



3.3 PLANT DISEASE (biology only)

Detecting disease

Symptoms

Abnormal or stunted growth, rot, discolouration, spots on leaves, visible signs of pathogens (e.g. bacterial slime/eggs)

Studying symptoms can identify the disease without the need for tests

Methods of identifying disease

Monoclonal antibody test kits

Use gardening manual/website

Test in lab

E.g tobacco mosaic virus, black spot (fungal)

Viral, bacterial or fungal pathogens

Causes of disease

Insects, e.g aphids

Nutrient deficiencies

Nitrate deficiency = stunted growth (nitrates used in protein synthesis)

Magnesium deficiency = chlorosis (magnesium needed to make chlorophyll)

Plant defences

Physical

Cellulose cell walls

Bark/dead cells around stem

Waxy cuticle

Mechanical

Thorns and hairs

Mimicry

Leaf responses

Chemical

Antibacterial chemicals

Poisons

KEY
'Higher tier only' written in orange.

AQA

