

Locals lose out to sexy aliens

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Globalisation has led to an increase in invasions by new species around the world and this is costing agriculture and the environment dearly.

Invasive animals often thrive at the expense of their close indigenous relatives and a paper published today in *Science* within the *Science Express* web site provides some insights into why.

Scientists from China and Australia studied the silverleaf whitefly (SLW), *Bemisia tabaci* biotype B. In many regions of both countries native types of *B. tabaci* have been replaced by the invasive B biotype.

“This insect has spread from its Mediterranean-Asia Minor home range so successfully that it is now a global pest. It has even made it into the top 100 invasive species,” said Prof Liu Shu-Sheng from the Institute of Insect Sciences at Zhejiang University in China.

“We were trying to find out what made *B. tabaci* biotype B such a successful invader and the answer appears to be sex,” Dr Paul De Barro from CSIRO Entomology said.

“Whiteflies have an interesting sex life. Males are produced from unfertilised eggs and females from fertilised eggs.

“The different biotypes of *B. tabaci* look identical so when the B biotype invades, they can't tell each other apart. However, matings between the different types aren't successful and this leads to an increase in the number of unfertilised eggs. So the first phase of invasion involves an

increase in male offspring.”

In response to this increase in males, the invasive females become more promiscuous. And more frequent sex with the excess B biotype males leads to an increase in female offspring.

“To add insult to injury, the B biotype males are also more aggressive than the indigenous males. This means they displace the locals and cause mating interference between local males and females,” Dr De Barro said.

The end result of all this sex is a takeover of indigenous *B. tabaci* by the alien invaders.

In Australia, SLW damages crops by feeding and the growth of sooty mould on the sticky honeydew it secretes. It also spreads geminiviruses but this is not yet a significant issue here.

Source: CSIRO Australia

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