# Social Profiles for Landscape Areas North Central Catchment: Revised Landscape Areas

**Draft final report** 

# to the

# North Central Catchment Management Authority

Emily Mendham, Allan Curtis and Simon McDonald

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## **1 INTRODUCTION**

This preliminary report presents results from the analysis of data from the 2019 social benchmarking for NRM survey undertaken by Professor Allan Curtis (Charles Sturt University) and Dr Hanabeth Luke (Southern Cross University) as part of a Soil Cooperative Research Centre (CRC) (Curtis and Luke 2019). The North Central Catchment Management Authority (North Central CMA) is a Soil CRC partner.

This report presents the results of analyses based on the seven Landscape units employed by the North Central CMA, as well as an additional profile that combines two of these units. A report which summarises all of the survey topics is available from the North Central CMA (Curtis and Luke 2020). That larger report includes summarises for each of the Local Government Areas in the North Central region but does not include information for the seven Landscape units. Another report is available that summarises information for four Landscape units previously utilised by the North Central CMA (Mendham, Curtis and McDonald 2020).

North Central CMA and Soil CRC staff worked together to review and revise the 2014 social benchmarking survey. A draft 2019 survey was subsequently pre-tested, including with a small group of rural property owners. The 2019 survey was then posted to a randomly selected sample of rural property owners (properties of 10 ha and above) identified using local government (i.e. Shire or City) ratepayer lists. The North Central CMA region includes a substantial part of 14 Shire or City local government areas (LGA). Surveys were posted to 2040 property owners. After removing return-to-sender, duplicate ownerships, properties that had been sold, owners who were ill or overseas and other acceptable reasons for a non-response, there were 1862 possible respondents. With 663 returned and completed surveys, the response rate for 2019 was 36%.

The survey gathered information about respondent's values; beliefs (e.g. in climate change, the primacy of private property rights); issues of concern (i.e. threats to those values); long-term plans; knowledge of NRM; confidence in best-practices NRM; engagement in NRM platforms and processes; sources of NRM information; land use/enterprises; background personal and property information (e.g. property size, absentee ownership); and implementation of best-practice NRM.

The North Central CMA has engaged Professor Curtis and Dr Emily Mendham to present the 2019 social benchmarking for NRM survey data for the seven Landscape units: Western Dryland Plains, Irrigated Riverine, Western Goldfields, Northern Dryland Plains, Bendigo Goldfields, Upper Loddon Plains and Southern Uplands [Map 1] (and an additional profile combining Upper Loddon Plains and Northern Dyland Plains) [Map 2]. The brief was to prepare summary tables without interpretation. Those tables are to become an important resource for North Central CMA staff engaging rural property owners in the development of the next Regional Catchment Strategy. With more than 120 survey items, the tables in this report summarise a large data set.



Map 1 Landscape units in the North Central Catchment: 7 profiles



Map 2 Landscape units in the North Central Catchment: 6 profiles

## **2 PROFILES**

The following sections of this report include profiles for each of the landscape units. Topics included in each profile are:

- Background social and farming information
- Group membership
- Family succession
- Long-term plans
- Management practices
- Land use
- Confidence in recommended practices
- Management in response to climate change
- Belief in human induced climate change
- Attitudes about the impact of climate change
- Belief in the primacy of private property rights
- Attitudes and beliefs
- Personal norms
- Disposition to accept risk
- Disposition to trust others
- Trust in and judgements of the trustworthiness of the North Central CMA
- Information sources
- Issues of concern (district scale)
- Soil issues on property
- Attached values
- Held values
- Knowledge
- Attitudes

For some survey topics, respondents were asked to rate how strongly they agreed with a statement, how important an issue was for them, or how likely an outcome was for them on a Likert-type scale of 1 (not likely, not important, strongly disagree) to 5 (highly likely, very important, strongly agree). Not applicable/don't know was a separate response option (6). For these topics, we have presented the proportion who selected options 4 and 5 (agree/strongly agree, likely/very likely, important/very important).

For some topics, all items that were included in the survey are presented in the profiles. For other topics, the top five items are included based on the percent who rated the item important/very important; agree/strongly agree; likely/very likely. For social and farming information, the median value and/or percent who selected 'Yes' is presented. Where median values are presented, zeros were excluded from those calculations (i.e. the figure is the median of those who selected 'yes' for that topic).

Tests for significant differences across the seven landscape profiles were conducted (excluding the combined landscape unit profile). Kruskal Wallis Rank Sum Tests were used to test for differences on a continuous variable or Likert scale variable based on a grouping variable (for example, farmer/non-farmer). Chi Square tests were conducted for analyses that compare categorical responses (e.g. yes/no responses) across different groups (e.g. farmer/non-farmer). In all analyses a *p* value below 0.05 was considered statistically significant (i.e. the relationship was unlikely to have occurred by chance alone).

## 2.1 BENDIGO GOLDFIELDS (n=130)

Table 1 Social and farming information, Bendigo Goldfields profile (n=130). 2019 North Centralsocial benchmarking survey (N=663)

| Social and farming information  | Median/Yes (%)   |
|---|--|
| Total area of rural land owned within the NC CMA region   | 40 ha  |
| Area of additional land managed (lease/sharefarm/agist from others) within the NC CMA region  | 15% (70 ha)  |
| Area of your property that is leased, sharefarmed or agisted by others  | 20% (37 ha)  |
| Longest period of time you/your family have owned or<br>managed all/some of your property   | 29 yrs   |
| Property is principal place of residence  | 65%  |
| Number of rural properties owned  | 1 property   |
| Number of rural properties owned within the NC CMA region   | 1 property   |
| Percent female  | 34%  |
| Age   | 63 yrs   |
| Farming occupational identity   | Full-time 15% Part-time 18%<br>Hobby 23% Non 44%   |
| Bought additional land to increase a landholding in this region<br>in the past 20 years   | 28%  |
| Subdivided or sold part of your existing property in this region in the past 20 years   | 14%  |
| Number of hours per week worked on farming/property related activities over the past 12 months  | 72% (14 hrs)   |
| Number of days involved in paid off-property work in the past<br>12 months  | 42% (163 days)   |
| Earned an income from agriculture on your property in the<br>North Central region during 2018/19 financial year (percent of<br>all respondents) | 35%  |
| Earned a net profit from agriculture (income exceeded all paid expenses before tax) in 2018/19 (percent of all respondents)                     | 22%  |
| Net profit from agriculture in 2018/19 was above \$50,000<br>(percent of all respondents)   | 8%   |
| Received a net off-property income (after expenses and<br>before tax) last financial year (2018/2019) (percent of all<br>respondents)           | Me 48%<br>My spouse 12%  |
| Total off-property income (before tax) above \$50,000<br>(percent of all respondents)   | 37%  |
| Other family members working full time on your property   | 10%  |
| Family members interested in taking on your property in the future  | 29%  |
| Stage of succession planning  | Not started 50%<br>Early stages 26%<br>Halfway 0%<br>Well advanced 7%<br>Completed/ongoing 17% |

Table 2 Group membership and engagement, Bendigo Goldfields profile (n=130). 2019 NorthCentral social benchmarking survey (N=663)

| Group membership and engagement  | Yes (%) |
|--|---------|
| Member or involved with a local Landcare group   | 26%     |
| Attended field days/farm walks/demonstrations focused on soil health in the past 12 months   | 24%     |
| Attended field days/farm walks/demonstrations focused on<br>native plants and animals in the past 12 months  | 19%     |
| Prepared/preparing a property management or whole farm<br>plan that involves a map or other documents that address the<br>existing property situation and include future management<br>and development plans | 17%     |
| Member or involved with a local commodity group  | 9%      |
| Completed a short course relevant to property management<br>in the past 5 years  | 8%      |
| Member of involved with a local soil health group  | 1%      |

Table 3 Long-term plans (top 5), Bendigo Goldfields profile (n=130). 2019 North Central socialbenchmarking survey (N=663)

| Long-term plans (top 5)   | Likely/highly likely (%) |
|---|--------------------------|
| Ownership of the property will stay within the family             | 55%                      |
| Me or my spouse will seek additional off-property work            | 27%                      |
| The property will be sold   | 25%                      |
| The enterprise mix will be changed to diversify income<br>sources | 15%                      |
| Additional land will be purchased                                 | 15%                      |

Table 4 Management practices over full period of management, Bendigo Goldfields profile(n=130). 2019 North Central social benchmarking survey (N=663)

| Management practices over full period of management   | Yes (%) |
|---|---------|
| Each year have worked to control non-crop weeds   | 68%     |
| Planted trees and shrubs (incl. direct seeding)   | 62%     |
| Each year have worked to control pest animals   | 58%     |
| Fenced native bush/grasslands to manage stock access  | 34%     |
| Applied soil ameliorants other than fertiliser and lime (e.g. gypsum, organic manure)                       | 32%     |
| Used minimum or no tillage techniques to establish crops or<br>pastures                                     | 31%     |
| Fenced waterways & wetlands to manage stock access  | 29%     |
| Tested soils for nutrient status in paddocks where have<br>applied fertiliser/soil conditioners in the past | 28%     |
| Sown perennial pastures other than lucerne  | 25%     |
| Applied at least one lime application to arable land  | 24%     |
| Established off-stream watering points  | 23%     |
| Used time controlled or rotational grazing  | 23%     |
| Sown lucerne  | 22%     |
| Deep ripped arable land   | 14%     |
| Prepared a habitat assessment for native plants   | 12%     |
| Established permanent grassed waterways in drainage lines   | 11%     |
| Used precision farming techniques for cropping  | 11%     |
| Prepared a nutrient budget for all/most of the property   | 8%      |
| Established an irrigation tailwater reuse system  | 5%      |

 Table 5 Land use, Bendigo Goldfields profile (n=130). 2019 North Central social benchmarking survey (N=663)

| Land use  | Yes (%) |
|---|---------|
| Pasture   | 48%     |
| Sheep for wool or meat  | 47%     |
| Area of remnant native vegetation (e.g. trees, grasslands, wetlands)                                | 43%     |
| Area set aside for living/recreation (e.g. gardens, pets, water bodies, vehicles)                   | 41%     |
| Other tree planting (e.g. shelter, habitat, erosion or recharge control, carbon)                    | 35%     |
| Beef cattle   | 20%     |
| Cropping  | 18%     |
| Did you irrigate in the 2018/19 season?   | 14%     |
| If yes: Was surface water used  | 70%     |
| If yes: Was ground water was used   | 33%     |
| Hay production for sale   | 13%     |
| Other commercial livestock enterprises (e.g. goats, pigs, deer, horse studs, poultry, alpaca, dogs) | 10%     |
| Conservation covenant attached to property title (e.g. Trust For Nature)                            | 9%      |
| Irrigated agriculture   | 8%      |
| Horticulture  | 6%      |
| Farm forestry   | 5%      |
| Vegetation offsets  | 3%      |
| Farm-based tourism (e.g. farm stays, B&B)   | 3%      |
| Viticulture   | 2%      |
| Carbon farming  | 2%      |
| Dairying  | 0%      |

Table 6 Confidence in recommended practices, Bendigo Goldfields profile (n=130). 2019 NorthCentral social benchmarking survey (N=663)

| Confidence in recommended practices  | Agree/strongly agree (%) |
|--|--------------------------|
| Soil testing is an essential first step in understanding soil condition  | 84%                      |
| Fencing to manage stock access is necessary to protect the health of waterways & wetlands  | 79%                      |
| Improvements in bank stability & vegetation condition justify the costs of watering stock off-stream   | 66%                      |
| The costs of establishing perennial pasture are justified by the returns   | 52%                      |
| The costs of applying lime to address soil acidity are justified by increased production   | 49%                      |
| The costs of applying gypsum to address soil sodicity are justified by increased production  | 47%                      |
| Intensive grazing for short periods is usually better for the<br>health of native vegetation along waterways and wetlands<br>than set stocking | 45%                      |
| The cost of willow removal is justified by improvements in the condition of river banks & river health   | 41%                      |
| The benefits of stubble retention outweigh problems arising from the practice  | 40%                      |
| The cost of deep-tillage and subsoil modification are justified by increased production  | 19%                      |

 Table 7 Responding to climate change, Bendigo Goldfields profile (n=130). 2019 North Central social benchmarking survey (N=663)

| Changes to management practices in response to climate<br>change  | Yes (%) |
|---|---------|
| In the past 12 months have you changed your financial or on-<br>property operations as a result of considering climate change?  | 18%     |
| In the past 12 months have you changed your on-property operations as a result of considering opportunities to capture carbon (e.g. by revegetation, soil management)?            | 13%     |
| In the past 12 months have you changed your on-property<br>operations as a result of considering opportunities to reduce<br>carbon emissions (e.g. solar, wind, gravity systems)? | 13%     |

Table 8 Belief in human induced climate change, Bendigo Goldfields profile (n=130). 2019 NorthCentral social benchmarking survey (N=663)

| Belief in human induced climate change   | Agree/strongly agree (%) |
|--|--------------------------|
| Human activities are influencing changes in climate  | 77%                      |
| It is not too late to take action to address climate change  | 77%                      |
| If we do nothing, climate change will have dire consequences for all living things, including humans | 68%                      |

Table 9 Attitudes and beliefs about climate change, Bendigo Goldfields profile (n=130). 2019 North Central social benchmarking survey (N=663)

| Attitudes and beliefs about climate change  | Agree/strongly agree (%) |
|---|--------------------------|
| Primary producers should do all they can to reduce carbon emissions from their activities   | 71%                      |
| I'm confident landholders in this region can adapt to expected changes in rainfall patterns | 37%                      |

Table 10 Belief in the primacy of private property rights, Bendigo Goldfields profile (n=130). 2019North Central social benchmarking survey (N=663)

| Belief in the primacy of private property rights               | Agree/strongly agree (%) |
|--|--------------------------|
| Aboriginal people should be able to negotiate access with      | 56%                      |
| landholders to visit cultural sites                            | 3070                     |
| Landholders should be able to harvest rainfall on their        | 18%                      |
| property, even if that action impacts on others                | 4870                     |
| If landholders are informed in advance, it would be acceptable | 220/                     |
| to cause minor floods for environmental purposes               | 3376                     |
| The public should be able to access crown land managed by      | 2.19/                    |
| private landholders (e.g. unused roads)                        | 2470                     |

Table 11 Attitudes and beliefs, Bendigo Goldfields profile (n=130). 2019 North Central social benchmarking survey (N=663)

| Attitudes and beliefs   | Agree/strongly agree (%) |
|---|--------------------------|
| Biological activity is an important indicator of the productive capacity of soils   | 70%                      |
| The increased allocation of water for the environment under<br>the Murray-Darling Basin Plan will improve the health of<br>waterways & wetlands | 47%                      |

Table 12 Personal norms, Bendigo Goldfields profile (n=130). 2019 North Central socialbenchmarking survey (N=663)

| Personal norms: soil health   | Agree/strongly agree (%) |
|---|--------------------------|
| I feel a personal responsibility to maintain my soil's<br>productive capacity | 70%                      |
| I feel a personal responsibility to be part of a soil health group            | 29%                      |

Table 13 Disposition to accept risk, Bendigo Goldfields profile (n=130). 2019 North Central social benchmarking survey (N=663)

| Disposition to accept risk   | Agree/strongly agree (%) |
|--|--------------------------|
| I prefer to avoid risks  | 52%                      |
| I really dislike not knowing what is going to happen                 | 48%                      |
| I usually view risks as a challenge to embrace                       | 36%                      |
| I am an early adopter of new agricultural practices and technologies | 21%                      |

Table 14 Disposition to trust others, Bendigo Goldfields profile (n=130). 2019 North Central socialbenchmarking survey (N=663)

| Disposition to trust others                                   | Agree/strongly agree (%) |
|---|--------------------------|
| One has to be alert or someone is likely to take advantage of | 58%                      |
| you   |                          |
| You can't be too careful when dealing with people             | 57%                      |
| People are almost always interested only in their own welfare | 45%                      |

Table 15 Trust in and judgements of the trustworthiness of the North Central CMA, BendigoGoldfields profile (n=130). 2019 North Central social benchmarking survey (N=663)

| Trust in and judgements of the trustworthiness of the North Central CMA: waterways and wetlands management                     | Agree/strongly agree (%) |
|--|--------------------------|
| <i>Filter question</i> : Are you aware of the existence of the North Central CMA   | 63% yes                  |
| I can rely on the North Central CMA to provide useful<br>advice about waterways & wetlands management                          | 52%                      |
| The North Central CMA is very knowledgeable about<br>waterways & wetlands management   | 45%                      |
| The North Central CMA keeps landholders' interests in<br>mind when making decisions about waterways and<br>wetlands management | 36%                      |
| Sound principles guide North Central CMA decisions about waterways & wetlands management                                       | 36%                      |
| I can rely on the North Central CMA to provide appropriate<br>financial assistance for waterways & wetlands<br>management      | 15%                      |

 Table 16 Information sources (top 5), Bendigo Goldfields profile (n=130). 2019 North Central social benchmarking survey (N=663)

| Information sources (top 5)  | Yes (%) |
|------------------------------|---------|
| Bureau of Meteorology        | 59%     |
| Friends/neighbours/relatives | 53%     |
| Television                   | 48%     |
| Newspapers                   | 48%     |
| Websites                     | 47%     |

Table 17 Issues of concern at the district scale (top 5), Bendigo Goldfields profile (n=130). 2019 North Central social benchmarking survey (N=663)

| Issues of concern at the district scale (top 5)  | Important/very important (%) |
|--|------------------------------|
| Changes in weather patterns  | 79%                          |
| Risk to life and property from wildfires   | 78%                          |
| Quality of water in farm dams during drought   | 75%                          |
| The impact of pest plants and animals on native plants and animals                         | 71%                          |
| Non-agricultural land use (e.g. residential, solar, mining)<br>encroaching on farming land | 58%                          |

Table 18 Soil issues on property, Bendigo Goldfields profile (n=130). 2019 North Central social benchmarking survey (N=663)

| Soil issues on property  | Important/very important (%) |
|--|------------------------------|
| Soil erosion (e.g. by wind or water)                             | 73%                          |
| Declining nutrient status of soils                               | 67%                          |
| Low biological activity in soils                                 | 59%                          |
| Soil acidity (lower pH) undermining productive capacity of soils | 59%                          |
| Low permeability of sub soil                                     | 57%                          |
| Low organic carbon in soils                                      | 56%                          |
| Soil sodicity  | 44%                          |

Table 19 Attached values (top 5), Bendigo Goldfields profile (n=130). 2019 North Central socialbenchmarking survey (N=663)

| Attached values (top 5)   | Important/very important (%) |
|---|------------------------------|
| An attractive place/area to live                                  | 85%                          |
| Ability to pass on a healthier environment for future generations | 79%                          |
| Native vegetation makes the property an attractive place to live  | 74%                          |
| Native vegetation provides habitat for birds and animals          | 71%                          |
| A place where I can escape the pressures of life                  | 66%                          |

Table 20 Held values (top 5), Bendigo Goldfields profile (n=130). 2019 North Central social benchmarking survey (N=663)

| Held values (top 5)   | Important/very important (%) |
|---|------------------------------|
| Looking after my family and their needs                       | 91%                          |
| Preventing pollution and protecting natural resources         | 88%                          |
| Protecting the environment and preserving nature              | 84%                          |
| Respecting the earth and living in harmony with other species | 82%                          |
| Working for the welfare of others                             | 65%                          |

Table 21 Knowledge (top 5), Bendigo Goldfields profile (n=130). 2019 North Central socialbenchmarking survey (N=663)

| Knowledge (top 5)   | Sound/very sound knowledge (%) |
|---|--------------------------------|
| Strategies to maintain ground cover to minimise erosion in this area  | 50%                            |
| The role of understorey plants in maintaining native birds  | 43%                            |
| The production benefits of applying biological soil<br>amendments and supplements (e.g. compost,<br>manure, microbial inoculants) | 41%                            |
| The role of logs & river-side vegetation in supporting native fish  | 39%                            |
| Preparing a farm/property plan allocating land use according to land class  | 32%                            |

