

Exotic mealybugs confirmed on cotton in Central Queensland

By David Murray and Kate Charleston

Outbreaks of mealybugs have recently been reported from a number of cotton farms in central Queensland. While mealybugs are considered a minor pest of cotton, they have, on rare occasions, reached minor outbreak levels or 'hotspots' in commercial crops in central Queensland.

Earlier this year mealybugs were reported causing some problems in Burdekin cotton. Reports from cotton growing areas in Pakistan and India over the past three years indicate that mealybugs have the potential to become a major pest. Now the same exotic species which has caused these problems in Pakistan and India has been confirmed in cotton crops at Emerald.

Mealybugs are small, sucking insects related to aphids. Female adults are around three mm long, oval-shaped and covered by a white waxy coating giving them a

mealy appearance. Nymphs are smaller but similar in appearance. Males are small aphid-like winged insects.

Mealybugs have a high reproduction rate with female mealybugs capable of

producing hundreds of nymphs. Development from egg to adults takes about 26 days and adults can live for about three months.

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A large patch of dead plants killed by mealybug. (PHOTO: Zara Ludgate)

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Damage symptoms

Mealybugs form colonies on shoots, stems, and leaves developing into dense, waxy, white masses. Both adults and nymphs pierce and suck on plant tissue and are able to suck sap from hard tissue, including the main stem and branches. They can affect any stage of crop development.

Symptoms of mealybug infestations on cotton include;

- Crinkled and twisted leaves;
- Fewer flowers and fewer bolls;
- Smaller bolls; and
- Distorted and stunted plants.

Boll opening may also be adversely affected, resulting in serious losses in yield.

Mealybugs, like aphids, excrete copious amounts of honeydew that contribute to



Mealybugs secrete large amounts of honeydew. (PHOTO: Paul Grundy)



Mealybugs form colonies which develop into dense waxy white masses. (PHOTO: Paul Grundy)

the development of a black sooty mould which inhibits the plant's ability to manufacture its food. Ants feed on the honeydew produced by mealybugs and help to spread the infestation. Ants also protect mealy bugs from predatory ladybird beetles, parasites and other natural enemies.

Where are they found?

Mealybugs are present in all cotton growing regions of the world. But on the Indian subcontinent, the exotic *Solenopsis mealybug* (*Phenacoccus solenopsis*) has become a major pest, possibly due to favourable weather conditions and an abundance of host plants. It has been responsible for heavy losses in Pakistan where it is now considered a major pest of cotton.

P. solenopsis has now been detected in cotton crops in the Emerald area. A mealybug found in Australian cotton fields in the Burdekin region was previously identified as the lantana mealybug, *Phenacoccus parvus*. Investigations are underway to confirm the identity of the mealybugs species found in each area.

P. parvus was introduced accidentally as a contaminant on imported plants in 1988. It was initially found in isolated populations from far north Queensland to central New South Wales, and around Perth. It is more common in the drier regions of northern New South Wales and southern Queensland and population numbers of *P. parvus* increase during dry periods. Heavy infestations have been reported on lantana in south east Queensland.

Management of mealybugs

There are no registered insecticides for the control of mealybugs on cotton in Australia. In Pakistan numerous pesticides have been evaluated for the control this pest, but a hydrophobic (water repellent) layer around its body makes it difficult to

control with insecticides. To achieve effective chemical control, an insecticide must penetrate the outer waxy layer.

The adult mealybug can shelter in the soil, cracks and other places where insecticide sprays cannot reach it.

The insect damage often appears in patches within a field, along field margins and poorly drained areas.

Mealybugs have numerous weed and crop plants that they use as alternate hosts; cotton, lantana, leucaena and peanuts are just a few.

Control of weeds and ratoon cotton, and avoiding planting on poorly drained soil is the best management option for controlling mealybugs at present.

More information about the mealybug problem in India and Pakistan can be found on the CRDC website at <http://www.crdc.com.au/uploaded/file/E-Library/E-JOINT/ICAC%20Recorder%20June%202008.pdf>.

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INDUSTRY RESPONSE TO MEALYBUG PROBLEM

The cotton industry has been quick to respond to the challenge posed by the exotic mealybug outbreak at Emerald. Although the cotton industry has had the occasional mealybug outbreak before, they're usually considered only a minor pest of cotton.

But this season at least 30 farms around Emerald in Central Queensland have detected mealybugs. Damage to cotton crops has occurred in patches and has varied from little effect on some farms to badly affected hot spots. The mealybug in effect kills the cotton plant, resulting in potentially serious yield losses.

Cotton industry response

- The Cotton CRC has employed a dedicated entomologist for the next eight weeks to help manage the issue on the ground;
- A survey is being developed to establish the actual distribution of the pest;
- The industry is funding a satellite photo in order to map affected areas; and,
- A protocol to minimise the risk of spreading the pest between farms in the Emerald area and from Emerald to other areas is being developed.

For more information on the industry response to the mealybug outbreak, contact Rob Cairns (Cotton Australia) on 0427 707868 or Hamish Millar on 0418 741553.