



Murrumbidgee RICE GROWING POLICY 2006/2007

Supplement to the Company Member Contract

SEPTEMBER 2006

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Murrumbidgee Irrigation Limited

RICE GROWING 2006/2007

Objectives

The Company approach to management of water supply for rice growing by landholders within the Murrumbidgee Irrigation Area and Districts, describes how strategies are applied to enable the Company to comply with the requirements of the Licences that entitle the Company to take and supply water.

The Company is aware of the unreliability of water availability for landholders, and seeks to assist industry productivity within a framework that balances relative risks of adverse impacts on shallow groundwater levels and soil salinity with sustainable production.

This updated policy has been derived from the approach outlined in the "Rice Environmental Policy Guidelines" of the Rice Environmental Policy Advisory Group, the "Interim Rice Growing Rules" from 2002 and from consultation with scientists and the Rice Review Group, consisting of RGA members and other landholders. Ongoing reviews will be put to the Rice Review Group for comments.

Strategies

The strategies adopted for management of the impacts of water supply for rice growing, include:

- criteria for determining rice suitable soils,
- calculations for determining the target rice water use each season, and
- the hydraulic loading of the overall landscape.

Foundation

This explanation of the Company approach and policy application is supplementary to and particularly draws on clauses 4.2 (6), and 14, 16 and 27 of the Member Contract and is also in accordance with the requirements for the Land and Water Management Plan (MIA EnviroWise) for the Company's Area of Operations.

Definitions

Words and expressions used have the meaning given to them in the Member Contract. In addition to this the following definitions apply, unless the context otherwise requires;

Generally

- 1) "**Acceptable quality**" means water quality levels that comply with standards prescribed by the Company's Pollution Control Licence and Environment Management Protocols detailed in the Water Access Licences or the Land and Water Management Plan(s).
- 2) "**Company**" means Murrumbidgee Irrigation Limited.
- 3) "**Land and Water Management Plan(s) (LWMP)**" means any Land and Water Management Plan or Plans from time to time in place for the Company's Area of Operations.
- 4) "**Rice Crop**" means land that has been sown to rice and watered for 10 weeks or more.

- 5) "**Landholder**" means a person who is taking water from the Company for the purpose of rice growing.
- 6) "**Total Rice Approved Area**" means the sum of all areas on a landholding, which have been classified as "Existing Use Rice Growing", "Marginal 1:3", "Marginal 1:4" and "Suitable, drilled".
- 7) "**Annual Rice Approved Area**" means the area of rice on a landholding which may be watered each season.

In respect of soil classification (for water supply for rice growing)

- 8) "**Suitable, drilled**" means that permission is granted for watering rice, subject to compliance with the Rice Growing Rules.
- 9) "**Existing Use rice growing**" means land on which a Rice Crop has been grown, but where the soil has not been tested to ascertain its suitability or otherwise for growing rice.
- 10) "**Marginal 1:3**" means the land is suitable for rice growing one in every three years.
- 11) "**Marginal 1:4**" means the land is suitable for rice growing one in every four years.
- 12) "**Unsuitable**" in relation to soil classification means the land is not suitable for watering rice and approval is not given to water rice.
- 13) "**Unsuitable awaiting investigation**" in relation to soil classification means the land is not suitable for watering rice and approval is not given to water rice until such time that soil investigations prove the land to be "suitable".

1. Acceptance of Conditions In Addition to the Member Contract Conditions

- Failure to comply with the provisions of this paper may be treated by the Company as a default under clause 27 of the Member Contract.

2. Rice Approved Land

- Before planting rice, the Landholder should be in possession of a map outlining the classification of soils for each Landholding in terms of suitability for rice growing.
- Rice will only be permitted to be watered on land classified as: existing use rice growing; suitable, drilled; marginal 1:3 and marginal 1:4.
- The classifications "**Marginal 1:3**" and "**Marginal 1:4**" will be phased out.
- If these "Marginal" lands record a rice water usage in excess of the seasonal target during the next rice crop, they will require soil investigations by EM31 survey, proof drilling and sodicity testing.
- If these lands record a rice water usage below the seasonal target, they will be re-classified as "existing use ricegrowing".

