



# RICE GROWING CONTROLS

**NOTE:** The following information is current as at 30 June 2004.  
Rice Environmental Policy is subject to regular review.

The following document broadly outlines the rice industry environmental policies which demonstrate environmentally responsible use of water in the production of rice. These policies are best practice management delivering leadership in rice production that is unparalleled in the world. Australian rice grower's proactive approach to environmental management is also reflected in the Rice Industry's Environmental Program, in which grower's are voluntarily participating in the Environmental Champions Program.

## OVERVIEW

Rice Environmental Policy Advisory Group (REPAG) is the umbrella organisation involved in developing and setting the overall rice industry environmental policy. REPAG members include Murray Irrigation (MIL), NSW Agriculture, CSIRO, Rice CRC, Coleambally Irrigation (CICL), Murrumbidgee Irrigation (MI), Victorian REPAG, NSW Department of Infrastructure, Planning and Natural Resources, EPA, and the Ricegrowers Association of Australia.

Under REPAG, there are three distinct management areas for the purposes of administering the rice environmental policy within the rice growing region:

- The irrigation corporations of Murray Irrigation Limited (Murray Valley), and Murrumbidgee Irrigation and Coleambally Irrigation Co-operative Limited (Murrumbidgee Valley). These corporations individually administer the growing of rice within their area of operations;
- Private diverters located across the Murray and Murrumbidgee valleys in NSW are administered by the Department of Infrastructure, Planning and Natural Resources; and
- Victoria, administered by many organisations including Shire Councils, State Government agencies and water supply authorities. A Victorian REPAG has been formed to assess regulations for growing rice in Victoria.

Growing of rice must comply with a number of environmental policies which are primarily aimed at reducing accessions to groundwater, hence preventing watertable rise and resultant waterlogging and soil salinisation.

This is achieved by:

- Ensuring rice is only grown on suitable soils; and
- By imposing a ceiling on the density of rice grown on the landscape; and
- Ensuring that rice production does not exceed maximum target water use levels.

## SOIL SUITABILITY

All land intended for rice growing must be first tested for soil suitability. The standard method for rice soil suitability investigations is the EM31 (Electromagnetic) surveying. EM31 technology is used to reassess all previously approved historical areas as well as new approvals. EM31 provides an “underground” map of the rice growing soils. Soils with an Exchangeable Cation (ECa) value greater than 150 are approved for rice growing. These soils are typically heavy clay soils.

“Ground truthing” using the traditional soil classification methodology can also be undertaken by boring test holes on a land “grid” where rice is to be grown and classifying the soil strata based on texture. One test hole to a depth of 3.5 metres is required per 4 hectares. The land is classified as either unrestricted for rice growing or unsuitable for rice growing on the basis of the soil samples obtained from each test hole. Slightly different criteria apply to rice growing areas because of differences in soil structures, however the essential requirement is for a clay thickness of between two and three metres depending on the location. Intermittent rice growing is permitted on some marginally suitable land in the NSW Murray Valley, but not in Murrumbidgee.

## MAXIMUM WATER USE

At the end of each rice growing season, an analysis of water use figures is undertaken to ensure that rice growers do not breach maximum water use levels and to ensure that there has not been excessive percolation of water to the water table. Each administration area sets a target water use figure, which vary for example the corporations’ individual policies are:

- In Murray Irrigation, a maximum seasonal limit (in ML/ha) is determined by accounting for rainfall, evaporation and losses. This limit will vary from season to season and between areas.
- In CICL a maximum water use figure has been set of 16 ML/ha.
- Within MI, the Target Water Use Figure is calculated from Crop Irrigation Requirements (based on advice from the CSIRO) plus an allowance of up to 4ML/ha for surface drainage and profile wetting.
- In Victoria, maximum water use is 11.5 ML/ha, allowing for seasonal conditions and geographic location. An additional 1.5 ML/ha is permitted in year one to allow for soil wetting.

Rice grown on land not meeting the above targets is investigated and may be removed from future rice growing.

