

# Irrigation in the Angas Bremer Proclaimed Wells Area 1999 - 2000

A Summary collated from Farmer's  
Irrigation Annual Reports

Angas Bremer Water Management Committee

Report produced by Bruce Allnut  
Program / Project Coordinator

## AB Chairman's Report 99/00

It certainly is very pleasing to be able to start my report this year by saying that during the last twelve months your committee has made good progress and has had some good achievements in moving towards a new concept in resource management in this area.

After eighteen months of battling with bureaucrats and politicians who are more interested in their own survival than making any forward looking decisions, even after public consultation, it has been rewarding to have the River Murray Catchment Board recognize and support the need to establish the proposed Land and Water Management Plan for Angas Bremer and this has allowed your committee to push ahead regardless of these problems and I thank members for their patience and support during these frustrating months. It is very pleasing for me to be able to say in my report tonight that by being strong and sticking to what we believe is the right course of action we have achieved some real recognition and status for the ideas the community has put forward and I must publicly thank the officers of the R M C B and their consultants for their efforts during a trying time. The result of these efforts has meant that instead of our new Water Allocation Plan being a weak and useless document that did not reflect anything that you the public suggested during the public consultation process it will now have some meaning and serve a real purpose.

At the public meeting held in May your committee outlined this plan and explained that many of the ideas proposed were new and had not been implemented before in any other irrigation areas. We asked for comments and ideas and I thank those that took the time to do so and once again take the opportunity to say we need your ideas as we put this plan together and will consider anything you put to us.

The Board have committed a considerable amount of money to support us with some money going to future investigations in the area as we have recognized we have to consider a role of total resource management not just the confined aquifer as it appears past management plans have done their job and the confined aquifer is returning towards its natural state. To assist us with the task of formulating, writing and implementing the plan the Board have appointed Kerri Muller as Senior Project Officer and it is great to have her on the team.

Kerri has an office in Strath and will work in Angas Bremer for two and a half days a week and I am sure many of you will get to know her as she helps us work through the many problems that I know we will encounter as we move towards the goal of ACCREDITED IRRIGATORS.

During the year we conducted a very successful Irrigation Work Shop which was well attended as were the Public meetings that we called and I thank you for your interest and participation as your committee works hard with excellent commitment and believes we have a role to play in educating and keeping irrigators informed of the changes in status of our precious resource. It is your comments from these meetings combined with the considerable local knowledge and agency expertise available to the committee that formulate the future direction that we believe resource management needs to take.

To summarize we are entering a new and exciting period with a real chance to implement some new and very innovative ideas and most importantly we have a chance to put policies in place that will go a long way to preventing potential problems from occurring which was a strong message that came out of the public meetings last year.

R. Giles,  
Chairman,  
Angas Bremer Water Management Committee  
30/8/00

# Angas Bremer Irrigation AGM

On Wednesday 30 August 2000, sixty of the 130 irrigators in the rapidly expanding Angas Bremer Irrigation Region of South Australia met at Langhorne Creek to compare their irrigation practices.

Every irrigator in the district had invested 30 minutes to complete a simple Irrigation Annual Report form for the irrigation season 1 July 99 to 30 June 2000.

The Irrigation Annual Reports had been collated and a summary was presented to the meeting only one month after collection of all the forms.

The following items are included in the summary

- the district totals of  
ALLOCATED Mega Litres  
(26,100ML of River Murray water plus 6,500ML of underground water) and  
ML USED (14,800ML and 2,100ML respectively),
- the number of irrigators growing each crop type
- the division between the crop types of the  
irrigated 6,625ha and the 16,961ML used, and
- the district average irrigation mm/yr applied to each crop type.

In the Angas Bremer district every irrigator has invested \$800 to install at least one 6 metre-deep test-well to monitor the depth to the water table. Each irrigator measures this depth at least once every 3 months and reports the 4 depths for the year on the Irrigation Annual Report form.

A map showing those wells in which the water level has risen and those wells in which the water level has fallen is being prepared.

A separate graph for each crop type shows the irrigation mm/yr applied with each point representing the data from one irrigator.

Each irrigator knows their own point but does not know the name of the person represented by each other point.

Each irrigator can compare their irrigation mm/yr with the irrigation mm/yr applied by every other irrigator growing the same crop type.

The community-elected Angas Bremer Water Management Committee introduced Irrigation Annual Reporting in 1996. Goals of the Committee were to encourage irrigators to record irrigation data, to compare their data with other irrigators and with basic irrigation principles and hence to maximise their return and minimise environmental damage from use of every kL of irrigation water.

Before 1996 surveys showed that more than 80% of the Irrigators did not know how many mm per year or how many mm per irrigation they were applying. After 4 years of completing Irrigation Annual Reports, a survey at the meeting showed that only 5% of the Irrigators did not know how many mm they applied last year to their major crop. The mm per irrigation question was first asked in the 1999-2000 Irrigation Annual Report and the survey at the public meeting showed that the figure of 80% who did not know had fallen to 26% who did not know how many mm they applied at each irrigation to their major crop.

The irrigators heard that their overwhelming support for their committee and their 100% return of Irrigation Annual Report forms has placed the Angas Bremer region at the forefront of responsible irrigation water management.

No other region in Australia can provide comparable, comprehensive, accurate, community-owned data showing how irrigation water is used in the region.