3. Annual Rice Approved Area

- The annual rice approved area of a Landholding is 65 hectares or 30% of the total rice approved area, whichever is the greater. Landholdings which are sold or subdivided will have the annual rice approved area recalculated to 30% of the total rice approved area.
- Each landholder is required to notify the Company, through the water ordering system, of the area of each rice crop for which water supply is required prior to commencement of each season.
- Areas and locations of paddocks watered are recorded each year for each Landholding. Aerial photography or other imagery will be used to measure areas, to check for areas sown outside the approved area and to keep up to date records of rice growing.
- Landholdings within a single farming unit (SFU) may have one rice growing entitlement. Rice areas may be transferred between these landholdings at the landholder's discretion subject to meeting all other requirements of the Company's Rice Growing Policy and Company Flow Rate Share rules.
- Each Landholding is allowed to vary its Annual Rice Approved Area by up to the greater of 10% or 10 ha. For Single Farming Units, all individual farm entitlements are added to calculate the entitlement of the Single Farming Unit.
- Landholdings that record a rice watered area below the Annual Rice Approved Area of a landholding will have their Annual Rice Approved Area increased by the same amount the next season, up to the greater of 10% or 10 ha. For example, a landholding with an entitlement of 65 ha, which grows 50 ha of rice during the 2006/07 season can grow 10 ha extra, or 75 ha during the 2007/08 season.
- Landholdings that record a rice watered area in excess of the Annual Rice Approved Area will have their Annual Rice Approved Area reduced by the same amount, up to the greater of 10% or 10 ha. Any area in excess of the greater of 10 ha or 10%, will be subject to a **double** payback during the next season. For example, a landholding with an entitlement of 65 ha, which grows 80 ha of rice during the 2006/07 season, will have their area reduced to 45 ha during the 2007/08 season, that is the 10 ha exceeding the Annual Approved Area plus 5 ha of double payback or a total of 20 ha.
- Landholdings with an Annual Rice Approved Area of less than 15 hectares may grow their Total Rice Approved Area once in a three year period. For example, a farm with an Annual Rice Approved Area of 10 ha, and a Total Rice Approved Area of 33ha, may grow up to 33ha one season and take a reduction over two following seasons to ensure the long term hydraulic loading is maintained.
- Each landholder will receive a statement at the end of the rice season showing the Landholding's or Single Farming Unit's rice area entitlement for the next season.
- Rice Farm Plans in place before the 30th of June will remain in place until they run out at which time this policy will apply. Landholders may apply to cancel an existing rice farm plan and move over to the new policy as long as the overall rice approved area of a Landholding or a Single Farming Unit is not exceeded.
- Please note that water supply for rice is subject to Company Flow Rate Share Rules.

4. Drainage Management

- The Landholder will prevent any water supplied for rice growing from escaping the boundaries of the Landholding before a period of 28 days has elapsed from the time of herbicide or pesticide application, except with written approval from the Company
- Landholders are required to notify the Company immediately when water containing chemicals has been lost into the Company's drainage system. This may be a result of bank breaks or overtopping after rain.
- Where water is passed into the Company's drains or onto other land with the permission of the owner of those other lands, it must be of an acceptable quality.
- Although the provision of water to natural, vegetated depressions on Landholdings can produce positive environmental benefits, the landholder must take all necessary precautions to avoid constant ponding of water in such areas. Please note that the NSW Wetlands Policy 1996, provides guidelines and principles regarding wetland management.
- A 50-metre buffer is required between the edge of creeks or streams and the external banks of irrigated land. The buffer is required to meet the objectives of the NSW Wetlands Management Policy to ensure adequate provision is made for access around the rice bays and firebreaks and to protect the water quality of the waterway from erosion and potential point source pollution from agricultural chemicals.

