

Category	: International Rice Research Conference
Select Theme	: Food systems for the future
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Keyword 1	: Improved post harvest technologies
Keyword 2	: Agri-food systems and the food environment
Keyword 3	:
Title of Entry	: Development of Grain Probe Moisture Meter for Selected Grains
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Select only one type of presentation	: 15 minute oral presentation

Abstract : A frequency-based capacitance type grain probe moisture meter was developed, as a low-cost alternative tool for accurate and rapid moisture content measurement of paddy and corn grains in bags. The prototype unit consisted of a standard grain probe, a 100-gram capacity test chamber, a grain selector menu panel for control and measurement and a handle for ease of handling and sampling. Calibration models between frequency and dry oven method moisture contents were established and validated with a relatively high coefficient of determination (R²) of 0.94 and 0.97, for paddy and corn respectively. Laboratory and actual field testing conducted between moisture content readings of the grain probe moisture meter and standard reference oven method resulted to mean absolute error of 0.24 and 0.34 for paddy and corn respectively. Likewise, performance evaluation conducted revealed a mean percentage error of 3.9 percent for paddy and 3.2 percent for corn; an indication of a highly acceptable level of accuracy based on standards set by the National Institute for Standard and Technology (NIST) and United States Department of Agriculture – Grain Inspection, Packers and Stockyards Administration (USDA-GIPSA). Initial production cost of the prototype unit grain probe moisture meter was approximately US\$ 100.00, which is very competitive with existing imported popular brands of grain moisture meters with investment cost ranging from US\$ 800 to above US\$ 5,000. The prototype unit grain probe moisture meter has the advantage of simultaneously performing grain sampling and moisture content determination. Likewise, the grain probe moisture meter can potentially save time and effort in moisture assessment, ease in monitoring grain stocks during storage and moisture content validation before storage and milling; and most importantly ensure the procurement of quality grains. .

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