Mallee wheat results update from 2008



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Take home messages

- *Another dry season has highlighted the increased resilience that early-maturing cereals express over mid-season-maturing varieties in these adverse years*
- *Season 2009 will see an increased opportunity for farmers to include new innovative wheat varieties into their farming systems*
- *Relying on one wheat variety is like 'putting all of your eggs in the one basket'. New varieties with differing maturity dates and improved agronomics/disease resistance are now commercially available to help offset this potential threat*
- *Yitpi continues to be the Mallee benchmark, although as Table 1 indicates, a number of new release varieties have grain yields and agronomics that compare favourably with the Mallee icon.*

Method

In season 2008 there were over 20 commercially-named wheat varieties in the Mallee National Wheat Variety Trial (NVT) program. With a large number of unnamed and near-release wheats performing well compared to standard varieties, this number will increase during 2009. The role of the NVT program at DPI Walpeup is becoming more crucial in the independent evaluation of new and pending wheat varieties.

Grain yield, quality, disease, and agronomic data accumulated from the NVT wheat program are fundamental in deciding which wheat best fits farmers' cropping regimes. The competitive nature of breeding new varieties for lucrative wheat growing areas such as the Mallee will ensure more frequent availability of new and better adapted wheat cultivars to commercial growers.

Commercially named varieties that matched or bettered **Yitpi** in the yield stakes in 2008 have endorsed the achievements in cereal breeding and farming systems over the past twenty years. The yield and agronomic benchmarks set by **Yitpi** over the past 15 years are gradually being matched by competing new wheats (Table 1). Breakdown in stripe rust resistance of certain wheat varieties due to new rust strains was again evident throughout the Mallee in 2009. Those who treated their seed or fertiliser were very happy with the results and subsequently did not require a foliar fungicide, while many waited and sprayed at growth stages 32 through to 39 (flag leaf). Hopefully there were a number of commercial farmer strips (spray versus unsprayed) to compliment research trials in regard to the pros and cons of spraying for stripe rust in the Mallee particularly when dry seasons prevail.

Results

Due to the dry seasonal conditions (particularly in September and October), the majority of the Mallee NVT wheat sites experienced extremely tough finishing conditions at grain fill. This was also typical of most cropping areas of the Mallee. Whereas in season 2007, three NVT wheat sites were lost due to the dry season, in 2008 all nine Mallee NVT wheat sites were harvestable. Average mean site yields varied from 0.73t/ha at Merrinee in the Millewa, to a high of 3.66t/ha at Hopetoun

(although previous rotational influences combined with lighter soil types and strategic rainfall events were crucial factors in achieving above average grain yields at Hopetoun). Considering the harsh year, it was extremely pleasing to obtain results that can be used in long-term yield databases from all nine sites shown in Table 1. Some soil types, in particular the sandier loams, again proved more reliable than the heavier swales and loams.

Table 1. Mallee NVT grain yields as a % of Yitpi in 2008.

Variety	Birchip	Walpeup	Merrinee	Ultima	H'toun	M'tang	M'ville	W'lang	Q'took
Yitpi (t/ha)	*1.35*	*0.94*	*0.71*	*1.61*	*3.66*	*1.97*	*0.73*	*1.00*	*0.88*
Derrimut	103	86	110	98	103	87	111	83	91
Peake	108	100	115	117	101	95	119	121	109
Annuello	97	66	77	76	94	79	36	39	66
Bumper	93	109	96	88	104	103	125	115	81
Gladius	105	124	121	116	105	104	144	138	107
Axe	113	139	121	132	109	110	204	183	106
Bullet	110	115	100	110	110	112	175	175	97
Lincoln	113	129	130	105	109	102	130	137	101
Yitpi	100	100	100	100	100	100	100	100	100
Correll	100	119	118	101	100	92	108	102	97
Young	102	106	92	116	106	99	155	145	97
Catalina	93	99	100	110	97	103	107	126	98
Magenta	95	91	108	98	99	91	81	74	93
Wyalkatchem	90	114	87	86	99	107	104	128	76
Clearfield Stl	99	100	83	89	93	87	81	66	85
Clearfield Jnz	97	65	82	81	87	77	44	36	75
Janz	90	78	86	94	96	78	66	56	80
Guardian	104	107	97	88	100	98	62	77	93
Frame	101	90	107	96	95	89	74	54	106
Espada	99	107	118	108	104	106	144	110	101
Dakota	96	70	86	102	89	70	51	58	98
Site mean t/ha	1.37	0.98	0.73	1.67	3.66	1.90	0.84	1.16	0.84
CV (%)	**5.12**	**10.60**	**7.82**	**7.78**	**3.83**	**7.52**	**11.32**	**8.76**	**10.56**