5. Soil investigations will be required to be undertaken for the following reasons:

- Development of new irrigation land or land that has previously not grown rice.
- High rice water usage
- Re-classification of rice land suitability
- Topography (elevation). Land of higher relief may cause unwanted seepage and salinisation to lower lying surrounding land.
- Proximity to prior streams
- Salinity of groundwater
- Proximity of wetlands, creeks and rivers.
- If the groundwater level is less than 2.5 metres from the surface, soil logging may not be effective and a reassessment may be required.

6. Target Water Use Figures

- The Company will determine the volume of water acceptable for use by each area sown with rice (Target Water Use Figure) at the end of each season. The Target Water Use Figure is calculated from Crop Irrigation Requirements (based on information provided by Automatic Weather Stations) plus an allowance of up to 4ML/ha for drainage and profile wetting.

- In response to frequent feedback from growers regarding the temperature and rainfall variability in our area, the Company is installing five new weather stations around the area. During the 2006/07 season, the Company will trial the implementation of Target Water Use Zones. These zones (see map Appendix 1) are based on the location of the five Automatic Weather Stations. Results of this trial may lead to alterations to this document. Where a dispute arises between a Landholder and the Company in relation to water use in the 2006/07 season the Landholder may elect to nominate water use figures based on data from the CSIRO weather station in Hanwood to establish the Target Water Use Figure.
- Target Water Use Figures will be published fortnightly from December each year; to help landholders keep track of the water use.
- Landholders will be required to advise the Company each season of the volumes of water other than Company supply water applied to rice. For example groundwater (spear points, tube wells or deep bores), water pumped from Company drains or Company escape water.
- Any landholder using more than the Target Water Use Figure for the season will be contacted. Landholders will be required to complete a survey form and/or attend an interview to discuss the high water usage and determine the need for further action. Landholders, who fail to respond to the first notice, will have the rice area for that season classified as "unsuitable, awaiting investigation".
- Where a landholder uses water in excess of the Target Water Use Figure, the Company may request a reassessment of the rice area. Reassessment will involve electromagnetic (EM31) surveying, soil boring and sodicity testing at the landholder's expense (see Appendix).
- The landholder is required to accurately order water for the crops grown on each Landholding. Inaccurate orders may not be accepted as the reason for high rice water usage figures.
- If rice water usage is above the target water use figure even though EM31 surveying, proof drilling and sodicity testing show the land to be suitable, the area will initially be classified as "suitable drilled" but repeat incidence of above target water use without adequate explanation will cause the land to be classified as "unsuitable".

