

## **Additional OVERSEER modelling assumptions - where non default figures used**

### **Scenario 1 - Cubicle stables**

- Average cow weight - 465 kg (B Englebrecht, Pers Comm 2010).
- Milk production 400 kg MS/cow (Englebrecht, 2009)
- 706 mm rainfall (GHD, 2009)
- 801-950 mm PET (from Tara Hills Research Station average PET)
- Own irrigation concentrations used. The default irrigation concentration for N is 2.5 mg/l N. The source of water for Ohau Downs is from Lake Ohau. Water quality testing on Lake Ohau was conducted by MWRL (WQS Summary Report Appendix V) and total N concentrations were below detection levels of 0.11 mg/l. The use of 0.5 mg/l is therefore conservative. Default concentrations in OVERSEER also overestimates the phosphorus in Ohau Downs' irrigation water, 0.008<sup>1</sup> mg/l TP in Lake Ohau compared with 0.1 mg/l TP assumed in OVERSEER (WQS Summary Report Appendices V and X). However these concentrations were not adjusted downwards.
- Periodically wet riparian margins along Wairepo Creek have been included as have planted up riparian margins along Six Mile Creek. Waterlogged riparian margins along Wairepo Creek were identified in Webb (1992) and verified during site visit. However, nutrient reduction in these areas is not used to meet threshold.
- Dryland soil test P averaged from 39 on farm soils tests taken between 2005 and 2009

### **Scenario 2 - Cut and Carry plus arable**

- Cut and carry modelled using APSIM. As a proxy until this is complete, N losses used are 5 kg/ha and 7.5 kg/ha for Developed and Highly Developed respectively and 0.5 kg/ha P loss.
- 706 mm rainfall (GHD, 2009)
- 801-950 mm PET (from Tara Hills Research Station average PET)
- Own irrigation concentrations used (as above)
- 2<sup>nd</sup> wheat crop assumed to be harvested for whole crop silage
- Wetland areas, as above.
- Dryland soil test P averaged from 39 on farm soils tests taken between 2005 and 2009

### **Scenario 3 - Mixed enterprise - Dairy replacements plus beef finishing plus dryland sheep plus arable**

- 706 mm rainfall (GHD, 2009)
- 801-950 mm PET (from Tara Hills Research Station average PET)
- Own irrigation concentrations used (as above)
- 2<sup>nd</sup> wheat crop assumed to be harvested for whole crop silage
- Dairy replacements (weaned calves through to 2 year old heifers)(Englebrecht, 2009).
- Beef finishing enterprise where yearlings are brought onto the property in October and are sold off in May (Englebrecht, 2009).

---

<sup>1</sup> Samples below detection taken at detection limit of 0.004 mg TP/l

- Sheep enterprise is predominantly on the dryland areas of the farm and comprises 3400 breeding ewes, with 750 replacement hoggets and the remaining lambs sold off the farm in May(Englebrecht, 2009).
- All beef on feedpad from May to September inclusive with 12 hrs grazing/day
- Wetland areas, as above.
- Dryland soil test P averaged from 39 on farm soils tests taken between 2005 and 2009