

WHO IS TO BLAME FOR PESTICIDE POLLUTION?

IN THE uproar over pesticide residues in Australian meat exports, the primary question is: Who is to blame?

Some meatworkers, whose jobs are at stake, blame inspection systems. Many farmers blame a minority who use or abuse pesticides. Many prefer to blame USA officials for enforcing their apparently arbitrary standards.

The current crisis has its roots in controversies over pesticides going back several decades. Some understanding of this history may provide insights for preventing future problems.

Pesticides were developed in WWII for military purposes. They were soon found to be potent killers of insects. Used to kill mosquitoes and other disease carriers, DDT and other pesticides saved millions of lives at risk from malaria.

Were we forewarned about the dangers caused by pesticides, asks Dr BRIAN MARTIN, lecturer in Science and Technology at Wollongong University.

After the war, the use of pesticides expanded dramatically, especially in agriculture and forestry. There were some reservations expressed from the beginning, but these were swept aside in the enthusiasm for chemical killers.

Then, in 1962, Rachel Carson's book *Silent Spring* was published. Her reputation and eloquence triggered widespread public concern about the effects of pesticides.

Subsequent events have borne out the warnings of Carson and other critics. First, pesticides can cause extensive ecological damage. They are

concentrated in food chains. For example, birds that eat insects develop higher levels of pesticides than the insects. This can kill them directly, or cause their eggs to have thinner and more vulnerable shells.

The predators of pests tend to be more sensitive to pesticides than the pests themselves. When the predators are reduced in numbers, the pests, which breed faster, expand in numbers. More pesticide is required to kill the pests. This kills more predators, and so the cycle continues.

This is called the pesticide tread-

mill. It accounts for the fact that damage from pests remains just about as high after years of ever-increasing pesticide applications.

Carson also pointed to a basic feature of life on earth: natural selection. Those pests which are more resistant to chemicals breed more and pass their resistance on to future generations. Furthermore, the ability to survive one particular pesticide often confers resistance to related pesticides.

To try to control pests by pesticides alone is to fly in the face of Darwinian evolution. Resistance to pesticides has been increasing alarmingly. Even malaria is on the increase again.

Carson also pointed to the human health risks from pesticides. A number of them have since been shown to cause genetic mutations and hence are potentially carcinogenic.

There are a number of alternative ways of dealing with pests. One is to use biological controls. For example, the virus disease myxomatosis was introduced in Australia to control the rabbit, a major pest.

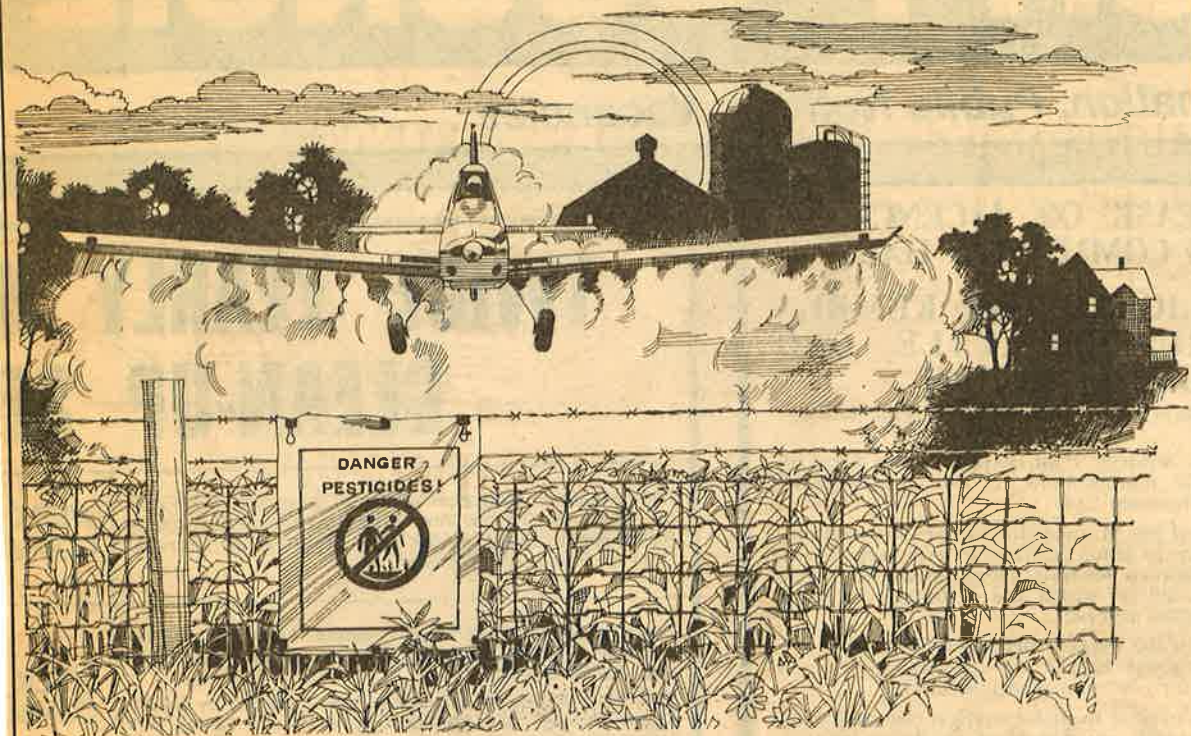
Another approach is the sterile male. Vast numbers of sterile male insects are bred and then released at breeding time. If done properly, they crowd out the fertile males and lead to a major drop in the pest population.

