

## Charles R. Hurburgh, Jr.

Professor, Agricultural and Biosystems Engineering  
Professor, Food Science and Human Nutrition  
(Courtesy)

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### Education

Ph.D., Agricultural Engineering, 1981  
Iowa State University

M.S., Agricultural Engineering, 1980  
Iowa State University

B.S., Agricultural Engineering, 1973  
Iowa State University

### Honors and Awards

Grain Elevator and Processing Society,  
Industry Leader Award, 2002

Andersen Research Award, 2000

Pro Farmer Man of the Year-Iowa, 1998

### Recent Publications

Roussel, S.A., C.L. Hardy, C.R. Hurburgh, Jr.,  
and G.R. Rippke. 2002. Detection of Roundup  
Ready™ soybeans by near-infrared spectroscopy.  
*Applied Spectroscopy* 55(10): 1425-1430.

Roussel, S.A., G.R. Rippke, and C.R. Hurburgh,  
Jr. 2002. Comparison of PLS, locally weighted  
regression and artificial neural networks for grain  
quality assessment using NIR spectrometers.  
*Applied Spectroscopy* (In press).

Siska, J., C.R. Hurburgh, Jr. and P. Siska. 2002.  
The standardization of near-infrared instruments  
using master selection and Wiener filter methods.  
*J.N.I.R.S.* 9:97-105.

Siska, J., C.R. Hurburgh, Jr. and P. Siska. 2002. The  
impact of engineering parameters on the accuracy  
of calibration transfer. *J.N.I.R.S.* 9:102-116.

Chang, Ching-Wen, D. Laird, M.J. Mausbach, and  
C.R. Hurburgh, Jr. 2001. Near-Infrared Reflectance  
Spectroscopy-Principal Component Regression  
Analysis of Soil Properties. *Soil Sci. Soc. Am. J.*  
65:480-490.

Singh, S., L.A. Johnson, L.M. Pollak, and C.R.  
Hurburgh, Jr. 2001. Compositional, physical and  
wetmilling properties of accessions used in the  
germplasm of maize project. *Cereal Chemistry*  
78(3):330-335.

Singh, S., L.A. Johnson, L.M. Pollok, and C.R.  
Hurburgh, Jr. 2001. Heterosis in compositional,  
physical and wetmilling properties of adapted X  
exotic corn crosses. *Cereal Chemistry* 78(3):336-341.

Steenhoek, L.A., M.K. Misra, C.R. Hurburgh, Jr.,  
and C.J. Bern. 2001. Implementing a computer  
vision system for corn kernel damage evaluation.  
*Transactions of the ASAE* 17(2):235-240.

Millmeir, A.C., J. Lorimor, C. Hurburgh, C. Fulhage,  
J. Hattery, and H. Zhang. 2000. Near-infrared  
sensing of manure nutrients. *Transactions of the  
ASAE* 43(4): 903-908.



### Extension

Dr. Hurburgh is the professor-in-charge of the Iowa Grain Quality Initiative (GQI), a cutting-edge grain quality information (and research) program. Current issues of GQI include public and private development of biotechnology policies, standards, marketing incentives, and supply organizations. The GQI also is developing country grain elevator management practices, TQM management, and ISO certification for agriculture.

### Research

Dr. Hurburgh is also the professor-in-charge of the Grain Quality Laboratory, which provides analyses of the chemical and physical properties of grain, primarily corn and soybeans. This lab is recognized as a world leader in basic measurement science. Dr. Hurburgh's research interests include the physical and chemical properties of biological materials, chemical and electronic instrumentation, near-infrared reflectance analysis and sensors, chemometrics, metrology, and statistics of very large databases.

### Other Professional Interests

The Iowa Grain Quality Initiative and the Grain Quality Laboratory provide leadership for rapidly growing specialty grain markets. By pursuing ISO 9000 and other certification systems, U.S. food producers can achieve important competitive advantages. Additionally, precision sensing combined with rigorous quality control documentation can be used to restructure markets and to meet more individualized needs.