C 1 - 3 a Class exercise

ABC: first diagnosis with photos

Notes on answers

The yellow square indicates the correct answer. These are all photos taken by Eric Boa.

Foto	ABIOTIC	BIOTIC	DON'T KNOW OR NOT SURE	NOTES ON CAUSE
1				Ducks feeding on young rice seedlings. Note the chewed tips.
2				Many trees produce latex which oozes out for normal physiological reasons. No obvious sign of wounding or other disease or pest attack.
3				There is no clear evidence that these are dead branches; the loss of leaves is most probably due to lack of water (beginning of winter). Look at the generally poor (but not diseased) condition of remaining leaves.
4				Leaf galls are caused by insects, mites, fungi and bacteria.
5				See notes for 2. This is a similar 'no clear disease present' example. The youngest leaves at the top of the crown are still present. These are the most susceptible to a systemic disease e.g. wilt or root rot.
6				Vague symptoms – yellowing is an unreliable indicator of disease unless there is another symptom present e.g. leaf distortion.
7				The swelling and corky surface suggests a disease. This is a bacterial canker with possible secondary fungi involved.
8				Excess nitrogen results in this hollowness and internal cracking. Something is wrong but no clear signs that this is a disease or insect pest.
9				Chemical damage to leaves (an accident). Quite common on many plants – look for herbicide drift onto non-target plants for example.
10				Bacterial leafspot. This shot-hole appearance is a one host reaction to infection, attempting to limit spread.
11				See notes for 2 and 5. Another example of 'winter disease' – the normal shedding of leaves and yellowing at the end of a growing season.
12				Fire damage. The blight starts from the older leaves, which were closest to the fire.
13				Galls on the flower stalks (caused by a bacterium, though it's not possible to identify this precise group from the symptoms alone).
14				Older leaves dieing and drying up. Very common in palms. Disease is a possibility, though the evidence on balance is for abiotic.
15				Cold temperature damage. Leaf curling on tomatoes has many different causes. This is not typical virus damage (the most likely alternative).
16				This is an alga ('red rust') and not a fungus. It is common on many plants thought causes little or no damage.
17				This looks like a disease (¿Agrobacterium causes galls, but none this size or on this host that I know of). But I think some non-pest influence has disrupted the normal growth of the tree.

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18				Is this virus or nutrient deficiency? Difficult to say. The usual rule of thumb is that virus yellowing starts next to the nerves;
19				The leaf symptoms are not well defined and on balance this looks more like the effect of poor growing conditions.
20				Postharvest rotting caused by fungi and/or bacteria.
21				The development of the blight is regular and suggests both a possible biotic and abiotic (growing conditions) cause.
22				Mechanical damage. Note the healing at the edges.
23				Phytoplasma disease. But even if you were unfamiliar with the particular pest group, look at the change in shape, size and colour of the leaves on the right.
24				See notes for 14. Same comments apply.
25				Rubbing damage between fruits.
26				Large plant, small pot. Lack of water.
27				Ornamental plants such as this typically have little published information on pests and diseases. This looks 'normal' though viruses can cause mild symptoms – colour changes without altering shape of leaves.
28				The yellow leaves are the same size as the green ones – this is not a disease.
29				Fungal leafspot. Note that these are well-defined and dark ('necrotic').
30				Fungal blight of cherries.
31				There is a slight suggestion that this could be a virus, but the symptoms are still indistinct in this photo and abiotic causes are also possible.
32				Yellowing starts in the centre of the leaf. This is a virus disease.
33				Perfectly healthy, young strawberry. There are no signs of disease. Changes in colour by themselves are an unreliable indicator of disease.
34				Could be a virus or (more likely) poor growing conditions. Poor nursery management will have dramatic effects on young, fragile plants.
35				Nutrient disorders in tomato produce a variety of symptoms in the fruit. Even if you did not know this, the symptoms do not appear disease-like.
36				General yellowing and indistinct leaf 'spots' – abiotic.
37				Check to make sure that swellings on roots are not nodules. These are nematode galls.
38				Distinct necrotic patches suggests that this is either a fungus or bacterial disease.
39				Coffee rust. Difficult to confuse this with anything else.
40				The symptoms are not easy to see but look carefully at the profusion of shoots and the swollen base. This is a fungus witches' broom.
41				Sooty moulds are produced by fungi.

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42				Mixture of insec attack and secondary rotting (fungi and/or bacteria).
43				Leaf galls are caused by insects, mites, fungi and bacteria.
44				Virus infection. Note how the curling and distortion occur around the growing point – where tissues are more sensitive to disease attack.
45				Fungus scab.