### 2.2 IRRIGATED RIVERINE (n=132)

Table 22 Social and farming information, Irrigated Riverine profile (n=132). 2019 North Centralsocial benchmarking survey (N=663)

| Social and farming information  | Median/Yes (%)  |
|---|---|
| Total area of rural land owned within the NC CMA region   | 289.5 ha  |
| Area of additional land managed (lease/sharefarm/agist from others) within the NC CMA region  | 26% (80 ha)   |
| Area of your property that is leased, sharefarmed or agisted by others  | 17% (105 ha)  |
| Longest period of time you/your family have owned or<br>managed all/some of your property   | 50 yrs  |
| Property is principal place of residence  | 82%   |
| Number of rural properties owned  | 2 properties  |
| Number of rural properties owned within the NC CMA region   | 2 properties  |
| Percent female  | 16%   |
| Age   | 60 yrs  |
| Farming occupational identity   | Full-time 65% Part-time 23%<br>Hobby 8% Non 5%  |
| Bought additional land to increase a landholding in this region in the past 20 years  | 53%   |
| Subdivided or sold part of your existing property in this region in the past 20 years   | 18%   |
| Number of hours per week worked on farming/property related activities over the past 12 months  | 91% (45 hrs)  |
| Number of days involved in paid off-property work in the past 12 months   | 27% (150 days)  |
| Earned an income from agriculture on your property in the<br>North Central region during 2018/19 financial year<br>(percent of all respondents) | 85%   |
| Earned a net profit from agriculture (income exceeded all<br>paid expenses before tax) in 2018/19 (percent of all<br>respondents)               | 52%   |
| Net profit from agriculture in 2018/19 was above \$50,000<br>(percent of all respondents)   | 30%   |
| Received a net off-property income (after expenses and<br>before tax) last financial year (2018/2019) (percent of all<br>respondents)           | Me 35%<br>My spouse 19%   |
| Total off-property income (before tax) above \$50,000<br>(percent of all respondents)   | 27%   |
| Other family members working full time on your property   | 47%   |
| Family members interested in taking on your property in the future  | 44%   |
| Stage of succession planning  | Not started 29%<br>Early stages 21%<br>Halfway 21%<br>Well advanced 6%<br>Completed/ongoing 23% |

Table 23 Group membership and engagement, Irrigated Riverine profile (n=132). 2019 NorthCentral social benchmarking survey (N=663)

| Group membership and engagement                          | Yes (%) |
|--|---------|
| Prepared/preparing a property management or whole farm   |         |
| plan that involves a map or other documents that address | 36%     |
| the existing property situation and include future       |         |
| management and development plans                         |         |
| Attended field days/farm walks/demonstrations focused on | 26%     |
| soil health in the past 12 months                        | 2078    |
| Member or involved with a local Landcare group           | 20%     |
| Completed a short course relevant to property management | 19%     |
| in the past 5 years                                      | 1970    |
| Member or involved with a local commodity group          | 16%     |
| Attended field days/farm walks/demonstrations focused on | 1.09/   |
| native plants and animals in the past 12 months          | 10%     |
| Member of involved with a local soil health group        | 3%      |

Table 24 Long-term plans (top 5), Irrigated Riverine (n=132). 2019 North Central socialbenchmarking survey (N=663)

| Long term plans (top 5)   | Likely/highly likely (%) |
|---|--------------------------|
| Ownership of the property will stay within the family               | 67%                      |
| The enterprise mix will be changed to diversify income<br>sources   | 36%                      |
| Additional land will be purchased                                   | 30%                      |
| Me or my spouse will seek additional off-property work              | 26%                      |
| The enterprise mix will be changed to more intensive<br>enterprises | 22%                      |

Table 25 Management practices over full period of management, Irrigated Riverine (n=132). 2019North Central social benchmarking survey (N=663)

| Management practices over full period of management  | Yes (%) |
|--|---------|
| Each year have worked to control non-crop weeds  | 83%     |
| Each year have worked to control pest animals  | 66%     |
| Planted trees and shrubs (incl. direct seeding)  | 64%     |
| Used minimum or no tillage techniques to establish crops or<br>pastures                                  | 62%     |
| Tested soils for nutrient status in paddocks where have applied fertiliser/soil conditioners in the past | 61%     |
| Applied soil ameliorants other than fertiliser and lime (e.g. gypsum, organic manure)                    | 61%     |
| Sown lucerne   | 57%     |
| Used time controlled or rotational grazing   | 45%     |
| Established an irrigation tailwater reuse system   | 43%     |
| Sown perennial pastures other than lucerne   | 42%     |
| Fenced native bush/grasslands to manage stock access   | 39%     |
| Applied at least one lime application to arable land   | 33%     |
| Fenced waterways & wetlands to manage stock access   | 31%     |
| Used precision farming techniques for cropping   | 30%     |
| Deep ripped arable land  | 27%     |
| Established off-stream watering points   | 26%     |
| Prepared a nutrient budget for all/most of the property  | 22%     |
| Established permanent grassed waterways in drainage lines  | 6%      |
| Prepared a habitat assessment for native plants  | 5%      |

 Table 26 Land use, Irrigated Riverine profile (n=132). 2019 North Central social benchmarking survey (N=663)

| Land use  | Yes (%) |
|---|---------|
| Did you irrigate in the 2018/19 season?   | 81%     |
| If yes: Was surface water used  | 94%     |
| If yes: Was ground water was used   | 17%     |
| Irrigated agriculture   | 71%     |
| Pasture   | 66%     |
| Cropping  | 57%     |
| Area of remnant native vegetation (e.g. trees, grasslands, wetlands)                                | 51%     |
| Sheep for wool or meat  | 45%     |
| Other tree planting (e.g. shelter, habitat, erosion or recharge control, carbon)                    | 40%     |
| Hay production for sale   | 38%     |
| Beef cattle   | 36%     |
| Area set aside for living/recreation (e.g. gardens, pets, water bodies, vehicles)                   | 36%     |
| Dairying  | 18%     |
| Other commercial livestock enterprises (e.g. goats, pigs, deer, horse studs, poultry, alpaca, dogs) | 10%     |
| Horticulture  | 5%      |
| Farm forestry   | 5%      |
| Carbon farming  | 4%      |
| Vegetation offsets  | 3%      |
| Farm-based tourism (e.g. farm stays, B&B)   | 3%      |
| Viticulture   | 2%      |
| Conservation covenant attached to property title (e.g. Trust For Nature)                            | 2%      |

 Table 27 Confidence in recommended practices, Irrigated Riverine profile (n=132). 2019 North

 Central social benchmarking survey (N=663)

| Confidence in recommended practices  | Agree/strongly agree (%) |
|--|--------------------------|
| Soil testing is an essential first step in understanding soil condition  | 88%                      |
| The costs of applying gypsum to address soil sodicity are<br>justified by increased production   | 76%                      |
| Fencing to manage stock access is necessary to protect the health of waterways & wetlands  | 73%                      |
| The benefits of stubble retention outweigh problems arising from the practice  | 67%                      |
| Improvements in bank stability & vegetation condition justify the costs of watering stock off-stream   | 67%                      |
| Intensive grazing for short periods is usually better for the<br>health of native vegetation along waterways and wetlands than<br>set stocking | 61%                      |
| The costs of establishing perennial pasture are justified by the returns   | 58%                      |
| The costs of applying lime to address soil acidity are justified by increased production   | 57%                      |
| The cost of willow removal is justified by improvements in the condition of river banks & river health   | 34%                      |
| The cost of deep-tillage and subsoil modification are justified by increased production  | 33%                      |

 Table 28 Responding to climate change, Irrigated Riverine profile (n=132). 2019 North Central social benchmarking survey (N=663)

| Changes to management practices in response to climate change  | Yes (%) |
|--|---------|
| In the past 12 months have you changed your financial or on-   | 210/    |
| property operations as a result of considering climate change?   | 2170    |
| In the past 12 months have you changed your on-property operations as a result of considering opportunities to reduce carbon emissions (e.g. solar, wind, gravity systems)?  | 16%     |
| In the past 12 months have you changed your on-property<br>operations as a result of considering opportunities to capture<br>carbon (e.g. by revegetation, soil management)? | 9%      |

Table 29 Belief in human induced climate change, Irrigated Riverine profile (n=132). 2019 NorthCentral social benchmarking survey (N=663)

| Belief in human induced climate change                       | Agree/strongly agree (%) |
|--|--------------------------|
| It is not too late to take action to address climate change  | 51%                      |
| Human activities are influencing changes in climate          | 47%                      |
| If we do nothing, climate change will have dire consequences | 119/                     |
| for all living things, including humans                      | 41%                      |

Table 30 Attitudes and beliefs about climate change, Irrigated Riverine profile (n=132). 2019 North Central social benchmarking survey (N=663)

| Attitudes and beliefs about climate change  | Agree/strongly agree (%) |
|---|--------------------------|
| Primary producers should do all they can to reduce carbon emissions from their activities   | 61%                      |
| I'm confident landholders in this region can adapt to expected changes in rainfall patterns | 56%                      |

Table 31 Belief in the primacy of private property rights, Irrigated Riverine profile (n=132). 2019North Central social benchmarking survey (N=663)

| Belief in the primacy of private property rights          | Agree/strongly agree (%) |
|---|--------------------------|
| Aboriginal people should be able to negotiate access with | 15%                      |
| landholders to visit cultural sites                       | 4370                     |
| Landholders should be able to harvest rainfall on their   | 33%                      |
| property, even if that action impacts on others           |                          |
| If landholders are informed in advance, it would be       |                          |
| acceptable to cause minor floods for environmental        | 25%                      |
| purposes  |                          |
| The public should be able to access crown land managed by | 24%                      |
| private landholders (e.g. unused roads)                   | 24/0                     |

Table 32 Attitudes and beliefs, Irrigated Riverine profile (n=132). 2019 North Central socialbenchmarking survey (N=663)

| Attitudes and beliefs   | Agree/strongly agree (%) |
|---|--------------------------|
| Biological activity is an important indicator of the productive capacity of soils   | 79%                      |
| The increased allocation of water for the environment under<br>the Murray-Darling Basin Plan will improve the health of<br>waterways & wetlands | 18%                      |

Table 33 Personal norms, Irrigated Riverine profile (n=132). 2019 North Central socialbenchmarking survey (N=663)

| Personal norms: soil health   | Agree/strongly agree (%) |
|---|--------------------------|
| I feel a personal responsibility to maintain my soil's productive capacity. | 89%                      |
| I feel a personal responsibility to be part of a soil health group          | 23%                      |

 Table 34 Disposition to accept risk, Irrigated Riverine profile (n=132). 2019 North Central social benchmarking survey (N=663)

| Disposition to accept risk  | Agree/strongly agree (%) |
|---|--------------------------|
| I really dislike not knowing what is going to happen                    | 53%                      |
| I usually view risks as a challenge to embrace                          | 53%                      |
| I prefer to avoid risks   | 50%                      |
| I am an early adopter of new agricultural practices and<br>technologies | 38%                      |

Table 35 Disposition to trust others, Irrigated Riverine profile (n=132). 2019 North Central socialbenchmarking survey (N=663)

| Disposition to trust others  | Agree/strongly agree (%) |
|--|--------------------------|
| You can't be too careful when dealing with people                    | 63%                      |
| One has to be alert or someone is likely to take<br>advantage of you | 63%                      |
| People are almost always interested only in their own welfare        | 44%                      |

Table 36 Trust in and judgements of the trustworthiness of the North Central CMA, IrrigatedRiverine profile (n=132). 2019 North Central social benchmarking survey (N=663)

| Trust in and judgements of the trustworthiness of the<br>North Central CMA: waterways and wetlands<br>management               | Agree/strongly agree (%) |
|--|--------------------------|
| <i>Filter question:</i> Are you aware of the existence of the North Central CMA  | 86%                      |
| The North Central CMA is very knowledgeable about<br>waterways & wetlands management   | 41%                      |
| I can rely on the North Central CMA to provide useful advice about waterways & wetlands management                             | 39%                      |
| The North Central CMA keeps landholders' interests in<br>mind when making decisions about waterways and<br>wetlands management | 39%                      |
| Sound principles guide North Central CMA decisions about waterways & wetlands management                                       | 30%                      |
| I can rely on the North Central CMA to provide<br>appropriate financial assistance for waterways &<br>wetlands management      | 22%                      |

 Table 37 Information sources (top 5), Irrigated Riverine profile (n=132). 2019 North Central social benchmarking survey (N=663)

| Information sources (top 5)                            | Yes (%) |
|--|---------|
| Bureau of Meteorology                                  | 74%     |
| Newspapers   | 67%     |
| Friends/neighbours/relatives                           | 64%     |
| Water Authorities (e.g. GMW, Coliban Water)            | 61%     |
| Agricultural consultants, agronomists and stock agents | 60%     |

Table 38 Issues of concern at the district scale (top 5), Irrigated Riverine profile (n=132). 2019 North Central social benchmarking survey (N=663)

| Issues of concern at the district scale (top 5)   | Important/very important (%) |
|---|------------------------------|
| Movement of irrigation water away from this region  | 92%                          |
| Modernisation of the irrigation system as part of water reform                                    | 69%                          |
| Uncertain/low returns limiting capacity to invest in my property                                  | 66%                          |
| Changes in weather patterns   | 66%                          |
| Absence or poor quality of important services and infrastructure (e.g. health, schools, internet) | 65%                          |
| The impact of pest plants and animals on native plants and animals                                | 65%                          |

Table 39 Soil issues on property, Irrigated Riverine profile (n=132). 2019 North Central socialbenchmarking survey (N=663)

| Soil issues on property  | Important/very important (%) |
|--|------------------------------|
| Low biological activity in soils                                 | 63%                          |
| Low organic carbon in soils                                      | 61%                          |
| Soil erosion (e.g. by wind or water)                             | 59%                          |
| Low permeability of sub soil                                     | 58%                          |
| Declining nutrient status of soils                               | 56%                          |
| Soil acidity (lower pH) undermining productive capacity of soils | 46%                          |
| Soil sodicity  | 45%                          |

Table 40 Attached values (top 5), Irrigated Riverine profile (n=132). 2019 North Central socialbenchmarking survey (N=663)

| Attached values (top 5)   | Important/very important (%) |
|---|------------------------------|
| Ability to pass on a healthier environment for future generations   | 89%                          |
| Sense of accomplishment from building/maintaining a viable business | 88%                          |
| The productive value of the soil on my property                     | 88%                          |
| An attractive place/area to live                                    | 83%                          |
| An asset that is an important part of family wealth                 | 82%                          |

Table 41 Held values (top 5), Irrigated Riverine profile (n=132). 2019 North Central socialbenchmarking survey (N=663)

| Held values (top 5)  | Important/very important (%) |
|--|------------------------------|
| Looking after my family and their needs                            | 98%                          |
| Creating wealth and striving for a financially profitable business | 86%                          |
| Protecting the environment and preserving nature                   | 81%                          |
| Preventing pollution and protecting natural resources              | 80%                          |
| Respecting the earth and living in harmony with other species      | 68%                          |

Table 42 Knowledge (top 5), Irrigated Riverine profile (n=132). 2019 North Central socialbenchmarking survey (N=663)

| Knowledge (top 5)  | Sound/very sound knowledge (%) |
|--|--------------------------------|
| How to establish introduced perennial pastures (e.g.                       | 72%                            |
| lucerne) in this area  | 7370                           |
| Strategies to maintain ground cover to minimise erosion in this area       | 66%                            |
| How to identify the main constraints to soil                               |                                |
| productivity on your property  | 62%                            |
| Preparing a farm/property plan allocating land use according to land class | 54%                            |
| The production benefits of applying biological soil                        |                                |
| amendments and supplements (e.g. compost,                                  | 52%                            |
| manure, microbial inoculants)  |                                |

### 2.3 NORTHERN DRYLAND PLAINS (n=63)

Table 43 Social and farming information, Northern Dryland Plains profile (n=63). 2019 NorthCentral social benchmarking survey (N=663)

| Social and farming information  | Median/Yes (%)  |
|---|---|
| Total area of rural land owned within the NC CMA region   | 500 ha  |
| Area of additional land managed (lease/sharefarm/agist from others) within the NC CMA region  | 43% (163 ha)  |
| Area of your property that is leased, sharefarmed or agisted by others  | 21% (200 ha)  |
| Longest period of time you/your family have owned or managed all/some of your property  | 65 yrs  |
| Property is principal place of residence  | 86%   |
| Number of rural properties owned  | 1 property  |
| Number of rural properties owned within the NC CMA region   | 1 property  |
| Percent female  | 18%   |
| Age   | 64 yrs  |
| Farming occupational identity   | Full-time 68% Part-time 17%<br>Hobby 9% Non 7%  |
| Bought additional land to increase a landholding in this region in the past 20 years  | 54%   |
| Subdivided or sold part of your existing property in this region in the past 20 years   | 11%   |
| Number of hours per week worked on farming/property related activities over the past 12 months  | 84% (45 hrs)  |
| Number of days involved in paid off-property work in the past 12 months   | 19% (65 days)   |
| Earned an income from agriculture on your property in the North<br>Central region during 2018/19 financial year (percent of all<br>respondents) | 81%   |
| Earned a net profit from agriculture (income exceeded all paid expenses before tax) in 2018/19 (percent of all respondents)                     | 62%   |
| Net profit from agriculture in 2018/19 was above \$50,000<br>(percent of all respondents)   | 38%   |
| Received a net off-property income (after expenses and before tax) last financial year (2018/2019) (percent of all respondents)                 | Me 27%<br>My spouse 17%   |
| Total off-property income (before tax) above \$50,000 (percent of all respondents)  | 30%   |
| Other family members working full time on your property   | 45%   |
| Family members interested in taking on your property in the future  | 46%   |
| Stage of succession planning  | Not started 37%<br>Early stages 33%<br>Halfway 7%<br>Well-advanced 13%<br>Completed/ongoing 10% |

Table 44 Group membership and engagement, Northern Dryland Plains profile (n=63). 2019 NorthCentral social benchmarking survey (N=663)

| Group membership and engagement                                      | Yes (%) |
|--|---------|
| Attended field days/farm walks/demonstrations focused on soil        | 270/    |
| health in the past 12 months   | 5770    |
| Member or involved with a local Landcare group                       | 32%     |
| Prepared/preparing a property management or whole farm plan that     |         |
| involves a map or other documents that address the existing property | 24%     |
| situation and include future management and development plans        |         |
| Attended field days/farm walks/demonstrations focused on native      | 1 00/   |
| plants and animals in the past 12 months                             | 10/0    |
| Completed a short course relevant to property management in the      | 16%     |
| past 5 years   | 1076    |
| Member or involved with a local commodity group                      | 15%     |
| Member of involved with a local soil health group                    | 10%     |

Table 45 Long-term plans (top 5), Northern Dryland Plains profile (n=63). 2019 North Central socialbenchmarking survey (N=663)

| Long term plans (top 5)   | Likely/highly likely (%) |
|---|--------------------------|
| Ownership of the property will stay within the family                 | 69%                      |
| Additional land will be purchased                                     | 34%                      |
| Additional land will be leased or share farmed                        | 28%                      |
| All or most of the property will be leased or share farmed            | 25%                      |
| The enterprise mix will be changed to diversify income sources        | 23%                      |
| Me or my spouse will seek additional off-property work                | 21%                      |
| The property will be sold   | 7%                       |
| The enterprise mix will be changed to less intensive enterprises      | 7%                       |
| I will move off the property around/soon after reaching age 65 years  | 6%                       |
| The enterprise mix will be changed to more intensive enterprises      | 5%                       |
| The property will be subdivided and a large part of the property sold | 3%                       |
| Some part of property will be placed under a conservation<br>covenant | 3%                       |

Table 46 Management practices over full period of management, Northern Dryland Plains profile(n=63). 2019 North Central social benchmarking survey (N=663)

| Management practices over full period of management  | Yes (%) |
|--|---------|
| Each year have worked to control non-crop weeds  | 83%     |
| Each year have worked to control pest animals  | 73%     |
| Planted trees and shrubs (incl. direct seeding)  | 70%     |
| Used minimum or no tillage techniques to establish crops or pastures                                     | 70%     |
| Sown lucerne   | 68%     |
| Tested soils for nutrient status in paddocks where have applied fertiliser/soil conditioners in the past | 60%     |
| Applied at least one lime application to arable land   | 59%     |
| Applied soil ameliorants other than fertiliser and lime (e.g. gypsum, organic manure)                    | 59%     |
| Sown perennial pastures other than lucerne   | 54%     |
| Fenced native bush/grasslands to manage stock access   | 51%     |
| Used time controlled or rotational grazing   | 44%     |
| Used precision farming techniques for cropping   | 44%     |
| Established off-stream watering points   | 37%     |
| Fenced waterways & wetlands to manage stock access   | 35%     |
| Deep ripped arable land  | 29%     |
| Prepared a nutrient budget for all/most of the property  | 21%     |
| Established an irrigation tailwater reuse system   | 19%     |
| Established permanent grassed waterways in drainage lines  | 16%     |
| Prepared a habitat assessment for native plants  | 11%     |

