IOWA STATE UNIVERSITY
Agricultural and Biosystems Engineering

Manjit K. Misra

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Education
Ph.D. Agricultural Engineering, 1978
University of Missouri, Columbia

M.S. Agricultural Engineering, 1973
University of Missouri, Columbia

B.S. Agricultural Engineering, 1971
Orissa University of Agricultural Technology,
Orissa, India

Honors and Awards
Appreciation Plaque for contribution to the formation of the National Seed Health System, American Seed Trade Association, 2002
Editorial Board, Seed World, 2002-present Scientific Advisory Council, American Seed Research Foundation, 1991-present.
Plaque of appreciation and $25,000 for graduate student support in Seed Science for Program Chair of Soybean Seed Research Conference, The American Seed Trade Association Convention,
2001 (this is the largest gathering of seed professionals in the world—about 2500)
Superior Engineering Extension Award, College of Engineering, ISU, 2001

Recent Publications
Wolt, JD, Y-Y Shyy, P Christensen, KS Dormin, M Misra. 2005 "Quantitative exposure assessment for confinement of maize biogenic systems," Environmental Biosafety Research, vol 3, pp 183-196, Also at http://www.edpsciences.org/10.1051/ebr:2005004

Adam K, M. Misra and D. Thoreson. Removal of Ergot from Barley by Density Separation, 2004 Applied Engineering in Agriculture, Vol. 20(1):39-43

Wolt, JD, Y-Y Shyy, P Christensen, KS Dormin, M Misra. 2004 Quantitative exposure assessment for confinement of maize biogenic systems. Environmental Biosafety Research 3:183-196.

Rukunudin, I. H., Bern C. J, Misra, M., and T.B. Bailey. 2004. Carbon Dioxide Evolution from Fresh and Preserved Soybeans, Transactions of the ASAE, Vol. 47(3): 827-833

Adam K, M. Misra and D. Thoreson. 2004. Removal of Ergot from Barley by Density Separation. Applied Engineering in Agriculture, Vol. 20(1):39-43

Non-Refereed Journal Articles
Christensen, P., S. Goggi, M. Westgate, J. Wolt, and M. Misra. 2005. "Seed Biology" Chapter in the USDA-APHIS Environmental Impact Statement (EIS) Handbook.

Paul J. Christensen, Manjit K. Misra, Satish Rai, Yuh-Yuan Shyy, and Jeffrey Wolt. A Management Manual for Confined Production Processes for Non-Food Corn.

Research

A new device was invented for measuring the flow of seeds, grains, and other granular flow materials. The invention consists of a specially designed internal flow chamber section, a load cell arrangement, and a digital display unit. The electronic hardware assembly and software were developed to acquire, condition, and calibrate the signal from the load cell to flow rate. The device measures flow in real time and can be easily retrofitted in an existing seed or grain operation. Laboratory tests under static conditions showed that this device could precisely measure the flow rate in real time with an R2 of 0.9944, 0.9955, and 0.9880 for small-, large, and mixed-sized soybeans, respectively. Germination tests and the tests for mechanical damage showed that the device was gentle to seeds. Work is underway to adapt, build, and install the device in a seed facility and test its operation under real dynamic operating conditions, making the device more robust and thus more attractive for prospective licensees to commercialize the system and technology.

Other Professional Interests

Iowa State's seed engineering research and extension program is recognized as a leader nationally and internationally. The clientele for the program are Iowa seed-related industries, the United States, and the world, in the order mentioned. The group is generally progressive, influential, specialized, competitive, and hungry for information that is accurate, up-to-date, and effective. The Iowa Seed Association, the seed associations in other states, the Iowa Crop Improvement Association (seed certification agency in Iowa), and the American Seed Trade Association are also included in the clientele designation. Research and extension programs are planned and delivered to solve both the shortterm and long-term problems of these clients in an innovative, timely manner. The center conducted programs in 54 countries during the last ten years.