Saving water with alternate wetting drying (AWD)

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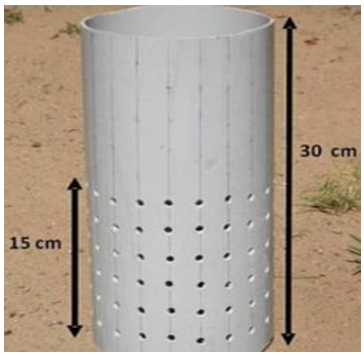
Rice Fact Sheet

Introduction

Alternate Wetting and Drying (AWD) is a water-saving technology that farmers can apply to reduce their irrigation water use in rice fields without any yield penalty. In AWD, irrigation water is applied a few days after the disappearance of the ponded water. Hence, the field is alternately flooded and non-flooded. The number of days of non-flooded soil between irrigations can vary from 1 day to more than 10 days depending on a number of factors such as soil type, weather and crop growth stage.



Field water tube made up of PVC. Note the holes on all sides.

How to implement AWD

- A practical way to implement AWD safely (without yield loss) is to monitor the depth of ponded water on the field using a 'field water tube' (pani pipe).
- After irrigation, the water depth will gradually decrease.
- When the water level has dropped to about 15 cm below the surface of the soil, irrigation should be applied to re-flood the field to a ponded water depth of about 5 cm.
- From one week before to one week after flowering, the field should be kept flooded, topping up to a depth of 5 cm as needed.
- After flowering, during grain filling and ripening, the

water level can be allowed to drop again to 15 cm below the soil surface before re-irrigation.

A field tube in flooded field

AWD can be started a few weeks (1-2) after transplanting. When many weeds are present, AWD should be postponed for 2-3 weeks to assist suppression of the weeds by the ponded water and improve the efficacy of herbicide. Local fertilizer recommendations as for flooded rice can be used. Apply fertilizer N preferably on the dry soil just before irrigation.

The Field Water Tube (Pani Pipe)

The field water tube can be made of 30-cm long plastic pipe or bamboo, and should have a diameter of 10-15 cm so that the water table is easily visible, and it is easy to fit your hand inside the tube to remove soil. Perforate the tube with many holes on all sides, so that water can flow readily in and out of the tube. Hammer the tube into the soil so that 15 cm protrudes above the soil surface. Take care not to penetrate through the bottom of the plow pan. Remove the soil from inside the tube so that the bottom of the tube is visible.

Water at 15 cm below the soil surface: Time to irrigate the field again

When the field is flooded, check that the water level inside the tube is the same as outside the tube. If it is not the same after a few hours, the holes a probably blocked with compacted soil and the tube needs to be carefully re-installed. The tube should be placed in a readily accessible part of the field close to a bund, so it is easy to monitor the ponded water depth. The location should be representative of the average water depth in the field (i.e. it should not be in a high spot or a low spot).

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