In each of the last 4 years, data has been collected by every irrigator in the region. In each year the irrigators have simplified and improved the layout of the Irrigation Annual Report form. The irrigator's data compares favourably with statistics for 1996-7 (Australian Bureau of Statistics) and with data collected by industry groups e.g. the grape industry Phylloxera Board.

The following tables summarise the results from the survey collected at the Public Meeting. The tables show the number of Irrigators applying each range of Irrigation mm/yr to their major crop and the number of Irrigators applying each range of mm per irrigation to their major crop - and the number of Irrigators who "don't know".

### Your Irrigation mm/yr

Langhorne Creek  
30/8/2000

0	to	100	0
101	to	200	16
201	to	300	11
301	to	400	9
401	to	800	3
801	to	1200	0
1201	to	1600	0
1601	to	2000	0
>2001			0
don't know			2

### Your mm per Irrigation

Langhorne Creek  
30/8/2000

0	to	10	21
11	to	20	10
21	to	30	2
31	to	40	0
41	to	50	1
51	to	100	0
101	to	200	0
> 201			0
don't know			12

Tony Thomson,  
P.I.R.S.A.  
Lenswood S.A.

Summary of the 99-2000 Angas Bremer Irrigation Annual Reports

This is a summary of information taken from the Irrigation Annual Report forms submitted by the Irrigators in the Angas Bremer Proclaimed Wells Area for 99 - 2000

1. Irrigation Annual Reports

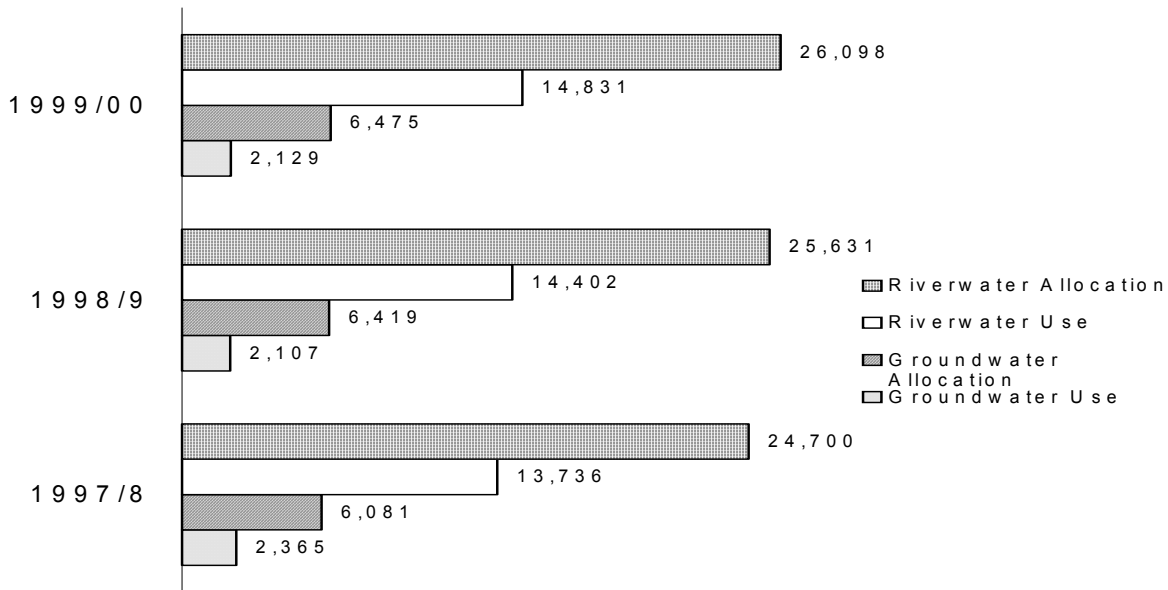
132 Report forms were sent out to the irrigators in the area, of these 128 were completed and returned including one irrigator outside the boundary. Of the reports returned 80% were returned by the due date, the others had to be reminded or assisted.

Of the 4 reports not received one irrigator being just outside the AB area apparently chose not to participate, two irrigators with groundwater licenses (only) did not submit reports but after the meters were read it is apparent that no water was used. The other irrigator has not submitted a report for the past 3 years, DWR advise that this irrigator's water meter has been unserviceable for approx 12 months and has only recently been repaired after DWR made contacted a number of times.

2. Water Allocation and Water Use

- River Murray Water : Allocation of river water increased by 2% in 99/00 as compared with a 4% increase in 98/9 while river water usage in 99/00 increased 3% compared with 4.6% increase in 98/9.
- Groundwater : Allocation and usage remains about the same for 98/9 - 99/00. In 98/9 there was a 12% decrease in usage from the previous year 97/8.

Angas Bremer 99-00  
Allocation vs Use  
99 - 2000 ML



Angas Bremer 99-00 Chart 1  
(08)85360114

file ANREP00.xls by Bruce Allnutt

### 3. Area Irrigated

The total area being irrigated in the A.B.P.W.A. increased by 472 ha in 99-00, as can be seen on the chart below, there was an increase in the area of vines and vegetables being irrigated while there was a decrease in the area of lucerne and pasture irrigated.

