
Environmental Considerations

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[Summary only]

The prime objective must be the protection of crops, but impact on the environment now or in the future should be minimal. Concern for the future cannot adequately be expressed by cost–benefit analysis, nor can the ‘polluter pays’ principle be simply applied. But a policy of increasing the precision of pesticide use will protect the environment and bring benefits to crop protection (Southwood 1979).

The Royal Commission on Environmental Pollution (Anon. 1979) recommended that the reduction of the quantity of pesticide used should be a declared policy aim. Unnecessary usage arises from ‘cosmetic control’, from the use of pesticides when other control methods would be more appropriate, from farmers’ having a false impression of the pest problem, from insurance spraying and from inappropriate application.

The policy of greater precision (and hence reduction in usage) would be encouraged by the wider use of integrated pest management (i.p.m.). A wide range of crop protection chemicals is desirable for i.p.m.: the high cost of developing a pesticide militates against this range; the demands of the registration process should not become excessive as this will reduce the number of available agents.

Farmers are risk-averse, rather than profit-maximizers: monitoring and forecasting schemes need development so that local and regional inputs can be combined to allow farmers to make their own predictions more reliable. Recent advances in application techniques promise further reductions in the active ingredients used per unit area and more precise placement of the pesticide.

Pest resistance to control agents may lead to increases in the quantities used. Strategies for delaying resistance are tentative: more research is urgently required. As organisms develop resistance to a pesticide, it becomes more selective; natural enemies generally develop resistance more slowly than their prey, pest species. The ‘life’ of a pesticide (Southwood 1977; Wittemore 1977) may be very short for recently introduced materials because of cross-resistance: others remain toxic over long periods of use.

‘Ecotank systems’ (Hemingway & Newman 1978) and other tests only reduce the probability of side effects on non-target species through biological magnification. Excessive confidentiality about materials given limited or full clearance hinders the early warning of side-effects by Nature Conservancy Council officers and other ecologists (Anon. 1979).

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