VEGETABLE NEWS
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Autumn aphid control in brassicas

The wet weather has resulted in low aphid populations but the mealy (grey) aphid can multiply through September and October. The population will decline again with cooler weather coming into the winter months.

All leaf brassicas are attacked, but sprouts in particular can be severely affected and once the aphids move into or behind the buttons it is very difficult to get a satisfactory level of control.

Options for control are limited so best use needs to be made of available insecticides.

A research project carried out at Warwick HRI has shown that neonicotinoids eg Gaucho, Biscaya are effective against all species of aphids. However care must be taken in the use of these to prevent resistance developing. Neonicotinoid sprays should be used later in the season and should not be applied sequentially. Other aphicides eg Plenum should be used between applications. Currently only 2 applications of neonicotinoids are permitted.

Interestingly, in the same project there were occasions where aphid numbers were lower on insecticide–free plots than on plots treated with insecticide. Sometimes this was associated with relatively high aphid numbers on plants that had been treated with pyrethroids eg Hallmark, Toppel. This would suggest that the natural predators would be effective in controlling the aphids but had

been killed by the application of the broad based pyrethroids usually applied to control caterpillars.

Given the limited armoury of insecticides available it seems that growers will need to adopt a "beneficial friendly" approach in the future. This will allow these predators to help control insect pests. The approval of Steward (indoxacarb), although initially only on cabbage and cauliflower and Nemolt(off lable for cauliflower and sprouts)are welcome additions. They will control moth and butterfly caterpillars but be safe to beneficial insects.

Parsnips –Canker and Crown Rot

Canker

Canker can be a serious disease of parsnips especially in wet soils or during rainy seasons.

Canker can manifest itself as spots, blotches and lesions which penetrate the crown, shoulder or sides of the parsnip root. Spores that are produced on foliage fall to the ground where they come in touch with the roots.

Although there are 3 types of canker which can affect parsnips the most frequently occurring is black canker.

The cause of black canker is fungal in origin. Infection may be by *Intersonilia pastinaceae* or *Phoma sp.* Other pathogens may also be present.

Symptoms of black canker.

On foliage small pale green or water soaked flecks which may have a paler halo.
Lesions on the shoulders of the root, dark brown/black or purple black in colour, frequently flecked with orange colouration.

Lesion size can vary from a few millimetres to several centimetres. Young lesions are coarse or granular in appearance.

Sunken lesions can occur on the root surface. The underlying tissue can have a rough scurfy appearance when exposed .Invasion of the lesions by secondary rot bacteria or fungi can cause rapid decay of the whole root.

Intersonilia can remain active after foliage dieback, increasing the risk of canker in late harvested crops. Crops already weakened or damaged by pests are more readily infected than strongly growing crops.

Crown Rot

The fungal cause of crown rot has not been clearly established but certain factors appear to predispose crops to this disorder. These include:

- overmaturity of crop
- presence of leaf diseases
- wet conditions particularly in summer/early autumn

Chemical control

Trials carried out by the HDC show that the incidence of canker was reduced where tebuconazole as Folicur had been applied at 3 weekly intervals, where *Intersonilia* was present.

Tebuconazole + trifloxystrobin (Nativo), iprodione/thiophanate-methyl eg Compass and fenpropimorph eg Corbel all have off label approval and will help to combat these diseases. For both canker and crown rot treatment continue fungicide treatment while weather conditions remain unsettled.

Green manures

Green manures, also known as fertility building crops, were used traditionally in agriculture. However as the use of fertilisers and pesticides became more widespread their use declined. Recent emphasis on reducing the environmental impact of agricultural systems has lead to a renewed interest in these crops.

Green manures have a number of advantages including

- adding organic matter to the soil
- improving soil structure
- increasing nutrients
- reducing leaching
- suppressing weeds
- improving soil biology

A number of species can be used as green manures depending on the purpose for which they are grown. They can be grown as long term leys, summer green manures or winter green manures The species tend to be divided into either “nitrogen lifters” or “nitrogen fixers”. Nitrogen lifters scavenge excess nitrogen from previous crops. This nitrogen is held in the green manure and released when that crop is incorporated. Nitrogen fixers are legumes which have the ability to fix nitrogen in the soil - in some cases this can be up to 200kg/ha.

Long term green manures

Long term green manures are used to improve land over a period of time . This can be important especially on light soils or those exhausted by continuous arable cropping. These leys are usually grass (e.g. ryegrass – Nitrogen lifter) and clover (red /white clover – nitrogen fixers) grown over a 2-3 year period. At the end of this time they add large amounts of organic matter and leave an excellent soil structure. The plant roots penetrate to a great depth and allow water and air to move deeper into the ground reducing surface saturation and improving drying time.

The clovers in the ley build up high levels of nitrogen which is available for the next crop.

Long term green manures are normally mowed several times a year and the mowings left to break down.

Summer green manures

These crops erg vetch or lupins (nitrogen fixers), buckwheat, phacelia, mustard (nitrogen lifters), add organic matter, add or mop up

nitrogen and act as a break crop by interrupting pest and disease cycles. They can be sown in the spring or early summer and provide a boost of nitrogen.

A summer green manure can be ready for incorporation in 8-10 weeks from sowing,

Winter green manures
Winter green manures are usually sown in September and incorporated the following spring. The canopy will stop rain pelting the soil and enables water to drain into the soil so minimising leaching. They will also help suppress weed growth.

They are often a combination of nitrogen lifters and nitrogen fixers eg winter rye with vetch.

The table below shows the amount of nitrogen fixed by various green manures

Nitrogen fixation by green manures	
Green manure	Average N (kg/ha/yr)
white clover/grass	157
red clover/grass	223
winter vetch	121
lucerne	211
lupins	179

Disadvantages of green manures

- costs of seed and extra cultivations
- potential for green manures to become weeds
- lost opportunities for cash cropping

However normally the advantages outweigh the disadvantages.

If using a green manure take into consideration what it is to achieve, the length of establishment and the most suitable time for incorporation and how it will fit into the rotation.

Cabbage root fly/ carrot fly
A third generation of cabbage root fly is forecast . The start of egg laying is predicted to begin around 25th August with 50% egg laying around 12 September.

50% egg laying for carrot fly was predicted to occur in mid August so continue to protect carrot and parsnip crops until mid September.

Pesticide Update

The following relevant off label approvals have been issued since the last Vegetable News

Product	Active ingredient	Use	Crop	Off label number
Tracer	spinosad	silver y moth, thrips	parsley	2039/073
Defy	prosulfocarb	weed control	parsley	2073/07
Switch	cypodinil + fludioxonil	botrytis	parsley	2079/07
Alto Elite	chlorothanonil + cyproconazole	rust	leeks	2100/07
Nemolt	teflubenzuron	cabbage white caterpillar, diamond backed moth, cabbage root fly	cauliflower, sprouts	2121/07
Bavistin	carbendazim	big vein	lettuce	2451
Skater	metamitron	weed control especially groundsel	parsley	2567/07

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