## SOIL SODICITY

Soil sodicity was identified as an issue because growers had noted that soils which didn’t meet the above soil criteria under the EM31 surveying had acceptable levels of water use. A great deal of research has been undertaken which identified that the Exchangeable Sodium Percentage (ESP)

was a key, confirming the observations of growers. Recently REPAG adopted a formal soil sodicity policy whereby:

- The land is EM31 surveyed into nine ECa bands;
- The band or bands where the ECa is >150 are passed as suitable for rice growing;
- Three soil cores are then taken from midway points in each of the bands <150 ECa, and the soil samples from 0 – 60 cm depth and 60 – 150 cm are set aside for sodicity testing;
- If the ESP (exchangeable sodium percentage) in the 0 – 60 cm soil samples exceeds 6%, the soil is passed as suitable and no further testing is required;
- If the ESP is less than 6%, the soil from the 60 – 150 cm cores is sent to the laboratory for testing;
- If the ESP is >16%, it is passed as suitable but if <16% ESP the land fails as being suitable for rice growing.

Testing for sodicity is to be undertaken when:

- New ground is to be approved for rice growing;
- A rice grower calls for a re-assessment of a previously refused area; or
- The rice ground exceeds target water use.

If water use on rice ground continues to exceed target water use, the reason may not be due to “leaky” ground but possibly infrastructure (eg leaky channels), wheels or management. This will require investigation by the relevant administering organisation.

## RICE GROWING DENSITY

The term “hydraulic loading” describes the intensity of rice growing on the irrigated landscape.

There is an upper limit in place in the MI, CICL and Victoria of 30% of rice suitable land (or 54 hectares per farm in MI or 69 hectares per farm in CICL, whichever is the greater). This is to limit the total amount of percolation over this generally high watertable area.

In MIL, the hydraulic loading is limited to 4 ML/ha, with farms attaining best management practice irrigation layouts approved to 6 ML/ha on application.

There is no hydraulic loading limitation for private diverters because of the generally lower density of rice growing in those regions.

## MONITORING

To ensure that rice grower’s adhere to the rice growing policies of each jurisdiction, aerial photography is undertaken on an annual basis. The area under rice production is measured from these photographs and must comply with the hydraulic loading and rotation policies.

Aerial photography is also compared to the soil classification databases of approved rice growing areas held by the relevant jurisdictions to monitor compliance with the rice soil criteria.

## **OTHER CONDITIONS**

Rice growing is not permitted within 150 metres of the nearest bank of any watercourse for private diverter growers, nor is drainage from rice is permitted to enter watercourses.

Within the irrigation corporations, growers are required to comply with irrigation and pollution licences held by individually by the corporations on behalf of all their irrigator shareholders. Rice growers are also required to adhere to Land & Water Management Plans.

### Victoria

Rice growing in Victoria requires conditions which are specific, including: -

- Initial applications to grow rice in Victoria are lodged with Local Government and require the applicant to provide a Whole Farm Plan according to Regional Catchment Strategy Standards.
- Where the subsoil is saline, test holes are to be bored to 3.6 m on a 200 m grid.
- Installation of groundwater observation bores which are monitored by Goulburn Murray Water. These bores require a permit to be issued.
- All water must be held and used on the property except in exceptional circumstances, therefore growers require on farm storage facilities.

## **APPLICATIONS FOR GROWING RICE**

In long established rice growing areas such as the irrigation corporations, each landholder has been provided with a farm plan showing land suitable for rice growing and is advised of the maximum permissible area. Annual applications are not required.

In the “newer” rice growing areas such as river and bore pumping areas where there is a significant percentage of new land involved each season, growers must still lodge an annual application with the NSW Department of Infrastructure, Planning & Natural Resources and await approval before planting. For areas exceeding 100 hectares per bore licence or per 972 ML surface water entitlement, applicants must submit a Review of Environmental Factors covering a range of issues including irrigation water source and drainage management.

In Victoria, the rice grower must apply to their local council or shire for the initial approval to grow rice. A range of interested organisations and Government departments can make comment on the application. Processing takes at least 60 days.

## **PENALTIES FOR NON COMPLIANCE**

There is a range of prescribed penalties for non compliance with rice growing environmental conditions. For rice growers governed by the NSW DIPNR policies, there are predominantly

monetary penalties; however in some situations breaches can also incur a reduction in the following season's rice entitlement.

Within the corporations, rice growers who contravene the environmental policies will be invited to discuss the issue. If a breach is deemed to have occurred, penalties can be applied, including:

- Reductions in rice area and/or refusal to supply water. In some instances rice growing is withdrawn from the identified breach area until further investigations.
- Financial and other penalties can also be imposed.
- Any other penalty as determined by the relevant jurisdiction.

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