

## Resume of Accomplishment of Manjit K. Misra

I. Name and Contact Information	Page 2
II. Education	Page 2
III. Professional Experience	Page 2
IV. Accomplishments	Page 3
A. Current Administrative Duties	
Global Food Security Consortium	Page 3
Seed Science Center	Page 3
Biosafety Institute for Genetically Modified Agricultural Products (BIGMAP)	Page 4
B. Research	
External Grants, Contracts, and Gifts	Page 5
Graduate Students/Undergraduates/Visiting Scientists/Post-Docs	Page 10
Reviewer and Editorial Activities	Page 11
Patents/Technology Transfer	Page 11
C. Teaching/Curriculum Activities	Page 12
D. Extension/Outreach Activities	Page 13
E. International Activities	Page 15
F. Selected Invited Presentations	Page 16
G. Committee Activities	Page 18
H. Professional Improvement Activities	Page 20
I. Awards, Honors, and Recognitions	Page 20
J. Publications	Page 21

## **I. Name and Contact Information**

### **Manjit K. Misra**

Director, Global Food Security Consortium

Director, Seed Science Center

Director, Biosafety Institute for Genetically Modified Agricultural products (BIGMAP)

Professor, Agricultural & Biosystems Engineering

Iowa State University, Ames, Iowa 50011-3228

Phone: 515-294-6821, Fax: 515-294-2014, E-mail: mkmisra@iastate.edu

## **II. Education**

<b><u>Degree</u></b>	<b><u>Institution</u></b>	<b><u>Major Field</u></b>	<b><u>Dates</u></b>
Ph.D.	University of Missouri, Columbia	Ag. Engineering (Processing)	1973-78
M.S.	University of Missouri, Columbia	Ag. Engineering (Soil and Water)	1971-73
B.Sc.	Orissa Univ. of Ag. & Tech., India	Ag. Engineering	1966-71

## **III. Professional Experience**

<b><u>Employer</u></b>	<b><u>Position and Nature of Work</u></b>	<b><u>Dates</u></b>
Iowa State University	Director, <i>Global Food Security Consortium</i>	2013-Present
	Endowed Chair, <i>Seed Science, Technology &amp; Systems</i>	2013-Present
	Director, <i>Seed Science Center</i>	1991-Present
	Founding Director, <i>Biosafety Institute for Genetically Modified Agricultural Products (BIGMAP)</i>	2002-Present
	Dean's Endowed Chair of Distinction, College of Agriculture & Life Sciences	2008-2013
	Director, <i>Institute for Food Safety &amp; Security</i>	2005-2008
	Professor, Associate Professor and Assistant Professor Agricultural and Biosystems Engineering (ABE) and Department of Plant Pathology, Seed & Weed Sciences	1979-1991
U. of Missouri	Post-doctoral Research Associate	1978-79
U. of Missouri	Graduate Research Assistant	1971-78

## **IV. Accomplishments**

### **A. Administration**

#### **Global Food Security Consortium**

The Global Food Security Consortium is a worldwide initiative centered at Iowa State University bringing interdisciplinary, comprehensive, and innovative approaches to address the problems of global food insecurity. Funded by the Presidential Initiative, the consortium is a worldwide network of 16 organizations including 6 land-grant universities, 5 international research centers, 4 private sector companies and one non-governmental organization. We have brought together approximately 60 experts from these organizations with expertise in Plant and Animal Sciences, Climate Science, Engineering, Veterinary Medicine, Food Science and Nutrition, Social Sciences and Economics. Anticipated impacts are to raise the research profile of ISU, procure significant funding, develop new knowledge, transfer the results to grow the value of industry for economic impact, be a magnet to attract and train graduate students, enhance undergraduate student research internships with partners both here and abroad, enhance gender equity through increased economic opportunities for women, and make policy impacts through interactions with funding agencies and foundations to help drive the debate and influence research agendas.

