COLORADO DEPARTMENT OF AGRICULTURE

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Grain Moisture Meter Testing Program in Colorado

Although few in numbers compared to other commercial devices, grain moisture meters have a high monetary impact per device. The production value of corn, wheat, dry beans and oilseeds in Colorado in 2006 was approximately $448 million. Feedlots, ethanol plants, feed mills and grain elevators use moisture meters to determine the moisture content of the commodities that are purchased and received for storage. The weight of the commodity being delivered is adjusted based upon the moisture content as determined by the moisture meter. Inaccurate moisture measurements can have a significant economic impact to the commodity seller or purchaser.

Accurate moisture content determination is also important because moisture affects the commodities suitability for storage. When commodities are delivered, moisture content is tested to determine if it is higher than the limits for safe storage. If not carefully monitored and addressed, high moisture levels can cause commodities to heat in the bin, spoil and/or attract insects. Also, if a commodity, such as corn, is delivered with excessive moisture content, it must be dried before storage and this drying cost is passed on to the farmer.

In Colorado, commercial grain moisture meters are licensed by the Colorado Department of Agriculture's (CDA) Measurement Standards Section. Grain samples used as standards for moisture meter testing are provided by the CDA's Metrology Laboratory. These samples are prepared using the air oven reference test method developed by the USDA Federal Grain Inspection Service. Samples of several different lots of various commodities grown in Colorado are collected. The samples are cleaned mechanically and by hand to remove bugs and other foreign material that may affect the moisture stability of the commodity. Portions of the sample are dried and the percent moisture is calculated based upon the amount of weight loss.

Test results are then compared to the moisture value as determined by the laboratory's standard moisture meter. The air oven moisture level must not exceed 0.25% of the level reported by the laboratory's standard meter. Samples that pass this evaluation are used as the standards for device inspections.

Large Device Program inspectors typically perform annual grain moisture meter testing in the early spring. This provides the device owner with verification of meter accuracy before the earliest winter wheat harvest in July. If a device is rejected, adequate time is allowed for the

owner to have it repaired and for the inspector to do callbacks or follow-ups prior to the beginning of the harvest season. Last year, Department inspectors tested approximately 170 moisture meters.

For more information on the CDA's Grain Moisture Meter Testing Program, contact Ms. Diane Wise, lead metrologist for CDA's metrology laboratory.