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Crop Updates - Test as you grow pays dividends

Test as you grow pays dividends

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KEY MESSAGE

The key message is that broadscale testing adds value to the intensive research.

This paper presents on-farm testing case studies at a range of statistical levels. Its focus is on variety specific/region agronomic packages, i.e. beyond variety testing.

AGRONOMIC CASE STUDIES

(i) *Variety x herbicide tolerance - Liebe Group (Buntine)*

AIM

This on-farm test was instigated by the Liebe Group in their quest for knowledge on the herbicide tolerance of new wheat varieties. The group selected varieties and herbicides. The test was conducted using grower's (Michael Dodd) seeding equipment. Overall area of test was 2.5 ha.

Table 1. Yields of each treatment, expressed as a per cent of the Hoegrass/Jaguar treatment

	Herbicide rate/ha	\$/ha	Arrino	Brook.	Caling.	Camm	Eradu	Westo.	2092
11	Hoegrass + Jaguar 0.75 L + 0.5 L	28.89	3033 kg/ha	3255 kg/ha	2733 kg/ha	2420 kg/ha	2685 kg/ha	3090 kg/ha	2800 kg/ha
1	Untreated	0.00	95.1	82.4	98.2	83.7	85.0	81.3	91.0
2	Glean 12.5 g	3.50	92.8	90.7	93.7	92.4	95.7	94.8	93.9
3	Glean 20 g	5.60	98.1	87.5	98.2	83.8	92.7	90.7	95.6
4	Logran 35 g	14.18	100.7	93.2	105.4	93.3	95.3	94.0	100.2
5	Glean + Treflan 15 g + 1.0 L	11.70	90.9	92.2	93.2	93.3	94.3	91.8	93.5
6	Lexone + Treflan 150 g + 0.75 L	20.63	93.9	87.1	94.4	90.9	90.9	90.7	93.9
7	Treflan 0.75 L + Lexone 150 g	20.63	96.2	84.0	97.1	85.7	92.3	89.5	89.4
8	Achieve 0.25 kg	20.00	87.9	82.5	87.3	85.1	81.9	86.9	90.5
9	Ally 5 g	2.60	90.8	88.2	90.2	85.7	91.8	90.3	89.8
10	Eclipse 10 g	11.40	100.8	89.2	97.0	89.9	96.1	94.0	96.8
12	Tigrex 1.0 L	18.25	100.0	93.2	100.4	91.7	98.7	95.5	95.9
13	Diuron + MCPA 0.35 L + 0.4 L	5.30	96.6	93.9	99.2	91.9	100.5	91.1	95.9

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	lsd		4.5	5.5	5.2	8.3	8.5	7.8	6.8
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Treats 2-6 were incorporated by sowing, Treat 6 was immediately post-plant.

Treats 8-11 were applied at Z12-3, Treats 12-13 were applied at Z13-4.

Treat 7 Treflan was IBS, Lexone was IPP.

Treatments in **bold** are not significantly different from the best available. All others have reduced yields!

This high value trial was implemented and managed by the Liebe Group - the harvest was sub-contracted (over 400 plots). This model is of high value for groups across the grainbelt.

(ii) *Wheat variety x soil type/Tenindewa TopCrop Group - B. Eastough/M. Doherty*

For 2 consecutive years, the group has undertaken broadscale testing of new wheat varieties by soil types. In 1998, Mike moved to a Level 4 testing design (6 varieties replicated twice with a control variety every 3rd plot). Data presented below is applicable to this region but methodology is transferable to all locations.

Table 2.

LOCATION

Clay loam test site	Variety	Yield (t/ha)	Sandplain test site	Variety	Yield (t/ha)
Mullewa	Westonia	3.83 a*	Mullewa L1	Brookton	3.21 a
	Arrino	3.63 b		Carnemah	3.18 a
	Cunderdin	3.59 b		Arrino	3.04 b
	Brookton	3.55 b		Westonia	2.97 b
	Carnemah	3.32 c		Cunderdin	2.94 bc
	Perenjori*	3.26 c		Perenjori	2.85 c
	Blade	2.87 d		Blade	2.33 d

NB

1. * Variety YIELDS are significantly different from one another where different letters occur after the yield figure. Those with the same letter are not significantly different.

