



# **BIGG Survey Report: Regional Water Security**

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## Summary

An online survey of Barossa Improved Grazing Group (BIGG) subscribers was conducted in February-March 2021 to improve understanding of on-farm water security in the region. Twenty-nine producers responded to the survey. Respondents were mostly sheep and/or cattle producers who were located across 12 postcodes. Fifty-five percent of respondents were located in the neighbouring postcodes of 5353 and 5235. (These two postcodes include the localities of Eden Valley, Flaxman Valley, Angaston and Keyneton).

The survey established:

- The water sources producers rely on
- The water security issues producers are experiencing
- The water infrastructure improvements producers are planning in the future
- The barriers to undertaking these improvements

The major water sources relied upon by producers for their agricultural enterprises are; on-farm dams (86% of respondents), rainfall captured from house/sheds (79%) and bore water (76%). The survey found that only 38% of producers have access to mains water, while 28% have previously had to cart water to satisfy their requirements.

A range of on-property water security issues have been experienced by producers, particularly low farm dam water supply (82% of respondents) and low rainfall capture (79%). In addition, bore water salinity levels (43%), low river/stream flow (36%), bore water supply (32%) and spring water supply (32%) were the other issues most faced.

Over the next three years, producers would like to undertake a range of water infrastructure improvements on their property, namely the installation of tanks (42% of respondents), piping (33%) and troughs (21%). In addition, 29% of respondents would like access to mains water.

The key barrier to undertaking water infrastructure improvements on property is the high cost of infrastructure (52% of respondents). The next major barriers were government regulations and a lack of access to mains water (both 22%).

Survey respondents also provided general feedback on regional water security. Frustration was expressed at the implementation/lack of available funds for the PIRSA On-farm Emergency Water Infrastructure Rebate Scheme, while others articulated the gravity of the water security situation in the region. For example:

*“Regional water security has deteriorated rapidly. We have had no stream flow for four years, reduced/almost nil runoff to dams and a rapid increase in bore salinity”*

*“Water security is now urgently needed for the future viability of primary production/viticulture in the region”*

The results from this survey substantiate the significance of on-farm water security in the region. In particular, for graziers who rely on dam water for their livestock and don't have access to mains water.

## Background

Water security is a key issue facing regional producers and landholders. This was verified in a survey BIGG conducted in June 2020, with 'water security and infrastructure' being rated as the main area BIGG should focus its future project activities.

In November 2020, BIGG received a 'Grassroots' grant from the Northern and Yorke Landscape Board, which included support to undertake a water security survey of regional (Barossa, Eden Valley and Northern Mt Lofty Ranges) producers.

A 10-question survey questionnaire (Appendix 1) was developed using the survey tool SurveyMonkey and emailed to BIGG's subscribers (350) who responded to it online. The survey was open from 18 February-26 March 2021.

This report presents the results of the survey.

## Survey results and discussion

### Q1. Location of survey respondents

Twenty-nine producers, located across 12 postcode areas responded to the survey. Fifty-five percent were located in the neighbouring postcodes of 5353 (31%) and 5235 (24%) (Table 1). (Postcode 5353 includes the localities of Eden Valley, Flaxman Valley, Mt Pleasant and Springton, while 5235 includes Angaston, Keyneton, Moculta and Mt Mckenzie).

**Table 1: Post code of survey respondent's properties.**

Post code	Responses	
	(#)	(%)
5235	7	<b>24</b>
5236	3	<b>10</b>
5255	1	<b>3</b>
5351	1	<b>3</b>
5353	9	<b>31</b>
5355	1	<b>3</b>
5373	2	<b>7</b>
5374	1	<b>3</b>
5413	1	<b>3</b>
5414	1	<b>3</b>
5453	1	<b>3</b>
5461	1	<b>3</b>

## Q2. Enterprises managed by survey respondents

The majority of survey respondents ran or specialised in more than one farm enterprise, with most managing sheep (83%) and/or beef cattle (52%) (Table 2).

**Table 2: Enterprises run by survey respondents\*.**

Enterprise	Responses	
	(#)	(%)
Sheep	24	<b>83</b>
Beef cattle	15	<b>52</b>
Dairy cattle	1	<b>3</b>
Broad-acre crops	7	<b>24</b>
Grapes	8	<b>28</b>
None (i.e. non-commercial landholder)	0	<b>0</b>
Other (please specify)	2**	7

\*Respondents (29) selected as many enterprises as they wanted from the question options.

