

# Don't play host to cotton aphids this winter

By Austin McLennan, Queensland Department of Primary Industries

Aphids, once considered only a secondary pest in cotton, are now emerging as a major problem in some growing regions. But growers should not wait until they have cotton in the ground to start thinking about aphid control. The time to start getting on top of next season's aphid problem is now — before you have one.

## Hit their winter hideouts

Pest aphids in Australian cotton regions don't have a special overwintering form like the heliothis (*Helicoverpa armigera*) pupa. So where do cotton aphids go during the winter when the weather gets cooler and there are no cotton crops?

Answer: They hang-on through winter in low numbers on whatever suitable host plants are available.

This means that the best way for growers to get a head start on cotton aphids this winter is by reducing the availability of on-farm host plants.

## Regrowth cotton and volunteers

Not only are cotton regrowth and volunteer cotton both potential overwintering hosts, but cotton regrowth in particular poses a high risk as a reservoir for cotton bunchy top (CBT) virus (also known as BBT or bonsai bunchy top).

Cotton regrowth can be difficult to control, but for growers concerned about aphids and BBT, it is important to make the effort.

## Weeds on the hit-list

Some common weeds are also host to the pest aphids and these should be managed during the winter to restrict carryover of aphids from last season. The main weeds suspected as winter weed hosts of the cotton aphid are bladder ketmia, Paddy's lucerne, marshmallow, calthrop (catheads), cobbler's pegs, wild gooseberry and ground cherries. Marshmallow is also suspected as a host for the BBT virus. Other non-weed hosts include some ornamental plants such as hibiscus, chrysanthemums and orange jasmine.

But not all weeds that carry aphids during winter are a problem for cotton farmers. Sow thistle is commonly seen infested with aphids, but neither of the two aphid species feeding on sow thistle move onto crops.

Researchers are developing a list of all the



Start thinking about cotton aphid control well before the start of next season.



Plants infected by cotton bunchytop (CBT) disease have a pale angular pattern around leaf margins — this is one of the first symptoms of CBT.



Aphids must make it through the winter on

plants currently known to support the three aphid pest species in cotton. If you have any questions about a weed on your property that you suspect may be a problem, get in contact with one of the people listed in the footnote after this article.

### Is this weed hiding aphids?

Even if you find some weeds on your farm infested with aphids, and you're not certain if the aphids are one of the three pest species for cotton (see box story), remember that weed control — either with or without aphids — is the safest approach. Aphid numbers can be very low — perhaps at levels not even detectable — over winter, but those that make it through on available weed hosts can rapidly build up once spring arrives. Females have live young which means rapid population growth, and winged aphids spread quickly to crops near and far.

### Breaking resistance

Cotton aphid resistance to organophosphates (OPs) such as dimethoate /omethoate, pirimicarb and profenofos has now been recorded in most regions, with hotspots in the Namoi Valley and at Emerald. Managing aphid host plants over the winter doesn't just reduce the number of aphids on your farm at the beginning of the season, it will also reduce the risk of any resistant aphids on your farm surviving to pass on their genes to the next generation.

### Planning ahead

Winter provides an excellent opportunity for getting the jump on aphids by controlling their winter hosts. But we all know by now that silver bullets don't exist. Other key tactics that can contribute to a successful IPM strategy and resistance management for aphids and BBT in cotton include:

- Variety selection (for BBT resistance);
- Seed dressings or 'at-planting' insecticides;
- Sampling and use of thresholds;
- Predators and parasitoids; and,
- Rotation of insecticides.

But by controlling any cotton regrowth, volunteers or aphid weed hosts you've already given yourself a head start for next season.

weed hosts, rapidly multiplying once spring arrives.



A disease-free plant (left) next to a plant with cotton bunchy top (infected by grafting).

## APHIDS ON AND OFF COTTON

By Bernie Franzman, Lewis Wilson and Tanya Smith

The most common aphid found in big populations on cotton is the cotton aphid (*Aphis gossypii*). The next most common aphid is the green peach aphid (*Myzus persicae*). Only one other aphid, the cowpea aphid (*Aphis craccivora*) occasionally breeds in low numbers on cotton.

Aphids infest cotton by flying in and test feeding on a plant. If they like it, they settle down to feed properly and start producing young. Some aphids that are common on surrounding crops (eg. cereals, sorghum, lucerne) occasionally fly into cotton crops and are seen as winged individuals, but they do not breed — they either die or move on.

Cotton aphid, the main pest, has a wide plant host range, but in commercial cotton areas there are no other important crop hosts. So there are many different aphids out there, but only one or two of them are of concern in cotton crops (Table 1).

TABLE 1: Suitability of various crops for different aphid species

Aphid species	Cotton	Legumes	Sorghum	Maize	Cereals	Lucerne
Cotton	✓✓✓✓	✓	—	—	—	—
Green peach	✓✓	✓	—	—	—	—
Cowpea	✓	✓✓✓✓	—	—	—	✓✓
Corn	—	—	✓✓✓✓	✓✓	✓✓	—
Oat	—	—	—	—	✓✓✓✓	—
Blue-green	—	—	—	—	—	✓✓✓✓

✓✓✓✓ = highly suitable -- = not a host

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Two information updates providing more detail on aphids in cotton were recently mailed out to all registered ENTopak users. If you would like a copy, contact Dave Larsen at the cotton CRC on ph: 02 6799 1534 or go to <http://www.cotton.pi.csiro.au/Assets/PDFFiles/AphidEco.pdf> and <http://www.cotton.pi.csiro.au/Assets/PDFFiles/AphMang.pdf>