Table 47 Land use, Northern Dryland Plains profile (n=63). 2019 North Central social benchmarking survey (N=663)

| Land use  | Yes (%) |
|---|---------|
| Cropping  | 89%     |
| Pasture   | 73%     |
| Sheep for wool or meat  | 68%     |
| Other tree planting (e.g. shelter, habitat, erosion or recharge control, carbon)                    | 45%     |
| Area of remnant native vegetation (e.g. trees, grasslands, wetlands)                                | 44%     |
| Hay production for sale   | 35%     |
| Did you irrigate in the 2018/19 season?   | 25%     |
| If yes: Was surface water used  | 75%     |
| If yes: Was ground water was used   | 31%     |
| Irrigated agriculture   | 24%     |
| Area set aside for living/recreation (e.g. gardens, pets, water bodies, vehicles)                   | 24%     |
| Beef cattle   | 23%     |
| Farm forestry   | 10%     |
| Dairying  | 5%      |
| Other commercial livestock enterprises (e.g. goats, pigs, deer, horse studs, poultry, alpaca, dogs) | 5%      |
| Viticulture   | 5%      |
| Horticulture  | 3%      |
| Conservation covenant attached to property title (e.g. Trust For Nature)                            | 3%      |
| Carbon farming  | 3%      |
| Vegetation offsets  | 2%      |
| Farm-based tourism (e.g. farm stays, B&B)   | 2%      |
Table 48 Confidence in recommended practices, Northern Dryland Plains profile (n=63). 2019North Central social benchmarking survey (N=663)

| Confidence in recommended practices  | Agree/strongly agree (%) |
|--|--------------------------|
| Soil testing is an essential first step in understanding soil condition  | 85%                      |
| The costs of applying gypsum to address soil sodicity are justified  | 82%                      |
| by increased production  |                          |
| The costs of establishing perennial pasture are justified by the<br>returns  | 77%                      |
| Fencing to manage stock access is necessary to protect the health of waterways & wetlands  | 69%                      |
| The costs of applying lime to address soil acidity are justified by increased production   | 68%                      |
| The benefits of stubble retention outweigh problems arising from the practice  | 66%                      |
| Improvements in bank stability & vegetation condition justify the costs of watering stock off-stream                                     | 54%                      |
| Intensive grazing for short periods is usually better for the health of native vegetation along waterways and wetlands than set stocking | 49%                      |
| The cost of deep-tillage and subsoil modification are justified by<br>increased production   | 33%                      |
| The cost of willow removal is justified by improvements in the<br>condition of river banks & river health                                | 32%                      |

Table 49 Responding to climate change, Northern Dryland Plains profile (n=63). 2019 North Central social benchmarking survey (N=663)

| Changes to management practices in response to climate change  | Yes (%) |
|--|---------|
| In the past 12 months have you changed your on-property        |         |
| operations as a result of considering opportunities to reduce  | 23%     |
| carbon emissions (e.g. solar, wind, gravity systems)?          |         |
| In the past 12 months have you changed your financial or on-   | 22%     |
| property operations as a result of considering climate change? | 2270    |
| In the past 12 months have you changed your on-property        |         |
| operations as a result of considering opportunities to capture | 14%     |
| carbon (e.g. by revegetation, soil management)?                |         |

Table 50 Belief in human induced climate change, Northern Dryland Plains profile (n=63). 2019North Central social benchmarking survey (N=663)

| Belief in human induced climate change                           | Agree/strongly agree (%) |
|--|--------------------------|
| It is not too late to take action to address climate change      | 66%                      |
| Human activities are influencing changes in climate              | 46%                      |
| If we do nothing, climate change will have dire consequences for | 120/                     |
| all living things, including humans                              | 4370                     |

Table 51 Attitudes and beliefs about climate change, Northern Dryland Plains profile (n=63). 2019North Central social benchmarking survey (N=663)

| Attitudes and beliefs about climate change   | Agree/strongly agree (%) |
|--|--------------------------|
| I'm confident landholders in this region can adapt to expected<br>changes in rainfall patterns | 71%                      |
| Primary producers should do all they can to reduce carbon emissions from their activities      | 70%                      |

Table 52 Belief in the primacy of private property rights, Northern Dryland Plains profile (n=63).2019 North Central social benchmarking survey (N=663)

| Belief in the primacy of private property rights                  | Agree/strongly agree (%) |
|---|--------------------------|
| Aboriginal people should be able to negotiate access with         | 17%                      |
| landholders to visit cultural sites                               | 4270                     |
| Landholders should be able to harvest rainfall on their property, | 220/                     |
| even if that action impacts on others                             | 3370                     |
| The public should be able to access crown land managed by         | 1 00/                    |
| private landholders (e.g. unused roads)                           | 1870                     |
| If landholders are informed in advance, it would be acceptable to | 1 70/                    |
| cause minor floods for environmental purposes                     | 1770                     |

Table 53 Attitudes and beliefs, Northern Dryland Plains profile (n=63). 2019 North Central socialbenchmarking survey (N=663)

| Attitudes and beliefs   | Agree/strongly agree (%) |
|---|--------------------------|
| Biological activity is an important indicator of the productive<br>capacity of soils  | 81%                      |
| The increased allocation of water for the environment under<br>the Murray-Darling Basin Plan will improve the health of<br>waterways & wetlands | 17%                      |

Table 54 Personal norms, Northern Dryland Plains profile (n=63). 2019 North Central socialbenchmarking survey (N=663)

| Personal norms: soil health  | Agree/strongly agree (%) |
|--|--------------------------|
| I feel a personal responsibility to maintain my soil's productive capacity | 85%                      |
| I feel a personal responsibility to be part of a soil health group         | 34%                      |

Table 55 Disposition to accept risk, Northern Dryland Plains profile (n=63). 2019 North Central social benchmarking survey (N=663)

| Disposition to accept risk   | Agree/strongly agree (%) |
|--|--------------------------|
| I prefer to avoid risks  | 48%                      |
| I am an early adopter of new agricultural practices and technologies | 40%                      |
| I really dislike not knowing what is going to happen                 | 37%                      |
| I usually view risks as a challenge to embrace                       | 37%                      |

Table 56 Disposition to trust others, Northern Dryland Plains profile (n=63). 2019 North Centralsocial benchmarking survey (N=663)

| Disposition to trust others  | Agree/strongly agree (%) |
|--|--------------------------|
| You can't be too careful when dealing with people                    | 78%                      |
| One has to be alert or someone is likely to take<br>advantage of you | 61%                      |
| People are almost always interested only in their own welfare        | 44%                      |

Table 57 Trust in and judgements of the trustworthiness of the North Central CMA, NorthernDryland Plains profile (n=63). 2019 North Central social benchmarking survey (N=663)

| Trust in and judgements of the trustworthiness of the North<br>Central CMA: waterways and wetlands management                  | Agree/strongly agree (%) |
|--|--------------------------|
| <i>Filter question</i> : Are you aware of the existence of the North Central CMA   | 75%                      |
| Sound principles guide North Central CMA decisions about<br>waterways & wetlands management                                    | 38%                      |
| The North Central CMA is very knowledgeable about<br>waterways & wetlands management   | 38%                      |
| The North Central CMA keeps landholders' interests in mind<br>when making decisions about waterways and wetlands<br>management | 38%                      |
| I can rely on the North Central CMA to provide useful advice about waterways & wetlands management                             | 35%                      |
| I can rely on the North Central CMA to provide appropriate financial assistance for waterways & wetlands management            | 33%                      |

Table 58 Information sources (top 5), Northern Dryland Plains profile (n=63). 2019 North Central social benchmarking survey (N=663)

| Information sources (top 5)  | Yes (%) |
|------------------------------|---------|
| Bureau of Meteorology        | 66%     |
| Newspapers                   | 61%     |
| Friends/neighbours/relatives | 58%     |
| Field days                   | 56%     |
| Magazines                    | 53%     |

Table 59 Issues of concern at the district scale (top 5), Northern Dryland Plains profile (n=63). 2019 North Central social benchmarking survey (N=663)

| Issues of concern at the district scale (top 5)   | Important/very important (%) |
|---|------------------------------|
| Quality of water in farm dams during drought  | 78%                          |
| Changes in weather patterns   | 74%                          |
| Crop weed resistance to herbicide   | 73%                          |
| The impact of pest plants and animals on native plants and animals                                | 67%                          |
| Absence or poor quality of important services and infrastructure (e.g. health, schools, internet) | 61%                          |

Table 60 Soil issues on property, Northern Dryland Plains profile (n=63). 2019 North Central social benchmarking survey (N=663)

| Soil issues on property  | Important/very important (%) |
|--|------------------------------|
| Soil erosion (e.g. by wind or water)                             | 79%                          |
| Soil acidity (lower pH) undermining productive capacity of soils | 72%                          |
| Low biological activity in soils                                 | 72%                          |
| Declining nutrient status of soils                               | 72%                          |
| Low permeability of sub soil                                     | 71%                          |
| Low organic carbon in soils                                      | 69%                          |
| Soil sodicity  | 66%                          |

Table 61 Attached values (top 5), Northern Dryland Plains profile (n=63). 2019 North Central social benchmarking survey (N=663)

| Attached values (top 5)   | Important/very important (%) |
|---|------------------------------|
| Ability to pass on a healthier environment for future generations   | 90%                          |
| The productive value of the soil on my property                     | 87%                          |
| Sense of accomplishment from building/maintaining a viable business | 84%                          |
| Sense of accomplishment from producing food and fibre for others    | 82%                          |
| An asset that is an important part of family wealth                 | 82%                          |

Table 62 Held values (top 5), Northern Dryland Plains profile (n=63). 2019 North Central social benchmarking survey (N=663)

| Held values (top 5)  | Important/very important (%) |
|--|------------------------------|
| Looking after my family and their needs                            | 95%                          |
| Preventing pollution and protecting natural resources              | 79%                          |
| Protecting the environment and preserving nature                   | 77%                          |
| Respecting the earth and living in harmony with other species      | 69%                          |
| Creating wealth and striving for a financially profitable business | 67%                          |

Table 63 Knowledge (top 5), Northern Dryland Plains profile (n=63). 2019 North Central socialbenchmarking survey (N=663)

| Knowledge (top 5)   | Sound/very sound knowledge (%) |
|---|--------------------------------|
| How to establish introduced perennial pastures (e.g. lucerne) in this area  | 75%                            |
| Strategies to maintain ground cover to minimise erosion in this area  | 68%                            |
| How to identify the main constraints to soil<br>productivity on your property   | 58%                            |
| The production benefits of applying biological soil<br>amendments and supplements (e.g. compost,<br>manure, microbial inoculants) | 50%                            |
| Preparing a farm/property plan allocating land use according to land class  | 48%                            |

## 2.4 SOUTHERN UPLANDS (n=94)

Table 64 Social and farming information, Southern uplands profile (n=94). 2019 North Centralsocial benchmarking survey (N=663)

| Social and farming information  | Median/Yes (%)  |
|---|---|
| Total area of rural land owned within the NC CMA region   | 33.5 ha   |
| Area of additional land managed (lease/sharefarm/agist from others) within the NC CMA region  | 18% (36 ha)   |
| Area of your property that is leased, sharefarmed or agisted by others  | 19% (28.5 ha)   |
| Longest period of time you/your family have owned or managed all/some of your property  | 25 yrs  |
| Property is principal place of residence  | 68%   |
| Number of rural properties owned  | 1 property  |
| Number of rural properties owned within the NC CMA region   | 1 property  |
| Percent female  | 0%  |
| Age   | 63 yrs  |
| Farming occupational identity   | Full-time 26% Part-time 22%<br>Hobby 26% Non 26%  |
| Bought additional land to increase a landholding in this region in the past 20 years  | 22%   |
| Subdivided or sold part of your existing property in this region in the past 20 years   | 12%   |
| Number of hours per week worked on farming/property related activities over the past 12 months  | 76% (20 hrs)  |
| Number of days involved in paid off-property work in the past 12 months   | 43% (125 days)  |
| Earned an income from agriculture on your property in the<br>North Central region during 2018/19 financial year (percent<br>of all respondents) | 47%   |
| Earned a net profit from agriculture (income exceeded all<br>paid expenses before tax) in 2018/19 (percent of all<br>respondents)               | 27%   |
| Net profit from agriculture in 2018/19 was above \$50,000 (percent of all respondents)  | 14%   |
| Received a net off-property income (after expenses and<br>before tax) last financial year (2018/2019) (percent of all<br>respondents)           | Me 50%<br>My spouse 12%   |
| Total off-property income (before tax) above \$50,000<br>(percent of all respondents)   | 41%   |
| Other family members working full time on your property   | 14%   |
| Family members interested in taking on your property in the future  | 36%   |
| Stage of succession planning  | Not started 56%<br>Early stages 12%<br>Halfway 7%<br>Well advanced 12%<br>Completed/ongoing 12% |

Table 65 Group membership and engagement, Southern uplands profile (n=94). 2019 North Central social benchmarking survey (N=663)

| Group membership and engagement  | Yes (%) |
|--|---------|
| Prepared/preparing a property management or whole farm plan<br>that involves a map or other documents that address the existing<br>property situation and include future management and<br>development plans | 35%     |
| Member or involved with a local Landcare group   | 34%     |
| Attended field days/farm walks/demonstrations focused on native plants and animals in the past 12 months   | 28%     |
| Attended field days/farm walks/demonstrations focused on soil health in the past 12 months   | 26%     |
| Completed a short course relevant to property management in the past 5 years   | 20%     |
| Member or involved with a local commodity group  | 7%      |
| Member of involved with a local soil health group  | 6%      |

Table 66 Long-term plans (top 5), Southern uplands profile (n=94). 2019 North Central socialbenchmarking survey (N=663)

| Long term plans (top 5)   | Likely/highly likely (%) |
|---|--------------------------|
| Ownership of the property will stay within the family                 | 70%                      |
| Me or my spouse will seek additional off-property work                | 22%                      |
| The enterprise mix will be changed to diversify income sources        | 18%                      |
| The property will be sold   | 18%                      |
| Some part of property will be placed under a conservation<br>covenant | 16%                      |

Table 67 Management practices over full period of management, Southern uplands profile (n=94).2019 North Central social benchmarking survey (N=663)

| Management practices over full period of management             | Yes (%) |
|---|---------|
| Each year have worked to control non-crop weeds                 | 71%     |
| Planted trees and shrubs (incl. direct seeding)                 | 68%     |
| Each year have worked to control pest animals                   | 64%     |
| Fenced native bush/grasslands to manage stock access            | 49%     |
| Fenced waterways & wetlands to manage stock access              | 44%     |
| Established off-stream watering points                          | 40%     |
| Tested soils for nutrient status in paddocks where have applied | 40%     |
| fertiliser/soil conditioners in the past                        | 4070    |
| Used time controlled or rotational grazing                      | 39%     |
| Applied at least one lime application to arable land            | 39%     |
| Sown perennial pastures other than lucerne                      | 36%     |
| Used minimum or no tillage techniques to establish crops or     | 30%     |
| pastures  | 5070    |
| Applied soil ameliorants other than fertiliser and lime (e.g.   | 30%     |
| gypsum, organic manure)   | 5070    |
| Prepared a habitat assessment for native plants                 | 20%     |
| Established permanent grassed waterways in drainage lines       | 17%     |
| Sown lucerne  | 17%     |
| Used precision farming techniques for cropping                  | 14%     |
| Deep ripped arable land   | 12%     |
| Prepared a nutrient budget for all/most of the property         | 12%     |
| Established an irrigation tailwater reuse system                | 6%      |

Table 68 Land use, Southern uplands profile (n=94). 2019 North Central social benchmarking survey (N=663)

| Land use  | Yes (%) |
|---|---------|
| Pasture   | 53%     |
| Area set aside for living/recreation (e.g. gardens, pets, water bodies, vehicles)                   | 48%     |
| Area of remnant native vegetation (e.g. trees, grasslands, wetlands)                                | 46%     |
| Sheep for wool or meat  | 38%     |
| Other tree planting (e.g. shelter, habitat, erosion or recharge control, carbon)                    | 37%     |
| Beef cattle   | 36%     |
| Did you irrigate in the 2018/19 season?   | 19%     |
| If yes: Was surface water used  | 67%     |
| If yes: Was ground water was used   | 44%     |
| Cropping  | 14%     |
| Horticulture  | 14%     |
| Farm-based tourism (e.g. farm stays, B&B)   | 12%     |
| Irrigated agriculture   | 11%     |
| Other commercial livestock enterprises (e.g. goats, pigs, deer, horse studs, poultry, alpaca, dogs) | 10%     |
| Hay production for sale   | 10%     |
| Farm forestry   | 6%      |
| Viticulture   | 2%      |
| Vegetation offsets  | 2%      |
| Conservation covenant attached to property title (e.g. Trust<br>For Nature)                         | 2%      |
| Carbon farming  | 2%      |
| Dairying  | 1%      |

Table 69 Confidence in recommended practices, Southern uplands profile (n=94). 2019 NorthCentral social benchmarking survey (N=663)

| Confidence in recommended practices  | Agree/strongly agree (%) |
|--|--------------------------|
| Soil testing is an essential first step in understanding soil condition  | 93%                      |
| Fencing to manage stock access is necessary to protect the health of waterways & wetlands  | 73%                      |
| Improvements in bank stability & vegetation condition justify the costs of watering stock off-stream   | 62%                      |
| Intensive grazing for short periods is usually better for the<br>health of native vegetation along waterways and wetlands<br>than set stocking | 55%                      |
| The cost of willow removal is justified by improvements in the condition of river banks & river health   | 54%                      |
| The costs of establishing perennial pasture are justified by the returns   | 52%                      |
| The costs of applying lime to address soil acidity are justified by increased production   | 46%                      |
| The costs of applying gypsum to address soil sodicity are justified by increased production  | 38%                      |
| The benefits of stubble retention outweigh problems arising<br>from the practice   | 34%                      |
| The cost of deep-tillage and subsoil modification are justified by increased production  | 22%                      |

Table 70 Responding to climate change, Southern uplands profile (n=94). 2019 North Central socialbenchmarking survey (N=663)

| Changes to management practices in response to climate<br>change   | Yes (%) |
|--|---------|
| In the past 12 months have you changed your on-property operations as a result of considering opportunities to reduce carbon emissions (e.g. solar, wind, gravity systems)?  | 29%     |
| In the past 12 months have you changed your on-property<br>operations as a result of considering opportunities to<br>capture carbon (e.g. by revegetation, soil management)? | 22%     |
| In the past 12 months have you changed your financial or<br>on-property operations as a result of considering climate<br>change?   | 18%     |

Table 71 Belief in human induced climate change, Southern uplands profile (n=94). 2019 NorthCentral social benchmarking survey (N=663)

| Belief in human induced climate change  | Agree/strongly agree (%) |
|---|--------------------------|
| Human activities are influencing changes in climate   | 77%                      |
| If we do nothing, climate change will have dire<br>consequences for all living things, including humans | 75%                      |
| It is not too late to take action to address climate change   | 67%                      |

Table 72 Attitudes and beliefs about climate change, Southern uplands profile (n=94). 2019 NorthCentral social benchmarking survey (N=663)

| Attitudes and beliefs about climate change   | Agree/strongly agree (%) |
|--|--------------------------|
| Primary producers should do all they can to reduce carbon emissions from their activities      | 75%                      |
| I'm confident landholders in this region can adapt to<br>expected changes in rainfall patterns | 51%                      |

Table 73 Belief in the primacy of private property rights, Southern uplands profile (n=94). 2019North Central social benchmarking survey (N=663)

| Belief in the primacy of private property rights  | Agree/strongly agree (%) |
|---|--------------------------|
| Aboriginal people should be able to negotiate access with<br>landholders to visit cultural sites                | 60%                      |
| Landholders should be able to harvest rainfall on their property, even if that action impacts on others         | 53%                      |
| If landholders are informed in advance, it would be acceptable to cause minor floods for environmental purposes | 46%                      |
| The public should be able to access crown land managed by private landholders (e.g. unused roads)               | 36%                      |

