



Frost

Per annum a \$1.3 billion problem

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FACEY GROUP



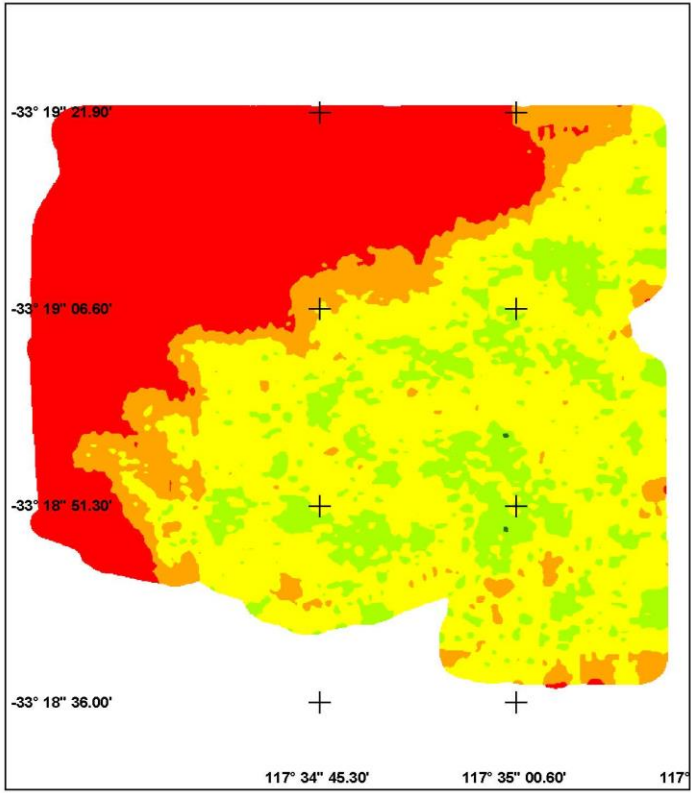
Shaping the Future

\$1.34 bill per year

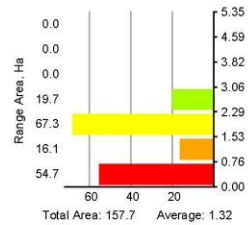
- Estimated 10% losses annually in wheat & barley (current value \$6.7 bill)
- Avoidance strategies cost more than losses
- Plus losses in Canola, pulses etc.

Sandplain 2012 Yield

2012-Dry Yield (t/ha)



Total Dry Mass (t)	187,405
Machine	02EQY
Total Wet Mass (t)	187,58
Crop	Wheat
Harvested Area (Ha)	136.16
Average Moisture (%)	0.1
Average Dry Yield (t/ha)	1.38
Operator	USER
Data Value	Dry Yield (t/ha)



Yield Loss Wyoming

	Wheat Yield	Frost Est	WUE	% Potential
		% lost		
1998	1.6	50		
1999	3.34	5		
2000	1.62	10		
2001	2.73	5		
2002	1.28	25		
2003	2.98	5		
2004	2.01	15		
2005	2.7	35	11	58
2006	1.92	20	10	52
2007	2.8	15	12	60
2008	2.16	35	9	45
2009	2	15	9	47
2010	1.2	15	13	71
2011	2.66	20	16	73
2012	1.52	35	10	59
2013	3.37	5	13	66
2014	3.09	5	14	62
Averages	2.29	18.52	11.7	59.3

Esperance v Wickepin

<u>Water Use Efficiency</u>				
2012	GSR	PAW	Yield	kg/mm
Esperance	165	105	3450	33
Wickepin	189	112	1500	13
2011	GSR	PAW	Yield	kg/mm
Esperance				23.88
Wickepin				16
5 yr av.	GSR	PAW	Yield	kg/mm
Esperance		147	2.84	19.31
Wickepin		245	1.9	12
10 yr av.	GSR	PAW	Yield	kg/mm
Esperance		162	3	18.46
Wickepin		245	2.18	11

Facey Trial 2012

Treatment	Min Temp (15d)	Hrs below Zero (15d)	Biomass (t/ha)	Tiller No (m2)	FIS (%)	Harvest Index	HI Grain Yield (t/ha)	Header Grain Yield (t/ha) *
High Burnt	0.9	0.9	14	490	79	0.19	2.7	1.4
Low Burnt	-1.0	2.1	9	440	74	0.18	1.5	0.9
High Stubble	-0.8	2.1	15	620	90	0.09	1.4	0.7
Low Stubble	-1.8	2.9	10	490	91	0.04	0.4	0.6
LSD_{0.05}	0.5	0.7	3	91	6	0.12	1.66	0.2

Practice Change

- Burn Stubble (before canola)
- Chopper on Header
- Increased Stubble Grazing
- More barley and oats
- Business Focus on being profitable at actual average yield

Key Results

- Very little frost 2013 & 2014
- 2012 Canola yielded 73% wheat yields
- Better canola establishment in trenches
- Less reliance on wheat
- Strong focus on profits and costs which helps in frost and non frost years

Facey Group

- Hard Data not just ideas or pub talk
- Replication (Nyabing only site frosted in 2013)
- Access to GRDC and other funds
- Exposed and tested in the East as well
- A group of like minded people to test ideas on.
- Positive people, fun, board meetings start with dinner **at a pub!!**

Why contribute to Research & Facey?

- Changed the slant of research
- Selfish reasons (solve my problems)
- Help others
- Socially get know other people out of your area and age group
- Opportunities to travel and get to know other farming systems and areas.

National Frost Initiative

- A \$13 million `per year initiative
- Genetics
 - hoping to screen 6000 varieties
- Management
 - stubble burning , crop architecture, row orientation, copper and grazing
- Environment
 - getting damaging frosts one day later per year i.e. one month later in 30 years.

Thanks

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- GRDC