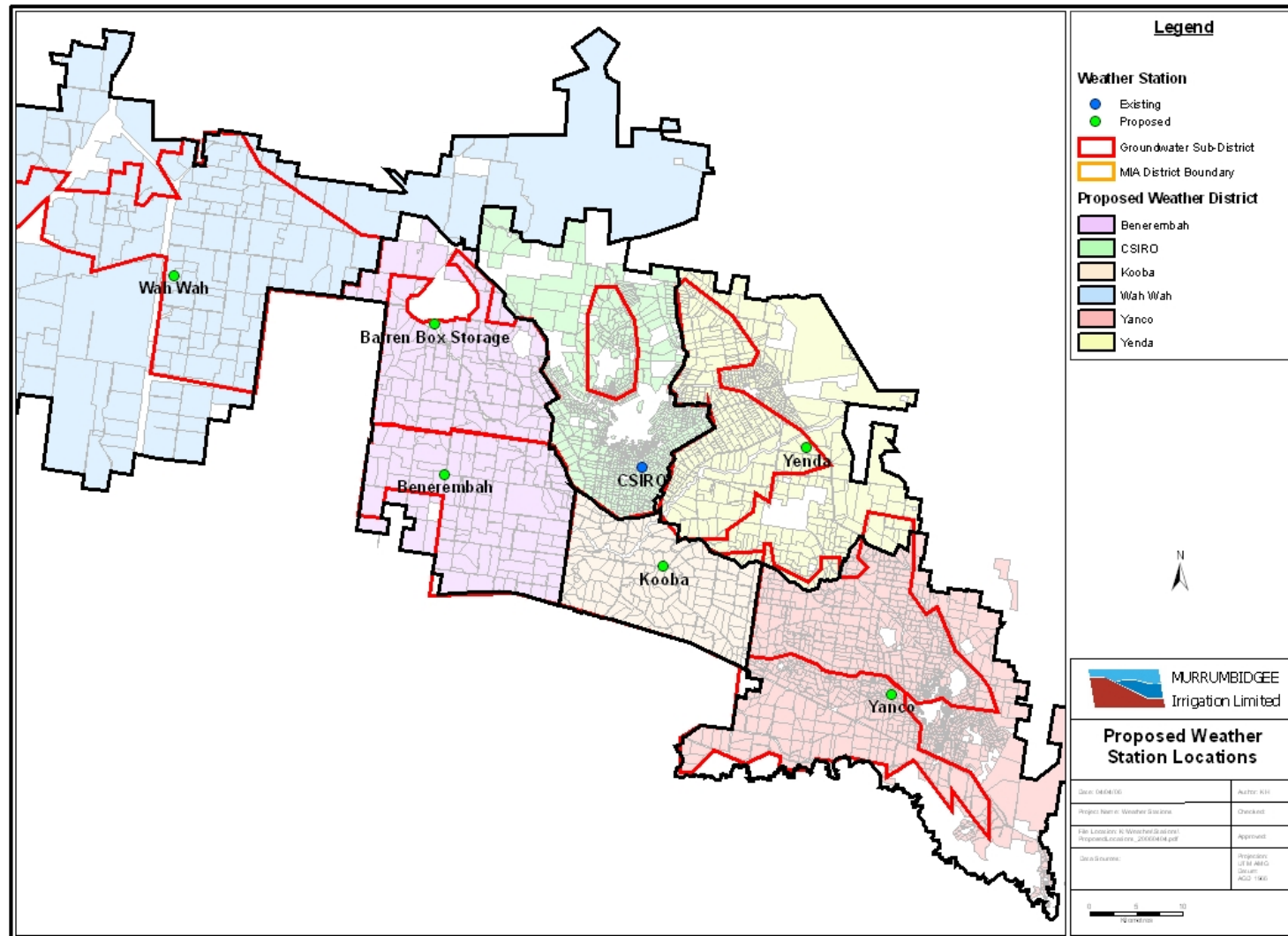
7. Unsuitable Soil

- No rice may be watered on land classified "unsuitable". Where rice is watered on unsuitable soils, a reduction in the rice approved area on that Landholding by double the area of exceedance during the next rice season will be imposed.
- No rice may be grown on land classified: "unsuitable, awaiting investigation". Where rice is grown on such land, a reduction in the rice approved area on that Landholding by double the area of exceedance during the next rice season will be imposed.

8. Rice Environmental Monitoring Fee

- Landholders will be charged an annual Rice Environmental Monitoring Fee for each Landholding on which rice is grown for costs directly associated with rice administration. The charge is itemised on the annual water accounts.