Table 74 Attitudes and beliefs, Southern uplands profile (n=94). 2019 North Central socialbenchmarking survey (N=663)

| Attitudes and beliefs   | Agree/strongly agree (%) |
|---|--------------------------|
| Biological activity is an important indicator of the productive capacity of soils   | 75%                      |
| The increased allocation of water for the environment under<br>the Murray-Darling Basin Plan will improve the health of<br>waterways & wetlands | 51%                      |

Table 75 Personal norms, Southern uplands profile (n=94). 2019 North Central socialbenchmarking survey (N=663)

| Personal norms: soil health   | Agree/strongly agree (%) |
|---|--------------------------|
| I feel a personal responsibility to maintain my soil's productive<br>capacity | 76%                      |
| I feel a personal responsibility to be part of a soil health group            | 29%                      |

Table 76 Disposition to accept risk, Southern uplands profile (n=94). 2019 North Central socialbenchmarking survey (N=663)

| Disposition to accept risk   | Agree/strongly agree (%) |
|--|--------------------------|
| I prefer to avoid risks  | 54%                      |
| I really dislike not knowing what is going to happen                 | 43%                      |
| I usually view risks as a challenge to embrace                       | 42%                      |
| I am an early adopter of new agricultural practices and technologies | 31%                      |

 Table 77 Disposition to trust others, Southern uplands profile (n=94). 2019 North Central social benchmarking survey (N=663)

| Disposition to trust others                                       | Agree/strongly agree (%) |
|---|--------------------------|
| You can't be too careful when dealing with people                 | 49%                      |
| One has to be alert or someone is likely to take advantage of you | 48%                      |
| People are almost always interested only in their own welfare     | 37%                      |

Table 78 Trust in and judgements of the trustworthiness of the North Central CMA, Southernuplands profile (n=94). 2019 North Central social benchmarking survey (N=663)

| Trust in and judgements of the trustworthiness of the North<br>Central CMA: waterways and wetlands management                  | Agree/strongly agree (%) |
|--|--------------------------|
| <i>Filter question</i> : Are you aware of the existence of the North Central CMA   | 60%                      |
| The North Central CMA is very knowledgeable about waterways & wetlands management  | 51%                      |
| I can rely on the North Central CMA to provide useful advice about waterways & wetlands management                             | 46%                      |
| Sound principles guide North Central CMA decisions about<br>waterways & wetlands management                                    | 40%                      |
| The North Central CMA keeps landholders' interests in mind<br>when making decisions about waterways and wetlands<br>management | 38%                      |
| I can rely on the North Central CMA to provide appropriate financial assistance for waterways & wetlands management            | 21%                      |

Table 79 Information sources (top 5), Southern uplands profile (n=94). 2019 North Central socialbenchmarking survey (N=663)

| Information sources (top 5)  | Yes (%) |
|------------------------------|---------|
| Bureau of Meteorology        | 61%     |
| Friends/neighbours/relatives | 54%     |
| Newspapers                   | 52%     |
| Websites                     | 51%     |
| Television                   | 46%     |

Table 80 Issues of concern at the district scale (top 5), Southern uplands profile (n=94). 2019 North Central social benchmarking survey (N=663)

| Issues of concern at the district scale (top 5)                    | Important/very important (%) |
|--|------------------------------|
| Risk to life and property from wildfires                           | 74%                          |
| Changes in weather patterns  | 67%                          |
| The impact of pest plants and animals on native plants and animals | 66%                          |
| Quality of water in farm dams during drought                       | 64%                          |
| Long-term negative impacts of property purchased by absentees      | 55%                          |

Table 81 Soil issues on property, Southern uplands profile (n=94). 2019 North Central social benchmarking survey (N=663)

| Soil issues on property  | Important/very important (%) |
|--|------------------------------|
| Soil erosion (e.g. by wind or water)                             | 60%                          |
| Low biological activity in soils                                 | 56%                          |
| Declining nutrient status of soils                               | 54%                          |
| Low organic carbon in soils                                      | 51%                          |
| Soil acidity (lower pH) undermining productive capacity of soils | 50%                          |
| Low permeability of sub soil                                     | 39%                          |
| Soil sodicity  | 32%                          |

Table 82 Attached values (top 5), Southern uplands profile (n=94). 2019 North Central social benchmarking survey (N=663)

| Attached values (top 5)   | Important/very important (%) |
|---|------------------------------|
| An attractive place/area to live                                  | 89%                          |
| Ability to pass on a healthier environment for future generations | 80%                          |
| Native vegetation provides habitat for birds and<br>animals       | 71%                          |
| A place where I can escape the pressures of life                  | 68%                          |
| A great place to raise a family                                   | 66%                          |

Table 83 Held values (top 5), Southern uplands profile (n=94). 2019 North Central social benchmarking survey (N=663)

| Held values (top 5)   | Important/very important (%) |
|---|------------------------------|
| Looking after my family and their needs                       | 93%                          |
| Protecting the environment and preserving nature              | 83%                          |
| Preventing pollution and protecting natural resources         | 77%                          |
| Respecting the earth and living in harmony with other species | 73%                          |
| Working for the welfare of others                             | 62%                          |

Table 84 Knowledge (top 5), Southern uplands profile (n=94). 2019 North Central socialbenchmarking survey (N=663)

| Knowledge (top 5)   | Sound/very sound knowledge (%) |
|---|--------------------------------|
| Strategies to maintain ground cover to minimise erosion in this area  | 52%                            |
| The production benefits of applying biological soil<br>amendments and supplements (e.g. compost, manure,<br>microbial inoculants) | 41%                            |
| The role of understorey plants in maintaining native birds  | 39%                            |
| The role of logs & river-side vegetation in supporting<br>native fish   | 39%                            |
| Preparing a farm/property plan allocating land use according to land class  | 36%                            |

## 2.5 UPPER LODDON PLAINS (n=44)

Table 85 Social and farming information, Upper Loddon Plains profile (n=44). 2019 North Centralsocial benchmarking survey (N=663)

| Social and farming information  | Median/Yes (%)   |
|---|--|
| Total area of rural land owned within the NC CMA region   | 87.85ha  |
| Area of additional land managed (lease/sharefarm/agist from others) within the NC CMA region  | 20% (20 ha)  |
| Area of your property that is leased, sharefarmed or agisted by others  | 18% (99.35 ha)   |
| Longest period of time you/your family have owned or managed all/some of your property  | 40 yrs   |
| Property is principal place of residence  | 73%  |
| Number of rural properties owned  | 1 property   |
| Number of rural properties owned within the NC CMA region   | 1 property   |
| Percent female  | 24%  |
| Age   | 61 yrs   |
| Farming occupational identity   | Full-time 41% Part-time 33%<br>Hobby 5% Non 21%  |
| Bought additional land to increase a landholding in this region in the past 20 years  | 55%  |
| Subdivided or sold part of your existing property in this region in the past 20 years   | 7%   |
| Number of hours per week worked on farming/property related activities over the past 12 months  | 86% (27.5 hrs)   |
| Number of days involved in paid off-property work in the past 12 months   | 36% (200 days)   |
| Earned an income from agriculture on your property in the<br>North Central region during 2018/19 financial year (percent<br>of all respondents) | 75%  |
| Earned a net profit from agriculture (income exceeded all<br>paid expenses before tax) in 2018/19 (percent of all<br>respondents)               | 48%  |
| Net profit from agriculture in 2018/19 was above \$50,000<br>(percent of all respondents)   | 16%  |
| Received a net off-property income (after expenses and<br>before tax) last financial year (2018/2019) (percent of all<br>respondents)           | Me 48%<br>My spouse 11%  |
| Total off-property income (before tax) above \$50,000<br>(percent of all respondents)   | 41%  |
| Other family members working full time on your property   | 21%  |
| Family members interested in taking on your property in the future  | 42%  |
| Stage of succession planning  | Not started 29%<br>Early stages 29%<br>Halfway 13%<br>Well-advanced 17%<br>Completed/ongoing 13% |

Table 86 Group membership and engagement, Upper Loddon Plains profile (n=44). 2019 NorthCentral social benchmarking survey (N=663)

| Group membership and engagement                     | Yes (%) |
|---|---------|
| Member or involved with a local Landcare group      | 29%     |
| Prepared/preparing a property management or         |         |
| whole farm plan that involves a map or other        |         |
| documents that address the existing property        | 28%     |
| situation and include future management and         |         |
| development plans                                   |         |
| Attended field days/farm walks/demonstrations       | 26%     |
| focused on soil health in the past 12 months        | 2076    |
| Completed a short course relevant to property       | 21%     |
| management in the past 5 years                      | 21/0    |
| Member or involved with a local commodity group     | 19%     |
| Attended field days/farm walks/demonstrations       |         |
| focused on native plants and animals in the past 12 | 17%     |
| months  |         |
| Member of involved with a local soil health group   | 12%     |
|   |         |

Table 87 Long-term plans (top 5), Upper Loddon Plains profile (n=44). 2019 North Central socialbenchmarking survey (N=663)

| Long term plans (top 5)                               | Likely/highly likely (%) |
|---|--------------------------|
| Ownership of the property will stay within the family | 67%                      |
| The enterprise mix will be changed to diversify       | 20%                      |
| income sources  | 50%                      |
| I will move off the property around/soon after        | 28%                      |
| reaching age 65 years                                 | 20/0                     |
| The property will be sold                             | 27%                      |
| All or most of the property will be leased or share   | 26%                      |
| farmed  | 2070                     |

Table 88 Management practices over full period of management, Upper Loddon Plains profile(n=44). 2019 North Central social benchmarking survey (N=663)

| Management practices over full period of<br>management   | Yes (%) |
|--|---------|
| Each year have worked to control non-crop weeds  | 82%     |
| Planted trees and shrubs (incl. direct seeding)  | 73%     |
| Each year have worked to control pest animals  | 73%     |
| Used minimum or no tillage techniques to establish   | 55%     |
| Crops of pastures  |         |
| access   | 48%     |
| Applied at least one lime application to arable land   | 45%     |
| Tested soils for nutrient status in paddocks where have applied fertiliser/soil conditioners in the past | 45%     |
| Sown perennial pastures other than lucerne   | 43%     |
| Fenced waterways & wetlands to manage stock<br>access  | 32%     |
| Established off-stream watering points   | 32%     |
| Sown lucerne   | 32%     |
| Used time controlled or rotational grazing   | 30%     |
| Applied soil ameliorants other than fertiliser and lime<br>(e.g. gypsum, organic manure)                 | 27%     |
| Used precision farming techniques for cropping   | 23%     |
| Prepared a nutrient budget for all/most of the<br>property   | 16%     |
| Established permanent grassed waterways in<br>drainage lines   | 14%     |
| Deep ripped arable land  | 11%     |
| Prepared a habitat assessment for native plants  | 7%      |
| Established an irrigation tailwater reuse system   | 2%      |

Table 89 Land use, Upper Loddon Plains uplands profile (n=44). 2019 North Central socialbenchmarking survey (N=663)

| Land use  | Yes (%) |
|---|---------|
| Pasture   | 70%     |
| Sheep for wool or meat  | 61%     |
| Cropping  | 50%     |
| Area of remnant native vegetation (e.g. trees, grasslands, wetlands)                                | 50%     |
| Other tree planting (e.g. shelter, habitat, erosion or recharge control, carbon)                    | 43%     |
| Area set aside for living/recreation (e.g. gardens, pets, water bodies, vehicles)                   | 41%     |
| Beef cattle   | 30%     |
| Hay production for sale   | 20%     |
| Did you irrigate in the 2018/19 season?   | 12%     |
| If yes: Was surface water used  | 29%     |
| If yes: Was ground water was used   | 57%     |
| Irrigated agriculture   | 11%     |
| Other commercial livestock enterprises (e.g. goats, pigs, deer, horse studs, poultry, alpaca, dogs) | 7%      |
| Farm-based tourism (e.g. farm stays, B&B)   | 7%      |
| Vegetation offsets  | 5%      |
| Horticulture  | 5%      |
| Conservation covenant attached to property title<br>(e.g. Trust For Nature)                         | 5%      |
| Viticulture   | 2%      |
| Farm forestry   | 2%      |
| Dairying  | 0%      |
| Carbon farming  | 0%      |

Table 90 Confidence in recommended practices, Upper Loddon Plains profile (n=44). 2019 NorthCentral social benchmarking survey (N=663)

| Confidence in recommended practices  | Agree/strongly agree (%) |
|--|--------------------------|
| Soil testing is an essential first step in understanding<br>soil condition   | 98%                      |
| The costs of establishing perennial pasture are justified by the returns   | 66%                      |
| The costs of applying lime to address soil acidity are<br>justified by increased production  | 64%                      |
| The costs of applying gypsum to address soil sodicity are justified by increased production  | 64%                      |
| Fencing to manage stock access is necessary to<br>protect the health of waterways & wetlands   | 63%                      |
| The benefits of stubble retention outweigh problems arising from the practice  | 57%                      |
| Improvements in bank stability & vegetation<br>condition justify the costs of watering stock off-<br>stream                                    | 56%                      |
| The cost of willow removal is justified by<br>improvements in the condition of river banks & river<br>health                                   | 51%                      |
| Intensive grazing for short periods is usually better<br>for the health of native vegetation along waterways<br>and wetlands than set stocking | 48%                      |
| The cost of deep-tillage and subsoil modification are<br>justified by increased production   | 36%                      |

Table 91 Responding to climate change, Upper Loddon Plains profile (n=44). 2019 North Centralsocial benchmarking survey (N=663)

| Changes to management practices in response to<br>climate change  | Yes (%) |
|---|---------|
| In the past 12 months have you changed your on-<br>property operations as a result of considering<br>opportunities to reduce carbon emissions (e.g. solar,<br>wind, gravity systems)? | 29%     |
| In the past 12 months have you changed your financial or on-property operations as a result of considering climate change?  | 12%     |
| In the past 12 months have you changed your on-<br>property operations as a result of considering<br>opportunities to capture carbon (e.g. by<br>revegetation, soil management)?      | 7%      |

Table 92 Belief in human induced climate change, Upper Loddon Plains profile (n=44). 2019 NorthCentral social benchmarking survey (N=663)

| Belief in human induced climate change  | Agree/strongly agree (%) |
|---|--------------------------|
| Human activities are influencing changes in climate   | 69%                      |
| It is not too late to take action to address climate change   | 67%                      |
| If we do nothing, climate change will have dire<br>consequences for all living things, including humans | 64%                      |

Table 93 Attitudes and beliefs about climate change, Upper Loddon Plains profile (n=44). 2019North Central social benchmarking survey (N=663)

| Attitudes and beliefs about climate change   | Agree/strongly agree (%) |
|--|--------------------------|
| Primary producers should do all they can to reduce<br>carbon emissions from their activities   | 75%                      |
| I'm confident landholders in this region can adapt to<br>expected changes in rainfall patterns | 70%                      |

Table 94 Belief in the primacy of private property rights, Upper Loddon Plains profile (n=44). 2019 North Central social benchmarking survey (N=663)

| Belief in the primacy of private property rights  | Agree/strongly agree (%) |
|---|--------------------------|
| Aboriginal people should be able to negotiate access with landholders to visit cultural sites                         | 60%                      |
| Landholders should be able to harvest rainfall on their property, even if that action impacts on others               | 50%                      |
| If landholders are informed in advance, it would be<br>acceptable to cause minor floods for environmental<br>purposes | 41%                      |
| The public should be able to access crown land managed by private landholders (e.g. unused roads)                     | 21%                      |

Table 95 Attitudes and beliefs, Upper Loddon Plains profile (n=44). 2019 North Central social benchmarking survey (N=663)

| Attitudes and beliefs   | Agree/strongly agree (%) |
|---|--------------------------|
| Biological activity is an important indicator of the<br>productive capacity of soils  | 81%                      |
| The increased allocation of water for the<br>environment under the Murray-Darling Basin Plan<br>will improve the health of waterways & wetlands | 49%                      |

Table 96 Personal norms, Upper Loddon Plains profile (n=44). 2019 North Central socialbenchmarking survey (N=663)

| Personal norms: soil health  | Agree/strongly agree (%) |
|--|--------------------------|
| I feel a personal responsibility to maintain my soil's productive capacity | 89%                      |
| I feel a personal responsibility to be part of a soil<br>health group      | 42%                      |

Table 97 Disposition to accept risk, Upper Loddon Plains profile (n=44). 2019 North Central socialbenchmarking survey (N=663)

| Disposition to accept risk  | Agree/strongly agree (%) |
|---|--------------------------|
| I usually view risks as a challenge to embrace                          | 57%                      |
| I am an early adopter of new agricultural practices<br>and technologies | 40%                      |
| I prefer to avoid risks   | 37%                      |
| I really dislike not knowing what is going to happen                    | 36%                      |

Table 98 Disposition to trust others, Upper Loddon Plains profile (n=44). 2019 North Central social benchmarking survey (N=663)

| Disposition to trust others                                       | Agree/strongly agree (%) |
|---|--------------------------|
| You can't be too careful when dealing with people                 | 60%                      |
| One has to be alert or someone is likely to take advantage of you | 55%                      |
| People are almost always interested only in their own welfare     | 45%                      |

Table 99 Trust in and judgements of the trustworthiness of the North Central CMA, Upper LoddonPlains profile (n=44). 2019 North Central social benchmarking survey (N=663)

| Trust in and judgements of the trustworthiness of the<br>North Central CMA: waterways and wetlands<br>management               | Agree/strongly agree (%) |
|--|--------------------------|
| <i>Filter question</i> : Are you aware of the existence of the North Central CMA   | 60%                      |
| Sound principles guide North Central CMA decisions about waterways & wetlands management                                       | 71%                      |
| I can rely on the North Central CMA to provide useful<br>advice about waterways & wetlands management                          | 65%                      |
| The North Central CMA keeps landholders' interests<br>in mind when making decisions about waterways and<br>wetlands management | 59%                      |
| The North Central CMA is very knowledgeable about<br>waterways & wetlands management   | 59%                      |
| I can rely on the North Central CMA to provide<br>appropriate financial assistance for waterways &<br>wetlands management      | 26%                      |

Table 100 Information sources (top 5), Upper Loddon Plains profile (n=44). 2019 North Central social benchmarking survey (N=663)

| Information sources (top 5)                     | Yes (%) |
|---|---------|
| Bureau of Meteorology                           | 66%     |
| Friends/neighbours/relatives                    | 59%     |
| Newspapers                                      | 57%     |
| Television                                      | 45%     |
| Radio   | 41%     |
| Agricultural consultants, agronomists and stock | /1%     |
| agents  | 71/0    |

Table 101 Issues of concern at the district scale (top 5), Upper Loddon Plains profile (n=44). 2019 North Central social benchmarking survey (N=663)

| Issues of concern at the district scale (top 5)                         | Important/very important (%) |
|---|------------------------------|
| Risk to life and property from wildfires                                | 77%                          |
| The impact of pest plants and animals on native<br>plants and animals   | 66%                          |
| Changes in weather patterns   | 66%                          |
| Crop weed resistance to herbicide                                       | 64%                          |
| The effect of ground water extraction on stream<br>flows during drought | 61%                          |
| Quality of water in farm dams during drought                            | 61%                          |

Table 102 Soil issues on property, Upper Loddon Plains profile (n=44). 2019 North Central socialbenchmarking survey (N=663)

| Soil issues on property   | Important/very important (%) |
|---|------------------------------|
| Soil erosion (e.g. by wind or water)                                | 69%                          |
| Low permeability of sub soil  | 69%                          |
| Declining nutrient status of soils                                  | 67%                          |
| Low biological activity in soils                                    | 67%                          |
| Low organic carbon in soils   | 64%                          |
| Soil acidity (lower pH) undermining productive<br>capacity of soils | 60%                          |
| Soil sodicity   | 60%                          |

Table 103 Attached values (top 5), Upper Loddon Plains profile (n=44). 2019 North Central socialbenchmarking survey (N=663)

| Attached values (top 5)   | Important/very important (%) |
|---|------------------------------|
| Ability to pass on a healthier environment for future generations | 89%                          |
| Opportunity to learn new things                                   | 86%                          |
| An attractive place/area to live                                  | 86%                          |
| An asset that is an important part of family wealth               | 82%                          |
| Native vegetation provides habitat for birds and<br>animals       | 77%                          |
| The productive value of the soil on my property                   | 77%                          |

 Table 104 Held values (top 5), Upper Loddon Plains profile (n=44). 2019 North Central social benchmarking survey (N=663)

| Held values (top 5)  | Important/very important (%) |
|--|------------------------------|
| Looking after my family and their needs                            | 95%                          |
| Protecting the environment and preserving nature                   | 88%                          |
| Preventing pollution and protecting natural resources              | 84%                          |
| Respecting the earth and living in harmony with other species      | 79%                          |
| Caring for the weak and correcting social injustice                | 70%                          |
| Creating wealth and striving for a financially profitable business | 70%                          |

