Insect pest management and the Queensland cotton industry

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Considerable progress has been made since the inception in 1973 of research designed to develop a pest management system for cotton in Queensland.

In Table 1 the results of four years field scale trials conducted on a 50 ha 'pest management' block have been compared with the results on a comparable block under normal commercial management of pests on the same farm. with the exception that since the 1976/77 season all decisions to spray on the commercial block were based on sequential sampling as were all decisions throughout the whole period in the pest management block.

The system has shown that using pest management, yields can be maintained or increased, the total insecticide load on the environment can be dramatically reduced without increase in insecticide costs. In the commercial system the value of decision making using sequential sampling has also been demonstrated. insecticide load and cost having been reduced since 1975/76.

As many as one third of Queensland cotton farmers are believed to have adopted parts if not all of the pest management approach, and work is now in hand to examine the barriers to the acceptance of pest management systems in the cotton industry. Waite (personal communication) at Emerald has also demonstrated the potential of the system in what is considered to be a more difficult environment.

Table I. Comparison of major effects of pest management on cotton yields and spraying regimes in the Lockyer Valley

System used	Pest Management[1]				Commercial[2]			
Season	75/76	76/77	77/78	78/79	75/76	76/77	77/78	78/79
No. of sprays	20	12	10	11	17	14	9	12
Total insecticide load (kg ha^{-1})	4.0	6.0	6.0	9.75	50.0°	32.0*	16.0*	16.9*
Total insecticide cost ($ ha^{-1})	178	84	74	95	165	116	78	106
Yield (bales ha^{-1})	3.5	4.9	4.0	5.6	4.5	4.7	3.4	5.0

[?]Farmers own decisions on spraying.
*Use of sequential sampling for full decision making improved efficiency.

Main insecticides used:

Pest Management: chlordimiform, amitraz. n.p. virus, B. thuringiensis. endosulphan.

Commercial: endosulphan, chlorcam/DDT, monocrotophos, dimethoate.