2. * In this series of tests was a broadscale test of 'Easy Thresh Perenjori' (3.18 t/ha) which was similar yield to the other plots of Perenjori and was indeed easier to thresh.

Table 3. Examples of on-farm tests conducted in 1998 that test the 'Test as you Grow' package (refer AgWeb site for full info)

Test	Location	Contacts	Test design	Cross ref analysis with related intensive research	Significant difference/statistical analysis
Varieties Soil types	Mullewa (M1)	Mike Doherty Tenindewa TopCrop Gp	2 test sites x 6 varieties 6 varieties/Blade as Control every 3 rd plot x 2 reps (Lvl 4)	CVT (Mullewa) Multi year analysis (data from 1997 and 1998)	
Evaluate 6 noodle varieties	Three Springs, Bunjil (Perenjori) (M1)	C. Morgan G. Mason, S. Sparkman, Agriculture WA Perenjori FIG	6 varieties/Eradu as control every 3 rd plot x 2 reps (Lvl 4)		
Herbicide tolerance x var	Buntine (M2)	Michael Dodd Liebe Group	7 varieties/13 herbicide treatments x 2	CVT - same paddock	

			reps			
Wheat varieties	Kalannie	Don Stanley	4 varieties x 3 reps	Incl. stats analysis on quality results		
Wheat varieties	Tammin (M3)	Neil Mortimore	13 varieties x 2 reps			
Wheat varieties	Kellerberrin/L3	Neil Mortimore	10 varieties x 2 reps			
Varieties (6 broadscale tests)	Kunjin (Corrigin) (M3)	Richard Guinness Kunjin TopCrop Group	Lvl 4, Variety tests/scales	CVT trial (Agriculture WA) CVT (Lammond & Burgess Pty Ltd)		
Coated urea rates	Burracoppin L3	Dave Cameron Sth Burracoppin Gp	12 treatments x 2 reps			
Varieties Testing x scale	Mingenew M1	Cameron Weeks Ming/Irwin Grp	6 varieties x 2 reps	CVT same paddock		
Fungicide trmts	Mingenew	Caroline Peek	4 treatments x 2 reps	*Rob Loughman		
Nutrition trtmnts	Liebe	Anderson/Falconer and growers	'Paired Plots'	Fert. Co. Trials		

(iii) Disease management - (Nth Irwin - John Koric, Caroline Peek, Glenn Adam)

Fungicide trial - Allanooka

Caroline Peek, agronomist from Planfarm and Glenn Adam, Agriculture Western Australia Geraldton, have worked with John Koric of Allanooka to test the effect of foliar sprays on leaf diseases of wheat variety Carnamah. Plot layout consisted of 80 m x 12 m plots with two replicates. Sowing date was 20 May 1998.

Table 4. The quality results of different spray treatments are:

Treatment	Yield* (t/ha)	Protein (%)	Hecto. weight	Screen's (%)	Fungal score	Grade	Gross income (\$/ha)
Nil	3.51a	11.7	79.3	2.1	13	AH	596
Bayleton 125 mL/ha	3.59a	11.6	77.3	2.4	5	AH	609
Bayleton 250 mL/ha	3.61a	11.7	78.3	2.6	11	AH	613
Folicur 145 mL/ha + 1% oil	3.98b	11.9	78.8	1.8	13	AH	676

* Yields are significantly different from one another when different letters occur after the yield figure. Those with the same letter following the yield figure are not significantly different.

ACCESS TO REGIONAL RESULTS

Broadscale testing results by region are available to Internet: AgWeb.

<http://www.agric.wa.gov.au/cropupdates?>

CONCLUSIONS

The Test as Grow Kit is a tool for agribusiness to use conducting in on-farm evaluations with client groups. The kit was developed with the help of growers and funds made available by GRDC (DAW 599 WR).

The 3 representative case studies presented above give an indication of the range of on-farm testing that is being successfully conducted by producers and grower groups in association with consultants, agronomists and specialists.

Although the data gained from broadscale on-farm testing has highest value locally, the methodologies and testing innovations displayed are transferable across regions.

Groups are able to sub contract components (e.g. harvesting), of the broadscale tests yet retain ownership. Groups with access to agronomists and consultants have been able to participate in broadscale tests, exchange of results and linking to intensive research.

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