Uniformity of Output-Trait Measurement
Charles R. Hurburgh, Jr.

Most new output-trait genetic products require sophisticated instrumentation to measure the trait of interest. The key to continuing acceptance of complex trait measurements is uniform and accurate treatment of similar products in a nationally standardized system. Structure, discipline, and third party accreditation/certification are needed to create standardized measurement calibration databases.

Of equal importance is the process by which commercial users of instruments can verify that their tests (using the uniform calibrations) are aligned with those of USDA-GIPSA (where applicable) or with the accepted market standard (for factors not measured officially). As new models are introduced for existing applications, there is a need to either assure that calibrations of new models are unbiased with respect to the existing models or to combine spectral databases into larger cross-model calibration pools.

Goals

1. Ensure that openly traded genetic products are accurately and fairly represented.
2. Promote uniform methods and presentations for decision data.

Objectives for FY07

1. Receive and confirm ability of release and near-release genetic material to be accurately analyzed in NIRS measuring systems. Expand organized NIRS calibration databases as new material or new reference values become available.
2. Create and maintain calibration databases for seven or more NIRS brands.
3. Develop protocols for the combination of either calibration equations or spectral databases across similar models of NIRS produced by different manufacturers.

Expected Outputs

- Expand databases for at least seven brands of NIRS and three new soybean factors (sugar profiles).
- Field test the industry standardization program,
- Draft methods for professional societies relating to NIR databases and standardization.
- Report on potential strategies for including multiple NIRS models in market channels without deteriorating overall accuracy or variability.
- Develop a similar standards program for corn.

Supporting Projects

- Uniformity in near-infrared measurements of soybean quality traits. Charles Hurburgh. American Oil Chemists Society and United Soybean Board, part IV
- Grain calibration services