

The economic impact of weeds in Australia: summary

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Perspective

New economic research undertaken by the Weeds CRC through the University of New England has established that weeds cost Australia \$3.9 billion per year in lower farm incomes and higher food costs. In addition, Commonwealth, State and local government spend at least \$116.4 million each year on costs of monitoring, control, management and research on weeds.

These costs do not include the loss of services from the natural environment, the impacts of pollen on human health, or the value of the 'volunteer army' widely active in weed control around Australia. So they are conservative estimates of the annual costs of weeds.

Costs to agriculture

The costs to agriculture were estimated as direct financial costs of control (such as the cost of herbicides and fuel), yield losses, the lost net income to farmers and the higher food costs. The lost net income to farmers includes the financial costs of control and yield losses.

Control costs are highest for the cropping industries, but yield losses are highest for livestock (Table 1). Indeed, yield losses due to weeds in the livestock industries are a substantial \$1,870 million each year.

Table 1 Low estimates of costs of control, and best estimates of yield losses, in agriculture.

Group of agricultural industries	Costs of control \$m	Yield losses \$m
Crops	1,033	346
Livestock	315	1,870
Horticulture	17	2
Total	1,365	2,218

The sum of lost farm incomes and the higher food costs is the total cost of weeds in agriculture and was estimated by economic modelling as a five-year average over the period 1997–98 to 2001–02. The results may be summarised as follows:

- The mean loss was \$3,927 million per annum
- The range was \$3,442 million to \$4,420 million per annum
- The mean loss comprised \$883 million in the beef industry, \$717 million in the wheat industry and \$588 million in the wool industry.

The annual cost of weeds to Australian agriculture therefore exceeds \$3.4 billion, and may be as high as \$4.4 billion per year. The figure varies with seasonal conditions, input prices and commodity prices, but on average the annual net loss is \$3.9 billion. Primary producers bear 81.4% of this loss while consumers bear 18.6%. The relatively large cost to consumers indicates that the losses caused by weeds in agriculture impact across the whole community.

The loss of \$3.9 billion is about 14% of the current value added by agriculture to the economy, so Australia loses about \$1 in every \$7 of its agricultural income due to weeds. The loss is about one half of one per cent of Gross Domestic Product indicating that Australia loses about \$1 in every \$200 of its total economic activity due to weeds. But the loss of \$3.9 billion excludes some significant costs, such as the value of owner-operator labour for spraying weeds, so the real figure will be higher.

Costs to the natural environment

Natural environments were taken to be National Parks and other areas so described in Natural Heritage Trust agreements. Natural areas provide environmental services, such as benefits from protecting native species of plants and animals. Due to lack of data, the study could not place a dollar figure on the national value of the services that are lost due to weed invasions. However, the study did estimate that at least \$19.6 million is spent on weed control in these areas each year.

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A specific value was estimated for the gain in benefits from the natural environment when weeds are controlled. Based on expenditures to manage 35 weeds of pastures, grazing lands and environmental areas, the study estimated that \$68,000 per year is currently spent by weed managers to protect each extra threatened native plant species in these areas. This figure reflects the budgets available in such situations, and so may be the minimum annual value currently assigned to the benefits from protecting a native plant species from a weed invasion.

Table 2 The percent of Australia occupied by each of the top 20 weeds.

Group 1 (Control costs available)		Group 2 (Control costs not available)	
Weed	Percent	Weed	Percent
Parkinsonia	12.4	Mesquite	5.3
Blackberry	9.0	Bridal creeper	5.0
Rubber vine	7.7	Athel pine	1.0
Parthenium	5.6	Hymenachne	1.0
Lantana	5.1	Cabomba	0.5
Bitou bush	3.0	Salvinia	0.5
Gorse	3.0	Alligator weed	0.4
Prickly acacia	2.3	Pond apple	0.4
Serrated tussock	2.2	Chilean needle grass	0.2
Mimosa	1.0		
Willows	0.8		

The top 20 weeds in Australia, in terms of their invasiveness, spread, and potential impact, are listed in Table 2. Group 1 includes those for which annual costs of control were available. Group 2 comprises those for which no such costs were available.

The study found that \$50 million is spent annually to control the eleven weeds in Group 1 and that the nine weeds in Group 2 threaten over one thousand special conservation areas.

Costs to Commonwealth and state authorities

The total expenditure on weeds by Commonwealth and state agencies (excluding the National Park and Wildlife Services), other government authorities, local government and other public land managers in 2001–02 was at least \$80.8 million. Commonwealth authorities spent a further \$13.0 million at least on weed management, policy and research in 2001–02. There is an increasing reliance on community groups to undertake weed management. The case studies in the report indicate that governments avoid a considerable cost as a result of this volunteer effort.

Costs on indigenous land

The financial cost of weed control on indigenous land in the Northern Territory over the period 1998–99 to 2001–02 was at least \$3.045 million per year.

Conclusion

The study establishes that the loss to agriculture is \$3.9 billion per year, while a further \$116.4 million is spent each year by governments in control and management. At an annual cost of \$3.9 billion per year to agriculture, weeds constitute a major natural resource management issue. Indeed, this estimate of the cost of weeds exceeds the combined estimates of the cost of salinity, soil acidity and soil sodicity, all major problems in the farm sector. The figures show why weeds continue to dominate the problems listed by farmers in all three major agricultural zones (pastoral, wheat-sheep and high rainfall). This report complements others that highlight the urgency of the current situation and which call for a program of new national action on weed awareness, education, research and control at the national, state and regional level.

The full report: *The economic impact of weeds in Australia*, CRC for Australian Weed Management, Technical Series No 8, Adelaide. pp 55.

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February 2004

This report is available from the Weeds CRC website
www.weeds.crc.org.au

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Image: Permanent tree cover plays a critical role in achieving long-term control of serrated tussock. Photo courtesy of Victorian Serrated Tussock Working Group.

