SEQ Hort report

Issue 3 July 2010

Spiders – an important predator in brassica crops

Research station and on farm trials have found that spiders are a key predator in brassica crops.

These trials looked at the role of natural enemies in keeping early season brassica pests such as centre grub, cabbage cluster caterpillar and silverleaf whitefly in check.

These pests can cause severe damage and the use of broadspectrum insecticides can disrupt your IPM strategy and diamond back moth (DBM) management late season. Results suggest that spiders are important predators not only in early season crops (parasitism of early season pests is typically low), but that they can have a major role throughout the season.

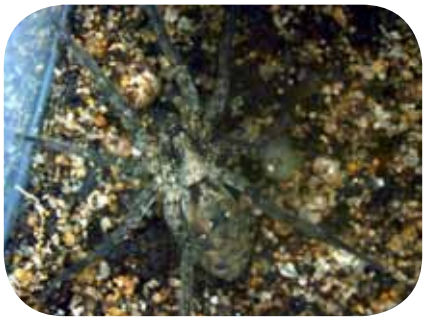
Spiders were the most abundant predator and the first to be active in newly transplanted crops. Predators such as lady birds, predatory bugs, lacewings and hoverflies arrived when crops were older.

The most common spiders were small, web-dwelling foliage types such as the tangle-web spiders (Theridiidae) and the ground-dwelling wolf spiders (Lycosidae). Sac spiders (Clubionidae and Miturgidae) were also found in large numbers.

Tangle-web spiders

- just a few millimetres long
- body shape similar to the redback
- common species are a mottled cream and brown colour
- spin untidy tangle webs amongst leaves
- found sheltered on the underside of leaves
- prey on a variety of pests, e.g. caterpillars, leafhoppers and thrips.

Wolf spiders



- 10–40 mm
- grey to brown in colour with characteristic stripe markings
- rapid runners
- ground dwellers, often sheltering under lower leaves or on soil surface
- well camouflaged; difficult to spot
- more common with mulch and when ground is relatively undisturbed
- feed on a wide range of foliage and ground dwelling pests.

Sac spiders

- 10–15 mm long
- creamy yellow to light brown
- rapid runners
- can inflict a painful bite
- spin a dense white web sac to hide inside
- web sacs tend to be located in a sheltered spots, such as leaf folds eg within the central 'cupped' leaves on cauliflower and cabbages
- a large prey range.

For more information contact Lara Senior 5466 2222.

Predicting conditions for onion downy mildew

Onion downy mildew (*Peronospora destructor*) can be a major disease in onions and shallots.

It is important to understanding the weather conditions in which sporulation and infection with the disease will occur. This may help you to time protectant spray applications to be more effective against the disease.

Sporulation will occur when:

- mean hourly temperature during previous day was less than or equal to 24°C
- mean hourly temperature during the night is within 4–24°C
- there is no rainfall (>1 mm) between 2300 and 0400 hours
- relative humidity was greater than or equal to 95% at or before 2 am and persisted until 6 am.

Infection will follow sporulation only when:

- dew wetness stays until 9 am or later at 6–22°C or until 10 am at 23–26°C
- the night after sporulation dew deposition in the first five hours of leaf wetness is rapid and lasts for at least three hours at 6–22°C.

Nitrogen removal from Lockyer Valley crops

The Lockyer Valley region is identified as a major source of nutrients to Moreton Bay with its large area of intensive vegetable production.

However, previously there hasn't been any information on the fertiliser use efficiency of Lockyer Valley vegetable systems. A recent project was conducted to review fertiliser use in the Lockyer Valley on a regional scale, and to

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evaluate the potential local environmental impact of fertiliser use. Project results suggest that overall Lockyer vegetable systems are applying nitrogen fertiliser at efficient rates that do not exceed crop use.

As part of the project, the on farm monitoring of various crops in the Lockyer and Bremer Valleys has produced some information on nitrogen removal and nitrogen use efficiency. This work provides data that can be used to inform fertiliser programs and identify opportunities to increase fertiliser efficiencies, reduce costs and the potential for off-farm losses.

