### **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			
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#### 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 CSIRObred 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.

### 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.

#### Aim:

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

Treatments:					
Main entries and t	heir origin ar	e listed below:			
Longbow, More, SPA-C		UK			
Declic, Champion		France			
WRS-M	USA				
Paterson, Tennan	t, Dennis, Br	rennan			
MacKellar, Rudd,	LH64A10	CSIRO -Canberra			
Rosella, Warbler		NSW			
Kellalac, Mita, Mir	a	VIC			
Sowing date:	14 May 200	01			
Harvest date: Fertiliser:	January 20	02			
Symmons Plains :	basal - 250 topdressing	)kg 9:13:17, g - 50kg N/ha			
Riccarton: basal	150kg 9:13	:17			
Weed Control:					
Symmons Plains	- 1.4//ha Br	ominil, 1.5//ha MCPA			
Riccarton	ominil. 1.5//ha MCPA.				

"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.

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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.

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The yield of Tennant was equivalent to that of Paterson at Symmons Plains but was significantly lower at Riccarton. The good spring and summer rains were beneficial for the later maturing Tennant. The relatively poor performance at Riccarton was probably due to the significantly lower December rainfall at this site compared with Symmons Plains. Similarly the earlier maturing Brennan performed relatively well at Riccarton.

## Wheat trial results

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Of the observations plots the CSIRO line LH46A10 and Victorian lines Mira and VN0061 deserve further evaluation in replicated plots. More as usual performed relatively well and the spring rains benefited Longbow. Dennis was surprisingly low vielding and there was a lot of pinched grain. NSW data suggests this variety performs relatively well at sites with lower yield potential. To date, trials have focussed on grain-only production but a dual purpose trial is planned for Riccarton this year.

Symmons Pla	ains			Riccarton			
	Variety	Yield (t/ha)	%Paterson		Variety	Yield (t/ha)	% Paterson
Replicated	MacKellar	10.1	124.8	Replicated	Paterson	6.6	100.0
plots	ISR594-34	9.1	113.0	plots	ISR594-34	6.6	100.0
	ISR594-7	8.5	105.5		Brennan	6.3	96.1
	ISR594-15	8.5	105.2		Tennant	6.0	90.4
	ISR594-24	8.3	102.3		Kellalac	5.9	88.9
	Champion	8.2	101.5		WRS-M	4.8	72.2
	Paterson	8.1	100.0				
	Tennant	8.0	99.2	lsd (5%)		0.3	
	Kellalac	8.0	98.4				
	VL326	7.6	93.7				
	Rudd	7.4	91.4				
	SPA-C	7.4	91.2	Observation	n MacKellar		113
	Brennan	7.1	87.8	plots	Warbler		92
	Rosella	7.0	86.5		Rosella		87
	Dennis	6.4	79.2		Dennis		84
	WRS-M	5.7	70.6		VL326		82
	lsd (5%)	0.6					
Observation	LH46A10		111				
plots	Mira		103				
	VN0061		103				
	Longbow		102				
	More		99				
	Mita		96				
	E88.4		96				