Year	Total ha	Grapes	Lucerne	Other	Vegetables	Pasture	Almonds
1996-7	3,836	2,132	741	189	358	328	88
1997-8	5,733	3,604	866	942	679	369	85
1998-9	6,153	4,084	698	555	518	241	61
1999-00	6,625	4,665	418	777	611	96	58

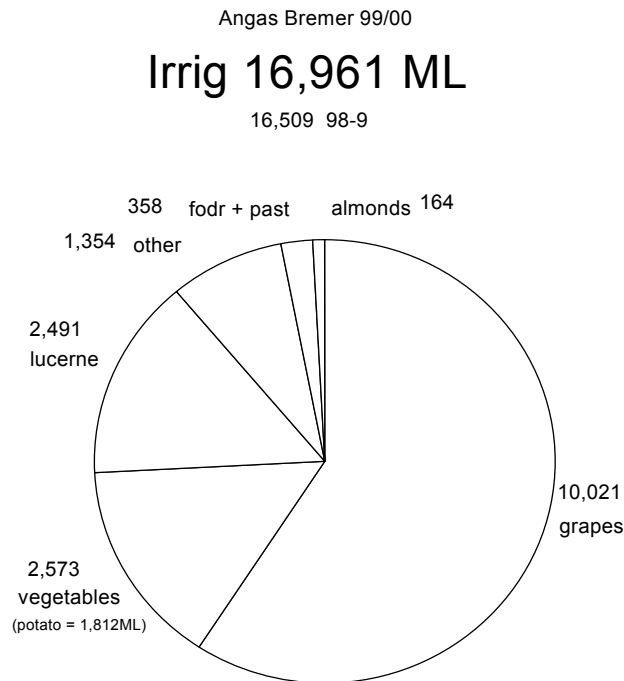
note : "Other" includes, turf, ovals, cereal and seed crops, fruit trees, conservation and hay.

### 4. Irrigation Water Use

The water usage in the following data is a combination of both ground and river water.

Total water use for the area increased in 99-00 by 2.6% from 98-9, water used to irrigate grapes increased by 11.5%, other crops increased by 45.5%, vegetables increased marginally while irrigation water for lucerne reduced by almost 30%.

The pie chart beneath shows the crop irrigation water distribution



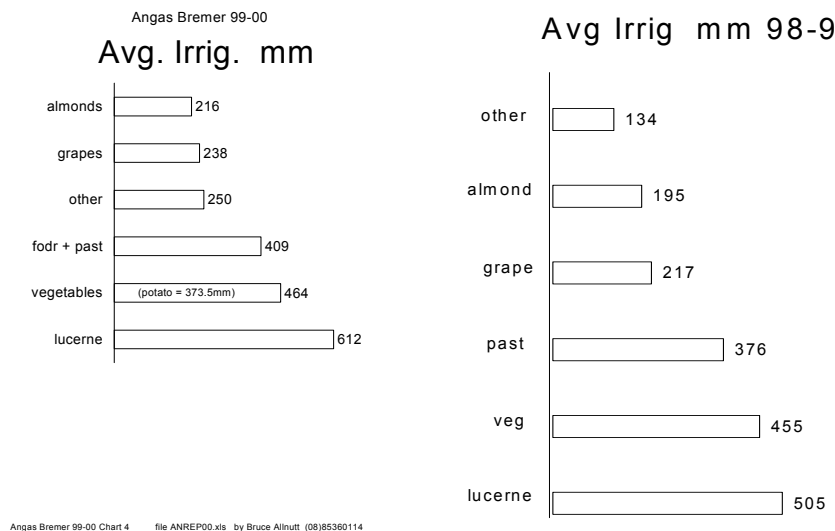
Angas Bremer 99-00 Chart 2 file ANREP00.xls by Bruce Allnutt (08)85360114

A Table comparing irrigation water use in 99-00 with other years follows.

Year	Total ML	Grapes	Lucerne	Other	Vegetables	Pasture	Almonds
1996-7	11,348	4,332	2,490	3,081	1,446	?	?
1997-8	16,100	6,221	3,807	1,637	2,751	1,541	147
1998-9	16,509	8,864	3,526	738	2,355	906	119
1999-00	16,961	10,021	2,491	1,354	2,573	358	164

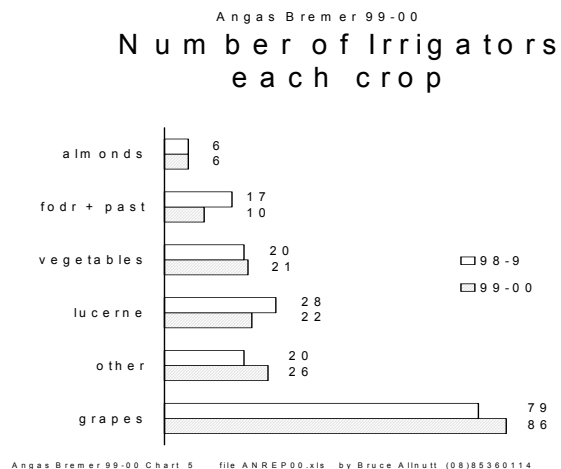
### 5. Average Irrigation in mm per year per crop type

The next 2 bar graphs show the average irrigation in mm/yr for each crop type and show the comparison between 98-9 and 99-00