APPENDIX 1: Automatic Weather Station Zones



APPENDIX 2 Sodicity testing details

Assessing Land Criteria for Water supply for Rice growing

- All classifications associated with land suitability for rice watering will be determined by the Company. In determining land suitability criteria, the Company will consider the appropriate accredited research information. The Company may require further investigations to be conducted if insufficient information is received to accurately assess the suitability of the land.
- Land is classified for rice growing by the use of the EM31 survey and Soil Sodicity Analysis techniques.
- The area to be surveyed is identified as a parcel with the same irrigation and crop history characteristics and will be no larger than 50 ha. It is recommended that the paddock is not too dry, as reading might be 15-20 units lower than in more moist paddocks. However, suitable land with lower readings will still be classified as suitable if the sodicity requirements are met.
- The EM31 survey and Soil Sodicity Analysis may only be conducted and processed by an EM31 surveying contractor accredited by the Murrumbidgee College of Agriculture, using the methodology as proposed by DPI Yanco.
- The Company accepts no liability for the action of soil surveying contractors or drillers or electromagnetic surveyors undertaking surveys and analysis.
- Soil analysis will be conducted by a NATA accredited laboratory with quality assurance measures acceptable to the Company in place.
- The cost of electromagnetic (EM31) surveying, drilling, soil texturing and lab analysis is to be met by the landholder.
- The Company reserves the right to request areas to be re-drilled. A Company representative may be required to audit redills, the cost of which will be borne by the Company or the contractor.
- The landholder is to supply the Company with both a hard copy and digital copy (suitable for use in ArcView) of the results.

Requirements for Soil Sodicity Analysis

- Contours which have EM31 field readings, called apparent Electrical Conductivity (ECa), greater than 150 ECa are classified as "suitable, drilled" for rice growing.
- Where an EM31 mid range contour is determined as having less than 150 ECa, three continuous core samples (40mm diameter) are extracted from the contour on the same ECa value. Where three cores cannot be obtained on the same ECa value within a different location of a percentile contour, an ECa value of plus or minus five is acceptable.
- All three core samples must be extracted at different locations within the survey field to a depth of 1.5 metre. Each EM31 survey, midrange percentile contour and core sample is to be clearly marked e.g. (LRN, survey #, core #) for clear identification and to avoid anomalies or sample contamination.
- Boreholes are to be kept open for at least 4 full working days after completion of drilling for auditing purposes. Core sample holes are to be back filled afterwards.
- Where more than 75% of the EM31 ECa values within a midrange percentile contour are less than 150 ECa, the mid range contour must be cored and sampled for sodicity analysis. The purpose of the soil analysis is to determine Cation Exchange Capacity (CEC). This will be determined by the number of data points within the mid range contour.
- Following collection, all core samples are transported to a NATA accredited laboratory for soil texturing and sample preparation.

Soil Sample preparation

- Each core sample is textured at changes in texture and logged, in accordance with the Northcote hand texturing guidelines to a depth of 1.5m.
- The three core samples within each EM31 midrange contour less than 150 ECa have two soil samples taken from them: the first sample is at a depth of 0-60cm (shallow) and the second sample at a depth of 60-150cm (deep).
- Core samples are combined for each depth for each midrange percentile contour: one soil sample per EM31 midrange percentile contour to be taken for the shallow profile and one soil sample to be taken for the deep profile.
- The combination of all three samples per contour is allowed when evenly (in terms of weight) combined with the other 2 samples from the midrange percentile contour. All three samples are to have an equivalent amount of sample contributed to the whole. Approximately 500 grams of soil for the shallow sample and 1000 grams for the deep sample are required for analysis.
- A total of up to 18 soil samples per survey may be required to be collected, and submitted to a laboratory for analysis, one sample from the shallow profile and one sample from the deep profile equating to two samples per EM31 midrange percentile contour.
- It is preferable but not mandatory to submit the shallow soil samples for analysis and review the analysis results before submitting the deep soil samples.
- Core sample holes are to be back filled after completion of coring.
- Murrumbidgee Irrigation accepts no liability for the action of soil surveying contractors undertaking such work.

Soil analysis

- Soil analysis will be conducted by a reputable laboratory approved by MIL with suitable quality assurance measures in place. The 15D3 Method is used for the soil analysis.
- The purpose of the soil analysis is to determine Cation Exchange Capacity (CEC).
- Where a soil is found to have an Exchangeable Sodium Percentage (ESP) equal to or greater than 6% in the 0-60cm profile it will be considered suitable for rice growing under a continuous rotation.
- Where a soil is found to have an ESP equal to or greater that 16% in the 60-150cm profile it will be considered suitable for rice growing under a continuous rotation.

Flow Chart for Sodidity Testing

