

**COMMUNICATION TO THE EDITOR**  
**Relation between Ash and Protein Contents**  
**of Flour Mill Streams Determined with the**  
**InfraAlyzer and by Standard Approved Methods<sup>1</sup>**

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**TO THE EDITOR:**

Since the introduction of near infrared (NIR) instruments in 1971 for determining oil, protein, and moisture contents of grains and other products, much interest has been generated in their use by industries throughout the world. The NIR instruments presently on the market (Grain Quality Analyzer, Neotec Instruments, Inc., Rockville, MD 20852, and InfraAlyzer, Technicon Instruments Corp., Tarrytown, NY 10591) are primarily used for determining oil and protein contents of grains, oilseeds, and other products. Correlation coefficients reported between oil and protein contents determined with the NIR instruments and by accepted methods range from 0.92 to 0.99.

According to the instruction manual, the InfraAlyzer can be calibrated for constituents other than oil, protein, and moisture, including starch, fiber, and ash. However, we know of no publication reporting relations between these latter constituents as determined by the NIR instruments and by standard approved methods. We report the relation between ash and protein contents of flour mill streams determined by the InfraAlyzer and by AACC approved methods 08-01 and 46-10, respectively.

A total of 42 flour mill streams from our pilot mill were studied. The ash and protein contents of the samples ranged from 0.27 to 1.24% and from 10.0 to 19.4%, respectively. The log values of the InfraAlyzer and K-constants for ash

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<sup>1</sup>Mention of a trademark name or proprietary product does not constitute a guarantee or warranty of the product by the U.S. Department of Agriculture, and does not imply its approval to the exclusion of other products that may also be suitable.

and protein contents were determined by use of the procedures described in the instruction manual for the instrument. Calibration of the instrument for ash content required a modification of the matrix board.

Correlation coefficients between ash and protein contents determined with the InfraAlyzer and by AACC approved methods were 0.968 and 0.998, respectively.

We are now studying additional samples as well as wavelength response to determine if the results from the instrument for ash content can be improved. Studies relating data from the InfraAlyzer to flour color determined with the Agtron are in progress. Results will be reported later.

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