### 6. Number of Irrigators each Crop

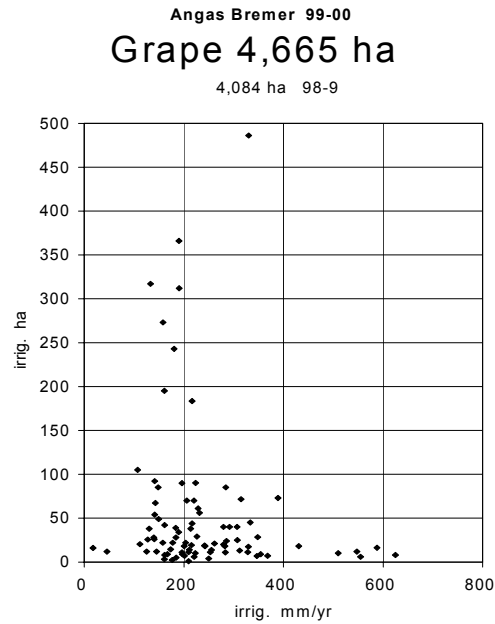
Bar graph shows the number of irrigators for each crop in the A.B.P.W.A. , comparing 99-00 with 98-9



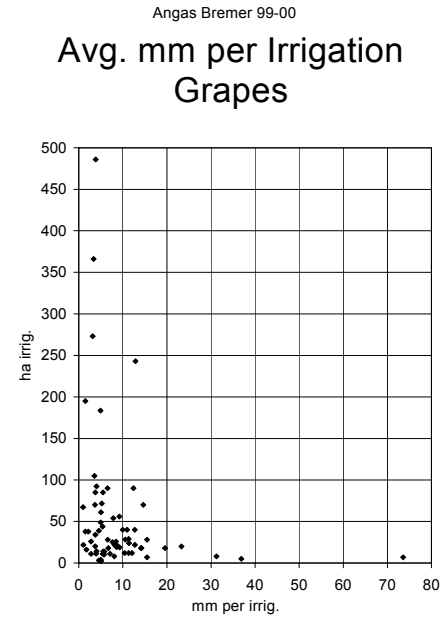
### 7. Amount of Water Applied to each Crop

The next graphs show the amount of irrigation applied to each crop type in (a) mm per year & (b) mm per irrigation. As 99-00 was the first year each irrigator was asked to state the number of times during the season each crop was irrigated some irrigators had collected that data, as a result some of the mm per irrig. Graphs haven't as many dots.

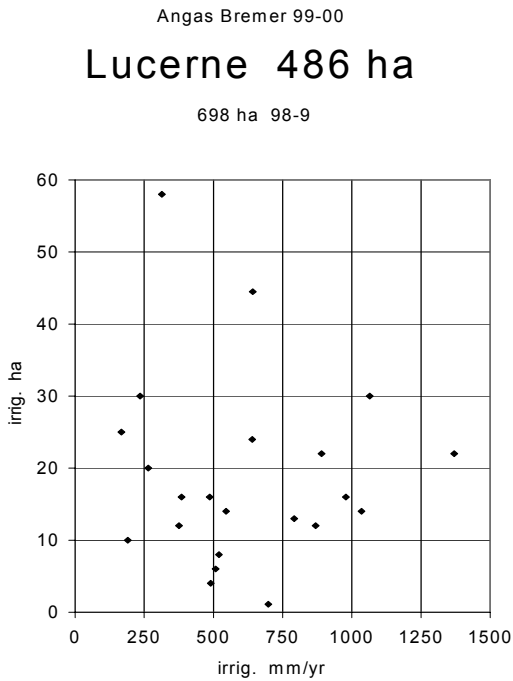
Each dot on a graph represent an irrigator and the amount of water applied to the stated crop  
 note : a mm per irrigation graph for Fodder and Pasture has not been included due to lack of data



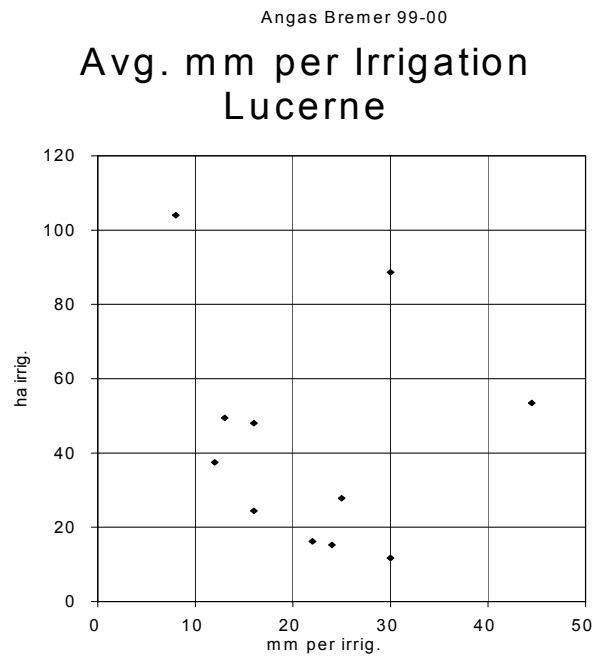
Angas Bremer 99-00 Chart 6 file ANREP00.xls by Bruce Allnutt (08)85360114