Commercial practice

Looking ahead to season 2009 and beyond, **Yitpi** will continue to be the main driving force in the majority of Mallee cereal farming systems. It has been just too reliable both in economic and agronomic terms for many Mallee cereal growers to switch over completely to alternative varieties. But now in season 2009, an increased arsenal in terms of improved variety choice is available to growers to complement **Yitpi**. Including additional wheat varieties to help combat the possible scenario of crop failure due to disease susceptibility, market volatility, or seasonal risks such as frosts or dry spring finishes to the season offsets the potential problem of having *all your eggs in one basket.*

The contenders to help compliment **Yitpi** in Mallee farming systems are shown in Table 1. A number of these varieties are similar in agronomic and quality attributes. **Correll** is very similar to **Yitpi** in agronomics but with improved stem rust resistance and better black point tolerance. As the yield table indicates, **Correll's** yield performance when compared against **Yitpi** in 2008 was very encouraging and long-term data indicates both varieties yield very similar. Grain size is also similar, although

the average test weight of **Correll** is approximately 2-3kg/hl lower than **Yitpi,** and it has similar susceptibility to yellow leaf spot.

Early-maturing varieties have an important role to play in the Mallee. Two such varieties are **Axe** and **Bullet**. As the yield table indicates, both varieties yielded higher than **Yitpi** at the majority of Mallee NVT wheat sites. Both have good early vigour and establish very quickly compared to **Yitpi**. Consistent grain yields and grain size in below average rainfall years or in dry/harsh finishing conditions compliment both varieties. **Axe** is susceptible to cereal cyst nematode (CCN) and has an AH quality grading in SA. **Axe** is rated as MR to stripe rust and MS to stem rust, whereas **Bullet** is APW in quality but with CCN resistance. **Bullet** is rated as susceptible to stripe rust and moderately resistant to stem rust. **Gladius** is a high yielding AH quality variety that is well adapted to low rainfall environments and again yielded well under Mallee conditions in 2008. **Gladius** has moderate resistance to CCN, resistant to boron and is rated as MS to stripe rust and MR to stem rust. **Espada**, is a recent new release being a sister line to **Gladius** with APW grain quality, improved leaf rust resistance and rated as MR-MS to yellow leaf spot. Grain yields of **Espada** were encouraging in 2008, although it is rated as MS to CCN.

Table 2. Maturity (heading dates) of a selection of varieties at Walpeup NVT – 2008.

Variety	Heading date	Variety	Heading date
Yitpi	23 Sept	Axe	13 Sept
Correll	21 Sept	Bullet	14 Sept
Catalina	19 Sept	Lincoln	18 Sept
Frame	24 Sept	Gladius	18 Sept
Derrimut	24 Sept	Magenta	22 Sept
Peake	21 Sept	Wyalkatchem	19 Sept
Espada	22 Sept	Clearfield Stl	22 Sept
Young	17 Sept	Clearfield Jnz	22 Sept

Other varieties also competing to become significant commercial Mallee varieties are **Young, Catalina** and **Lincoln**. These varieties have excellent agronomic attributes with **Young** being an early-maturing broadly adapted, AH quality variety with CCN resistance. **Catalina** has moderate resistance to all rusts and is a slight improvement over **Yitpi** to yellow leaf spot and like Young, is CCN resistant and AH in quality. **Young** has improved yellow leaf spot resistance compared to certain other commercial varieties, although its grain size can suffer in tough finishes more so than **Yitpi. Lincoln** is an AH quality variety with an MR rating to stem, stripe and leaf rust. **Lincoln** grain yields were excellent in 2008 and the variety will be again evaluated in the Mallee in 2009.

Derrimut and **Peake** are similar varieties in terms of plant type and both are suited to the Mallee with CCN resistance and good levels of rust resistance. They are short to medium in height but are susceptible to yellow leaf spot, although **Derrimut** is MT to boron. Yields from both these varieties have been very encouraging while **Peake's** earlier maturity may have been an important factor in its yield advantage over **Derrimut** in 2008. (Table: 1).

Magenta is a potential replacement for **Wyalkatchem** due to improved stem rust resistance, a longer coleoptile and higher grain yields under WA conditions, although it is later in maturity compared to **Wyalkatchem** (Table 2).

More information

Mallee grain quality data from the wheat variety trials described in the above article will be presented in the March-April edition of the Mallee Farmer Newsletter or contact Neil Vallance at DPI Walpeup on 0428 335 714.