



COTTONINFO FACT SHEET

Cotton bunchy top (CBT)

Cotton bunchy top (CBT) is a viral disease spread by the cotton aphid

Symptoms

Plants infected with CBT, caused by cotton bunchy top virus (CBTV), are often stunted with shorter internodes, smaller and fewer bolls, smaller leaves, sometimes with a pale mosaic pattern around leaf margins. Young leaves often display down curling. As leaves age, the pale mosaic can become red. Infected leaves can also be leathery and brittle compared to the leaves on healthy plants. Symptoms can take several weeks to become obvious from time of infection.

Economic impact

In Australia, CBT is the only virus disease that causes economic losses which have generally been sporadic and localised but occasionally widespread. CBT has potential to cause significant yield losses. The extent to which yield is affected depends on the proportion of plants infected and the timing of infection. Younger plants are more severely affected, and losses occur when a high proportion of plants are infected before flowering starts.

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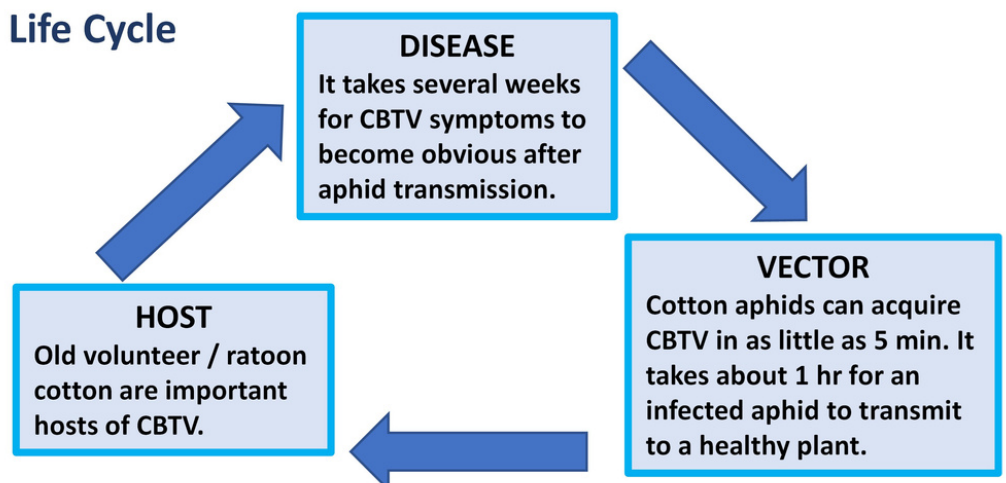
The worst years appear to be associated with high rainfall winters followed by wetter spring and summer seasons that may increase the risks of a “green bridge” for the virus and high aphid populations. These conditions resulted in widespread disease outbreaks in the late 1990s and to a lesser extent in the 2010 - 2011 season. Disease spread is favoured by climatic conditions suitable for aphid reproduction, feeding and spread. Cotton aphid has a broad host range, including many weeds. The presence of weed hosts allow cotton aphid populations to persist overwinter, increasing the likelihood of aphids re-establishing on CBT-ratoons and moving into cotton early in the season.

Host range

Cotton bunchy top virus (CBTV) can only survive in living plants. A range of hosts have been identified for CBTV. However, the most important is volunteer / ratoon cotton. *Malva parviflora* (marshmallow weed) may be important in some areas. Fields at highest risk of CBT are those with high aphid populations, in close proximity to ratoon or old volunteer cotton (e.g. along irrigation channels). Old ratoon cotton, greater than one season old are commonly found with CBTV which indicates they pose a significant threat as a long-term source of virus (and aphids) that can move into crops.

Life cycle

Life Cycle



Control strategy

1 > AVOID THE PROBLEM

Elimination of hosts, particularly over winter, is the most effective means of minimising the risk of CBT. **Break the green bridge** and step 2 will not be required.

- CBTV can only survive in living plants (cotton volunteers, regrowth and ratoons are an important host of CBTV and aphids). If there is a break in the presence of host between cotton seasons, this will reduce the risk of CBTV surviving on-farm through winter. Good crop destruction and control of ratoons and volunteers (e.g. head ditches, road sides) is critical for controlling CBT and some other important cotton pathogens and pests.
- Good on-farm management of broad leaf weeds is important as they can also host aphids and some are also hosts of CBTV.
- Controlling volunteers or ratoons may force winged aphids to move to nearby cotton crops and spread CBT. To reduce this risk, control volunteers/ratoons before cotton emerges.

2 > MANAGE THE RISK

Aphid control should not be the primary means of preventing infection.

- Don't over-react to aphids. Excessive use of aphicides will select for resist aphid populations and restrict IPM options.
- Sample young cotton regularly for aphids and assess aphid spread within the field.
- If aphid populations are unhealthy (many beneficials present, high mortality and little spread) then keep monitoring. If healthy then consider selective control so that beneficials can provide ongoing mortality.
- If a high influx of aphids is experienced, consider a quick selective control to reduce the risk of CBT infection.
- Maintain the beneficial complex to help control aphids.

BREAK THE GREEN BRIDGE! To reduce your risk of CBT next year, don't give the virus & its vector a home for the winter. Plan for good crop destruction to reduce ratoons. Control all ratoons & volunteers & other hosts.

For more information visit cottoninfo.com.au or your local CottonInfo Regional Extension Officer