Angas Bremer 99-00 Chart 12 file ANREP00.xls by Bruce Allnutt (08)85360114



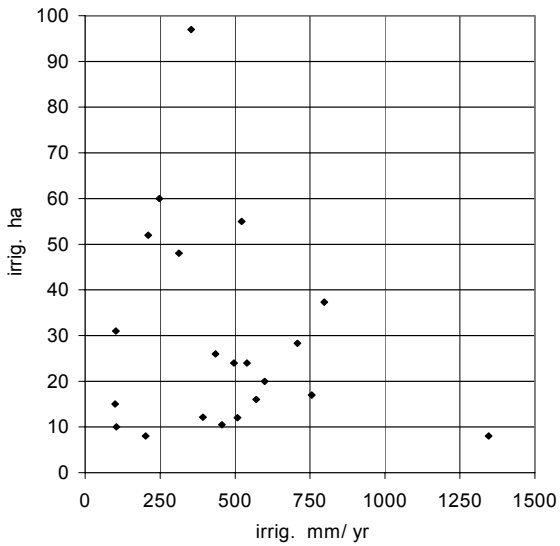
Angas Bremer 99-00 Chart 7 file ANREP00.xls by Bruce Allnutt (08)85360114



Angas Bremer 99-00 Chart 13 file ANREP00.xls by Bruce Allnutt (08)85360114

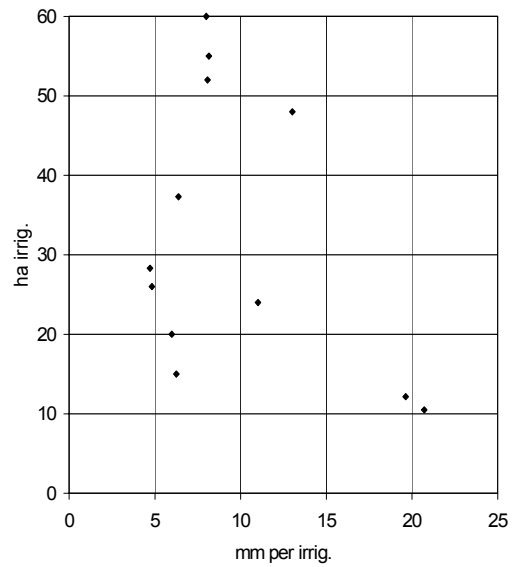


Angas Bremer 99-00  
**Vegetables 611ha**  
 518 ha in 98-9



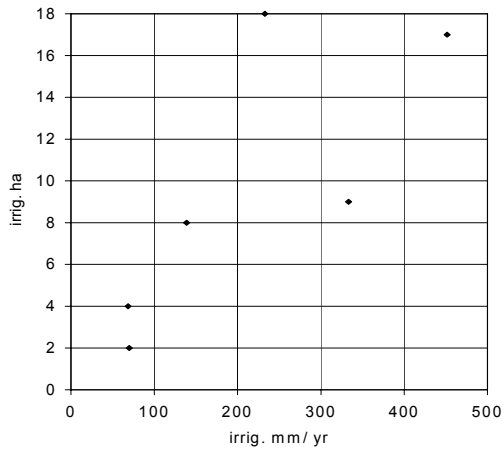
Angas Bremer 99-00 Chart 8 file ANREP00.xls by Bruce Allnutt (08)85360114

Angas Bremer 99-00  
**Av. mm per Irrigation  
 Vegetables**



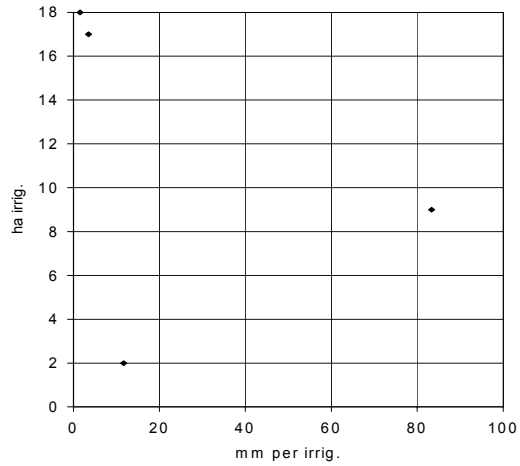
Angas Bremer 99-00 Chart 14 file ANREP00.xls by Bruce Allnutt (08)85360114

