Land management practice trends in Victoria’s horticulture industry
Introduction

Horticulture is an important industry in Victoria which contributed more than 23 per cent to the gross value of agricultural production in the state and 6 per cent to the gross value of Australia’s agricultural production in 2009–10 (ABS 2011). Figure 1 shows the locations of horticulture in Victoria.

Improving soil condition is important for agricultural productivity and the quality of ecosystem services provided to the community from rural lands. Wind and water erosion, soil carbon rundown and soil acidification reduce the land’s ability to provide productive soils, protect biodiversity, maintain clean air and water and withstand the effects of climate change, while producing food and fibre.

Caring for our Country—the Australian Government’s $2 billion flagship natural resource management initiative—is funding projects in the sustainable farm practices national priority area under the improving management practices and landscape scale conservation targets. These projects provide information to farmers in the broadacre cropping, dairy, horticulture and beef cattle/sheep industries about land management practices that will help improve soil condition and contribute to maintaining a healthy environment.

By 30 May 2012, $448 million had been approved for projects to improve soil and biodiversity management practices on farm. On-farm practice change is monitored using the biennial ABS Agricultural Resource Management Survey (ARMS), which surveys 33 000 of Australia’s 135 000 agricultural businesses (farmers). Results are reported at the national, state and natural resource management region levels (ABS 2009). The numbers reported were estimated from a sample of almost one-quarter of all agricultural businesses, so the results are subject to sampling error. This is most pronounced for questions with lower response rates, which may be more likely in smaller industries, such as horticulture. Data were not publishable for some practices in regions where the numbers of horticulture businesses were small.

Horticulture industry profile

According to ABS estimates, in 2009–10 Victoria had 4688 horticultural businesses, a decrease of almost 4 per cent since 2007–08. In 2009–10 the average age of Victorian managers of horticultural businesses was 55 years; on average they had managed their holdings for 21 years and farmed in their local region for 26 years. An estimated 14 per cent of horticultural businesses (678) had a Landcare group member.
Land management practices

Caring for our Country provided project funding to encourage farmers to better manage ground cover and to test and lime soils regularly where needed. This funding has complemented the activities of state agencies, industry and community groups. Data from the ABS 2007–08 and 2009–10 ARMS and the 1995–96 and 2000–01 agricultural censuses (which surveyed all agricultural businesses) help track trends in adoption of these practices. The percentage of farmers reporting use of particular practices can exceed 100 where more than one method (such as matting used to protect ground cover in some areas, cover crops in others) is used on a holding.

Managing soil acidity

About half of Australia’s agricultural land is estimated to have a surface soil pH of less than or equal to 5.5, which is below optimum for very acid sensitive agricultural crops and below the optimal level to prevent subsoil acidification (National Land and Water Resources Audit 2001). Where soil acidity moves further down the soil profile, damage may be irreparable. Very acid soils are also unlikely to support good ground cover, increasing the risk of soil loss through wind and/or water erosion and reducing input to soil carbon. Areas at high risk are where soil pH is low, the soil has a low capacity to buffer against pH decreases, and the dominant (current and/or past) agricultural practices are highly acidifying.
Regular testing of soil pH and applications of lime and/or dolomite can be used to manage acidification risk. Testing soil nutrient levels to better match fertiliser applications to crop requirements can also help slow soil acidification. There was a decrease in the percentage of Victorian horticultural businesses undertaking pH testing (from 26 per cent to 22 per cent) and nutrient testing (from 24 per cent to 22 per cent) between 2007–08 and 2009–10. Increases in pH testing were reported for the Glenelg–Hopkins (from 21 to 25 per cent), North Central (from 23 per cent to 24 per cent) and West Gippsland (from 46 per cent to 48 per cent) regions. The largest decrease in pH testing occurred in the Wimmera region (from 46 per cent to 8 per cent; Figure 2). Increases in nutrient testing were reported for the Glenelg–Hopkins region (from 21 per cent to 25 per cent; Figure 2).

The percentage of horticultural businesses applying lime and dolomite to their holdings to manage soil acidity decreased from 20 per cent to 18 per cent between 2007–08 and 2009–10. Increases were reported in the Corangamite, East Gippsland and Goulburn–Broken regions, with the largest increase (from 19 per cent to 36 per cent) occurring in the East Gippsland region (Figure 3). The largest decrease (from 27 per cent to 8 per cent) occurred in the Glenelg–Hopkins region (Figure 3). Longer-term ABS data show that overall, the percentage of horticultural businesses in Victoria applying lime or dolomite to their holdings to manage soil acidity increased between 1995–96 and 2007–08, decreasing in 2009–10 to the same percentage as in 1995–96 (Figure 4). Table 1 shows the rates of lime and dolomite application for Victorian horticultural businesses in 2007–08.

Figure 2

![Graph showing percentage of horticultural businesses in Victorian natural resource management regions undertaking pH and nutrient soil testing, 2007–08 and 2009–10.](image-url)
Figure 3. Percentage of horticultural businesses in Victorian natural resource management regions applying lime or dolomite to their holdings, 2007–08 and 2009–10. Note: Results were not publishable for the North East (2009–10) and Wimmera (2009–10) regions.

Figure 4. Percentage of horticultural businesses in Victoria applying lime or dolomite to their holdings, 1995–96, 2000–01, 2007–08 and 2009–10. Note: 2007–08 and 2009–10 data presented here are slightly different from that for Figure 3; different data items were used in calculations to match information collected in censuses.
Table 1

<table>
<thead>
<tr>
<th>Region</th>
<th>Lime applied (t)</th>
<th>Lime application rate (t/ha)</th>
<th>Dolomite applied (t)</th>
<th>Dolomite application rate (t/ha)</th>
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<tr>
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<td>884</td>
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<td>1.78</td>
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<td>Wimmera</td>
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<td>0.00</td>
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</tbody>
</table>

Table 1. Rates of lime and dolomite application by Victorian horticulture businesses on their holdings, 2007–08. na not applicable, np not publishable.

Figure 5

Figure 5. Percentage of horticultural businesses in Victorian natural resource management regions using different methods to maintain ground cover levels between horticultural plantings, 2009–10. Note: No data are available for 2007–08. Results were not publishable for businesses using mulching and/or matting between crops for the East Gippsland and Glenelg–Hopkins regions.
Maintaining ground cover

Using alternate or cover crops or mulching and/or matting between the main horticultural plantings helps protect against soil loss from wind and water erosion. Where organic mulches are used these may also contribute to building soil organic matter. Twenty-five per cent of all horticulturalists in Victoria used alternate or cover crops to maintain ground cover levels between their main horticultural plantings in 2009–10, and 28 per cent used mulching and/or matting in the same period (Figure 5). The greatest proportion of horticulturalists using alternate or cover crops was in the East Gippsland region (42 per cent), and the greatest proportion using mulching and/or matting occurred in the North East region (47 per cent; Figure 5).

Conclusions

These data suggest that more than 20 per cent of horticulturalists in Victoria use pH and nutrient testing, but fewer than 20 per cent apply lime or dolomite to manage soil acidity. Given the extensive and insidious nature of soil acidification, it may be necessary to increase soil testing and liming in some regions to protect against further pH decline and productivity losses.

In 2009–10 about half the horticulturalists in Victoria reported maintaining ground cover between their main plantings, using alternate or cover crops or mulching and/or matting. Some further work may be needed to establish whether suitable methods for ground cover management are available for all horticultural crops in order to identify opportunities for increasing the rate of adoption of this practice.

References


