Common aphid species found on ornamental crops – aphid biology, lifecycles and identification

HTA Grower Technical Workshop, 3rd June 2025

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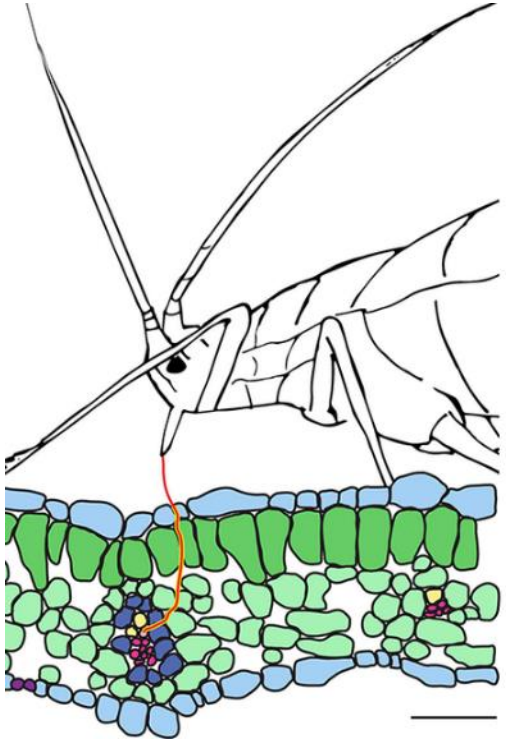
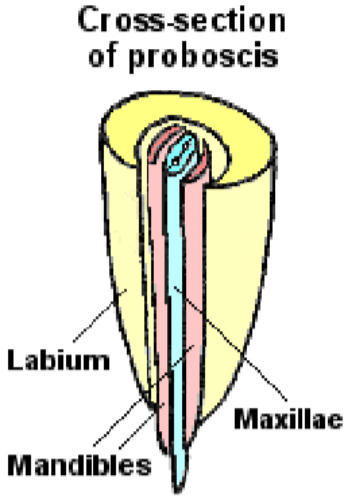
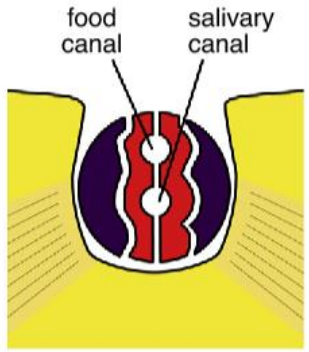
Aphids belong to the insect order Hemiptera

- Hemipteran insects are characterised by having piercing mouthparts







stylets in cross section

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Aphids belong to the insect order Hemiptera

- There are thought to be around 100,000 species of Hemiptera globally and around 2,000 species found in the UK
- The order Hemiptera is split into three main sub-orders:
  - Heteroptera e.g. mirids or capsids (**generally pests**) and anthocorids (**biological controls**)
  - Auchenorrhyncha e.g. leafhoppers (several pest species) and plant hoppers (**increased interest due to *Xylella fastidiosa***)
  - Sternorrhyncha – **aphids**, mealybugs, scale insects and whitefly

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Aphids

- Sternorrhyncha from the Greek words ‘sterno’ meaning ‘chest’ and ‘rhyncose’ meaning ‘nose’
    - This is because the mouth starts between the front legs!
- There are 16,000 species, all are sap feeding and many have lost the ability to walk or flying during parts of their life-cycle

Aphids

- There are three families of aphids:

- Adelgidae – often covered in wax, produce galls and associated with conifers
- Phylloxeridae – most notable species is grape phylloxera (*Daktulosphaira vitifoliae*)
- Aphididae – the most diverse family and includes all species discussed today

- In total there are around 5,000 species of aphid
- Characterised by complicated lifecycles and rapid reproduction

Aphids

- In addition to piercing mouthparts, aphids are characterised by having siphunculi and a cauda:

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Aphids – life cycles

- Aphids may reproduce asexually and sexually throughout the year or asexually only – holocyclic or anholocyclic



- Eggs are cold tolerant and sexual reproduction leads to greater genetic mixing
- Asexual reproduction often leads to formation of dominant clones