Angas Bremer 99-00  
**Almonds 58ha**  
61ha 98-9

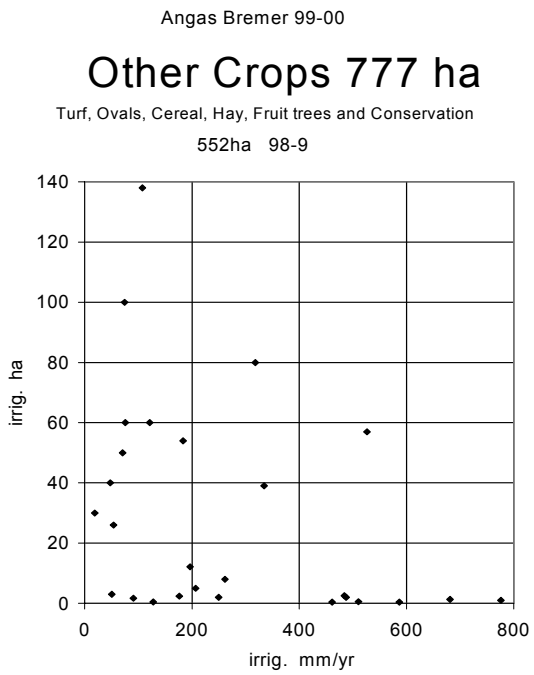


Angas Bremer 99-00 Chart 10 file ANREP00.xls by Bruce Allnutt (08)85360114

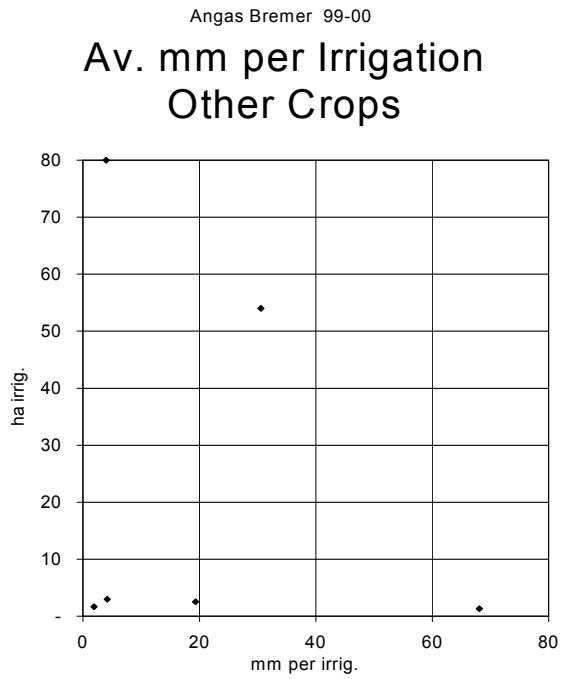
Angas Bremer 99-00  
**Av. mm per Irrigation  
Almonds**



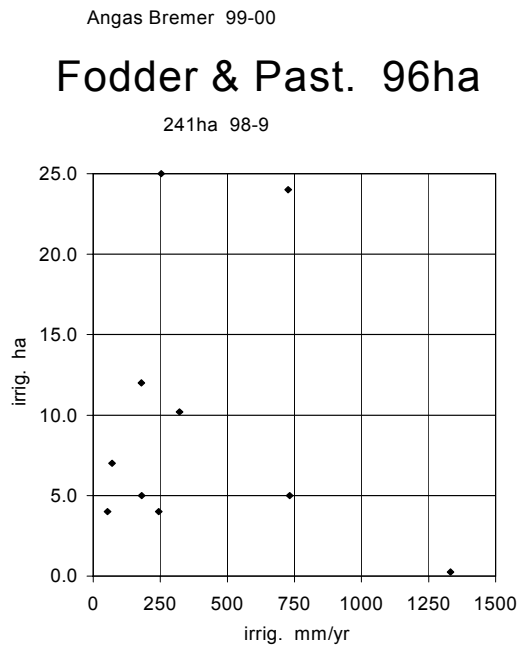
Angas Bremer 99-00 Chart 15 file ANREP00.xls by Bruce Allnutt (08)85360114



Angas Bremer 99-00 Chart 11 file ANREP00.xls by Bruce Allnutt (08)85360114



Angas Bremer 99-00 Chart 16 file ANREP00.xls by Bruce Allnutt (08)85360114



Angas Bremer 99-00 Chart 9 file ANREP00.xls by Bruce Allnutt (08)85360114

note : Data not available for mm per irrigation for  
Fodder and Pasture

### 8. Monitoring Wells

There are a total of 155 monitoring wells in the A.B.P.W.A., a number of new wells were drilled in 99-00. Currently there is one application in hand for another monitoring well, others are expected.

Among the new wells drilled in 99-00, were 4 x 10m monitoring wells that have been installed in Red Gum swamps, the intention being to monitor the ground water levels in and around the Red Gum swamps to determine the affect the Red Gums have on the water table.

Monitoring well water levels are measured every 3 months and the results recorded for the Irrigation Annual Report, there are some irrigators who do not measure their wells on a regular basis and do not provide the information on their reports.

Data from the Irrigation Annual reports indicate water levels have risen in 19 wells, has fallen in 18 wells, is going up and down in 23 wells and the level in 4 of the wells to be stationary. 67 wells are dry. This makes a total of 131 wells reported on, the remaining 25 wells were not reported on, some of these wells are known to be dry and those reporting assume their wells are known to be dry.

Map 1 attached at the back of this report shows the location of the wells which have, or have had, water in them in 1999/00 reporting year.

#### 9. Recharge Wells

21 Recharge wells were reported in the Irrigation Annual Reports of these 9 irrigators reported a total of 82,456kl being recharged, compared to recharge in 1998/9 of 120,366kl, in 1997/8 of 158,509kl and in 1996-7 of 346,114kl. At least one of the recharge wells is not fitted with a meter.

#### 10. Flooding

16 flooding events were reported during 1999/00. The flooding occurred in July /August / September 1999 with a total area of 136ha, flooding again occurred in February 2000 with a total of 178 ha flooded. Flooding in 1999/00 was mostly artificial ie. pumped from the rivers or use of flood gates.