#### **Seed Science Center**

I accepted the position of Director of the Seed Science Center on August 1, 1991. With this responsibility, I provide leadership to over 135 faculty, staff, graduate students, and 50-60 undergraduate students. The Seed Science Center is a state-of-the-art facility with 45,000 square feet of space.

The Center's seed laboratory is presently the largest public seed laboratory in the world, testing samples of more than 350 seed species annually. The Center also conducts seed health testing on more than 300 seed-borne pathogens. *This testing is instrumental in the export of \$1B of U.S. seed each year.*

In the international arena, the Seed Science Center has conducted programs in more than 80 countries during the past twelve years. Currently, the Center is conducting programs in 30 countries in Africa. These programs are funded by the USDA, the World Bank, the United Nations Development Programme (UNDP), USAID, and other multilateral donor agencies. The Center has also established a Seed Enterprise Management Institute in Africa with funding from the Bill & Melinda Gates Foundation.

Shortly after my appointment, the Seed Science Center formed an Advisory Council made up of members from local and national seed industry, the World Bank, USAID, various associations and foundations. With input from the Council, we increased Center programs from four to eight areas. New Center program areas added include: Global Seed Program, a Computer and Information Technology Program, a DNA Seed Quality Assurance Program, and a new curriculum on Seed Technology and Business Management. The Center's annual budget has also tripled—with 85 percent of the income generated from external sources.

The Center has a strong focus on developing strategic partnerships. Four memoranda of agreements have been signed—one domestic and three international. This has resulted in significant increases in research and economic development activities.

Each year the Seed Science Center conducts approximately 20 workshops for domestic and international clients. These workshops focus on latest technology to enhance the ability of the industry to supply quality seeds. The Center also publishes a newsletter that is mailed to over 1,500 individuals in 40 countries.

**As a result of these efforts, the Seed Science Center is now recognized as the Center of Excellence in seed science, technology and systems both nationally and internationally.** Its national prominence is exemplified by the fact that the USDA has designated the Center to administer the National Seed Health System (NSHS). Our International excellence is demonstrated by the fact that the Food and Agricultural Organization (FAO) signed an agreement with the Center to jointly develop science-based seed policies and systems worldwide.

*These accomplishments are not my individual accomplishments, but are instead the combined accomplishments of Seed Science Center personnel working together as a collaborative team. My main contribution is fostering and facilitating an environment of team spirit and trust that motivates Center faculty and staff to higher levels of productivity. This is the type of leadership I plan to bring to the VPR position.*

### **Biosafety Institute for Genetically Modified Agricultural Products (BIGMAP)**

The Biosafety Institute for Genetically Modified Agricultural Products (BIGMAP) is a national institute that serves as an unbiased and credible source of science-based information on biosafety issues. Working with a group of faculty leaders, I wrote the concept paper for the Institute and refined it with input from a number of stakeholders. The concept was proposed by ISU to Congress. I championed the concept to the Iowa delegation and various legislative and private groups. The concept was then authorized in the Farm Bill, and ISU received a congressional appropriation. The Board of Regents approved the Institute, and I was appointed as Founding Director in 2003.

BIGMAP develops scientific tools and methodologies to analyze the risks and benefits of genetically modified plant and animal products. The Institute also provides strategies for mitigating risks in order to safeguard consumers and the environment. Faculty and staff at the Institute communicate the results of these activities to key policy and regulatory groups, private entities, and the public. In a short time, the Institute has become a credible authoritative source of information on biosafety issues. The institute was able to recruit prominent individuals to the faculty ranks including Tom Vilsack (the two-time governor of Iowa and the current Secretary of Agriculture), Scott Hurd (the deputy undersecretary of Food Safety, USDA) and David Lambert who served in President Obama's Agriculture Council. The annual budget of the Institute is approximately \$2 million most of which is procured from external sources.