Table 105 Knowledge (top 5), Upper Loddon Plains profile (n=44). 2019 North Central socialbenchmarking survey (N=663)

| Knowledge (top 5)   | Sound/very sound knowledge (%) |
|---|--------------------------------|
| The production benefits of applying biological soil amendments and supplements (e.g. compost, manure, microbial inoculants) | 58%                            |
| Strategies to maintain ground cover to minimise erosion in this area  | 56%                            |
| How to establish introduced perennial pastures (e.g. lucerne) in this area  | 53%                            |
| The processes leading to soil structure decline in this area  | 51%                            |
| Preparing a farm/property plan allocating land use according to land class  | 49%                            |
| How to identify the main constraints to soil<br>productivity on your property   | 49%                            |
| The role of soil carbon in maintaining soil health  | 49%                            |

## 2.6 WESTERN DRYLAND PLAINS (n=83)

Table 106 Social and farming information, Western Dryland Plains profile (n=83). 2019 NorthCentral social benchmarking survey (N=663)

| Social and farming information  | Median/Yes (%)  |
|---|---|
| Total area of rural land owned within the NC CMA region   | 1200 ha   |
| Area of additional land managed (lease/sharefarm/agist  | 11% (122 5 ha)  |
| from others) within the NC CMA region   | 41/0 (422.5 Hd)   |
| Area of your property that is leased, sharefarmed or agisted by others  | 19% (360 ha)  |
| Longest period of time you/your family have owned or<br>managed all/some of your property   | 95 yrs  |
| Property is principal place of residence  | 76%   |
| Number of rural properties owned  | 1 property  |
| Number of rural properties owned within the NC CMA region   | 1 property  |
| Percent female  | 13%   |
| Age   | 62 yrs  |
| Farming occupational identity   | Full-time 89% Part-time 10%<br>Hobby 0% Non 1%  |
| Bought additional land to increase a landholding in this region in the past 20 years  | 70%   |
| Subdivided or sold part of your existing property in this region in the past 20 years   | 25%   |
| Number of hours per week worked on farming/property related activities over the past 12 months  | 96% (50 hrs)  |
| Number of days involved in paid off-property work in the past 12 months   | 17% (32.5 days)   |
| Earned an income from agriculture on your property in the<br>North Central region during 2018/19 financial year (percent<br>of all respondents) | 90%   |
| Earned a net profit from agriculture (income exceeded all<br>paid expenses before tax) in 2018/19 (percent of all<br>respondents)               | 65%   |
| Net profit from agriculture in 2018/19 was above \$50,000 (percent of all respondents)  | 45%   |
| Received a net off-property income (after expenses and<br>before tax) last financial year (2018/2019) (percent of all<br>respondents)           | Me 18%<br>My spouse 31%   |
| Total off-property income (before tax) above \$50,000<br>(percent of all respondents)   | 22%   |
| Other family members working full time on your property   | 51%   |
| Family members interested in taking on your property in the future  | 46%   |
| Stage of succession planning  | Not started 20%<br>Early stages 44%<br>Halfway 4%<br>Well advanced 17%<br>Completed/ongoing 15% |

Table 107 Group membership and engagement, Western Dryland Plains profile (n=83). 2019 North Central social benchmarking survey (N=663)

| Group membership and engagement  | Yes (%) |
|--|---------|
| Attended field days/farm walks/demonstrations focused on soil health in the past 12 months   | 53%     |
| Member or involved with a local commodity group  | 43%     |
| Member or involved with a local Landcare group   | 41%     |
| Completed a short course relevant to property management<br>in the past 5 years  | 29%     |
| Prepared/preparing a property management or whole farm<br>plan that involves a map or other documents that address the<br>existing property situation and include future management<br>and development plans | 25%     |
| Attended field days/farm walks/demonstrations focused on native plants and animals in the past 12 months   | 21%     |
| Member of involved with a local soil health group  | 12%     |

Table 108 Long-term plans (top 5), Western Dryland Plains profile (n=83). 2019 North Centralsocial benchmarking survey (N=663)

| Long term plans (top 5)   | Likely/highly likely (%) |
|---|--------------------------|
| Ownership of the property will stay within the family             | 72%                      |
| Additional land will be purchased                                 | 43%                      |
| Additional land will be leased or share farmed                    | 27%                      |
| The enterprise mix will be changed to diversify income<br>sources | 27%                      |
| All or most of the property will be leased or share farmed        | 25%                      |

Table 109 Management practices over full period of management, Western Dryland Plains profile(n=83). 2019 North Central social benchmarking survey (N=663)

| Management practices over full period of management   | Yes (%) |
|---|---------|
| Each year have worked to control non-crop weeds   | 95%     |
| Used minimum or no tillage techniques to establish crops or pastures  | 87%     |
| Each year have worked to control pest animals   | 82%     |
| Tested soils for nutrient status in paddocks where have<br>applied fertiliser/soil conditioners in the past | 78%     |
| Planted trees and shrubs (incl. direct seeding)   | 76%     |
| Applied soil ameliorants other than fertiliser and lime (e.g. gypsum, organic manure)                       | 76%     |
| Used precision farming techniques for cropping  | 66%     |
| Fenced native bush/grasslands to manage stock access  | 53%     |
| Sown lucerne  | 51%     |
| Prepared a nutrient budget for all/most of the property   | 45%     |
| Fenced waterways & wetlands to manage stock access  | 37%     |
| Sown perennial pastures other than lucerne  | 36%     |
| Used time controlled or rotational grazing  | 33%     |
| Established off-stream watering points  | 29%     |
| Applied at least one lime application to arable land  | 22%     |
| Established permanent grassed waterways in drainage lines   | 18%     |
| Prepared a habitat assessment for native plants   | 13%     |
| Deep ripped arable land   | 12%     |
| Established an irrigation tailwater reuse system  | 7%      |

Table 110 Land use, Western Dryland Plains profile (n=83). 2019 North Central socialbenchmarking survey (N=663)

| Land use  | Yes (%) |
|---|---------|
| Cropping  | 96%     |
| Sheep for wool or meat  | 72%     |
| Hay production for sale   | 55%     |
| Pasture   | 53%     |
| Area of remnant native vegetation (e.g. trees, grasslands, wetlands)                                | 52%     |
| Other tree planting (e.g. shelter, habitat, erosion or recharge control, carbon)                    | 35%     |
| Area set aside for living/recreation (e.g. gardens, pets, water bodies, vehicles)                   | 28%     |
| Beef cattle   | 14%     |
| Other commercial livestock enterprises (e.g. goats, pigs, deer, horse studs, poultry, alpaca, dogs) | 5%      |
| Irrigated agriculture   | 5%      |
| Conservation covenant attached to property title (e.g. Trust<br>For Nature)                         | 5%      |
| Vegetation offsets  | 4%      |
| Farm forestry   | 4%      |
| Did you irrigate in the 2018/19 season?   | 2%      |
| If yes: Was surface water used  | 25%     |
| If yes: Was ground water was used   | 0%      |
| Horticulture  | 1%      |
| Carbon farming  | 1%      |
| Dairying  | 0%      |
| Viticulture   | 0%      |
| Farm-based tourism (e.g. farm stays, B&B)   | 0%      |

Table 111 Confidence in recommended practices, Western Dryland Plains profile (n=83). 2019North Central social benchmarking survey (N=663)

| Confidence in recommended practices  | Agree/strongly agree (%) |
|--|--------------------------|
| The costs of applying gypsum to address soil sodicity are justified by increased production  | 88%                      |
| The benefits of stubble retention outweigh problems arising from the practice  | 85%                      |
| Soil testing is an essential first step in understanding soil<br>condition   | 84%                      |
| Fencing to manage stock access is necessary to protect the<br>health of waterways & wetlands   | 64%                      |
| The costs of establishing perennial pasture are justified by the returns   | 62%                      |
| Intensive grazing for short periods is usually better for the health of native vegetation along waterways and wetlands than set stocking | 60%                      |
| The costs of applying lime to address soil acidity are justified<br>by increased production  | 53%                      |
| Improvements in bank stability & vegetation condition justify the costs of watering stock off-stream                                     | 53%                      |
| The cost of deep-tillage and subsoil modification are justified<br>by increased production   | 39%                      |
| The cost of willow removal is justified by improvements in the condition of river banks & river health                                   | 37%                      |

Table 112 Responding to climate change, Western Dryland Plains profile (n=83). 2019 NorthCentral social benchmarking survey (N=663)

| Changes to management practices in response to climate change   | Yes (%) |
|---|---------|
| In the past 12 months have you changed your on-property operations as a result of considering opportunities to capture carbon (e.g. by revegetation, soil management)?      | 18%     |
| In the past 12 months have you changed your financial or on-<br>property operations as a result of considering climate<br>change?   | 11%     |
| In the past 12 months have you changed your on-property operations as a result of considering opportunities to reduce carbon emissions (e.g. solar, wind, gravity systems)? | 9%      |

Table 113 Belief in human induced climate change, Western Dryland Plains profile (n=83). 2019North Central social benchmarking survey (N=663)

| Belief in human induced climate change   | Agree/strongly agree (%) |
|--|--------------------------|
| It is not too late to take action to address climate change  | 44%                      |
| Human activities are influencing changes in climate  | 38%                      |
| If we do nothing, climate change will have dire consequences for all living things, including humans | 37%                      |

Table 114 Attitudes and beliefs about climate change, Western Dryland Plains profile (n=83). 2019North Central social benchmarking survey (N=663)

| Attitudes and beliefs about climate change  | Agree/strongly agree (%) |
|---|--------------------------|
| I'm confident landholders in this region can adapt to expected changes in rainfall patterns | 78%                      |
| Primary producers should do all they can to reduce carbon emissions from their activities   | 67%                      |

Table 115 Belief in the primacy of private property rights, Western Dryland Plains profile (n=83).2019 North Central social benchmarking survey (N=663)

| Belief in the primacy of private property rights  | Agree/strongly agree (%) |
|---|--------------------------|
| Aboriginal people should be able to negotiate access with landholders to visit cultural sites                   | 47%                      |
| Landholders should be able to harvest rainfall on their<br>property, even if that action impacts on others      | 33%                      |
| If landholders are informed in advance, it would be acceptable to cause minor floods for environmental purposes | 18%                      |
| The public should be able to access crown land managed by private landholders (e.g. unused roads)               | 17%                      |

Table 116 Attitudes and beliefs, Western Dryland Plains profile (n=83). 2019 North Central socialbenchmarking survey (N=663)

| Attitudes and beliefs   | Agree/strongly agree (%) |
|---|--------------------------|
| Biological activity is an important indicator of the productive<br>capacity of soils  | 84%                      |
| The increased allocation of water for the environment under<br>the Murray-Darling Basin Plan will improve the health of<br>waterways & wetlands | 29%                      |

Table 117 Personal norms, Western Dryland Plains profile (n=83). 2019 North Central social benchmarking survey (N=663)

| Personal norms: soil health   | Agree/strongly agree (%) |
|---|--------------------------|
| I feel a personal responsibility to maintain my soil's<br>productive capacity | 94%                      |
| I feel a personal responsibility to be part of a soil health group            | 38%                      |

Table 118 Disposition to accept risk, Western Dryland Plains profile (n=83). 2019 North Central social benchmarking survey (N=663)

| Disposition to accept risk   | Agree/strongly agree (%) |
|--|--------------------------|
| I usually view risks as a challenge to embrace                       | 58%                      |
| I really dislike not knowing what is going to happen                 | 52%                      |
| I am an early adopter of new agricultural practices and technologies | 48%                      |
| I prefer to avoid risks  | 46%                      |

 Table 119 Disposition to trust others, Western Dryland Plains profile (n=83). 2019 North Central social benchmarking survey (N=663)

| Disposition to trust others                                       | Agree/strongly agree (%) |
|---|--------------------------|
| You can't be too careful when dealing with people                 | 68%                      |
| One has to be alert or someone is likely to take advantage of you | 64%                      |
| People are almost always interested only in their own welfare     | 52%                      |

Table 120 Trust in and judgements of the trustworthiness of the North Central CMA, WesternDryland Plains profile (n=83). 2019 North Central social benchmarking survey (N=663)

| Trust in and judgements of the trustworthiness of the North<br>Central CMA: waterways and wetlands management                  | Agree/strongly agree (%) |
|--|--------------------------|
| <i>Filter question</i> : Are you aware of the existence of the North Central CMA   | 91%                      |
| The North Central CMA keeps landholders' interests in mind<br>when making decisions about waterways and wetlands<br>management | 49%                      |
| The North Central CMA is very knowledgeable about<br>waterways & wetlands management   | 47%                      |
| Sound principles guide North Central CMA decisions about waterways & wetlands management                                       | 45%                      |
| I can rely on the North Central CMA to provide useful advice about waterways & wetlands management                             | 43%                      |
| I can rely on the North Central CMA to provide appropriate financial assistance for waterways & wetlands management            | 33%                      |

Table 121 Information sources (top 5), Western Dryland Plains profile (n=83). 2019 North Central social benchmarking survey (N=663)

| Information sources (top 5)                            | Yes (%) |
|--|---------|
| Bureau of Meteorology                                  | 75%     |
| Field days   | 67%     |
| Agricultural consultants, agronomists and stock agents | 65%     |
| Newspapers   | 61%     |
| Radio  | 52%     |

Table 122 Issues of concern at the district scale (top 5), Western Dryland Plains profile (n=83).2019 North Central social benchmarking survey (N=663)

| Issues of concern at the district scale (top 5)  | Important/very important (%) |
|--|------------------------------|
| Crop weed resistance to herbicide  | 91%                          |
| Absence or poor quality of important services and<br>infrastructure (e.g. health, schools, internet) | 84%                          |
| The impact of pest plants and animals on native plants and animals                                   | 75%                          |
| Changes in weather patterns  | 68%                          |
| Public support for agricultural activities/practices, e.g. pesticide use, bare paddocks, mulesing    | 68%                          |

Table 123 Soil issues on property, Western Dryland Plains profile (n=83). 2019 North Central socialbenchmarking survey (N=663)

| Soil issues on property   | Important/very important (%) |
|---|------------------------------|
| Soil erosion (e.g. by wind or water)                                | 84%                          |
| Declining nutrient status of soils                                  | 71%                          |
| Low organic carbon in soils   | 71%                          |
| Low biological activity in soils                                    | 69%                          |
| Low permeability of sub soil  | 68%                          |
| Soil sodicity   | 55%                          |
| Soil acidity (lower pH) undermining productive capacity of<br>soils | 52%                          |

Table 124 Attached values (top 5), Western Dryland Plains profile (n=83). 2019 North Central social benchmarking survey (N=663)

| Attached values (top 5)   | Important/very important (%) |
|---|------------------------------|
| An important source of household income                             | 94%                          |
| Ability to pass on a healthier environment for future generations   | 93%                          |
| Sense of accomplishment from building/maintaining a viable business | 93%                          |
| The productive value of the soil on my property                     | 92%                          |
| Sense of accomplishment from producing food and fibre for others    | 87%                          |

Table 125 Held values (top 5), Western Dryland Plains profile (n=83). 2019 North Central socialbenchmarking survey (N=663)

| Held values (top 5)   | Important/very important (%) |
|---|------------------------------|
| Looking after my family and their needs                               | 100%                         |
| Preventing pollution and protecting natural resources                 | 88%                          |
| Creating wealth and striving for a financially profitable<br>business | 88%                          |
| Protecting the environment and preserving nature                      | 78%                          |
| Working for the welfare of others                                     | 70%                          |

Table 126 Knowledge (top 5), Western Dryland Plains profile (n=83). 2019 North Central socialbenchmarking survey (N=663)

| Knowledge (top 5)   | Sound/very sound knowledge (%) |
|---|--------------------------------|
| Strategies to maintain ground cover to minimise           | 90%                            |
| erosion in this area                                      |                                |
| Preparing a farm/property plan allocating land use        | 7/%                            |
| according to land class                                   | 7470                           |
| How to identify the main constraints to soil productivity | 74%                            |
| on your property  | , 1,0                          |
| How to establish introduced perennial pastures (e.g.      | 70%                            |
| lucerne) in this area                                     | 7070                           |
| The processes leading to soil structure decline in this   | 56%                            |
| area  |                                |
| How to use soil testing to prepare a nutrient budget      |                                |
| that will increase soil productivity without the risk of  | 56%                            |
| high levels of nutrient run-off                           |                                |

## 2.7 WESTERN GOLDFIELDS (n=107)

Table 127 Social and farming information, Western Goldfields profile (n=107). 2019 North Centralsocial benchmarking survey (N=663)

| Social and farming information  | Median/Yes (%)  |
|---|---|
| Total area of rural land owned within the NC CMA region   | 400 ha  |
| Area of additional land managed (lease/sharefarm/agist from others) within the NC CMA region  | 25% (220 ha)  |
| Area of your property that is leased, sharefarmed or agisted by others  | 17% (110 ha)  |
| Longest period of time you/your family have owned or managed all/some of your property  | 68 yrs  |
| Property is principal place of residence  | 65%   |
| Number of rural properties owned  | 1 property  |
| Number of rural properties owned within the NC CMA region   | 1 property  |
| Percent female  | 14%   |
| Age   | 60 yrs  |
| Farming occupational identity   | Full-time 51% Part-time 14%<br>Hobby 11% Non 24%  |
| Bought additional land to increase a landholding in this region in the past 20 years  | 47%   |
| Subdivided or sold part of your existing property in this region in the past 20 years   | 14%   |
| Number of hours per week worked on farming/property related activities over the past 12 months  | 81% (40 hrs)  |
| Number of days involved in paid off-property work in the past 12 months   | 35% (52 days)   |
| Earned an income from agriculture on your property in the<br>North Central region during 2018/19 financial year (percent<br>of all respondents) | 64%   |
| Earned a net profit from agriculture (income exceeded all<br>paid expenses before tax) in 2018/19 (percent of all<br>respondents)               | 46%   |
| Net profit from agriculture in 2018/19 was above \$50,000 (percent of all respondents)  | 27%   |
| Received a net off-property income (after expenses and<br>before tax) last financial year (2018/2019) (percent of all<br>respondents)           | Me 31%<br>My spouse 15%   |
| Total off-property income (before tax) above \$50,000<br>(percent of all respondents)   | 25%   |
| Other family members working full time on your property   | 30%   |
| Family members interested in taking on your property in the future  | 39%   |
| Stage of succession planning  | Not started 31%<br>Early stages 31%<br>Halfway 7%<br>Well advanced 20%<br>Completed/ongoing 11% |

Table 128 Group membership and engagement, Western Goldfields profile (n=107). 2019 NorthCentral social benchmarking survey (N=663)

| Group membership and engagement  | Yes (%) |
|--|---------|
| Member or involved with a local Landcare group   | 35%     |
| Attended field days/farm walks/demonstrations focused on soil health in the past 12 months   | 34%     |
| Prepared/preparing a property management or whole farm<br>plan that involves a map or other documents that address<br>the existing property situation and include future<br>management and development plans | 30%     |
| Attended field days/farm walks/demonstrations focused on native plants and animals in the past 12 months   | 22%     |
| Completed a short course relevant to property management in the past 5 years   | 21%     |
| Member or involved with a local commodity group  | 18%     |
| Member of involved with a local soil health group  | 5%      |

Table 129 Long-term plans (top 5), Western Goldfields profile (n=107). 2019 North Central socialbenchmarking survey (N=663)

| Long term plans (top 5)                                    | Likely/highly likely (%) |
|--|--------------------------|
| Ownership of the property will stay within the family      | 68%                      |
| Additional land will be purchased                          | 30%                      |
| Me or my spouse will seek additional off-property work     | 20%                      |
| All or most of the property will be leased or share farmed | 19%                      |
| The property will be sold                                  | 18%                      |