Map 2 at the back of this report shows where flooding occurred.

#### 11. Salinity

(a) Groundwater : 34 Irrigators reported on 51 bores in the 99/00 Irrigation Annual Report. The lowest recording being 1076ppm (adjacent to the Angas River) and the highest at 3900ppm (towards the eastern boundary of the PWA). 15 recordings were between 1076 and 1450ppm, 20 recordings between 1500 and 1960ppm, 8 recordings between 2010 and 2428ppm, 3 recordings between 2772 and 2900ppm and 5 recordings 3000ppm and above.

(b) River water : 22 Irrigators reported on the salinity level of the River water, these recordings varied from 300ppm to 731ppm .

Map 3 at the back of this report shows the location of the groundwater bores and salinity levels.

#### 12. Soil Moisture Monitoring

Included in the 1999-2000 Irrigation Annual Report form was a question asking irrigators if they were using soil monitoring devices and if so what was being used.

52 irrigators are using soil moisture monitoring devices, most common is the Gypsum Block which 26 irrigators use, 9 use Sentek Enviroscan , 6 irrigators use Tensiometers, 6 use dig sticks, 3 are using Thermal Probes, 3 use a "spade" , one uses a Neutron Probe, one an Adcom system and the last device is a post hole digger used by 2 irrigators.

#### 13. Leasing Water Licence

Leasing water license was another question added to the 1999-2000 report form. Very little data was obtained from this question, it will be reviewed for the 2000-2001 form.

#### 14. Other Activities

- 14.1 10 meter Monitoring Wells :- Four 10 meter deep monitoring wells were drilled in and around Red Gum swamps to enable data to be collected on the effect the Red Gums have on the water table.
- 14.2 Revegetation Booklet :- A revegetation booklet was commissioned by the Committee to assist irrigators undertaking revegetation works in the area. The booklet was launched at the Annual General Meeting 30/8/00. Feed back since the AGM indicates the booklet was very well received. It is hoped there will be sufficient copies of the booklet for all irrigators in the P.W.A.
- 14.3 Saline Groundwater Pumping Project :- The Committee has joined with a local irrigator to conduct pumping of saline groundwater trials. The project is to commence in October 2000. Saline groundwater is to be pumped into large evaporation ponds. The Committee hopes to obtain considerable data from this project for future use by others.

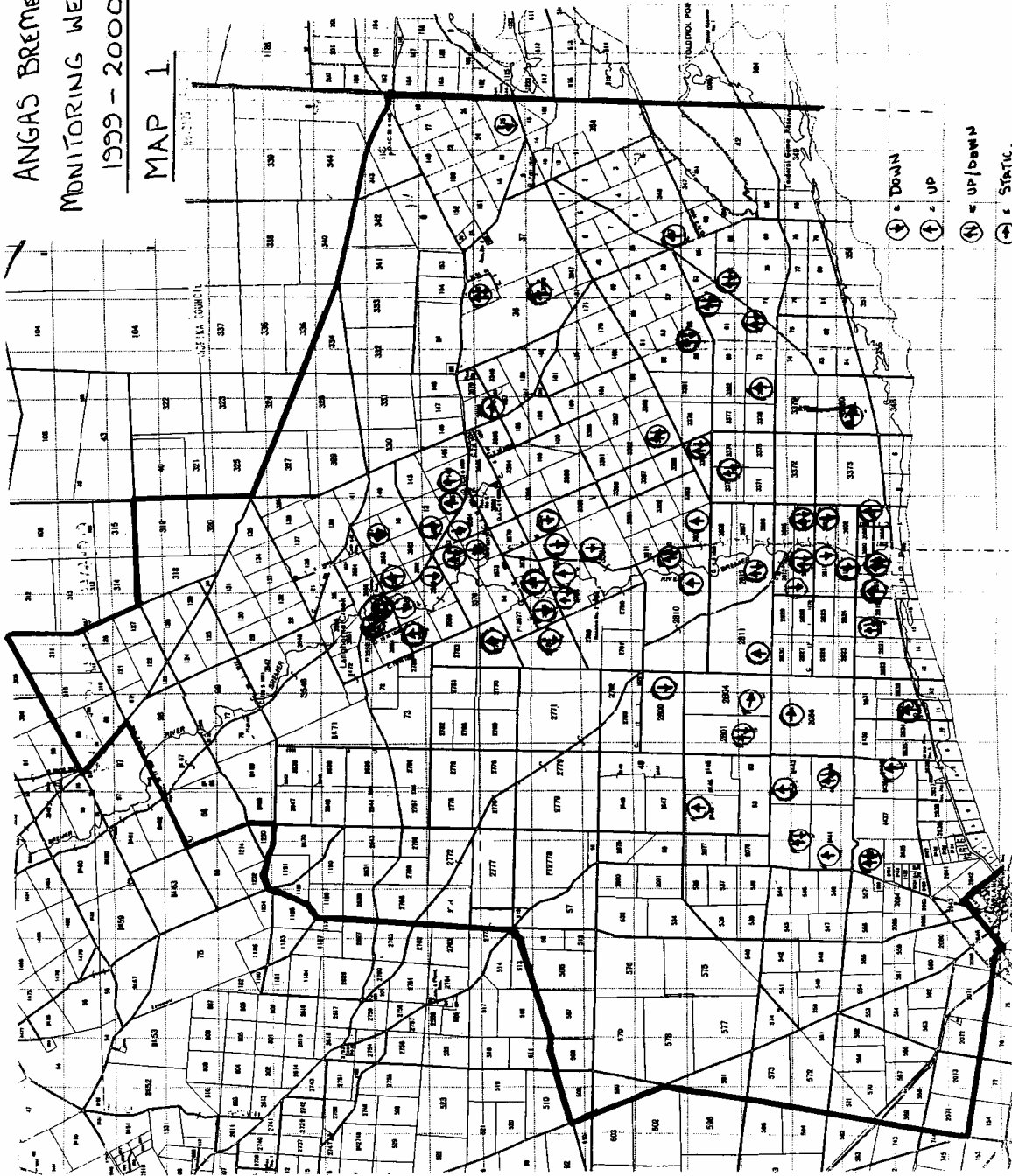
Further information of the Angas Bremer Water Management Committee can be obtained from any of the Committee Members or from writer of this report.

