Water management for rice

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Water is applied to the rice field for the following reasons:

- Ease land preparation
- For use by the rice plant
- To suppress growth of weeds
Management at tillering stage
Among cereals, rice has the lowest productivity per unit of water use.
Continuous deep flooding consumes huge quantities of water.
2500mm of water is used for rice against 400mm for wheat crop.
Maize uses 625mm. The water used on rice can grow 8 crops of wheat and 4 crops of maize.
Evaporation requirement of rice is only 480mm
Water required during various stages or rice growth

- Nursery preparation – 150 – 200mm
- Raise seedlings – 250 – 400mm
- Prepare land – 200 – 300mm
- Growing crop from transplanting to harvesting takes;
  - Daily consumption – 6–10mm per day.
  - Water losses through evapotranspiration 6–10mm per day
In lowland rice fields water comes from rainfall and irrigation.

Water is lost by transpiration, evaporation, seepage and percolation.

Transpiration is evaporation of water through plant surface.

Seepage – the horizontal loss of water through a levee.

Percolation – the downward movement of water deeper soil layers of the fields.

It is necessary that an optimum balance between water availability and water loss be maintained for optimum growth of the rice plant thus the need for water management.
Management by means of Levees
Preventing water loss

- Repairing levees to minimize seepage
- Remove weeds to avoid competition with rice plants for water
- Increase the height of levees to prevent surface run off water
Nursery Water management

- Maintain flooded from puddling sowing
- Reduce water level at sowing
- Flash flood from 3rd to 7th day
- Once seedlings are established increase water level to a maximum of 1” during crop growth
- Increase water level to at least 2” during uprooting
3–7 days after transplanting cover the crop up to 80% of its height. This reduces transpiration.

From the stage of booting to 14 days after heading, more water is required because the shedding of pollen and the process of fertilization require very high moisture content in the air. Otherwise low moisture leads to sterile spikelets.

7–10 days before harvesting drain the field to harden the soil for good harvesting and also to hasten the drying and ripening of the rice grains.
Practice good water management for rice

- Maintain levees
- Use water carefully
- Avoid draining but allow to dry naturally whenever need arises.
- Avoid excess water use
- Give preference to crop at critical stages of water deficit.
- Stop irrigation at late tillering and wait until water disappears naturally and flood again
- Heavy clay soils – practice puddling to reduce percolation losses of water by 60%.
- Practice rotational flooding with 4 days interval
NERICAs and other upland rice varieties require irrigation water supplement in most part of the country.
Irrigation infrastructure O&M

- Canals for I & D
- Roads
- Vital in water management
- Maintenance
  - Cleaning and
  - Desealting
- WUAs
- Farm roads maintenance
Irrigation infrastructure
Thank you