## B. Research

### External grants, contracts, and gifts (where I am a PI or a Co-PI)

#### *Pending:*

A Center of Excellence in Seed Science, Technology, and Systems for India. Concept note submitted to The World Bank. The World Bank has selected the concept and invited a full proposal, \$7M, PI.

#### *Projects funded during the last 10 years:*

Partnership Between the University of Ghana and Iowa State University for Development of a Post-graduate Curriculum in Seed Science and Technology. The World Bank. \$504,620. (\$297,708 ISU share), 2015-2019. PI

Ghana—Feed the Future Agriculture Technology Transfer. International Fertilizer Development Center. \$1,660,066, 2013-2018. PI

Review of Existing Seed Sector-Related Programs in African Universities. The Bill & Melinda Gates Foundation. \$193,204, 2014. PI

USAID-Ghana Agricultural Policy Project, Chemonics. \$1,244,535, 2014-2018. Co-PI

Global Food Security Consortium. Presidential Initiative for Interdisciplinary Research, Iowa State University, \$1,245M (2013-2016), PI

Agricultural Technology Transfer in Ghana, International Fertilizer Development Center, USAID, \$15M (ISU share is \$1.6M), 2013-2017, PI

The Leroy and Barbara Everson Seed Research Symposium Series, \$125,000, (2013-2017), PI

Seed Policies Enhancement in African Regions (SPEAR), The Bill & Melinda Gates Foundation, \$1,494,397, 2010-2012, Co-PI

International Food Policy Research Institute (IFPRI), Program for Biosafety Systems (PBS), Sub-agreement from USAID, \$275,000, 2010-12, PI

Seed Policy Harmonization in the Common Market for Eastern and Southern Africa (COMESA) Region: \$269,000, African Seed Trade Association (AFSTA), 2011-13, Co-PI

Development of White Papers on Key Issues Related to APHIS Environmental Analysis, USDA Cooperative Agreement, \$150,000, 2011-13, PI

Establishment of a Seed Enterprise Management Institute in Africa, Alliance for a Green Revolution in Africa (AGRA), \$4,566,617, 2010-2013, Co-PI

Risk and Benefit Analysis of Genetically Modified Agricultural Products, The National Institute for Food and Agriculture, USDA, \$1,161,028, 2005-11, PI

Food and Fuel Initiative, The National Institute for Food and Agriculture, USDA, \$816,176, 2008-11, PI

Bio-security Platform, Biosciences Alliance of Iowa, \$721,000, 2006-09, PI

Seed Science Center and BIGMAP Expansion Fund, \$2M, 2006, PI

BIGMAP Endowed Chair for “Policies and Regulations,” \$1.5 M, 2006, PI

Risk Analysis Minor Endowment, \$1 M, 2006, PI

Seed Science and Business Curriculum Endowment, \$1.7 M, 2006, PI

Seed Science Center Extern Program Endowment, \$1.5 M, 2006 PI

Commercialization of a Continuous In-line Flow Meter, Grow Iowa Values Fund, \$74,480, 2006-08, PI

The Iowa Gold Livestock Traceability Project, Global Vet Link, \$30,000, 2006-07, PI

Iowa Livestock Traceability Project, Biosciences Alliance of Iowa, \$180,000, 2005, PI

A Global Curriculum on Seed Technology and Business Management, WOI Distance Education Initiative Grant, \$150,000, 2005-2008, PI

Magnetic Capture Hybridization and Real-time Multiplex PCR for the Detection of Seed-borne Pathogens, USDA Bio-security Program, \$900,000, 2004-08, PI

Science-based Risk Assessment for Genetically Modified Non-food Crops, a total of \$301,000, i.e. from Iowa Department of Economic Development (\$246,000), IA Co-op (\$50,000), Ag States (\$5,000), 2003-06, PI

Investing in People and the Future of the Seed Industry—An Endowment for Graduate Student Seed Scholarships, various donors, \$1.2 M, 2004-08, PI

