Field Treatments:

Eight levels of increasing management intensity will be applied to each environment that replicates standard through to intensive management (Full disease control, Canopy Controlled, and Nitrogen for a decile 9 season).

There are 2 Nitrogen treatments at all fungicide levels control to assess yield gap related to N and disease.
There are 3 Canopy interventions at high N to assess yield gap related to canopy control

These definitions will be utilised in subsequent yield gap analysis and benchmarking exercises

- Treatment 2 is considered current practice for this zone – ie 1 fungicide unit and 25% below average N
- Treatment 6 is considered adequate to achieve water limited yield potential - Full fungicide protection and enough Nitrogen for decile 8 season
- Treatment 7 is considered the emerging practice to minimise preharvest yield losses - Full fungicide protection and enough Nitrogen for decile 8 season and Canopy protected with a PGR

Tmt	Treatment name	Fungicide	Canopy	Nitrogen**
1	Nil Fungicide_Low N	Nil	Nil	Low - Intermediate
2	Intermediate_Low N	1 Unit	Nil	Low - Intermediate
3	Full Potential_Low N	Full	Nil	Low - Intermediate
4	Nil Fungicide_High N	Nil	Nil	Non-Limiting
5	Intermediate_High N	1 Unit	Nil	Non-Limiting
6	Full Potential_High N	Full	Nil	Non-Limiting
7	Full Potential_Canopy	Full	PGR31 & 37	Non-Limiting
8	Dual Purpose System	Full	Defoliation	Non-Limiting
9#		Full		Nil

Nil N at Hart only

Cultivars

1. RGT Planet (High Yielding but disease susceptible – ie Planet),
2. Cyclops (High yielding low rainfall erect cultivar eg but brackling prone)
3. Leabrook (Vigorous lodging check, Compass type).

Seed densities:

- All experiments will be sown at 180 seeds/m^2 (target plant density of ~150 Plants/m^2)

Detailed definitions of treatments

Nitrogen

Nitrogen will be a variable managed based on starting soil water and N using yield prophet lite and targeted yield deciles. We will use these tools in combination to determine total N supply to the crop to match N supply to the environment to take account of different

yield deciles and yield potential deciles. Final treatments will be designed in consultation with Tom Price. All N will be applied in a single top-dress as urea during winter as per district best-practice and depending on specific crop development stage.

Table 1. Initial yield targets (note N and yield targets to be reviewed at the end of May depending on soil N and summer rainfall, GSR)

Yield Targets (t/ha)	Hart	Birchip	Daysdale
Mid (D4-5 Finish)	3.6	6	4
High (D9 - Non-Limiting)	5.7	7.8	7.2
Total N Supply (kg/ha)	**Hart**	**Birchip**	**Daysdale**
Mid (D5)	150	240	160
High (Non Limiting)	230	310	290

Fungicide

Fungicide treatments range from untreated, 1 unit to full control (3 - 4 units), Fungicide units will include Prosaro at GS31. Full control will have Systiva or a SDHI chemistry.

Treatment no	Sowing		GS31	GS39-49	GS59*
Nil	Vibrance/Gaucho		---	---	---
1 Unit	Vibrance/Gaucho		Prosaro 300ml/ha		
Full	Vibrance/Gaucho	Systiva 150ml/100kg	Prosaro 300ml/ha	Aviator Xpro 500ml/ha	Opus 500ml/ha

*Optional 4th spray at GS59 if required

Canopy Intervention and canopy control will consist of a PGR/Defoliation.

Treatment no	Sowing	GS16-22 (Vegetative)	GS30*	GS33 - 7
Nil	---	---	---	---
PGR	---	---	Moddus Evo 200ml/ha	Moddus Evo 200ml/ha
Defoliation		Yes	Yes*	

*Defoliation = (simulated grazing @GS16 and GS30 - treatments to be finished before Jul 10 irrespective of growth stage). – 1 Grazing maybe acceptable in some circumstances.