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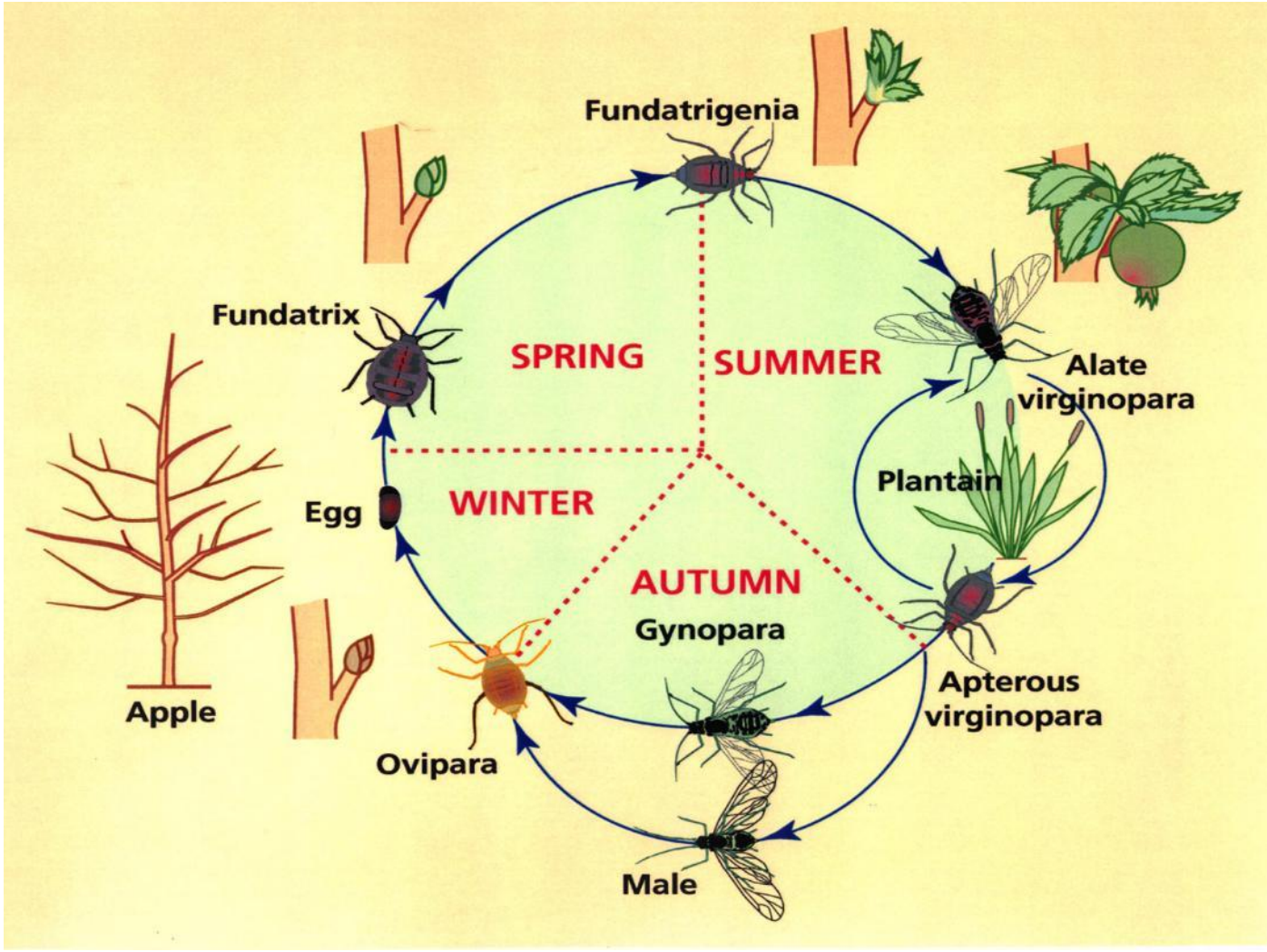
Aphids – life cycles

- Aphids may feed on related hosts throughout the year or switch between unrelated hosts (typically a woody host and an herbaceous host) – autoecious or heteroecious
- Host switching is typically linked with sexual reproduction



Aphids – morphs

- How many species can you see?

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Aphids – reproduction

- Asexual reproduction is characterised by the birth of live young
- Inside the aphid you see, eggs have hatched and developed (daughter) and inside the daughter, eggs have hatched and developed (granddaughter)!
  - This is known as telescoping of generations
- Aphids can complete their development in as little as 7 days

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Aphids – reproduction

- In a season the potential descendants of one female aphid contain more substance than 500 million stout men' – Thomas Henry Huxley (1858)

- 'In a year aphids could form a layer 149 km deep over the surface of the earth. Thank God for limited resources and natural enemies' – Richard Harrington (1994)

