

ABSTRACT

In Australia, management of cotton pests is insecticide based. Beneficial insects are neglected due to the disruptive impact of the insecticides, lack of techniques to maximise their abundance and effectiveness and also lack of ecological diversity in Australian cotton systems which are monoculture and militate against beneficial arthropods. Studies to develop a control strategy for early season pests on cotton which has minimal effect on natural enemies commenced in July 1992 until June 1995. These studies showed that provision of supplementary food through Envirofeast® spray can attract, conserve and augment naturally-occurring predatory insects, including transverse, three-banded, two-spotted ladybird beetles, red and blue beetle, big-eyed bug, damsel bug and green lacewings. These insects are natural enemies of cotton pests especially *Helicoverpa* spp. However, thiodicarb and endosulfan which were previously known to the industry to be "soft" on beneficial insects were shown in this study to significantly reduce predatory insect numbers. Interplanting of lucerne, as strips within cotton farms, served as a trap crop or sink for early season cotton pests such as green mirids and as refugia for predatory insects. Green mirids and predatory insects on cotton can be effectively sampled using Dvac. The integration of Envirofeast® and the lucerne/cotton interplant (i.e. refugia technology) into a pest management system eliminated the need for early season synthetic insecticide sprays and reduced total synthetic insecticide sprays per season by 60 per cent. Envirofeast® product unfortunately is not rainfast and production technology needs to be developed to produce the product in large quantities for commercial use. With resistance of *Helicoverpa* spp. to insecticides increasing, and the possibility that insect resistance will be a major problem even with transgenic cotton, the control strategy developed in this study should be integrated with transgenic cotton to sustain future cotton production.