Combining a range of methods — including selected use of certain pesticides — is commonly called integrated pest management. It is the preferred approach by many in the field.

Integrated pest management requires the minimum possible use of pesticides. The trouble is that this cuts into the profits of companies that manufacture and sell pesticides.

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A Silent Spring brought by DDT



led to an attempt to dismiss Manwell from his tenured post. Although none of the charges made against Manwell was substantiated, it was four years before the case against him was dropped.

Another Australian critic has been Dr John Coulter, formerly a scientist at the Institute of Medical and Veterinary Science in Adelaide. Coulter was criticised by chemical companies a number of times because of his criticisms of pesticides. He was eventually sacked from the Institute in 1980. Recently he was elected Senator For the Australian Democrats in South Australia.

The Manwell and Coulter cases are described in detail in the book, *Intellectual Suppression*.

Arguably, the attacks on critics of pesticides have contributed to a continued over-emphasis on pesticides and a relative neglect of alternatives. The debate has not been a balanced one. There are no powerful economic or political forces promoting integrated pest management.

In the United States, the political system gave environmentalists more opportunity to push for controls on pesticides.

This led to the development of limits on residues:

But in other countries, such as Australia, dissenting voices were more readily overridden.

United States companies have continued to sell pesticides which are banned in the US and other countries, especially Third World countries where controls are poor or non-existent.

But Australia is another one of those countries.

The irony is that the banned pesticides are brought back to the US in the form of food imports — including Australian meat.

In Australia, the recent major concern about pesticides was not triggered by ecological effects on the pesticide treadmill, nor by the increase in pest resistance to pesticides, nor by the documented health effects on humans.

Rather, it has taken the threat to meat exports to finally catalyse producer organisations and governments to take action.

If the critics of pesticides had been heeded earlier, much more progress could have been made in safer methods of pest control.

Australia can ill afford the cost of ignoring dissenting voices.

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The companies have many supporters in government and universities.

Some say this is because of the many consultancies, research grants and jobs provided to supporters of the pesticide approach.

Rachel Carson, for her efforts, was denounced by pesticide proponents for being emotional, unscientific, alarmist and wrong.

These amazing attacks are documented in Frank Graham's book *Since Silent Spring*.

Others, more vulnerable than Carson, have suffered in their careers because of opposition to pesticides. There are many cases in which critics have had grants cut off, been refused publication or been sacked from their jobs.

In 1971, Professor Clyde Manwell of the Zoology Department at the University of Adelaide spoke out critically about spraying for fruit fly. This triggered a major attack on Manwell by parliamentarians, and