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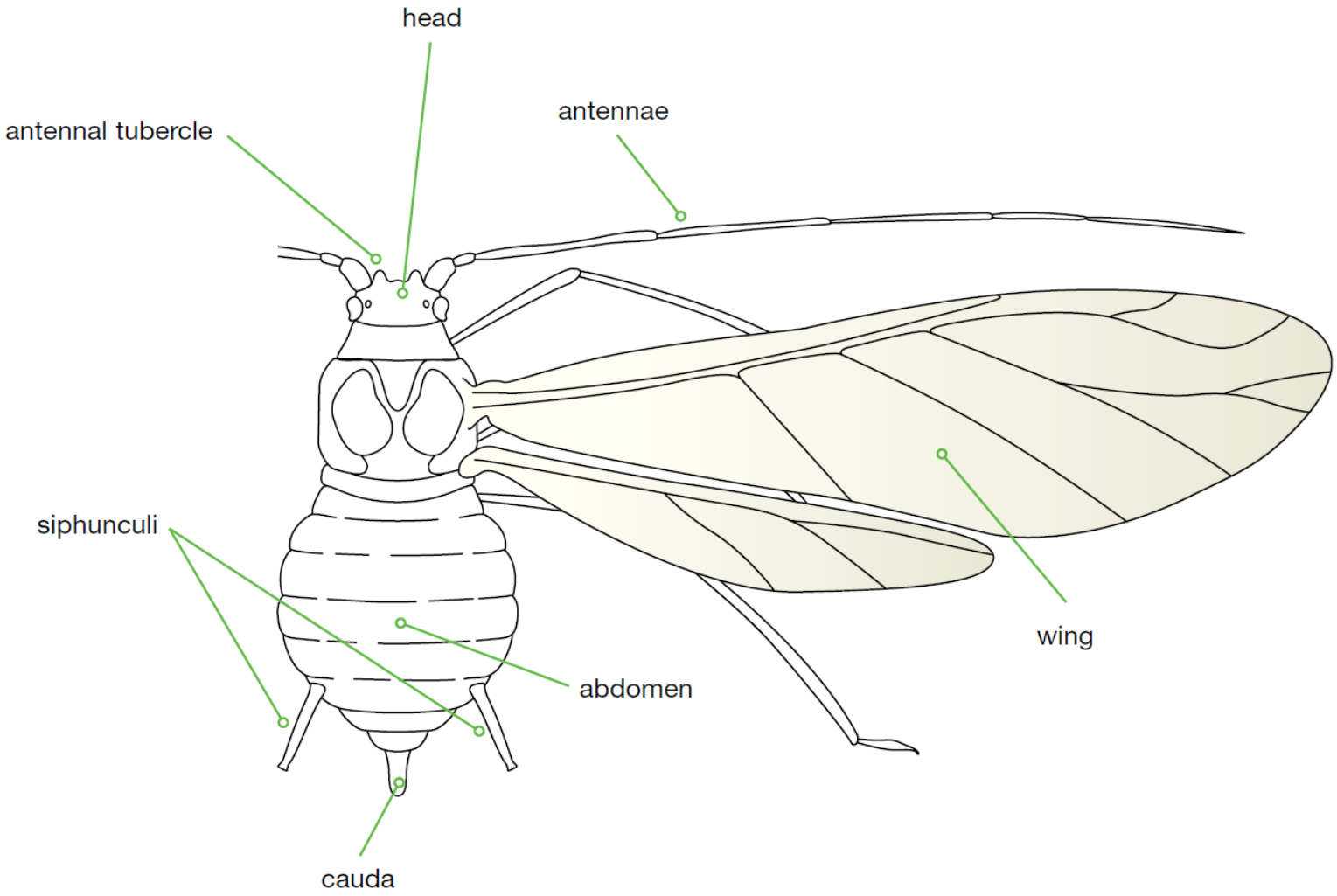
Identifying aphids

- Head and antennal tubercle shape
- Antennal length vs body length
- Siphunculi shape, size and colour
- Abdominal markings
- Cauda length vs siphunculi length
- Wing vein darkness



Peach-potato aphid (*Myzus persicae*)

Identification

- Very wide host range
- Typically, asexual only in the UK
- Small/medium (1.5-2.5mm) aphid, variable body colour
- Antennal tubercles very well developed, characteristic ‘W’ shape
- Siphunculi with slight flange and black tips
- Typically, overwinters as active forms in the UK
- Widespread insecticide resistance e.g. pyrethroids

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Shallot aphid (*Myzus ascalonicus*)