Table 130 Management practices over full period of management, Western Goldfields profile(n=107). 2019 North Central social benchmarking survey (N=663)

| Management practices over full period of management           | Yes (%) |
|---|---------|
| Each year have worked to control non-crop weeds               | 75%     |
| Each year have worked to control pest animals                 | 64%     |
| Planted trees and shrubs (incl. direct seeding)               | 63%     |
| Applied at least one lime application to arable land          | 54%     |
| Sown perennial pastures other than lucerne                    | 50%     |
| Used minimum or no tillage techniques to establish crops      | E 09/   |
| or pastures   | 50%     |
| Tested soils for nutrient status in paddocks where have       | 170/    |
| applied fertiliser/soil conditioners in the past              | 47%     |
| Fenced native bush/grasslands to manage stock access          | 44%     |
| Fenced waterways & wetlands to manage stock access            | 38%     |
| Applied soil ameliorants other than fertiliser and lime (e.g. | 280/    |
| gypsum, organic manure)                                       | 36%     |
| Sown lucerne  | 36%     |
| Used time controlled or rotational grazing                    | 33%     |
| Used precision farming techniques for cropping                | 28%     |
| Established off-stream watering points                        | 27%     |
| Established permanent grassed waterways in drainage           | 210/    |
| lines   | 21%     |
| Prepared a nutrient budget for all/most of the property       | 17%     |
| Deep ripped arable land                                       | 16%     |
| Prepared a habitat assessment for native plants               | 10%     |
| Established an irrigation tailwater reuse system              | 2%      |
Table 131 Land use, Western Goldfields profile (n=107). 2019 North Central social benchmarking survey (N=663)

| Land use  | Yes (%) |
|---|---------|
| Sheep for wool or meat  | 71%     |
| Pasture   | 64%     |
| Cropping  | 52%     |
| Area of remnant native vegetation (e.g. trees, grasslands, wetlands)              | 41%     |
| Other tree planting (e.g. shelter, habitat, erosion or recharge control, carbon)  | 31%     |
| Area set aside for living/recreation (e.g. gardens, pets, water bodies, vehicles) | 30%     |
| Hay production for sale   | 25%     |
| Beef cattle   | 15%     |
| Conservation covenant attached to property title (e.g. Trust<br>For Nature)       | 8%      |
| Other commercial livestock enterprises (e.g. goats, pigs,                         | 80/     |
| deer, horse studs, poultry, alpaca, dogs)   | ð70     |
| Irrigated agriculture   | 7%      |
| Farm forestry   | 7%      |
| Viticulture   | 4%      |
| Farm-based tourism (e.g. farm stays, B&B)   | 4%      |
| Did you irrigate in the 2018/19 season?   | 4%      |
| If yes: Was surface water used  | 31%     |
| If yes: Was ground water was used   | 8%      |
| Vegetation offsets  | 2%      |
| Horticulture  | 2%      |
| Dairying  | 1%      |
| Carbon farming  | 1%      |

Table 132 Confidence in recommended practices, Western Goldfields profile (n=107). 2019 NorthCentral social benchmarking survey (N=663)

| Confidence in recommended practices  | Agree/strongly agree (%) |
|--|--------------------------|
| Soil testing is an essential first step in understanding soil<br>condition   | 88%                      |
| The costs of establishing perennial pasture are justified by the returns   | 69%                      |
| The costs of applying lime to address soil acidity are justified by increased production   | 65%                      |
| Fencing to manage stock access is necessary to protect the health of waterways & wetlands  | 64%                      |
| The costs of applying gypsum to address soil sodicity are justified by increased production  | 59%                      |
| The benefits of stubble retention outweigh problems arising from the practice  | 56%                      |
| Improvements in bank stability & vegetation condition justify the costs of watering stock off-stream   | 52%                      |
| Intensive grazing for short periods is usually better for the<br>health of native vegetation along waterways and wetlands than<br>set stocking | 46%                      |
| The cost of willow removal is justified by improvements in the condition of river banks & river health   | 33%                      |
| The cost of deep-tillage and subsoil modification are justified by increased production  | 28%                      |

Table 133 Responding to climate change, Western Goldfields profile (n=107). 2019 North Central social benchmarking survey (N=663)

| Changes to management practices in response to climate<br>change   | Yes (%) |
|--|---------|
| In the past 12 months have you changed your financial or on-<br>property operations as a result of considering climate change?   | 11%     |
| In the past 12 months have you changed your on-property<br>operations as a result of considering opportunities to capture<br>carbon (e.g. by revegetation, soil management)? | 7%      |
| In the past 12 months have you changed your on-property operations as a result of considering opportunities to reduce carbon emissions (e.g. solar, wind, gravity systems)?  | 12%     |

Table 134 Belief in human induced climate change, Western Goldfields profile (n=107). 2019 NorthCentral social benchmarking survey (N=663)

| Belief in human induced climate change                       | Agree/strongly agree (%) |
|--|--------------------------|
| Human activities are influencing changes in climate          | 63%                      |
| It is not too late to take action to address climate change  | 61%                      |
| If we do nothing, climate change will have dire consequences | 57%                      |
| for all living things, including humans                      |                          |

Table 135 Attitudes and beliefs about climate change, Western Goldfields profile (n=107). 2019North Central social benchmarking survey (N=663)

| Attitudes and beliefs about climate change  | Agree/strongly agree (%) |
|---|--------------------------|
| Primary producers should do all they can to reduce carbon emissions from their activities   | 66%                      |
| I'm confident landholders in this region can adapt to expected changes in rainfall patterns | 64%                      |

Table 136 Belief in the primacy of private property rights, Western Goldfields profile (n=107). 2019North Central social benchmarking survey (N=663)

| Belief in the primacy of private property rights  | Agree/strongly agree (%) |
|---|--------------------------|
| Aboriginal people should be able to negotiate access with<br>landholders to visit cultural sites                | 42%                      |
| Landholders should be able to harvest rainfall on their property, even if that action impacts on others         | 38%                      |
| If landholders are informed in advance, it would be acceptable to cause minor floods for environmental purposes | 29%                      |
| The public should be able to access crown land managed by private landholders (e.g. unused roads)               | 24%                      |

 Table 137 Attitudes and beliefs, Western Goldfields profile (n=107). 2019 North Central social benchmarking survey (N=663)

| Attitudes and beliefs   | Agree/strongly agree (%) |
|---|--------------------------|
| Biological activity is an important indicator of the productive<br>capacity of soils  | 70%                      |
| The increased allocation of water for the environment under<br>the Murray-Darling Basin Plan will improve the health of<br>waterways & wetlands | 36%                      |

Table 138 Personal norms, Western Goldfields profile (n=107). 2019 North Central socialbenchmarking survey (N=663)

| I feel a personal responsibility to maintain my soil's 77% productive capacity | Personal norms: soil health  | Agree/strongly agree (%) |
|--|--|--------------------------|
| productive capacity  | I feel a personal responsibility to maintain my soil's             | 77%                      |
|  | productive capacity  |                          |
| I feel a personal responsibility to be part of a soil health group 28%         | I feel a personal responsibility to be part of a soil health group | 28%                      |

Table 139 Disposition to accept risk, Western Goldfields profile (n=107). 2019 North Central social benchmarking survey (N=663)

| Disposition to accept risk   | Agree/strongly agree (%) |
|--|--------------------------|
| I usually view risks as a challenge to embrace                       | 49%                      |
| I really dislike not knowing what is going to happen                 | 46%                      |
| I prefer to avoid risks  | 42%                      |
| I am an early adopter of new agricultural practices and technologies | 25%                      |

 Table 140 Disposition to trust others, Western Goldfields profile (n=107). 2019 North Central social benchmarking survey (N=663)

| Disposition to trust others                                       | Agree/strongly agree (%) |
|---|--------------------------|
| You can't be too careful when dealing with people                 | 61%                      |
| One has to be alert or someone is likely to take advantage of you | 58%                      |
| People are almost always interested only in their own welfare     | 44%                      |

Table 141 Trust in and judgements of the trustworthiness of the North Central CMA, WesternGoldfields profile (n=107). 2019 North Central social benchmarking survey (N=663)

| Trust in and judgements of the trustworthiness of the<br>North Central CMA: waterways and wetlands<br>management               | Agree/strongly agree (%) |
|--|--------------------------|
| Filter question: Are you aware of the existence of the North Central CMA   | 67%                      |
| The North Central CMA keeps landholders' interests in<br>mind when making decisions about waterways and<br>wetlands management | 57%                      |
| I can rely on the North Central CMA to provide useful<br>advice about waterways & wetlands management                          | 56%                      |
| The North Central CMA is very knowledgeable about<br>waterways & wetlands management   | 55%                      |
| Sound principles guide North Central CMA decisions<br>about waterways & wetlands management                                    | 49%                      |
| I can rely on the North Central CMA to provide<br>appropriate financial assistance for waterways &<br>wetlands management      | 37%                      |

Table 142 Information sources (top 5), Western Goldfields profile (n=107). 2019 North Centralsocial benchmarking survey (N=663)

| Information sources (top 5)  | Yes (%) |
|------------------------------|---------|
| Newspapers                   | 53%     |
| Bureau of Meteorology        | 52%     |
| Television                   | 49%     |
| Friends/neighbours/relatives | 47%     |
| Radio                        | 45%     |

Table 143 Issues of concern at the district scale (top 5), Western Goldfields profile (n=107). 2019 North Central social benchmarking survey (N=663)

| Issues of concern at the district scale (top 5)                       | Important/very important (%) |
|---|------------------------------|
| Quality of water in farm dams during drought                          | 78%                          |
| Changes in weather patterns   | 73%                          |
| Risk to life and property from wildfires                              | 73%                          |
| Absence or poor quality of important services and                     | 639/                         |
| infrastructure (e.g. health, schools, internet)                       | 03%                          |
| The impact of pest plants and animals on native plants<br>and animals | 62%                          |

Table 144 Soil issues on property, Western Goldfields profile (n=107). 2019 North Central social benchmarking survey (N=663)

| Soil issues on property  | Important/very important (%) |
|--|------------------------------|
| Soil erosion (e.g. by wind or water)                             | 85%                          |
| Declining nutrient status of soils                               | 72%                          |
| Soil acidity (lower pH) undermining productive capacity of soils | 69%                          |
| Low biological activity in soils                                 | 68%                          |
| Low permeability of sub soil                                     | 66%                          |
| Low organic carbon in soils                                      | 65%                          |
| Soil sodicity  | 50%                          |

Table 145 Attached values (top 5), Western Goldfields profile (n=107). 2019 North Central socialbenchmarking survey (N=663)

| Attached values (top 5)   | Important/very important (%) |
|---|------------------------------|
| Ability to pass on a healthier environment for future generations   | 78%                          |
| An attractive place/area to live                                    | 77%                          |
| The productive value of the soil on my property                     | 74%                          |
| An asset that is an important part of family wealth                 | 72%                          |
| A great place to raise a family                                     | 67%                          |
| Sense of accomplishment from producing food and fibre for others    | 67%                          |
| Sense of accomplishment from building/maintaining a viable business | 67%                          |
| Opportunity to learn new things                                     | 67%                          |
|   |                              |

Table 146 Held values (top 5), Western Goldfields profile (n=107). 2019 North Central socialbenchmarking survey (N=663)

| Held values (top 5)   | Important/very important (%) |
|---|------------------------------|
| Looking after my family and their needs                       | 93%                          |
| Preventing pollution and protecting natural resources         | 84%                          |
| Protecting the environment and preserving nature              | 78%                          |
| Working for the welfare of others                             | 72%                          |
| Respecting the earth and living in harmony with other species | 71%                          |

Table 147 Knowledge (top 5), Western Goldfields profile (n=107). 2019 North Central socialbenchmarking survey (N=663)

| Knowledge (top 5)   | Sound/very sound knowledge (%) |
|---|--------------------------------|
| Strategies to maintain ground cover to minimise erosion in this area  | 61%                            |
| How to establish introduced perennial pastures (e.g. lucerne) in this area  | 52%                            |
| How to identify the main constraints to soil productivity on your property  | 47%                            |
| The production benefits of applying biological soil<br>amendments and supplements (e.g. compost, manure,<br>microbial inoculants) | 45%                            |
| Preparing a farm/property plan allocating land use<br>according to land class   | 39%                            |

## 2.8 COMBINED NORTHERN DRYLAND PLAINS AND UPPER LODDON PLAINS (n=107)

Table 148 Social and farming information, combined Northern Dryland and Upper Loddon plainsprofile (n=107). 2019 North Central social benchmarking survey (N=663)

| Social and farming information   | Median/Yes (%)  |
|--|---|
| Total area of rural land owned within the NC CMA region  | 374 ha  |
| Area of additional land managed (lease/sharefarm/agist from others) within the NC CMA region                 | 34% (130 ha)  |
| Area of your property that is leased, sharefarmed or agisted by others                                       | 20% (100 ha)  |
| Longest period of time you/your family have owned or<br>managed all/some of your property                    | 51 yrs  |
| Property is principal place of residence   | 81%   |
| Number of rural properties owned   | 1 property  |
| Number of rural properties owned within the NC CMA region  | 1 property  |
| Percent female   | 20%   |
| Age  | 62 yrs  |
| Occupational identity  | Full-time 56% Part-time 24%<br>Hobby 7% Non 13%   |
| Bought additional land to increase a landholding in this region in the past 20 years                         | 55%   |
| Subdivided or sold part of your existing property in this region in the past 20 years                        | 9%  |
| Number of hours per week worked on farming/property related activities over the past 12 months               | 85% (40 hrs)  |
| Number of days involved in paid off-property work in the past 12 months                                      | 26% (185 days)  |
| Earned an income from agriculture on your property in the North Central region during 2018/19 financial year | 79%   |
| Earned a net profit from agriculture (income exceeded all paid expenses before tax) in 2018/19               | 56%   |
| Net profit from agriculture in 2018/19 was above \$50,000  | 29%   |
| Received a net off-property income (after expenses and   | Me 35%  |
| before tax) last financial year (2018/2019)  | My spouse 15%   |
| Total off-property income (before tax) above \$50,000  | 35%   |
| Other family members working full time on your property  | 34%   |
| Family members interested in taking on your property in the future   | 44%   |
| Stage of succession planning   | Not started 33%<br>Early stages 32%<br>Halfway 9%<br>Well advanced 15%<br>Completed/ongoing 11% |

Table 149 Group membership and engagement, combined Northern Dryland and Upper Loddonplains profile (n=107). 2019 North Central social benchmarking survey (N=663)

| Yes (%) |
|---------|
| 33%     |
| 31%     |
| 25%     |
| 18%     |
| 17%     |
| 17%     |
| 11%     |
|         |

Table 150 Long-term plans (top 5), combined Northern Dryland and Upper Loddon plains profile (n=107). 2019 North Central social benchmarking survey (N=663)

| Long term plans (top 5)   | Likely/Highly likely (%) |
|---|--------------------------|
| Ownership of the property will stay within the family             | 69%                      |
| Additional land will be purchased                                 | 30%                      |
| The enterprise mix will be changed to diversify income<br>sources | 26%                      |
| All or most of the property will be leased or share farmed        | 25%                      |
| Additional land will be leased or share farmed                    | 22%                      |

 Table 151 Management practices over full period of management, combined Northern Dryland

 and Upper Loddon plains profile (n=107). 2019 North Central social benchmarking survey (N=663)

| Management practices over full period of management  | Yes (%) |
|--|---------|
| Each year have worked to control non-crop weeds  | 82%     |
| Each year have worked to control pest animals  | 73%     |
| Planted trees and shrubs (incl. direct seeding)  | 71%     |
| Used minimum or no tillage techniques to establish crops or pastures                                     | 64%     |
| Tested soils for nutrient status in paddocks where have applied fertiliser/soil conditioners in the past | 54%     |
| Sown lucerne   | 53%     |
| Applied at least one lime application to arable land   | 53%     |
| Fenced native bush/grasslands to manage stock access   | 50%     |
| Sown perennial pastures other than lucerne   | 50%     |
| Applied soil ameliorants other than fertiliser and lime (e.g.  | 169/    |
| gypsum, organic manure)  | 40%     |
| Used time controlled or rotational grazing   | 38%     |
| Used precision farming techniques for cropping   | 36%     |
| Established off-stream watering points   | 35%     |
| Fenced waterways & wetlands to manage stock access   | 34%     |
| Deep ripped arable land  | 21%     |
| Prepared a nutrient budget for all/most of the property  | 19%     |
| Established permanent grassed waterways in drainage lines  | 15%     |
| Established an irrigation tailwater reuse system   | 12%     |
| Prepared a habitat assessment for native plants  | 9%      |

Table 152 Land use, combined Northern Dryland and Upper Loddon plains profile (n=107). 2019North Central social benchmarking survey (N=663)

| Land use  | Yes (%) |
|---|---------|
| Cropping  | 73%     |
| Pasture   | 72%     |
| Sheep for wool or meat  | 65%     |
| Area of remnant native vegetation (e.g. trees, grasslands, wetlands)                                | 46%     |
| Other tree planting (e.g. shelter, habitat, erosion or recharge control, carbon)                    | 44%     |
| Area set aside for living/recreation (e.g. gardens, pets, water bodies, vehicles)                   | 31%     |
| Hay production for sale   | 29%     |
| Beef cattle   | 25%     |
| Did you irrigate in the 2018/19 season?   | 19%     |
| If yes: Was surface water used  | 63%     |
| If yes: Was ground water was used   | 39%     |
| Irrigated agriculture   | 19%     |
| Farm forestry   | 7%      |
| Other commercial livestock enterprises (e.g. goats, pigs, deer, horse studs, poultry, alpaca, dogs) | 6%      |
| Viticulture   | 4%      |
| Horticulture  | 4%      |
| Farm-based tourism (e.g. farm stays, B&B)   | 4%      |
| Conservation covenant attached to property title (e.g. Trust<br>For Nature)                         | 4%      |
| Dairying  | 3%      |
| Vegetation offsets  | 3%      |
| Carbon farming  | 2%      |

 Table 153 Confidence in recommended practices, combined Northern Dryland and Upper Loddon

 plains profile (n=107). 2019 North Central social benchmarking survey (N=663)

| Confidence in recommended practices  | Agree/strongly agree (%) |
|--|--------------------------|
| Soil testing is an essential first step in understanding soil<br>condition   | 90%                      |
| The costs of applying gypsum to address soil sodicity are justified by increased production  | 74%                      |
| The costs of establishing perennial pasture are justified by the returns   | 72%                      |
| Fencing to manage stock access is necessary to protect the health of waterways & wetlands  | 67%                      |
| The costs of applying lime to address soil acidity are<br>justified by increased production  | 66%                      |
| The benefits of stubble retention outweigh problems arising from the practice  | 62%                      |
| Improvements in bank stability & vegetation condition<br>justify the costs of watering stock off-stream                                  | 55%                      |
| Intensive grazing for short periods is usually better for the health of native vegetation along waterways and wetlands than set stocking | 49%                      |
| The cost of willow removal is justified by improvements in the condition of river banks & river health                                   | 40%                      |
| The cost of deep-tillage and subsoil modification are justified by increased production  | 34%                      |

Table 154 Responding to climate change, combined Northern Dryland and Upper Loddon plains profile (n=107). 2019 North Central social benchmarking survey (N=663)

| Changes to management practices in response to climate<br>change  | Yes (%) |
|---|---------|
| In the past 12 months have you changed your on-property operations as a result of considering opportunities to reduce carbon emissions (e.g. solar, wind, gravity systems)? | 25%     |
| In the past 12 months have you changed your financial or<br>on-property operations as a result of considering climate<br>change?  | 18%     |
| In the past 12 months have you changed your on-property operations as a result of considering opportunities to capture carbon (e.g. by revegetation, soil management)?      | 11%     |

Table 155 Belief in human induced climate change, combined Northern Dryland and Upper Loddon plains profile (n=107). 2019 North Central social benchmarking survey (N=663)

| Belief in human induced climate change  | Agree/strongly agree (%) |
|---|--------------------------|
| It is not too late to take action to address climate change   | 66%                      |
| Human activities are influencing changes in climate   | 55%                      |
| If we do nothing, climate change will have dire<br>consequences for all living things, including humans | 51%                      |

Table 156 Attitudes and beliefs about climate change, combined Northern Dryland and UpperLoddon plains profile (n=107). 2019 North Central social benchmarking survey (N=663)

| Attitudes and beliefs about climate change   | Agree/strongly agree (%) |
|--|--------------------------|
| Primary producers should do all they can to reduce carbon emissions from their activities      | 72%                      |
| I'm confident landholders in this region can adapt to<br>expected changes in rainfall patterns | 71%                      |

