

5.7 TRITICALE VARIETY TRIALS

Location: Symmons Plains, Riccarton
(Campbell Town Tasmania)

Researchers: Geoff Dean SFS
Simon Munford DPIWE

Further details: Geoff Dean, 03 6336 5233
Geoff.Dean@dpiwe.tas.gov.au

Growing season rainfall (April-Nov):
Symmons Plains 442mm
Riccarton 467mm

Background:

With the release of new varieties, greater awareness of potential yields and improved management practices, there has been a large increase in the area sown to wheat and triticale in Tasmania. Triticale plantings have increased due to awareness of tolerance to waterlogging, better leaf disease resistance and greater tolerance to acid soils compared with wheat.

Results:

Results are presented in the following table. Due to limited resources not all varieties could be replicated in trials. Wheat variety testing is a greater priority at Symmons Plains and barley at Campbell Town.

All lines, across a range of flowering times, performed better than Tahara at Symmons Plains.

Triticale trial results**Aim:**

To further compare existing triticale varieties and evaluate new breeding material.

Treatments:

Main entries and their origin are listed below:

Tahara Vic
Muir WA
Everest, W19, P429 NSW
Jackie, AT509, AT506 NSW
Treat, Tickit SA

Sowing date: 14 May 2001

Harvest date: January 2002

Fertiliser:

Symmons Plains - basal - 250kg
9:13:17 topdressing - 50kg N/ha
Riccarton - basal - 150kg 9:13:17

Weed Control:

Symmons Plains - 1.4/ha Brominil, 1.5/ha MCPA
Riccarton - 1.4/ha Brominil, 1.5/ MCPA, 1.5/
Hoegrass

The later flowering lines AT509 and Jackie yielded well but given the ideal spring rains should probably have capitalised on these to a greater extent. As with the later wheat variety Tennant, the later triticale line AT509 did not perform as well at Riccarton possibly due to the significantly lower December rainfall compared with Symmons Plains.

Symmons Plains				Riccarton			
	Variety	Yield (t/ha)	% Tahara		Variety	Yield (t/ha)	% Tahara
Replicated plots	W19	8.21	120.1		Tahara	6.24	100.0
	AT509	7.98	116.7				
	P429	7.66	112.0				
	Jackie	7.18	105.0				
	Tahara	6.84	100.0				
	Isd (5%)	0.55					
Observation plots	AT506		129.2	Observation plots	Tickit		101.3
	W47		122.7		W83		100.8
	Treat		120.5		W19		98.0
	W83		119.6		P429		91.3
	Everest		114.7		AT509		89.9
	Muir		112.0				
	Tickit		108.9				
	PT322		101.7				

Conclusions:

Over the last 5 years later maturing lines (flowering mid-November) have generally significantly out-yielded Tahara. The exception was 2000/01 where Tahara was 10-25% higher yielding than nearly all other lines due to both the absence of frost damage and the sharp finish to the season. With this season's good spring rains Tahara was back at the bottom of the pile at Symmons Plains and less dominant at Riccarton. However the fact that this year the later lines were not the highest yielding in such a favourable season suggests that the main advantage of these lines is through avoiding frost damage at flowering.

It has been difficult to select a new triticale variety that is consistently higher yielding than Tahara. This appears to be complicated by greater variety x site as well as variety x year interaction in comparison with wheat yields. The front runners after several years of trials appear to be W19, W83, W47, Treat and Tickit.

5.8 WHEAT VARIETY TRIALS

Location: Symmons Plains and Riccarton
(Campbell Town) Tasmania

Researchers: Geoff Dean SFS
Simon Munford DPIWE

Further details: Geoff Dean, 03 6336 5233
Geoff.Dean@dpiwe.tas.gov.au

Background:

With the release of new varieties, greater awareness of potential yields and improved management practices, there has been a large increase in the area sown to wheat in Tasmania. In particular the CSIRO-bred varieties have shown adaptation to the Tasmanian environment and have dominated recent plantings. Newer varieties have improved leaf rust resistance and some are white-grained. Of particular interest is MacKellar the first commercial wheat variety with Barley Yellow Dwarf Virus (BYDV) resistance. Several wheat varieties from Wrightson Seeds are also being tested following good performances in 2000/01. Only the major wheat varieties have been trialled at Campbell Town as barley is the predominant cereal sown in this area.

Aim:

To further compare existing wheat varieties and evaluate new breeding material.

Treatments:

Main entries and their origin are listed below:

Longbow, More, SPA-C	UK
Declic, Champion	France
WRS-M	USA
Paterson, Tennant, Dennis, Brennan	
MacKellar, Rudd, LH64A10	CSIRO -Canberra
Rosella, Warbler	NSW
Kellalac, Mita, Mira	VIC

Sowing date: 14 May 2001

Harvest date: January 2002

Fertiliser:

Symmons Plains : basal - 250kg 9:13:17,
topdressing - 50kg N/ha

Riccarton: basal - 150kg 9:13:17

Weed Control:

Symmons Plains - 1.4/ha Brominil, 1.5/ha MCPA
Riccarton - 1.4/ha Brominil, 1.5/ha MCPA,
1.5/ Hoe gras

Results:

The stand-out performer in 2001/02 was the new CSIRO BYDV resistant variety MacKellar with a yield of over 10t/ha at Symmons Plains. This was 25% greater than Paterson at Symmons Plains and 12% greater at Campbell Town in an observation plot. Given that the maturity date of MacKellar is probably too early for Tasmanian conditions, BYDV resistance in Paterson or Tennant background may have even greater potential. In fact the main precautionary note with MacKellar will be whether it can maintain this good performance when we receive our "almost normal" frosts in late spring around the time of flowering. It is also worth pointing out that spring BYDV infection may have been higher than usual due to the mild winter and lower aphid mortality.

The importance of spring infections of BYDV in wheat appears to have been underestimated. Plots were assessed for the appearance of "sooty mould" on ears prior to harvest. MacKellar scored negligible levels and values ranged through to an average of 60% for Dennis.

"Sooty mould" appears to be a secondary infection that becomes established after the plant is weakened by primary infection or damage, such as fusarium or frosts. It is now evident that the primary cause may also be spring BYDV infections (as distinct from the autumn infections). Until the appearance of a BYDV resistant wheat it has been difficult to isolate this as a casual agent.

Earlier in the season, around the end of flowering, MacKellar also scored the highest of all varieties for absence of necrotic leaf tipping or general yellowing of the leaves which could again be linked with resistance to BYDV or on the same segment of chromosome as the BYDV gene.

The four Wrightson lines all performed well with ISR594-34 equalling the yield of Paterson at Riccarton and outyielding by 13% at Symmons Plains. These lines are all of European origin and obviously have potential in Tasmania.