\*\*Other - responses were 'conservation' and 'horses'.

## Q3. Ways water is used on property

The majority of survey respondents use water for livestock (97%) and or spraying (83%) (Table 3).

**Table 3: Ways water is used for agricultural enterprises\*.**

Water uses	Responses	
	(#)	(%)
Stock water	28	<b>97</b>
Spraying	24	<b>83</b>
Irrigation (pasture)	0	<b>0</b>
Irrigation (vineyard)	8	<b>28</b>
Dairy	1	<b>3</b>
Watering trees	15	<b>52</b>
Other (please specify)	11**	<b>38</b>

\*Respondents (29) selected as many water uses as they wanted from the question options

\*\*Other - responses were 'garden' (6), 'domestic' (3) and 'cleaning' (2).

## Q4. Water sources on property

The majority of survey respondents rely on the following water sources for their agricultural enterprises; on-farm dams (86%), rainfall captured from house/sheds (79%) and bore water (76%). Only 38% of respondents have access to mains water, whilst 28% have previously had to cart water to satisfy their requirements (Table 4).

**Table 4: Water sources used for agricultural enterprises\*.**

Water sources	Responses	
	(#)	(%)
Mains water supply	11	38
On farm dams	25	86
Groundwater (bores)	22	76
Groundwater (springs)	9	31
Rivers/streams	8	28
Rainfall captured from house/sheds	23	79
Carted water	8	28
Other (please specify)	0	0

\*Respondents (29) selected as many water sources as they wanted from the question options.

### Q5. Annual property water requirement

Survey respondents estimated the annual water volume requirement of their property. Based on 22 respondents, the volume ranged from 0.25 to 65 megalitres/property, with the average being 9.8 megalitres (total volume for the 22 respondents was 216 megalitres).

### Q6. Water security issues experienced

Between February 2018-February 2021, survey respondents experienced a range of water security issues on their properties. The key issues being the related concerns of low farm dam water supply (82% of respondents) and low rainfall capture (79%) (Table 5).

Bore water salinity levels (43%), low river/stream flow (36%), bore water supply (32%) and spring water supply (32%) were the other issues most encountered.

**Table 5: Water security issues experienced between February 2018-February 2021\*.**

Water security issues	Responses	
	(#)	(%)
Farm dam water supply	23	82
Farm dam water salinity	8	29
Farm dam water algae	8	29
Groundwater (bore) supply	9	32
Groundwater (bore) salinity	12	43
Groundwater (spring) supply	9	32
Groundwater (spring) salinity	7	25
River/stream flow	10	36
River/stream quality	4	14
Low rainfall capture	22	79
Access to mains water supply	6	21
Access to carted water	4	14
None (i.e. no issues experienced)	1	4

\*Respondents (28) selected as many water security issues as they wanted from the question options.

## Q7. Previous water security improvements

Survey respondents listed the water security improvements they had made on their properties between February 2018-February 2021. These responses were grouped into seven categories (Table 6).

Most improvements related to the installation of water infrastructure, namely tanks (62% of respondents), bores (38%), piping (35%) and troughs (31%).

**Table 6: Water security improvements undertaken between February 2018-February 2021\*.**

Water security improvements	Responses	
	(#)	(%)
Tanks	16	<b>62</b>
Bores	10	<b>38</b>
Piping	9	<b>35</b>
Troughs	8	<b>31</b>
Pumps	6	<b>23</b>
Water licence	2	<b>8</b>
Irrigation infrastructure	1	<b>4</b>

\*Respondents (26) listed as many improvements as they wanted.

## Q8. Future water security improvements

Survey respondents listed the water security improvements they would like to undertake on their property in the next three years (i.e. February 2021-February 2024). These responses were grouped into 12 categories (Table 7).

The key water infrastructure improvements were tanks (42% of respondents), piping (33%) and troughs (21%). In addition, 29% of respondents would like access to mains water.

**Table 7: Water security improvements that would like to be undertaken up until February 2024\*.**

Water security improvements	Responses	
	(#)	(%)
Tanks	10	42
Piping	8	33
Mains water access	7	29
Troughs	5	21
Bores	4	17
Pumps	3	13
Bore desalination	2	8
Extra dams	2	8
Fence dams	1	4
Renew contour banks	1	4
Extra roof space (for water capture)	1	4
Reticulate water from reliable spring	1	4

\*Respondents (24) listed as many improvements as they wanted.

