

# Program Notice

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## NMR CALIBRATIONS

### 1. PURPOSE

This program notice announces the update of the Federal Grain Inspection Service (FGIS) Sunflower Seed Standards (SSS) used for Nuclear Magnetic Resonance (NMR) instruments.

The implementation of new SSS will revise the calibrations to more closely align NMR instruments with the FGIS standard reference method (Soxtec) of measuring oil content in sunflower seed.

### 2. BACKGROUND

NMR instruments are calibrated on a daily basis using both a high oil value and low oil value SSS. The oil values assigned to each SSS represent the high and low extremities of the respective oil calibration ranges.

The SSS, containing dried sunflower seed samples with established seed weights and NMR linoleic, mid-oleic and high oleic oil values, are prepared by FGIS' Technical Services Division and placed in hermetically sealed, argon filled, glass cells. The SSS are distributed to inspection laboratories that perform official NMR testing.

The current SSS used by the official laboratories were produced in 2000 and have exceeded their normal life expectancy. In addition, the fatty acid profile of the seed type used in the preparation of the 2000 standards is no longer representative of current crop profiles. Instrument to chemical reference comparison data from the 2002 and 2003 sunflower crop years show a calibration bias whereby the instrument tends to over predict the percentage of oil in test samples. For these reasons, FGIS has decided to replace the SSS used with NMR instruments in the official inspection system.

### 3. ACTION

The Board of Appeals and Review will furnish each official NMR testing location with new SSS to calibrate and standardize NMR instruments. Official personnel must standardize their NMR instruments with the new SSS prior to testing sunflower seed samples representing crop year 2004.

**4. QUESTIONS**

Direct any questions concerning the anticipated effect of the calibration change, and instrument standardization procedures to Sheldon Wishna, Inspection Systems Engineering Branch, Technical Services Division, at (816) 891-0473.

*/s/ John Giler*

David Orr, Director  
Field Management Division