



## Part 18 - Plant Disease

### Disease Control In Plants

#### Is Disease Going To Destroy Your Crop?

Plants, like animals are vulnerable to disease. All living things are made up of a collection of cells. Plant and animal cell structure is similar in make up, having a cell wall containing the cell's internal components, such as the nucleus and the protoplast: the 'hollow' part of the cell where the cell conducts activities. There are many different types of plant cell, but all cells, be they plant or animal, share some basic characteristics.

Because they are cellular structures, plants are subject to disruption of their cells by invading organisms. Thus at the microbial level the plant may be invaded by pathogens. These are organisms which do harm or cause the death of the plant by extracting its nutrients, damaging the cell structure, or producing toxic by-products. These pathogens can come in the form of either viruses or bacteria. Both of these types of infection will do major harm to your carefully nurtured plant.

Bacteria attack the plant cells in the same way that they attack our own cells. Think back to the last time you had a cold or flu, remember how unwell you felt and how your energy was depleted. The plant also has to use a lot of energy in order to stop infection from spreading. One way in which it can fight back is by sealing off the diseased area and so blocking the pathways available to the intruding pathogen.

It has been found that plants also use Salicylic Acid (the active ingredient in aspirin) as a trigger to mobilize their defences against attack. To find out more about this mechanism visit <http://www.sciencedaily.com/releases/2003/12/031209080025.htm>

Unfortunately, as there are no antibiotics that can be used on plants, the pathogenic bacteria are very difficult, if not impossible, to kill. They normally enter the plant via the site of some type of injury. For this reason, if no other, it is very important to check your plants daily for signs of damage from insects and other predation, as well as physical cuts and scratches.

Virus attack is usually caused in a similar manner, but these organisms are very much smaller than bacteria and can enter via the tiniest mark. Once inside the plant they live within the cells and are unable to be killed without destroying the plant.

Plants are also susceptible to fungal infections. Fungi, unlike the microbial pathogens, attack using spores. These can lie dormant for long periods of time and then be triggered to come to life. They are mainly an essential and welcome addition to the garden because they break down dead and decaying material and improve the humus content of the soil. Some, however, are bad news for the grower and cause disease within the growing area.

Fungi in general tend to attach to the outside of the plant and use root like structures to penetrate the plant and steal its nutrients. For this reason they are vulnerable to chemical attack and destruction. There are various preparations available for eradicating fungal attack.

The best form of defence against plant disease is vigilance and meticulous hygiene. Here are a few ways in which you can help to prevent attack within your grow room or greenhouse.

1. Always wash your hands in hot soapy water before entering the growing area.
2. Always destroy diseased plants and all their dead leaves and debris.
3. Always use new, or well washed and sterilized, pots when planting new plants and cuttings.
4. Always sterilize your secateurs and equipment before use. This can be done by dipping the blades in Methylated Spirit, shaking off any excess and then lighting it. Care must be taken not to either ignite the alcohol bottle or burn the user or equipment. If you wish, you can just dip them in the spirit and allow it to dry. The use of a naked flame on knife blades etc is recommended when taking cuttings.
5. Allow as much free air between your plants as possible. This cuts down on the transmission of fungal infections.
6. Ban all smokers from your growing area. Tobacco is one of the biggest causes of the spread of Tobacco Mosaic Virus which attacks various plants. It is carried on the skin of people who use tobacco products.
7. Finally always be on the look out for changes in your plant's appearance. This can be the early sign of a disease.

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