### Q9. Barriers to undertake future water security improvements

Survey respondents listed the barriers to undertaking water security improvements on their property over the next three years (i.e. February 2021-February 2024). These responses were grouped into 11 categories (Table 8).

The key barrier to undertaking improvements was the high cost of infrastructure (52% of respondents). Government regulations, lack of mains water access (both 22%) and available funds (17%) were the next main barriers.

**Table 8: Barriers to undertaking future water security improvements on-property \*.**

Barriers	Responses	
	(#)	(%)
Infrastructure costs	12	52
Government regulations	5	22
Lack of mains water access	5	22
Available funds	4	17
Time	3	13
Low water supply	3	13
Low water quality	2	9
Rocky terrain to lay pipe	2	9
Effective government cooperation with community	2	9
Uncertainty where to drill bores	2	9
Lack of financial support for water purchases	2	9

\*Respondents (23) listed as many barriers as they wanted.



## Q10. General comments on regional water security

In the final survey question, twenty respondents gave general feedback on regional water security. This is summarised as follows:

The vast majority of feedback for this question related to the PIRSA On-farm Emergency Water Infrastructure Rebate Scheme. Sixty percent of respondents expressed frustration at the implementation/lack of available funds for the scheme (in comparison 10% of respondents benefitted from the scheme) (NB- PIRSA opened a third round of the scheme after this survey was conducted).

Various comments were given on regional water security:

- *“Regional water security has deteriorated rapidly. We have had no stream flow for four years, reduced/almost nil runoff to dams and a rapid increase in bore salinity”*
- *“Water security is now urgently needed for the future viability of primary production/viticulture in the region”*
- *“The Flaxman valley region does not have any alternative water supply available at all, other than if it is trucked in and paid for by the property owner”*
- *“Security for Eden Valley region should be established”*
- *“Make access to mains water affordable and realistic”*
- *“If Bolivar water comes to the Barossa we need to make sure it is suitable for stock”*

Suggestions were given on water security activities that BIGG could investigate in the future:

- *“Fencing off of farm dams for improved biodiversity/water quality farm planning sessions”*
- *“Would like some good research done on ways to desalinate water to use for stock, especially what to do with the leftover brine from the process”*

## Appendix 1 – Survey Questionnaire

1. What is the postcode of your property?

2. What agricultural enterprises do you run on your property? *(select as many as applicable)*

- Sheep
- Beef cattle
- Dairy cattle
- Broadacre crops
- Grapes
- None (i.e. non-commercial landholder)
- Other (please specify)

3. As part of managing the agricultural enterprises on your property, what do you use water for? *(select as many as applicable)*

- Stock water
- Spraying
- Irrigation (pasture)
- Irrigation (vineyard)
- Dairy
- Watering trees
- Other (please specify)

4. What water sources do you rely on for your agricultural enterprises? *(select as many as applicable)*

- Mains water supply
- On farm dams
- Groundwater (bores)
- Groundwater (springs)
- Rivers/streams
- Rainfall captured from house/sheds
- Carted water
- Other (please specify)

5. What do you estimate (approximately) as the annual water volume requirement of your property?

6. In the last three years, what water security issues have you experienced on your property? *(select as many as applicable)*

- Farm dam water supply
- Farm dam water salinity

- Farm dam water algae
- Groundwater (bore) supply
- Groundwater (bore) salinity
- Groundwater (spring) supply
- Groundwater (spring) salinity
- River/stream flow
- River/stream quality
- Low rainfall capture
- Access to mains water supply
- Access to carted water
- None (i.e. no issues experienced)
- Other (please specify)

7. In the last three years, have you undertaken any water security improvements (i.e. water infrastructure or related groundworks such as water capture, storage or farm distribution) on your property? If so, please list.

8. In the next three years, what water security improvements would you like to undertake on your property? Please list (*if none go to Q10*).

9. Of the improvements you listed in Q8, what are some barriers in undertaking these? Please list.

10. Please provide any comments you may have about regional water security (including access to PIRSA's On-farm Emergency Water Infrastructure Rebate Scheme), or activities you might like BIGG to undertake as part of a future water security project?