12<sup>th</sup> October 2000

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ANGAS BREMER  
MONITORING WELLS  
1999 - 2000

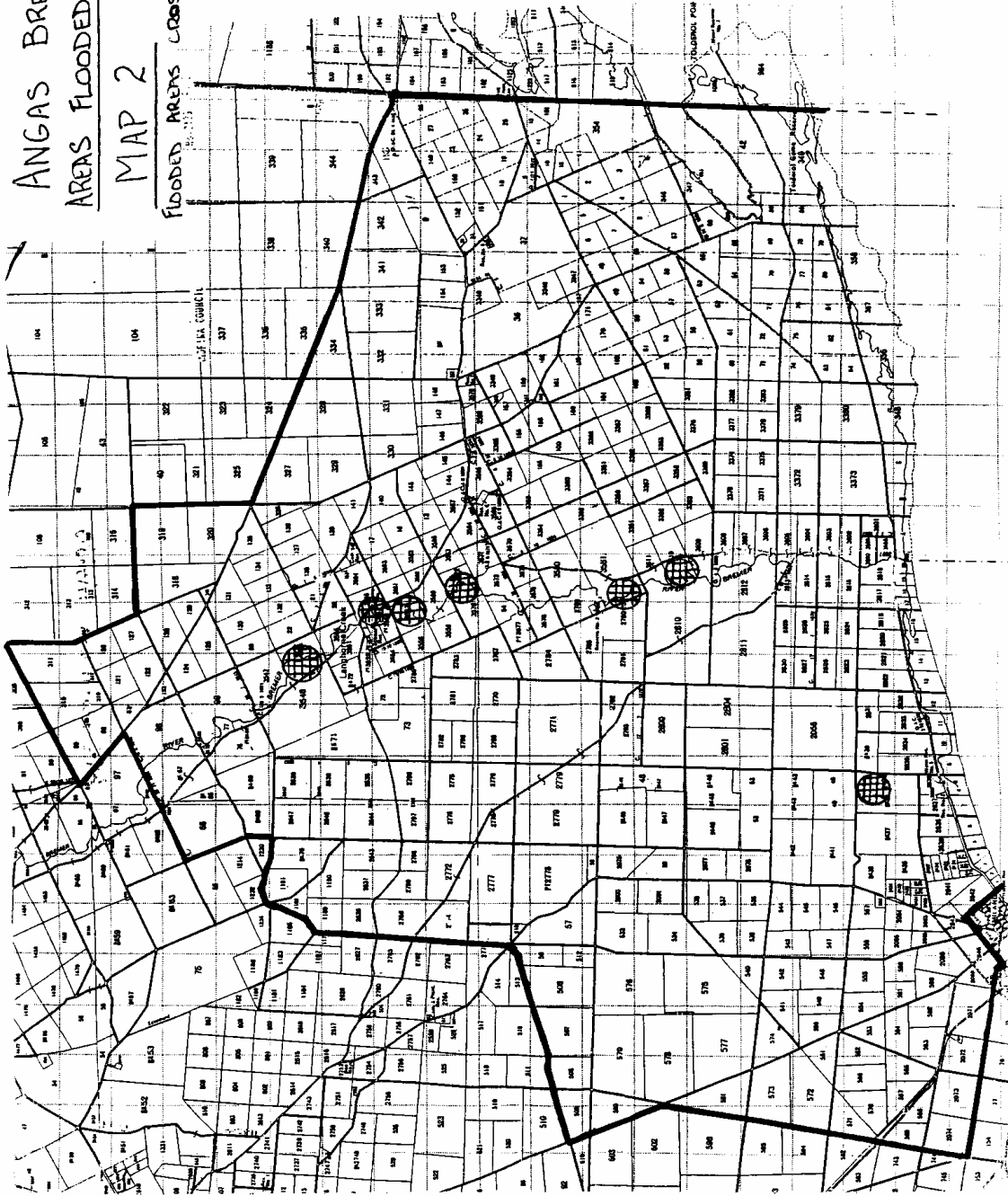
MAP 1



ANGAS BREMER  
AREAS FLOODED 1999-2000

MAP 2

FLOODED AREAS CROSS HATCHED





ANGAS BREMER  
GROUNDWATER SALINITY  
1999 - 2000

MAP 3