A fertiliser use efficiency value of less than 100% would suggest that more fertiliser is being applied than is being used by the crop. Values greater than 100% suggest that the crop is using more than is being applied. For example, a fertiliser use efficiency of 140% would suggest that the crop is using 40 additional units of nitrogen than are being applied, using soil reserves and other non-fertiliser inputs.

Lettuce

- Lettuce growers on average seem to be pretty closely matching applied N to crop requirements.
- Yield ranged from 65-88 t/ha.
- Nitrogen use efficiency ranged from 69% to 181%.
- Lettuce consistently removed approximately 100 kg N/ha.

Potatoes

- Yield ranged from 40–52 t/ha.
- Nitrogen use efficiency ranged from 74% to 140%.
- Potatoes generally removed between 120–160 kg N/ha depending on growing conditions and variety.

Brassicas

- Both cabbage and cauliflower are high yielding crops that remove a lot of N. Nitrogen application rates tend to fall a long way short of that removed in the harvested product.
- More monitoring needs to be done on these crops.

There will always be some nutrient losses, the key is to put in place practices to minimise them. Applying fertilisers at rates that match crop needs is one such practice. Putting in place good irrigation management and erosion control measures will reduce the risk of losses through leaching and erosion.

A new vegetable industry (Horticulture Australia Limited) funded project (VG09041—Environmental effects of vegetable production on sensitive waterways) is underway to continue monitoring nitrogen removal in various crops in the Lockyer and Bremer catchments.

For more information about the project please contact Julie O'Halloran or Steve Harper, Gatton Research Station, 5466 2222.

Brassica research update

Wednesday 4th August 2010 at 4 pm
Gatton Research Station

- Insecticide resistance management—newer insecticides—Greg Baker
- Compost for brassica vegetables—Cate Paull
- Brassica ICM toolkit introduction and CD training session—David Carey
- Natural enemies for early season brassica pests in the Lockyer—Lara Senior
- Opportunity to identify research issues that are important to you

For more information contact David Carey or Lara Senior on 5466 2222 or email david.carey@deedi.qld.gov.au.

IPM for vegetable diseases and soil health management

Thursday 12 August 2010
3:00–6:00 pm (BBQ 6—6:30 pm)
Gatton Research Station

- Sclerotinia (lettuce and beans)—alternative fungicides, wetting agents, cultural practices, methods for disease risk assessment—Oscar Villalta, DPI Victoria and John Duff Agri-Science, Qld
- Sclerotinia and other soilborne diseases—new biofumigant crops for disease control and soil health as well as new technologies in the pipeline—Caroline Donald, DPI Vic
- Development of methods to monitor and control bean root diseases—Andrew Watson, DPI NSW
- Downy and powdery mildews and white blister—efficacy and economics of predictive models, irrigation and nutrients and fungicide efficacy for mildew control and white blister—Liz Minchinton, DPI Victoria and Elio Jovicich, Agri-Science Qld
- Integrated viral disease management in vegetable crops—Denis Persley, Agri-Science Qld
- Soil health management—understanding soil health to improve yields and farm productivity—Ian J. Porter, DPI Vic
- Use of suppressive composts for managing soil-borne diseases—Ralph Noble Uni. of Warwick, UK

For more information and to RSVP please contact John Duff on 54662222 by Monday the 9th August.

Controlled traffic farming in vegetables field walk

Thursday 5th August at 3 pm
495 Kents Lagoon Rd Kalbar

- Introduction—Julie O'Halloran, Senior Extension Officer, DEEDI
- What technology is available to assist controlled traffic farming?—Don Yule, CTF Solutions
- Local grower experience with controlled traffic farming—Ed Windley, Fassifern vegetable grower
- Economics of controlled traffic farming in vegetables—Jim Page, Agricultural Economist, DEEDI

For more information contact Julie O'Halloran on 5466 2222.

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