Agronomic information for growing Biscuit wheats

SUMMARY

Biscuit or soft wheat can be commercially grown in the medium rainfall zone (minimum of 400mm annual rainfall). Soft wheat should be managed in a similar way to malting barley. To ensure a low protein content (below 9.5%) it is essential to:

- soil test the paddock for available N (total soil available N should be less than 100kg N/ha)
- if urea is required only apply it as a pre-drill application avoid topdressing urea

Both Bowie and Anlace appeared to have good tolerance to trifluralin and trifluralin plus Glean or Logran mixes.

The aim of this trial was to investigate best management practices for the production of Biscuit wheats.

BACKGROUND

- two main varieties are available: Anlace and Bowie
- quality: soft 1 has to have less than 9.5% protein, price above ASW generally \$15/t
- domestic market approximately 140,000 tonne
- Anlace and Bowie yield better than Tatiara (Anlace and Bowie yield similar to Meering)
- Anlace and Bowie both have resistance to all rusts, and are also resistant to CCN
- Anlace is very susceptible to Yellow Leaf Spot
- Anlace has a ML (medium long) coleoptile, Bowie has a short coleoptile hence, Bowie should be more susceptible to trifluralin if sown shallow

METHOD

Anlace and Bowie wheat were sown on May 10 at 80 kg/ha with Mallee Mix 1 at 80 kg/ha. A replicated trial investigated the effect of trifluralin, Glean and Logran on production. A demonstration looked at the Nitrogen requirements to optimise yield whilst growing a low protein product.

RESULTS

There was a difference in yield between the two soft wheat varieties with Bowie yielding more than Anlace (2.78 vs 2.53 t/ha respectively). There were no yield differences between the applied trifluralin treatments, indicating that both varieties have a reasonable tolerance to trifluralin and trifluralin with Glean or Logran mixes (Table 1).

treatment	yield (t/ha)	
	Anlace	Bowie
Control	2.20	2.70
Triflur480 0.8L	2.51	2.85
Triflur480 1.6L	2.50	2.80
Triflur480 0.8L + Glean 10g	2.80	2.82
Triflur480 0.8L + Logran 15g	2.65	2.71
Significant difference:		
variety	P<0.05 LSD=0.21	
treatment	NS	

Table 1. Soft wheat yields in relation to trifluralin treatments

Soft wheats have a critical upper protein level of 9.5%, hence it is essential to make sure the nitrogen inputs are right. At sowing the site had a low available soil N of 41 kgN/ha (0-60cm depth). The nitrogen treatments had a large effect on yield and protein (Figure 1).

Figure 1. Yield and protein response to the application of Urea in Bowie wheat (the arrow indicates maximum acceptable protein level of 9.5%)



The response to the nitrogen treatments was exactly the same with Anlace wheat.

INTERPRETATION

Bowie yielded significantly more than Anlace (2.78 vs 2.53 t/ha respectively). There were no treatment effects of the trifluralin or the trifluralin mixes with Glean or Logran. Both varieties were tolerant to trifluralin and the trifluralin mixes at the rates used in the trial. Both varieties were sown below the trifluralin layer and damage was minimal.

The site had a low soil available nitrogen content of 41 kg N/ha at sowing and was expected to be highly responsive to N fertiliser. Expected mineralisation over the growing season is about 35 kgN/ha and together with soil N at sowing the site should have been able to grow a 1.9 t/ha crop (40 kg N is required per 1 tonne of wheat). The actual yield without the urea was 1.8 t/ha. Both varieties responded positively in yield to the additional nitrogen (1.8 t/ha without urea and 2.5t/ha with 120 kg urea).

Applied nitrogen has a positive effect on both yield and protein. The results indicate that if nitrogen is required, it should be applied at sowing. If nitrogen is topdressed then the increase in protein can be too high to ensure biscuit wheat quality. In Bowie the topdressed wheat had a protein content of 11.0%, whereas the predrilled wheat had a protein content of 9.1%. Topdressed nitrogen is more likely to go into protein rather than yield, especially in years with a dry spring.

COMMERCIAL PRACTICE

The nitrogen fertiliser management for Soft wheats is very similar compared to malting barley: 1. soil test the paddock for available nitrogen at sowing, if the soil contains more than 100kg N/ha then it is unlikely that soft wheat can be successfully grown (in the average production zone of 3t/ha)

2. sow early to optimise biomass production

3. apply sufficient nitrogen as urea in a pre-drill operation, avoid having to topdress urea.