

It's a pest of a job, but someone's got to do it

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Professor Phil Batterham has made a career out of fighting the fly as well as other nasties that damage Australian crops.

Photo: *Simon Schluter*

We hate them, but you'd be surprised how important the fly is to humans. Victoria Kyriakopoulos meets the "fly man".

Geneticist Phil Batterham is one of those scientists sometimes affectionately referred to as "fly pushers".

"I've pushed the odd million" he estimates, during a career dominated by insecticide resistance research on the vinegar fly - the tiny garbage-loving fly known as *Drosophila melanogaster*.

These days, Professor Batterham, director of the Centre for Environmental Stress and Adaptation Research at the University of Melbourne, has bigger flies to fry, but says the importance of the miniature fly should never be underestimated. "Almost everything we know about genetics as it applies to humans comes from work done on this fly. It is the organism where you can do the state-of-the-art research because there aren't any major ethical concerns about killing flies and doing experiments that are downright manipulative."

Professor Batterham is leading a team of geneticists at the new Bio21 Institute of Molecular Science and Biotechnology hoping to make breakthroughs on two major pests - the sheep blowfly and the world's number-one agricultural pest, the cotton bollworm.

A strategic "eyes open" approach to controlling the fly starts with understanding its biology and Professor Batterham says genome research will identify the unique proteins critical to the blowfly's survival. Insecticides that bind specifically with these proteins can then be developed to kill the pests.

He will be discussing the use of genomics in pest control at the Bio2005 conference in Philadelphia this weekend.

Australian Wool Innovation last year granted Professor Batterham's team \$1.4 million for blowfly genetics research after a damaging campaign by US animal rights group People for the Ethical Treatment of Animals led to an international boycott of Australian wool over the practice of mulesing sheep.

Mulesing involves cutting skin and wool from the sheep's backside to cause scarring, stopping blowflies laying eggs that produce flesh-eating maggots. Flystrike costs the wool industry about \$150 million a year in production losses and control costs.

The three-year project will provide a detailed genetic map of the blowfly genome, identifying the critical genes. "Then it really will be up to industry, probably in partnership with us, to develop new methods of control," he says.

Professor Batterham is also trying to raise \$12 to 15 million for an ambitious global project to carry out a complete genome sequence of the cotton bollworm - a moth called *Helicoverpa armigera* that attacks more than 100 different crops.

The cotton bollworm costs farmers more than \$2 billion a year worldwide - about \$225 million a year in Australia - and has proved resistant to every pesticide.

Professor Batterham says the industry must stop fighting blindfolded.

"Our history is we just throw chemicals at this thing without knowing what those chemicals do and then the insect becomes resistant and we don't understand why.

"To me, that's just dumb and in the year 2005 we really should be able to do better than that."

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