

Growing Profitable Irrigated Durum Wheat

A target yield and nitrogen budget are necessary tools for crop management, however if the target is incorrect the N applied may be incorrect to achieve DR1 specification.

The 2017 trials exceeded yield expectations and so applied N was insufficient to meet DR1.

Following faba beans offers a disease break and “free” nitrogen, however the amount of N supplied is variable and may lead to insufficient N being topdressed.

The aim of the trial is to examine various treatments that may assist in ensuring high protein, high yielding durum wheat on irrigation.

The key to successful durum production is grain quality – DR1 requires greater than 13% protein as well as meeting grain colour and vitreous kernel specifications.

The trial examined several aspects of durum agronomy based on previous trial experience that may impact yield and grain quality and was supported by GRDC in 2017. GRDC investment enabled two trials to be sown, one at the Trial Block and the other at Dhuragoon (near Moulamein) under overhead sprays.

Varieties

There are several durum varieties available. Some have proved to be high yielding, while others have had poor stem strength and lodged under irrigated conditions. DBA Aurora is a recent release, and topped the 2014 Griffith NVT trial at 8.95 t/ha and the seed for the trial was supplied by the South Australian Durum Growers Association. DBA Aurora was sown in all plots apart from one treatment that used Scout. The bread wheat Scout was used to allow an accurate gross margin comparison of growing irrigated durum (potentially high price but high N inputs and limited delivery options) or “normal” bread wheat (lower price, lower N inputs and local delivery).

There was an opportunity to sow a small variety trial, supported by Seednet/Northern Durum Breeding Program and AGT. The trial was sown into canola stubble on May 16th, and included DBA Aurora and Jandaroi, plus two lines each from Seednet and AGT. The trial targeted 7.5 t/ha and received 3 topdressings of 75 kg N/ha at each application.

All plots received a PGR application at Z31.

The trial was irrigated three times in spring (similar to the wheat variety trial).

Variety	Yield t/ha	Protein %	Screen %	Test Wt kg/hl
AGTD088	10.52	12.9	0.3	87.1
Aurora	10.07	12.4	0.7	84.7
Bindaroi	10.03	13.9	0.5	86.2
Vittaroi	9.88	12.9	0.3	87.8
AGTD043	9.84	12.5	0.8	86.8
Jandaroi	9.67	14.8	0.2	85.0
p	0.411			

Isd	0.864 NS
cv%	4.8

The two lines from Seednet became DBA Vittaroi (early-mid maturity) and DBA Bindaroi (early maturity). Vittaroi may have a place in irrigation as it seems to be more resistant to lodging and this will be tested in 2018.

DURUM		10 t/ha				
Price	\$	330 /t				\$ 3,300
		number		cost \$		cost \$/ha
Pre-sowing	spray	1	operation	25 /ha		25
	cultivation		operation	35 /ha		0
	pre-irrig	1.8	MI/ha	100 /MI		180
Sowing	machinery	1	operation	43 /ha		43
	fertiliser	150	kg/ha	600 /tonne		90
	seed	130	kg/ha	500 /tonne		65
Post sowing	herbicide	2	operation	22 /ha		44
	fungicide	1	operation	10		10
	topdress	490	kg/ha	450 /tonne		220.5
	PGR	1	operation	32 /ha		32
	irrigation	2.8	MI/ha	100 /MI		280
Harvest	header	1	operation	72 /ha		72
	transport	1	operation	65 /t		650
				Total Variable Cost	\$ 1,711.50 /ha	
				Variable Cost - water	\$ 1,251.50 /ha	
				Gross Margin	\$ 1,589 /ha	
					\$ 345 /MI	