Timing</th>
<th>Disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bud burst</td>
<td>Mildew, peach leaf curl</td>
</tr>
<tr>
<td>White/pink bud</td>
<td>Mildew, peach leaf curl</td>
</tr>
<tr>
<td>Mid August</td>
<td>Bacterial canker</td>
</tr>
<tr>
<td>Mid September</td>
<td>Bacterial canker</td>
</tr>
<tr>
<td>Mid October</td>
<td>Bacterial canker</td>
</tr>
<tr>
<td>Leaf fall</td>
<td>Peach leaf curl</td>
</tr>
</tbody>
</table>

### Cane fruit

<table>
<thead>
<tr>
<th>Timing</th>
<th>Disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>New cane emergence</td>
<td>Cane spot, spur blight</td>
</tr>
<tr>
<td>Bud burst</td>
<td>Cane spot, spur blight, mildew, grey mould</td>
</tr>
<tr>
<td>White bud to harvest (14 day intervals)</td>
<td>Cane spot, spur blight, mildew, grey mould</td>
</tr>
</tbody>
</table>

### Bush fruit

<table>
<thead>
<tr>
<th>Timing</th>
<th>Disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-flower opening</td>
<td>Mildew, grey mould, leaf spot</td>
</tr>
<tr>
<td>Fruit set</td>
<td>Mildew, grey mould, leaf spot</td>
</tr>
<tr>
<td>3 weeks after fruit set</td>
<td>Mildew, grey mould, leaf spot</td>
</tr>
</tbody>
</table>

### Strawberries

Apply a fungicide recommended for control of grey mould just before the flowers open and thereafter at 10 day intervals.

### Roses

To help prevent insect pest and disease problems either apply a combined insecticide and fungicide product or treat insect pests and diseases with separate sprays.

### Product benefits

Fungicide products may have particular features or benefits. These may include one or more of the following:

- **Systemic** (ie likely to have a longer period of protection and less need to be thorough when applying)
- **Curative** (some fungicides offer protection only and have little if any curative properties)
- **Versatile** (may be used on both ornamental and edible plants)
- **Combined products** (ie combined insecticide and fungicide)
- **Short harvest interval**
- **Particularly effective**
- **Based on naturally occurring ingredients and therefore possibly accepted by organic gardeners**

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**ALWAYS READ THE LABEL. USE PESTICIDES SAFELY**