Table 157 Belief in the primacy of private property rights, combined Northern Dryland and Upper Loddon plains profile (n=107). 2019 North Central social benchmarking survey (N=663)

| Belief in the primacy of private property rights  | Agree/strongly agree (%) |
|---|--------------------------|
| Aboriginal people should be able to negotiate access with<br>landholders to visit cultural sites                      | 50%                      |
| Landholders should be able to harvest rainfall on their property, even if that action impacts on others               | 40%                      |
| If landholders are informed in advance, it would be<br>acceptable to cause minor floods for environmental<br>purposes | 27%                      |
| The public should be able to access crown land managed by private landholders (e.g. unused roads)                     | 19%                      |

Table 158 Attitudes and beliefs, combined Northern Dryland and Upper Loddon plains profile(n=107). 2019 North Central social benchmarking survey (N=663)

| Attitudes and beliefs   | Agree/strongly agree (%) |
|---|--------------------------|
| Biological activity is an important indicator of the<br>productive capacity of soils  | 81%                      |
| The increased allocation of water for the environment<br>under the Murray-Darling Basin Plan will improve the health<br>of waterways & wetlands | 30%                      |

Table 159 Personal norms, combined Northern Dryland and Upper Loddon plains profile (n=107).2019 North Central social benchmarking survey (N=663)

| Personal norms: soil health   | Agree/strongly agree (%) |
|---|--------------------------|
| I feel a personal responsibility to maintain my soil's<br>productive capacity | 86%                      |
| I feel a personal responsibility to be part of a soil health group            | 37%                      |

Table 160 Disposition to accept risk, combined Northern Dryland and Upper Loddon plains profile(n=107). 2019 North Central social benchmarking survey (N=663)

| Disposition to accept risk   | Agree/strongly agree (%) |
|--|--------------------------|
| I usually view risks as a challenge to embrace                       | 45%                      |
| I prefer to avoid risks  | 43%                      |
| I am an early adopter of new agricultural practices and technologies | 40%                      |
| I really dislike not knowing what is going to happen                 | 36%                      |

Table 161 Disposition to trust others, combined Northern Dryland and Upper Loddon plains profile(n=107). 2019 North Central social benchmarking survey (N=663)

| Disposition to trust others                                       | Agree/strongly agree (%) |
|---|--------------------------|
| You can't be too careful when dealing with people                 | 71%                      |
| One has to be alert or someone is likely to take advantage of you | 58%                      |
| People are almost always interested only in their own welfare     | 45%                      |

Table 162 Trust in and judgements of the trustworthiness of the North Central CMA, combined Northern Dryland and Upper Loddon plains profile (n=107). 2019 North Central social benchmarking survey (N=663)

| Trust in and judgements of the trustworthiness of the North<br>Central CMA: waterways and wetlands management                  | Agree/strongly agree (%) |
|--|--------------------------|
| Are you aware of the existence of the North Central CMA  | 68%                      |
| Sound principles guide North Central CMA decisions about waterways & wetlands management                                       | 50%                      |
| The North Central CMA is very knowledgeable about<br>waterways & wetlands management   | 46%                      |
| The North Central CMA keeps landholders' interests in mind<br>when making decisions about waterways and wetlands<br>management | 45%                      |
| I can rely on the North Central CMA to provide useful advice about waterways & wetlands management                             | 45%                      |
| I can rely on the North Central CMA to provide appropriate financial assistance for waterways & wetlands management            | 31%                      |

Table 163 Information sources (top 5), combined Northern Dryland and Upper Loddon plains profile (n=107). 2019 North Central social benchmarking survey (N=663)

| Information sources                                    | Yes (%) |
|--|---------|
| Bureau of Meteorology                                  | 66%     |
| Newspapers   | 59%     |
| Friends/neighbours/relatives                           | 58%     |
| Field days   | 47%     |
| Agricultural consultants, agronomists and stock agents | 47%     |

Table 164 Issues of concern at the district scale (top 5), combined Northern Dryland and UpperLoddon plains profile (n=107). 2019 North Central social benchmarking survey (N=663)

| Issues of concern at the district scale (top 5)                    | Important/very important (%) |
|--|------------------------------|
| Quality of water in farm dams during drought                       | 71%                          |
| Changes in weather patterns  | 70%                          |
| Crop weed resistance to herbicide                                  | 69%                          |
| The impact of pest plants and animals on native plants and animals | 67%                          |
| Risk to life and property from wildfires                           | 65%                          |

Table 165 Soil issues on property, combined Northern Dryland and Upper Loddon plains profile (n=107). 2019 North Central social benchmarking survey (N=663)

| Soil issues on property  | Important/very important (%) |
|--|------------------------------|
| Soil erosion (e.g. by wind or water)                             | 75%                          |
| Low permeability of sub soil                                     | 70%                          |
| Low biological activity in soils                                 | 70%                          |
| Declining nutrient status of soils                               | 70%                          |
| Soil acidity (lower pH) undermining productive capacity of soils | 67%                          |
| Low organic carbon in soils                                      | 67%                          |
| Soil sodicity  | 63%                          |

Table 166 Attached values (top 5), combined Northern Dryland and Upper Loddon plains profile(n=107). 2019 North Central social benchmarking survey (N=663)

| Attached values (top 5)   | Important/very important (%) |
|---|------------------------------|
| Ability to pass on a healthier environment for future generations | 90%                          |
| The productive value of the soil on my property                   | 83%                          |
| An attractive place/area to live                                  | 82%                          |
| An asset that is an important part of family wealth               | 82%                          |
| Opportunity to learn new things                                   | 82%                          |

Table 167 Held values (top 5), combined Northern Dryland and Upper Loddon plains profile (n=107). 2019 North Central social benchmarking survey (N=663)

| Held values (top 5)  | Important/very important (%) |
|--|------------------------------|
| Looking after my family and their needs                            | 95%                          |
| Protecting the environment and preserving nature                   | 82%                          |
| Preventing pollution and protecting natural resources              | 81%                          |
| Respecting the earth and living in harmony with other species      | 73%                          |
| Creating wealth and striving for a financially profitable business | 68%                          |

Table 168 Knowledge (top 5), combined Northern Dryland and Upper Loddon plains profile(n=107). 2019 North Central social benchmarking survey (N=663)

| Knowledge (top 5)   | Sound/Very sound knowledge (%) |
|---|--------------------------------|
| How to establish introduced perennial pastures (e.g.<br>lucerne) in this area   | 66%                            |
| Strategies to maintain ground cover to minimise erosion in this area  | 63%                            |
| How to identify the main constraints to soil productivity on your property  | 54%                            |
| The production benefits of applying biological soil<br>amendments and supplements (e.g. compost, manure,<br>microbial inoculants) | 53%                            |
| Preparing a farm/property plan allocating land use<br>according to land class   | 48%                            |

## **3 SIGNIFICANT DIFFERENCES BETWEEN THE LANDSCAPE UNITS (7 units)**

 Table 169 Social and farming information: significant differences between Landscape Units.
 2019 North Central social benchmarking survey (N=663).

 Significant differences:
 16 out of 22 items.

| Social and farming information<br>(median/% yes)   | Bendigo<br>Goldfields              | Irrigated<br>Riverine            | Northern<br>Dryland<br>Plains    | Southern<br>Uplands                | Upper<br>Loddon<br>Plains        | Western<br>Dryland<br>Plains     | Western<br>Goldfields              |
|--|------------------------------------|----------------------------------|----------------------------------|------------------------------------|----------------------------------|----------------------------------|------------------------------------|
| Total area of rural land owned within the NC CMA region  | 40 ha                              | 289.5 ha                         | 500 ha                           | 33.5 ha                            | 87.85 ha                         | 1200 ha                          | 400 ha                             |
| Area of additional land managed<br>(lease/sharefarm/agist from others)<br>within the NC CMA region   | 15%<br>(70 ha)                     | 26%<br>(80 ha)                   | 43%<br>(163 ha)                  | 18%<br>(36 ha)                     | 20%<br>(20 ha)                   | 41%<br>(422.5 ha)                | 25%<br>(220 ha)                    |
| Longest period of time you/your family<br>have owned or managed all/some of<br>your property         | 29 yrs                             | 50 yrs                           | 65 yrs                           | 25 yrs                             | 40 yrs                           | 95 yrs                           | 68 yrs                             |
| Property is principal place of residence   | 65%                                | 82%                              | 86%                              | 68%                                | 73%                              | 76.25%                           | 65%                                |
| Number of rural properties owned   | 1                                  | 2                                | 1                                | 1                                  | 1                                | 1                                | 1                                  |
| Number of rural properties owned within the NC CMA region  | 1                                  | 2                                | 1                                | 1                                  | 1                                | 1                                | 1                                  |
| Percent female   | 34%                                | 16%                              | 18%                              | 0%                                 | 24%                              | 13%                              | 14%                                |
| Farming occupational identity<br>Full-time=FT; Part-time=PT;<br>Hobby=H, Non=N                       | FT 15%<br>PT 18%<br>H 23%<br>N 44% | FT 65%<br>PT 23%<br>H 8%<br>N 5% | FT 68%<br>PT 17%<br>H 9%<br>N 7% | FT 26%<br>PT 22%<br>H 26%<br>N 26% | FT 41%<br>PT 33%<br>H 5%<br>N 21 | FT 89%<br>PT 10%<br>H 0%<br>N 1% | FT 51%<br>PT 14%<br>H 11%<br>N 24% |
| Bought additional land to increase a<br>landholders in this region in the past 20<br>years           | 28%                                | 53%                              | 54%                              | 22%                                | 55%                              | 70%                              | 47%                                |
| Number of hours per week worked on<br>farming/property related activities over<br>the past 12 months | 72%<br>(14 hrs)                    | 91%<br>(45 hrs)                  | 84%<br>(45 hrs)                  | 76%<br>(20 hrs)                    | 86%<br>(27.5 hrs)                | 96%<br>(50 hrs)                  | 81%<br>(40 hrs)                    |

| Social and farming information<br>(median/% yes)   | Bendigo<br>Goldfields | Irrigated<br>Riverine | Northern<br>Dryland<br>Plains | Southern<br>Uplands  | Upper<br>Loddon<br>Plains | Western<br>Dryland<br>Plains | Western<br>Goldfields |
|--|-----------------------|-----------------------|-------------------------------|----------------------|---------------------------|------------------------------|-----------------------|
| Number of days involved in paid off-   | 42%                   | 27%                   | 19%                           | 43%                  | 36%                       | 17%                          | 35%                   |
| property work in the past 12 months  | (163 days)            | (150 days)            | (65 days)                     | (125 days)           | (200 days)                | (32.5 days)                  | (52 days)             |
| Earned an income from agriculture on<br>your property in the North Central<br>region during 2018/19 financial year<br>(percent of all respondents) | 35%                   | 85%                   | 81%                           | 47%                  | 75%                       | 90%                          | 64%                   |
| Earned a net profit from agriculture<br>(income exceeded all paid expenses<br>before tax) in 2018/19 (percent of all<br>respondents)               | 22%                   | 52%                   | 62%                           | 27%                  | 48%                       | 65%                          | 46%                   |
| Net profit from agriculture in 2018/19<br>was above \$50,000 (percent of all<br>respondents)   | 8%                    | 30%                   | 38%                           | 14%                  | 16%                       | 45%                          | 27%                   |
| Received a net off-property income<br>(after expenses and before tax) last<br>financial year (2018/2019) (percent of all<br>respondents)           | Me 48%<br>Spouse 12%  | Me 35%<br>Spouse 19%  | Me 27%<br>Spouse 17%          | Me 50%<br>Spouse 12% | Me 48%<br>Spouse 11%      | Me 18%<br>Spouse 31%         | Me 31%<br>Spouse 15%  |
| Other family members working full time<br>on your property   | 10%                   | 47%                   | 45%                           | 14%                  | 21%                       | 51%                          | 30%                   |



Figure 1 Full-time farming occupational identity across the 7 Landscape Units. 2019 North Central social benchmarking survey (N=663).

 Table 170 Group membership and engagement: significant differences between Landscape Units. 2019 North Central social benchmarking survey

 (N=663). Significant differences: 6 out of 7 items

| Group membership and engagement   | Bendigo<br>Goldfields | Irrigated<br>Riverine | Northern<br>Dryland<br>Plains | Southern<br>Uplands | Upper<br>Loddon<br>Plains | Western<br>Dryland<br>Plains | Western<br>Goldfields |
|---|-----------------------|-----------------------|-------------------------------|---------------------|---------------------------|------------------------------|-----------------------|
| Attended field days/farm<br>walks/demonstrations focused on soil health in<br>the past 12 months  | 24%                   | 26%                   | 37%                           | 26%                 | 26%                       | 53%                          | 34%                   |
| Completed a short course relevant to property management in the past 5 years  | 8%                    | 19%                   | 16%                           | 20%                 | 21%                       | 29%                          | 21%                   |
| Member or involved with a local Landcare group  | 26%                   | 20%                   | 32%                           | 34%                 | 29%                       | 41%                          | 35%                   |
| Member or involved with a local commodity group   | 9%                    | 16%                   | 15%                           | 7%                  | 19%                       | 43%                          | 18%                   |
| Member of involved with a local soil health group   | 1%                    | 3%                    | 10%                           | 6%                  | 12%                       | 12%                          | 5%                    |
| Prepared/are you preparing a property<br>management or whole farm plan that involves<br>a map or other documents that address the<br>existing property situation and include future<br>management and development plans | 17%                   | 36%                   | 24%                           | 35%                 | 27.5                      | 25                           | 30%                   |

 Table 171 Long term plans: significant differences between Landscape Units.
 2019 North Central social benchmarking survey (N=663). Significant differences: 5 out of 12 items.

| Long term plans (% likely/highly likely)                              | Bendigo<br>Goldfields | Irrigated<br>Riverine | Northern<br>Dryland<br>Plains | Southern<br>Uplands | Upper<br>Loddon<br>Plains | Western<br>Dryland<br>Plains | Western<br>Goldfields |
|---|-----------------------|-----------------------|-------------------------------|---------------------|---------------------------|------------------------------|-----------------------|
| The property will be subdivided and a large part of the property sold | 14%                   | 6%                    | 3%                            | 5%                  | 5%                        | 4%                           | 9%                    |
| I will move off the property around/soon after reaching age 65 years  | 14%                   | 21%                   | 6%                            | 12%                 | 28%                       | 14%                          | 13%                   |
| Additional land will be purchased                                     | 15%                   | 30%                   | 34%                           | 13%                 | 23%                       | 43%                          | 30%                   |
| Additional land will be leased or share farmed                        | 7%                    | 18%                   | 28%                           | 13%                 | 14%                       | 27%                          | 15%                   |
| The enterprise mix will be changed to more intensive enterprises      | 13%                   | 22%                   | 5%                            | 10%                 | 21%                       | 17%                          | 9%                    |

 Table 172 Management practices over full period of management: significant differences between Landscape Units.
 2019 North Central social

 benchmarking survey (N=663).
 Significant differences:
 15 out of 19 items.

| Management practices over full period of management (% yes)  | Bendigo<br>Goldfields | Irrigated<br>Riverine | Northern<br>Dryland<br>Plains | Southern<br>Uplands | Upper<br>Loddon<br>Plains | Western<br>Dryland<br>Plains | Western<br>Goldfields |
|--|-----------------------|-----------------------|-------------------------------|---------------------|---------------------------|------------------------------|-----------------------|
| Established permanent grassed waterways in<br>drainage lines   | 11%                   | 6%                    | 16%                           | 17%                 | 14%                       | 18%                          | 21%                   |
| Established an irrigation tailwater reuse system   | 5%                    | 43%                   | 19%                           | 6%                  | 2%                        | 7%                           | 2%                    |
| Used time controlled or rotational grazing   | 23%                   | 45%                   | 44%                           | 39%                 | 30%                       | 33%                          | 33%                   |
| Sown lucerne   | 22%                   | 57%                   | 68%                           | 17%                 | 32%                       | 51%                          | 36%                   |
| Sown perennial pastures other than lucerne   | 25%                   | 42%                   | 54%                           | 36%                 | 43%                       | 36%                          | 50%                   |
| Used minimum or no tillage techniques to<br>establish crops or pastures                                  | 31%                   | 62%                   | 70%                           | 30%                 | 55%                       | 87%                          | 50%                   |
| Used precision farming techniques for cropping   | 11%                   | 30%                   | 44%                           | 14%                 | 23%                       | 66%                          | 28%                   |
| Applied at least one lime application to arable land   | 24%                   | 33%                   | 59%                           | 39%                 | 45%                       | 22%                          | 54%                   |
| Deep ripped arable land  | 14%                   | 27%                   | 29%                           | 12%                 | 11%                       | 12%                          | 16%                   |
| Applied soil ameliorants other than fertiliser and lime (e.g. gypsum, organic manure)                    | 32%                   | 61%                   | 59%                           | 30%                 | 27%                       | 76%                          | 38%                   |
| Tested soils for nutrient status in paddocks where have applied fertiliser/soil conditioners in the past | 28%                   | 61%                   | 60%                           | 40%                 | 45%                       | 78%                          | 47%                   |
| Prepared a nutrient budget for all/most of the property  | 8%                    | 22%                   | 21%                           | 12%                 | 16%                       | 45%                          | 17%                   |
| Prepared a habitat assessment for native plants  | 12%                   | 5%                    | 11%                           | 20%                 | 7%                        | 13%                          | 10%                   |
| Each year have worked to control pest animals  | 58%                   | 66%                   | 73%                           | 64%                 | 73%                       | 82%                          | 64%                   |
| Each year have worked to control non-crop weeds  | 68%                   | 83%                   | 83%                           | 71%                 | 82%                       | 95%                          | 75%                   |

 Table 173 Land use: significant differences between Landscape Units.
 2019 North Central social benchmarking survey (N=663).
 Significant differences:

 14 out of 21 items.

| Land use (% yes)  | Bendigo<br>Goldfields | Irrigated<br>Riverine | Northern<br>Dryland<br>Plains | Southern<br>Uplands | Upper<br>Loddon<br>Plains | Western<br>Dryland<br>Plains | Western<br>Goldfields |
|---|-----------------------|-----------------------|-------------------------------|---------------------|---------------------------|------------------------------|-----------------------|
| Cropping  | 18%                   | 57%                   | 89%                           | 14%                 | 50%                       | 96%                          | 52%                   |
| Pasture   | 48%                   | 66%                   | 73%                           | 53%                 | 70%                       | 53%                          | 64%                   |
| Dairying  | 0%                    | 18%                   | 5%                            | 1%                  | 0%                        | 0%                           | 1%                    |
| Beef cattle   | 20%                   | 36%                   | 23%                           | 36%                 | 30%                       | 14%                          | 15%                   |
| Sheep for wool or meat  | 47%                   | 45%                   | 68%                           | 38%                 | 61%                       | 72%                          | 71%                   |
| Horticulture  | 6%                    | 5%                    | 3%                            | 14%                 | 5%                        | 1%                           | 2%                    |
| Irrigated agriculture   | 8%                    | 71%                   | 24%                           | 11%                 | 11%                       | 5%                           | 7%                    |
| Farm-based tourism (e.g. farm stays, B&B)   | 3%                    | 3%                    | 2%                            | 12%                 | 7%                        | 0%                           | 4%                    |
| Conservation covenant attached to property title (e.g. Trust For Nature)          | 9%                    | 2%                    | 3%                            | 2%                  | 5%                        | 5%                           | 8%                    |
| Area set aside for living/recreation (e.g. gardens, pets, water bodies, vehicles) | 41%                   | 36%                   | 24%                           | 48%                 | 41%                       | 28%                          | 30%                   |
| Hay production for sale   | 13%                   | 38%                   | 35%                           | 10%                 | 20%                       | 55%                          | 25%                   |
| Did you irrigate in the 2018/19 season?   | 14%                   | 81%                   | 25%                           | 19%                 | 12%                       | 2%                           | 4%                    |
| If yes: Was surface water used  | 70%                   | 94%                   | 75%                           | 67%                 | 29%                       | 25%                          | 31%                   |
| If yes: Was ground water was used   | 33%                   | 17%                   | 31%                           | 44%                 | 57%                       | 0%                           | 8%                    |

 Table 174 Confidence in recommended practices: significant differences between Landscape Units.
 2019 North Central social benchmarking survey

 (N=663). Significant differences: 6 out of 10 items.

| Confidence in recommended practices (% agree/strongly agree)   | Bendigo<br>Goldfields | Irrigated<br>Riverine | Northern<br>Dryland<br>Plains | Southern<br>Uplands | Upper<br>Loddon<br>Plains | Western<br>Dryland<br>Plains | Western<br>Goldfields |
|--|-----------------------|-----------------------|-------------------------------|---------------------|---------------------------|------------------------------|-----------------------|
| The cost of deep-tillage and subsoil modification are justified by increased production  | 19%                   | 33%                   | 33%                           | 22%                 | 36%                       | 39%                          | 28%                   |
| The benefits of stubble retention outweigh<br>problems arising from the practice   | 40%                   | 67%                   | 66%                           | 34%                 | 57%                       | 85%                          | 56%                   |
| The costs of applying gypsum to address soil sodicity are justified by increased production  | 47%                   | 76%                   | 82%                           | 385                 | 64%                       | 88%                          | 59%                   |
| The costs of establishing perennial pasture are justified by the returns   | 52%                   | 58%                   | 77%                           | 52%                 | 66%                       | 62%                          | 69%                   |
| The cost of willow removal is justified by<br>improvements in the condition of river banks &<br>river health                                   | 41%                   | 34%                   | 32%                           | 54%                 | 51%                       | 37%                          | 33%                   |
| Intensive grazing for short periods is usually better<br>for the health of native vegetation along<br>waterways and wetlands than set stocking | 45%                   | 61%                   | 49%                           | 55%                 | 48%                       | 60%                          | 46%                   |

 Table 175 Responding to climate change: significant differences between Landscape Units.
 2019 North Central social benchmarking survey (N=663).

