Russian wheat aphid in Western Australia

Current situation

There has been a confirmed detection of Russian wheat aphid (RWA) in wheat crops north of Esperance in mid-August 2020.

The crops were sprayed to control RWA.

Eradication is unlikely as RWA are able to reproduce rapidly and winged RWA are readily dispersed on the wind.

This is the first time RWA has been detected in Western Australia, after being discovered in South Australia in 2016 and then reported in Victoria, parts of New South Wales and Tasmania.

Damage

Unlike other aphids, RWA inject a toxin into the plant. Host plants are Poacea (grasses), wheat and barley, and barley grass.

Even a few aphids can cause symptoms to appear as early as seven days after infestation. Plant damage symptoms include:

- White and purple longitudinal streaks on leaves.
- Curled, rolled or hollow tube leaves.
- Stunted growth or flattened appearance.
- Discoloured leaves.
- Hooked-shaped head growth from awns trapped in curling flag leaf.
- Bleached heads.
- Symptoms can be mistaken for herbicide or mite damage and can resemble wheat streak mosaics virus symptoms.
- RWA does not transmit virus.

Trade implications

Presence of RWA in WA is not an international trade issue and there are no trade implications for the WA grain industry, as bulk grain is not a host for Russian wheat aphid.
Identification

- Adult aphids are 2 millimetres long, pale yellowish green with a fine waxy coating.
- The antennae are short, as are the cone-shaped siphunculi (sometimes called cornicles).
- Examine them closely if possible using a hand lens or smartphone macro lens.

What to look for

- Colonies are found most frequently on the youngest leaves or on newly emerged flowers/seed heads.
- RWA prefer barley over wheat and do not prefer oats so in-crop surveillance should prioritise barley and weeds such as barley grass.
- Look for a noticeable loss of green colouration across the crop and, on closer inspection, white, yellow, purple or red streaking, leaf curling, stunted plant growth and loss of vigour.
- Sample around crop edges as this is where aphids infest first.

Control

The most at risk time for the crop is from stem elongation to when the flag leaves emerge. During early booting to the soft dough stage, South Australian Research and Development Institute (SARDI) recommends a threshold of >10% of all tillers infested with aphids.

Chemicals

No insecticide resistance has been reported in Australia. Trials undertaken by the South Australian Research and Development Institute (SARDI) indicate best control is achieved by Chlorpyrifos, lambda-cyhalothrin and pirimicarb. Pirimicarb needs to be applied with 100L of water to obtain good coverage. Refer to the Australian Pesticides and Veterinary Medicines Authority (APVMA) website for current permits.

As RWA often shelter in the curl of leaves, aphid predators such as lacewings, hoverflies and parasitoid wasps are effective in controlling RW, so consider applying pirimicarb to preserve beneficials.

Good spray coverage and consideration of weather conditions (temperature, rainfall) in the 24 hours prior and shortly after application are important.

Seed treatments

Neonicotinoid seed treatments provide effective early season control of RWA. Preliminary evidence indicates that the length of protection against RWA provided by seed treatments is similar to that observed for other cereal aphid species.

Quarantine

DPIRD does not intend to quarantine properties as RWA is unlikely to be eradicable.

Important disclaimer

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