Identification

- Fairly wide host range, only found in UK from 1940s onward
- Typically, asexual only in the UK
- Small (1-2mm) aphid, variable body colour from pale brown to green-brown to yellow-brown
- Antennal tubercles well developed
- Siphunculi are slightly swollen
- Wing vein closest to abdomen is darker
- Colonies distort foliage

Melon and cotton aphid (*Aphis gossypii*)

Identification

- Very wide host range
- Small (1-1.5mm) aphid, with variable body colour from almost black to pale yellow
- Generally larger and darker at cooler temperatures and smaller and paler at warmer temperatures
- Antennal tubercles not developed
- Siphunculi slightly longer than cauda
- Colonies cause leaves to turn yellow and wilt
- Widespread insecticide resistance e.g. to pyrethroids

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Black bean aphid (*Aphis fabae*)

Identification

- Fairly wide host range
- Overwinters as eggs
- Small/medium (1.5-3mm) aphid
- Antennae shorter than body
- Matt black but may develop white wax markings
- Legs are white in colour
- Regularly ant attended
- Colonies distort leaves, buds and flowers

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Glasshouse-potato aphid (*Aulacorthum solani*)

Identification

- Fairly wide host range
- Medium (2-3mm), shiny green yellow aphid
- Antennal tubercles well developed
- Darker patches at base of siphunculi
- Siphunculi long with black tips
- In winged aphids, veins closest to abdomen are dark
- May overwinter as eggs or active forms but diverse life cycles reported
- Colonies distort leaves

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Potato aphid (*Macrosiphum euphorbiae*)

Identification

- Very wide host range
- Large (1.7-3.5mm) aphid, shiny green, yellow or pink as adults
- Introduced to UK around 1917
- Immature forms are waxy coating and darker stripe running down back of aphid
- Legs, siphunculi, and cauda are characteristically long
- Adults often have red spots on abdomen (eyes of unborn nymphs)
- May overwinter as eggs but more often as active forms

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Lupin aphid (*Macrosiphum albifrons*)

Identification

- Narrow host range, associated with lupins and other legumes
- Very large (3.2-4.5mm) aphid, pale bluish-green in colour but dusted with wax
- Native to North America but found in UK from 1981 onwards
- Thought to reproduce asexually only in Europe
- Legs, siphunculi, cauda all long and siphunculi have darker tips
- May overwinter as eggs but more often as active forms

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Rose aphid (*Macrosiphum rosae*)

Identification

- Fairly narrow host range, associated with roses and other Roseae
- Large (1.7-3.6mm) aphid, shiny dark green to pink to red-brown in colour
- Siphunculi are long and characteristically black in colour
- Cauda is pale and rather elongated
- Produces masses of honeydew and may check plant growth
- Overwinters as eggs

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Mottled arum aphid (*Neomyzus circumflexus*)

Identification

- Fairly wide host range
- Adults are shiny and pale to bright green in colour
- Characteristic dark markings on abdomen, often horseshoe shaped
- Antennae, siphunculi, and cauda are pale
- Very rapid reproduction and colonies produce masses of honeydew
- Winged forms rarely seen and overwinters as active forms

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Woolly beech aphid (*Phyllaphis fagi*)

Identification

- Narrow host range, associated with beech trees
- Overwinters as eggs
- Large (2.-3.2mm) aphid that is yellowish-green in colour – there is a smaller summer form)
- Coated in a mass of wax
- Siphunculi are pore like (no tube), cauda is similarly small
- Produces masses of honeydew

Strawberry aphid (*Chaetosiphon fragaefolii*)

Identification

- Narrow host range, associated with strawberries and some species of Potentilla
- Small (1-2mm) pale aphid
- Antennal tubercles well developed
- Body of wingless aphids covered in fine hairs
- Pale thin siphunculi with flange at end (twice as long as cauda)
- Antennae have a long final segment
- Overwinter as active forms

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Finding information

- Online
  - InfluentialPoints: https://influentialpoints.com/Gallery/Aphid_genera.htm
  - Aphids on the Worlds Plants: https://aphidsonworldsplants.info/
- Books
  - Aphids on the World's Herbaceous Plants and Shrubs: https://www.wiley.com/en-hk/Aphids+on+the+World's+Herbaceous+Plants+and+Shrubs%2C+2+Volume+Set-p-9780471489733 very expensive!


gossypii
Aulacorthum
Aphis
Neomyzus
circumflexus
fabae
albifrons
Myzus
Macrosiphum
ascalonicus
Phyllaphis
rosae
fagi
fragaefolii
Chaetosiphon
solani
Thank-you
euphorbiae
persicae