

# DEVELOPMENT OF LOW COST MOISTURE METER FOR PADDY

## Introduction

Moisture determination is the most critical factor when storing and processing seed and grain. The cheapest commercial grain moisture meter costs approximately \$200 and is too expensive for most farmers and rice millers in developing countries.

Giving farmers and millers cheaper alternative in measuring moisture of grains can improve the drying and the milling process of paddy. Maximum head rice recovery is attained by milling at 14% M.C.

The need for a low cost moisture meter as a tool to improve milled rice quality was a challenge to Agricultural Engineering Unit of IRRI. A resistance type moisture meter was developed with an accuracy of +/- 1%. The meter costs less than \$30.

## Objective:

To provide millers and farmers cheaper but reliable tool in moisture determination of paddy for improve drying and milling operation.

## Methodology:

The accuracy of the IRRI moisture meter and two commercially made meters were compared. The moisture range considered in the test was 12 to 16 percent. Air oven-dry method was used as the standard basis for moisture determination.

For three replicates, three moisture levels of paddy (12%, 14% and 16% dry basis) were obtained. For each moisture meter, grains were randomly sampled a hundred times for moisture determination. Four, 10-gram samples were obtained for the air oven dry method (one replicate). Also, electrical resistance of the grains were measured using a digital multi-meter.

## Results:

A graph of moisture contents of paddy and its corresponding electrical resistances is shown in Figure 1. The 3 moisture meters being tested passed the specified + or - 0.5 percent accuracy over the 12 - 16 percent moisture range.

## Conclusion:

The low cost moisture meter developed by IRRI Engineering proved to be reliable and a cheaper alternative for moisture content determination for paddy. It is well within the specified accuracy especially at 14% moisture content (dry basis).

**Cheaper and Reliable Alternative**  
less than \$30



**Commercially Available**  
Moisture Meter > \$200



**Accuracy Acceptable**  
(within = +/- 0.5%)

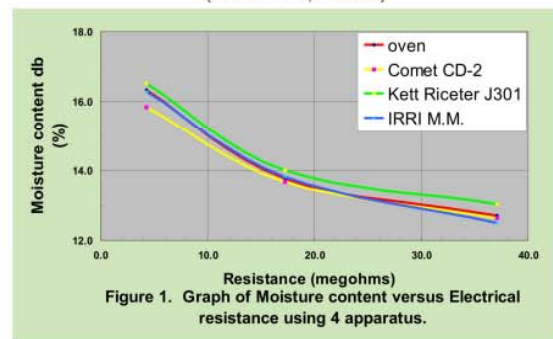


Figure 1. Graph of Moisture content versus Electrical resistance using 4 apparatus.

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