

Yarroch Farms Trial results AG100 SAP 2013 season

Purpose of trial

To evaluate the use of AG100 SAP in a paddock sized trial area to see if there were any benefits to be gained in grain yield and/or quality, as a result of the water 'storing' qualities of the product, theoretically extending the growing season rainfall.

Method

The light sandy loam soil on the north end of paddock No 18 was selected to be pre-drilled with AG100 SAP at the recommended rate of 2kg/ha. In a tight finish, this area tends to 'hay off' more than the remaining area of the paddock resulting in more 'dead heads' and pinched grain. Over the last decade our GSR has averaged 220mm, while this year we received a GSR of 328mm, so obviously it is not the best year to assess the 'drought minimising' properties of the crystals. However, it will be interesting to see if there are differences, even under ideal seasonal conditions.

The remaining area of the paddock (17.9ha), which consists of medium loam over clay was left untreated. Apart from the application of the polyacrylamide crystals, all other paddock treatments were identical.

Treatments were as follows;

- | | |
|------------|---|
| April 2013 | Harrow paddock to remove camelina stubble. Burn rows. |
| 8/5/2013 | Pre-drill AG100 SAP at 2kg/ha - 5.6ha. Workup remainder of paddock. |
| 5/6/2013 | Spray Glyphosate + Oxyfluorfen |
| 8/6/2013 | spray Avadex + Treflan + TM21 |
| 8/6/2013 | sow Hindmarsh barley + Ferti-tech C Smart N |
| 14/8/2013 | spray Eclipse + TM21 |
| 7/9/2013 | spray Cal Nitrate + NWS + fulvic |
| 2-3/12/13 | harvest |

Each area of the paddock was harvested and the grain stored in separate bins and delivered to the local silo. Delivery results were then analysed to see if there were any differences.

Please note that this was an "on farm" comparison and not a replicated trial, and as such the results should be considered accordingly.



Aerial view showing trial area of AG100 SAP

Comments

Although the paddock was relatively weed free, the good rains during September meant that there was a late germination of ryegrass across most of the paddock, which even though had a minimal effect on yield, meant that the last bin of seed had to be cleaned. Unfortunately this would skew the grain quality test results, so the test results have been excluded (see table A). However, for the sake of interest, I have also included table B which has the uncleaned grain test results. Delivery weights are included to obtain yield results.

Results

Yield

25.22 tonnes of barley was harvested from the trial area, equating to a yield of 4.5t/ha.

62.14 tonnes of barley was harvested from the non-treated area of the paddock, equating to a yield of 3.47 tonnes/ha.

Between the two areas there was a yield difference of 29.7% (1.03 tonne/ha), which at the average sale price of \$205.74 equates to an additional \$211.91/ha.

Grain quality

The results of table A indicate there is a difference between the grain in the treated and untreated areas. On average grain from the treated area has a 1% heavier test weight and an increased retention of 1.9%. Screenings were essentially the same with only a difference of 0.13% less.

Results of table B (uncleaned grain test results) also indicate a difference in the grain quality from both areas. On average grain from the treated area has a 1.4% heavier test weight, increased retention of 3.22% and 1.04% less screening.

Although not as significant as the difference in yield, there is still an increase in grain size & weight.

Grain protein is lower in the grain from the treated area, which I would expect from 'plumper grain', but the difference is small and would be with normal load variation.

As indicated earlier, barley stored in the last bin had to be cleaned as the percentage of ryegrass (0.9%) exceeded the allowable deliverable limit of 0.6%.

In both tables A & B virtually all the grain test results show a lower standard deviation in grain from the treated area, indicating that there was less variation within the grain test results and therefore grain of a more uniform quality.

Conclusions

The results are certainly significant in yield (dollar) terms and are very encouraging. At a treatment cost of \$25/ha (lasting 3-5 years depending on soil type) it is certainly very cost effective for the increased yield. The differences in grain quality are small and in some cases within 'normal' load variation, but never the less can still be documented. Overall, I will certainly be using more of the product and will be keen to see if there is such a difference in a dry season.

