

NIRT Equivalency Project Update



**GRAIN INSPECTION ADVISORY COMMITTEE MEETING
APRIL 7, 2015**

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United States Department of Agriculture
Grain Inspection Advisory Committee Meeting, April 2015

Background



- FGIS approved two moisture meter models based on UGMA technology in September 2012.
- FGIS has utilized one model line of NIR instruments for over 20 years.
- Could a process similar to that used for moisture meters be applied to the approval of multiple NIR instruments?



GIAC Resolution



June 2013 Resolution –

The Advisory Committee recommends that GIPSA initiate research to determine the feasibility of extending the theory of “equivalency” to multiple-constituent instruments in order to utilize standardized technology while maintaining accuracy and consistency in measurement of wheat protein.



Challenges to Approving Multiple Official NIR Models



- Customers demand highly accurate and consistent official NIR measurements.
- NIR calibrations are more costly and complex than UGMA calibrations to develop and maintain.
- Equalizing differences across NIR models to reduce sample-by-sample variation may be difficult.
- Replacing current official NIR units with new technology is potentially expensive.



NIR Equivalency Study – Cooperative Agreement



- Initiated in 2014 with Dr. Charles Hurburgh – Iowa State University

Objectives:

- Evaluate and analyze the accuracy and precision between existing National Type Evaluation Program approved instruments.
- Utilize multiple instruments from three manufacturers.
- Investigate calibration and standardization options to maximize accuracy and minimize differences between instruments.
- Compare the results to the performance of the current NIR technology in the official inspection system.



NIR Equivalency Study



- Limit to National Type Evaluation Program models and calibrations.



FOSS Infratec 1241



**Bruins
OmegAnalyzerG**



Perten IM9500



NIR Equivalency Study Update



- Presentation by Dr. Charles R. Hurburgh, Jr., Iowa State University.



NIR Equivalency – Next Steps



- GIPSA to benchmark performance of NIR in the current official inspection system.
- Iowa State University to complete sample / data analysis and meet with GIPSA.
 - July 2015
- GIPSA / Iowa State University to complete final report.
 - September 2015



Questions?

