

Fire ants: An invader we don't want in cotton

By Martin Dillon and Brad Scholz

In February 2001, red imported fire ants (*Solenopsis invicta*) were detected near the Port of Brisbane. The invasion of these pests from North and South America has sparked a massive eradication campaign that currently covers over 40,000 hectares in the Brisbane region.

Fire ants are extremely serious pests that have the potential to devastate our environment and severely impact on agricultural production. As their name implies, they also possess a painful sting, and pose a serious health threat to humans and livestock.

Although fire ants are known to be predators of heliothis, two recently published studies of the impact of fire ants in cotton crops in southern US present some worrying results that should be a 'heads up' for Australian cotton growers.

Beneficials under 'fire'

A team of researchers at Auburn University in Alabama has demonstrated that fire ants form mutualistic* associations with cotton aphids (*Aphis gossypii*) and vigorously defend aphids from predators like lady beetle larvae and lacewing larvae.

Fire ants can feed on the honeydew produced by aphids and many other sucking pests. In return fire ants 'nurture' the aphids, and attack and kill any predators they encounter. The researchers found that in cotton fields with high densities of fire ants, cotton aphids were much more abundant, and ladybeetles and lacewing larvae became less abundant.

In a series of field and greenhouse experiments, the researchers quantified the impact of fire ants on a range of beneficial insects and spiders. They found that as the density of fire ants increased it was clearly correlated with significant reductions in the densities of ladybeetles, lacewings, big eyed bugs, pirate bugs, damsel bugs, assassin bugs, predatory beetles, wasps and spiders.

Australian cotton producers are making great headway in reducing the amounts and severity of insecticides used to control insect pests. Part



Fire ants tending and nurturing cotton aphids. Photo: Takumasa Kondo, Auburn University, Alabama USA.



Fire ants attack by crawling onto victim and then stinging in unison.

Photo: Fire Ant Control Centre, Department of Primary Industries, Queensland.

and parcel of this IPM approach relies on nurturing healthy populations of beneficial predators and parasites as biological allies. The last thing we need is an aphid-friendly pest to come and displace them! Especially a pest that makes field work in cotton crops dangerous to humans. Fire ants are spreading in many cotton farming areas in the southern US — we need to be alert to prevent them establishing in Australian cotton.

Fire ants are small. They are reddish-brown in colour on the head and body, with a darker abdomen. They usually make dome shaped nests up to 40cm high — but in cultivated areas like crop fields nests may not form domes.

The distinguishing features of fire ants are:

- A single nest contains ants in a wide range of sizes from two mm to six mm;
- They tend to swarm out of the nest from multiple exits when disturbed; and,
- They attack by crawling onto people and animals before suddenly all stinging in unison.

Fire ants are easily spread in soil, mulch and similar gardening materials.

The Queensland Department of Primary Industries provides a hotline (Telephone 13 25 23) that people can contact to identify or enquire about the presence of fire ants. The Queensland DPI Fire ants home page is at <http://www.dpi.qld.gov.au/fireants/>

The NSW Agriculture Fire Ant Call Centre Hotline is 1800 888 251.

1 Australian Cotton Cooperative Research Centre; 2 CSIRO Entomology; 3 Department of Primary Industries, Queensland.

* The ants and the aphids live in a relationship that benefits both of them.