Grain delivery test results - Table A

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Date	Paddock No	Site	Docket	Commodity	Grade	Test Results					Tonnes	Price\$	TOTAL\$	Buyer
2							TW	PR	MO	RT%	SC%				
3	3/12/2013	18	Kaniva	3721	HIND barley	HIND	70.00	9.70	9.40	91.50	2.50	12.72	\$ 207.00	\$ 2,633.04	TOEP
4	4/12/2013	18	Kaniva	3788	HIND barley	HIND	70.00	9.70	9.70	94.10	2.90	12.50	\$ 205.00	\$ 2,562.50	GNC
5															
6						AV	70.00	9.70	9.55	92.80	2.70	25.22		\$ 5,195.54	
7						St Dev	0.00	0.00		1.30	0.20				
8															
9	4/12/2013	18	Kaniva	3799	HIND barley	HIND	69.00	10.10	9.70	91.30	2.60	13.38	\$ 205.00	\$ 2,742.90	GNC
10	4/12/2013	18	Kaniva	3810	HIND barley	HIND	70.00	10.00	10.10	91.40	2.60	13.24	\$ 205.00	\$ 2,714.20	GNC
11	5/12/2013	18	Kaniva	3818	HIND barley	HIND	68.00	9.90	10.60	90.00	3.30	13.02	\$ 205.00	\$ 2,669.10	GNC
12	7/12/2013	18	Kaniva	3868	HIND barley	HIND						13.00	\$ 208.00	\$ 2,704.00	GNC
13	30/11/2012	18	Home	SEED	HIND barley	HIND						9.50	\$ 205.00	\$ 1,947.50	SELF
14															
15						AV	69.00	10.00	10.13	90.90	2.83	62.14		\$ 12,777.70	
16						St Dev	0.82	0.08		0.64	0.33				
17															
18												TOTALS	87.36 tonnes	\$ 17,973.24	
19															
20													Average of \$ 205.74	per tonne including seed	
21															
22															
23															
24															
25															
26															
27															
28															
29															
30															
31															
32															
33															
34															

Paddock No	SIZE	Yield t/ha	Bags acre	GSR mm's	WUE
18	5.60	4.50	26.4	328	13.73
18	17.90	3.47	20.4	328	10.58
AV/TOTALs	23.50	3.72	21.8		12.16

AVG Yield	3.72 t/ha
\$ per mm GSR/ha	\$ 2.33
\$ per ha	\$ 764.82

Grain delivery test results – Table B

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Date	Paddock No	Site	Docket	Commodity	Grade	Test Results					Tonnes	Price\$	TOTAL\$	Buyer
2							TW	PR	MO	RT%	SC%				
3	3/12/2013	18	Kaniva	3721	HIND barley	HIND	70.00	9.70	9.40	91.50	2.50	12.72	\$ 207.00	\$ 2,633.04	TOEP
4	4/12/2013	18	Kaniva	3788	HIND barley	HIND	70.00	9.70	9.70	94.10	2.90	12.50	\$ 205.00	\$ 2,562.50	GNC
5															
6						AV	70.00	9.70	9.55	92.80	2.70	25.22		\$ 5,195.54	
7						St Dev	0.00	0.00		1.30	0.20				
8															
9	4/12/2013	18	Kaniva	3799	HIND barley	HIND	69.00	10.10	9.70	91.30	2.60	13.38	\$ 205.00	\$ 2,742.90	GNC
10	4/12/2013	18	Kaniva	3810	HIND barley	HIND	70.00	10.00	10.10	91.40	2.60	13.24	\$ 205.00	\$ 2,714.20	GNC
11	5/12/2013	18	Kaniva	3818	HIND barley	HIND	68.00	9.90	10.60	90.00	3.30	13.02	\$ 205.00	\$ 2,669.10	GNC
12	7/12/2013	18	Kaniva	3868	HIND barley	HIND	68.00	10.90	10.90	87.60	5.10	13.00	\$ 208.00	\$ 2,704.00	GNC
13	7/12/2013	18	Home	SEED	HIND barley	HIND	68.00	10.90	10.90	87.60	5.10	9.50	\$ 205.00	\$ 1,947.50	SELF
14															
15						AV	68.60	10.36	10.44	89.58	3.74	62.14		\$ 12,777.70	
16						St Dev	0.80	0.45		1.69	1.14				
17															
18												TOTALS	87.36 tonnes	\$ 17,973.24	
19															
20													Average of \$ 205.74	per tonne including seed	
21															
22															
23															
24															
25															
26															
27															
28															
29															
30															
31															
32															
33															
34															

Paddock No	SIZE	Yield t/ha	Bags acre	GSR mm's	WUE
18	5.60	4.50	26.6	328	13.73
18	17.90	3.47	20.5	328	10.58
AV/TOTALs	23.50	3.72	21.9		12.16

AVG Yield	3.72 t/ha
\$ per mm GSR/ha	\$ 2.33
\$ per ha	\$ 764.82