 Significant differences: 2 out of 3 items.

| Changes to management practices in response to climate change (% yes)   | Bendigo<br>Goldfields | Irrigated<br>Riverine | Northern<br>Dryland<br>Plains | Southern<br>Uplands | Upper<br>Loddon<br>Plains | Western<br>Dryland<br>Plains | Western<br>Goldfields |
|---|-----------------------|-----------------------|-------------------------------|---------------------|---------------------------|------------------------------|-----------------------|
| In the past 12 months have you changed your on-<br>property operations as a result of considering<br>opportunities to capture carbon (e.g. by<br>revegetation, soil management)?      | 13%                   | 9%                    | 14%                           | 22%                 | 7%                        | 18%                          | 7%                    |
| In the past 12 months have you changed your on-<br>property operations as a result of considering<br>opportunities to reduce carbon emissions (e.g.<br>solar, wind, gravity systems)? | 13%                   | 16%                   | 23%                           | 29%                 | 29%                       | 9%                           | 12%                   |

 Table 176 Belief in human induced climate change: significant differences between Landscape Units. 2019 North Central social benchmarking survey

 (N=663). Significant differences: 3 out of 3 items.

| Belief in human induced climate change (%<br>agree/strongly agree)   | Bendigo<br>Goldfields | Irrigated<br>Riverine | Northern<br>Dryland<br>Plains | Southern<br>Uplands | Upper<br>Loddon<br>Plains | Western<br>Dryland<br>Plains | Western<br>Goldfields |
|--|-----------------------|-----------------------|-------------------------------|---------------------|---------------------------|------------------------------|-----------------------|
| Human activities are influencing changes in<br>climate   | 77%                   | 47%                   | 46%                           | 77%                 | 69%                       | 38%                          | 63%                   |
| It is not too late to take action to address climate change  | 77%                   | 51%                   | 66%                           | 67%                 | 67%                       | 44%                          | 61%                   |
| If we do nothing, climate change will have dire<br>consequences for all living things, including<br>humans | 68%                   | 41%                   | 43%                           | 75%                 | 64%                       | 37%                          | 57%                   |

Table 177 Attitudes and beliefs about climate change: significant differences between Landscape Units. 2019 North Central social benchmarking survey (N=663). 2 out of 2 items.

| Attitudes and beliefs about climate change (% agree/strongly agree)                         | Bendigo<br>Goldfields | Irrigated<br>Riverine | Northern<br>Dryland<br>Plains | Southern<br>Uplands | Upper<br>Loddon<br>Plains | Western<br>Dryland<br>Plains | Western<br>Goldfields |
|---|-----------------------|-----------------------|-------------------------------|---------------------|---------------------------|------------------------------|-----------------------|
| Primary producers should do all they can to reduce carbon emissions from their activities   | 71%                   | 61%                   | 70%                           | 75%                 | 75%                       | 67%                          | 66%                   |
| I'm confident landholders in this region can adapt to expected changes in rainfall patterns | 37%                   | 56%                   | 71%                           | 51%                 | 70%                       | 78%                          | 64%                   |

 Table 178 Belief in the primacy of private property rights: significant differences between Landscape Units. 2019 North Central social benchmarking survey (N=663). Significant differences: 4 out of 4 items.

| Belief in the primacy of private property rights (% agree/strongly agree)   | Bendigo<br>Goldfields | Irrigated<br>Riverine | Northern<br>Dryland<br>Plains | Southern<br>Uplands | Upper<br>Loddon<br>Plains | Western<br>Dryland<br>Plains | Western<br>Goldfields |
|---|-----------------------|-----------------------|-------------------------------|---------------------|---------------------------|------------------------------|-----------------------|
| Aboriginal people should be able to negotiate access with landholders to visit cultural sites                         | 56%                   | 45%                   | 42%                           | 60%                 | 60%                       | 47%                          | 42%                   |
| The public should be able to access crown land<br>managed by private landholders (e.g. unused<br>roads)               | 24%                   | 24%                   | 18%                           | 36%                 | 21%                       | 17%                          | 24%                   |
| If landholders are informed in advance, it would be<br>acceptable to cause minor floods for<br>environmental purposes | 33%                   | 25%                   | 17%                           | 46%                 | 41%                       | 18%                          | 29%                   |
| Landholders should be able to harvest rainfall on<br>their property, even if that action impacts on<br>others         | 48%                   | 33%                   | 33%                           | 53%                 | 50%                       | 33%                          | 38%                   |

Table 179 Attitudes and beliefs: significant differences between Landscape Units. 2019 North Central social benchmarking survey (N=663). Significant differences: 1 out of 2 items.

| Attitudes and beliefs (% agree/strongly agree)  | Bendigo<br>Goldfields | Irrigated<br>Riverine | Northern<br>Dryland<br>Plains | Southern<br>Uplands | Upper<br>Loddon<br>Plains | Western<br>Dryland<br>Plains | Western<br>Goldfields |
|---|-----------------------|-----------------------|-------------------------------|---------------------|---------------------------|------------------------------|-----------------------|
| The increased allocation of water for the<br>environment under the Murray-Darling Basin Plan<br>will improve the health of waterways & wetlands | 47%                   | 18%                   | 17%                           | 51%                 | 49%                       | 29%                          | 36%                   |

Table 180 Personal norms: significant differences between Landscape Units. 2019 North Central social benchmarking survey (N=663). Significant differences: 1 out of 2 items.

| Personal norms: soil health (% agree/strongly agree)                       | Bendigo<br>Goldfields | Irrigated<br>Riverine | Northern<br>Dryland<br>Plains | Southern<br>Uplands | Upper<br>Loddon<br>Plains | Western<br>Dryland<br>Plains | Western<br>Goldfields |
|--|-----------------------|-----------------------|-------------------------------|---------------------|---------------------------|------------------------------|-----------------------|
| I feel a personal responsibility to maintain my soil's productive capacity | 70%                   | 89%                   | 85%                           | 76%                 | 89%                       | 94%                          | 77%                   |

Table 181 Disposition to accept risk: significant differences between Landscape Units.2019 North Central social benchmarking survey (N=663).Significant differences: 2 out of 4 items.

| Disposition to accept risk (% agree/strongly agree)                  | Bendigo<br>Goldfields | Irrigated<br>Riverine | Northern<br>Dryland<br>Plains | Southern<br>Uplands | Upper<br>Loddon<br>Plains | Western<br>Dryland<br>Plains | Western<br>Goldfields |
|--|-----------------------|-----------------------|-------------------------------|---------------------|---------------------------|------------------------------|-----------------------|
| I am an early adopter of new agricultural practices and technologies | 21%                   | 38%                   | 40%                           | 31%                 | 40%                       | 48%                          | 25%                   |
| I usually view risks as a challenge to embrace                       | 36%                   | 53%                   | 37%                           | 42%                 | 57%                       | 58%                          | 49%                   |

\*Note: no significant differences in disposition to trust others

 Table 182 Trust in and judgements of the trustworthiness of the North Central CMA: significant differences between Landscape Units. 2019 North

 Central social benchmarking survey (N=663). 3 out of 6 items.

| Trust in and judgements of the trustworthiness of<br>the North Central CMA: waterways and wetlands<br>management (% agree/strongly agree) | Bendigo<br>Goldfields | Irrigated<br>Riverine | Northern<br>Dryland<br>Plains | Southern<br>Uplands | Upper<br>Loddon<br>Plains | Western<br>Dryland<br>Plains | Western<br>Goldfields |
|---|-----------------------|-----------------------|-------------------------------|---------------------|---------------------------|------------------------------|-----------------------|
| <i>Filter question</i> : Are you aware of the existence of the North Central CMA  | 63%                   | 86%                   | 75%                           | 60%                 | 60%                       | 91%                          | 67%                   |
| The North Central CMA keeps landholders'<br>interests in mind when making decisions about<br>waterways and wetlands management            | 36%                   | 39%                   | 38%                           | 38%                 | 59%                       | 49%                          | 57%                   |
| Sound principles guide North Central CMA decisions about waterways & wetlands management  | 36%                   | 30%                   | 38%                           | 40%                 | 71%                       | 45%                          | 49%                   |

 Table 183 Information sources: significant differences between Landscape Units.
 2019 North Central social benchmarking survey (N=663). Significant differences: 13 out of 29 items.

| Information sources (% yes)                            | Bendigo<br>Goldfields | Irrigated<br>Riverine | Northern<br>Dryland<br>Plains | Southern<br>Uplands | Upper<br>Loddon<br>Plains | Western<br>Dryland<br>Plains | Western<br>Goldfields |
|--|-----------------------|-----------------------|-------------------------------|---------------------|---------------------------|------------------------------|-----------------------|
| Books  | 44%                   | 20%                   | 31%                           | 44%                 | 34%                       | 22%                          | 25%                   |
| North Central CMA                                      | 17%                   | 33%                   | 29%                           | 22%                 | 25%                       | 36%                          | 28%                   |
| Victorian Farmers Federation                           | 12%                   | 24%                   | 31%                           | 14%                 | 20%                       | 39%                          | 15%                   |
| Bureau of Meteorology                                  | 59%                   | 74%                   | 66%                           | 61%                 | 66%                       | 75%                          | 52%                   |
| Water Authorities (e.g. GMW, Coliban Water)            | 25%                   | 61%                   | 26%                           | 26%                 | 27%                       | 29%                          | 17%                   |
| Newspapers   | 48%                   | 67%                   | 61%                           | 52%                 | 57%                       | 61%                          | 53%                   |
| Field days   | 37%                   | 38%                   | 56%                           | 36%                 | 34%                       | 67%                          | 36%                   |
| Radio  | 38%                   | 50%                   | 37%                           | 29%                 | 41%                       | 52%                          | 45%                   |
| Local Council  | 27%                   | 15%                   | 11%                           | 27%                 | 9%                        | 8%                           | 19%                   |
| Rural R&D corporations (e.g. MLA, GRDC)                | 11%                   | 24%                   | 26%                           | 10%                 | 16%                       | 39%                          | 20%                   |
| Extension officers                                     | 2%                    | 13%                   | 2%                            | 6%                  | 9%                        | 14%                          | 7%                    |
| Environmental organisations                            | 22%                   | 8%                    | 6%                            | 21%                 | 20%                       | 8%                           | 11%                   |
| Agricultural consultants, agronomists and stock agents | 31%                   | 60%                   | 52%                           | 30%                 | 41%                       | 65%                          | 42%                   |

Table 184 Issues of concern at the district scale: significant differences between Landscape Units. 2019 North Central social benchmarking survey(N=663). Significant differences: 11 out of 20 items.

| Issues of concern at the district scale (% important/very important)                              | Bendigo<br>Goldfields | Irrigated<br>Riverine | Northern<br>Dryland<br>Plains | Southern<br>Uplands | Upper<br>Loddon<br>Plains | Western<br>Dryland<br>Plains | Western<br>Goldfields |
|---|-----------------------|-----------------------|-------------------------------|---------------------|---------------------------|------------------------------|-----------------------|
| Absence or poor quality of important services and infrastructure (e.g. health, schools, internet) | 46%                   | 65%                   | 61%                           | 50%                 | 52%                       | 84%                          | 63%                   |
| Uncertain/low returns limiting capacity to invest<br>in my property                               | 31%                   | 66%                   | 41%                           | 31%                 | 55%                       | 59%                          | 46%                   |
| Less water being made available to support recreation on rivers and lakes                         | 34%                   | 37%                   | 26%                           | 25%                 | 36%                       | 63%                          | 36%                   |
| Movement of irrigation water away from this region  | 40%                   | 92%                   | 55%                           | 38%                 | 41%                       | 34%                          | 24%                   |
| Dryland salinity undermining long-term productive capacity  | 33%                   | 41%                   | 27%                           | 16%                 | 39%                       | 29%                          | 34%                   |
| Nutrient run-off from rural properties affecting water quality                                    | 35%                   | 36%                   | 33%                           | 38%                 | 43%                       | 27%                          | 48%                   |
| Risk to life and property from wildfires  | 78%                   | 37%                   | 56%                           | 74%                 | 77%                       | 62%                          | 73%                   |
| The effect of ground water extraction on stream flows during drought                              | 46%                   | 36%                   | 57%                           | 43%                 | 61%                       | 26%                          | 51%                   |
| Non-agricultural land use (e.g. residential, solar, mining) encroaching on farming land           | 58%                   | 44%                   | 53%                           | 52%                 | 52%                       | 41%                          | 46%                   |
| Crop weed resistance to herbicide   | 49%                   | 61%                   | 73%                           | 48%                 | 64%                       | 91%                          | 61%                   |
| Quality of water in farm dams during drought  | 75%                   | 59%                   | 78%                           | 64%                 | 61%                       | 45%                          | 78%                   |

 Table 185 Soil issues on property: significant differences between Landscape Units.
 2019 North Central social benchmarking survey (N=663). Significant differences: 5 out of 7 items.

| Soil issues on property (% important/very important)             | Bendigo<br>Goldfields | Irrigated<br>Riverine | Northern<br>Dryland<br>Plains | Southern<br>Uplands | Upper<br>Loddon<br>Plains | Western<br>Dryland<br>Plains | Western<br>Goldfields |
|--|-----------------------|-----------------------|-------------------------------|---------------------|---------------------------|------------------------------|-----------------------|
| Soil erosion (e.g. by wind or water)                             | 73%                   | 59%                   | 79%                           | 60%                 | 69%                       | 84%                          | 85%                   |
| Low permeability of sub soil                                     | 57%                   | 58%                   | 71%                           | 39%                 | 69%                       | 68%                          | 66%                   |
| Declining nutrient status of soils                               | 67%                   | 56%                   | 72%                           | 54%                 | 67%                       | 71%                          | 72%                   |
| Soil acidity (lower pH) undermining productive capacity of soils | 59%                   | 46%                   | 72%                           | 50%                 | 60%                       | 52%                          | 69%                   |
| Soil sodicity  | 44%                   | 45%                   | 66%                           | 32%                 | 60%                       | 55%                          | 50%                   |

 Table 186 Attached values: significant differences between Landscape Units.
 2019 North Central social benchmarking survey (N=663). Significant differences: 9 out of 16 items.

| Attached values (% important/very important)                         | Bendigo<br>Goldfields | Irrigated<br>Riverine | Northern<br>Dryland<br>Plains | Southern<br>Uplands | Upper<br>Loddon<br>Plains | Western<br>Dryland<br>Plains | Western<br>Goldfields |
|--|-----------------------|-----------------------|-------------------------------|---------------------|---------------------------|------------------------------|-----------------------|
| Sense of accomplishment from producing food and fibre for others     | 43%                   | 78%                   | 82%                           | 53%                 | 75%                       | 87%                          | 67%                   |
| Sense of accomplishment from building/maintaining a viable business  | 42%                   | 88%                   | 84%                           | 49%                 | 73%                       | 93%                          | 67%                   |
| A place or base for recreation                                       | 62%                   | 41%                   | 37%                           | 55%                 | 61%                       | 46%                          | 50%                   |
| Working on the property is a welcome break from my normal occupation | 51%                   | 27%                   | 28%                           | 45%                 | 34%                       | 15%                          | 36%                   |
| An asset that will fund my retirement                                | 45%                   | 64%                   | 64%                           | 39%                 | 50%                       | 70%                          | 57%                   |
| A place where I can escape the pressures of life                     | 66%                   | 46%                   | 55%                           | 68%                 | 59%                       | 40%                          | 50%                   |
| An important source of household income                              | 33%                   | 75%                   | 75%                           | 41%                 | 66%                       | 94%                          | 62%                   |
| The productive value of the soil on my property                      | 54%                   | 88%                   | 87%                           | 59%                 | 77%                       | 92%                          | 74%                   |
| An asset that is an important part of family wealth                  | 62%                   | 82%                   | 82%                           | 65%                 | 82%                       | 85%                          | 72%                   |

 Table 187 Held values: significant differences between Landscape Units.
 2019 North Central social benchmarking survey (N=663). Significant differences:

 4 out of 10 items.

| Held values (% important/very important)                           | Bendigo<br>Goldfields | Irrigated<br>Riverine | Northern<br>Dryland<br>Plains | Southern<br>Uplands | Upper<br>Loddon<br>Plains | Western<br>Dryland<br>Plains | Western<br>Goldfields |
|--|-----------------------|-----------------------|-------------------------------|---------------------|---------------------------|------------------------------|-----------------------|
| Protecting the environment and preserving nature                   | 84%                   | 81%                   | 77%                           | 83%                 | 88%                       | 78%                          | 78%                   |
| Preventing pollution and protecting natural resources              | 88%                   | 80%                   | 79%                           | 77%                 | 84%                       | 88%                          | 84%                   |
| Respecting the earth and living in harmony with other species      | 82%                   | 68%                   | 69%                           | 73%                 | 79%                       | 65%                          | 71%                   |
| Creating wealth and striving for a financially profitable business | 39%                   | 86%                   | 67%                           | 43%                 | 70%                       | 88%                          | 67%                   |

 Table 188 Knowledge: significant differences between Landscape Units.
 2019 North Central social benchmarking survey (N=663).
 Significant differences:

 9 out of 15 items.

| Knowledge (% sound/very sound knowledge)  | Bendigo<br>Goldfields | Irrigated<br>Riverine | Northern<br>Dryland<br>Plains | Southern<br>Uplands | Upper<br>Loddon<br>Plains | Western<br>Dryland<br>Plains | Western<br>Goldfields |
|---|-----------------------|-----------------------|-------------------------------|---------------------|---------------------------|------------------------------|-----------------------|
| Preparing a farm/property plan allocating land use according to land class  | 32%                   | 54%                   | 48%                           | 36%                 | 49%                       | 74%                          | 39%                   |
| The extent and type of biological activity in soils on<br>your property   | 23%                   | 31%                   | 37%                           | 25%                 | 37%                       | 46%                          | 25%                   |
| Strategies to maintain ground cover to minimise erosion in this area  | 50%                   | 66%                   | 68%                           | 52%                 | 56%                       | 90%                          | 61%                   |
| How to establish introduced perennial pastures (e.g.<br>lucerne) in this area   | 31%                   | 73%                   | 75%                           | 30%                 | 53%                       | 70%                          | 52%                   |
| How to identify the main constraints to soil productivity on your property  | 31%                   | 62%                   | 58%                           | 26%                 | 49%                       | 74%                          | 47%                   |
| The processes leading to soil structure decline in this area  | 28%                   | 47%                   | 41%                           | 29%                 | 51%                       | 56%                          | 33%                   |
| The role of soil carbon in maintaining soil health  | 27%                   | 43%                   | 42%                           | 30%                 | 49%                       | 54%                          | 36%                   |
| How to use soil testing to prepare a nutrient budget<br>that will increase soil productivity without the risk of<br>high levels of nutrient run-off | 20%                   | 41%                   | 32%                           | 23%                 | 33%                       | 56%                          | 32%                   |
| The effect of fertiliser application on the persistence of native grasses in this area  | 22%                   | 30%                   | 24%                           | 26%                 | 26%                       | 39%                          | 26%                   |

## **4 REFERENCES**

Curtis, A., & Luke, H. (2019). Social benchmarking for natural resource management: 2019 North Central Victoria. Southern Cross University, NSW.

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