Risks and Benefits Associated with Genetically Modified Products, Academic Enhancement Initiatives, Iowa State University, \$400,000, 2002-04, PI

Quantitative Risk Analysis of Plant-Made Pharmaceuticals and Industrials, Process Management for Biosafety Policies and Regulations, USDA Federal Support, \$178,000, 2004-05, PI

Harmonization of Phytosanitary Regulations for Seed Trade/Asia-Pacific Regions, USDA-FAS, \$101,200, 2002-03, Co-PI

Seed Quality Assurance Through Process Management for Yugoslavia, USDA-FAS, \$35,802, 2002-03, Co-PI

Validation of Seed Flow Measurement Leading to Commercialization, Center for Advanced Technology and Development (CATD), \$24,687, 2002-03, PI

Center for Food Safety and Public Health, Center for Disease Control, \$1,000,000, 2002-03, Co-PI

Seed Science Undergraduate Scholarships Endowment, Iowa Seed Association, \$300,000, 2000-on-going, PI

Seed Damage in a Sidewall Return Drag Conveyor, Sidney Mfg. Company, \$9,254, 2000-01, PI

Training Program for Zimbabwe Seed Scientist, USDA, \$7,425, 2000, Co-PI

Evaluation of a Chlorophyll Seed Sorter, Satake Company, \$20,000, 2000, PI

Seed Science Center Endowments (Endowed Chair, Visiting Scientists Program, Molecular Seed Research), \$5,000,000, 1999, PI

Seed Technology Training for Asia and Pacific Seed Delegates, USDA, \$23,118, 1999-00, Co-PI

Seed Training for Cochran Fellows from Russia, Ukraine, Georgia, and Armenia and Regional Harmonization of Seed Policies, USDA, \$51,485,1999, Co-PI

Soybean Seeds Infected with *Sclerotinia Sclerotiorum*, Iowa Soybean Promotion Board, \$29,420, 1998-99, Co-PI

Agribusiness Development Support Project in Kenya, USAID. \$300,000, 1998-2002, Co-PI

Harmonization of Seed Policies and Regulations in Central America, Regional Organization for Plant and Animal Health (OIRSA), \$33,900, 1998-99, Co-PI

Technology for Measurement of Depth in Grain Bins, CATD and Tristate, \$30,235, 1998-01, PI

New Technology for Seed Flow Measurement, Asgrow Seed Company and CATD, \$31,794, 1997-99, PI

Ukraine Seed Development Project, The World Bank, \$4,800, 1997, Co-PI

Seed Science Center Facilities Improvement Endowment (high-technology training room and laboratories), \$700,000, 1997-99.

DNA Quality Assurance Laboratory. \$300,000, (various seed companies and associations), 2004, PI

Forsberg Gravity Table Operation Videotape, Pioneer Hi-Bred International, \$6,000, 1997, PI

Technical Assistance and Training for China Seed Sector, USDA, \$129,915, 1996, Co-PI

Low Germination Values for Seed Soybeans, Iowa Soybean Promotion Board, \$15,000, 1995-96, Co-PI

Training Program for Ukrainian Seed Companies, USDA, \$318,740, 1995-00, Co-PI

Cold-Test Problems for Seed Soybeans, Iowa Soybean Promotion Board, \$15,000, 1995-96, Co-PI

Technical Assistance and Training to National Seed Service of Nigeria, The World Bank, \$152,900, 1993-95, Co-PI

International Training Program on Seeds, Mississippi State University, \$15,175, 1993, PI

Training Program for Egyptian Seed Scientists, San Diego State University Foundation, \$158,727, 1993-94, PI

Damage to Seed by Augers of Various Materials, Lundell Corporation, \$4,250, 1993, PI

Instrumentation for Biomaterials Lab, National Science Foundation, \$67,702 (plus match by ISU), 1993-97, Co-PI

Computerized Seed Cleaner Based on Laser and Photoelectric Technology, Center for Advanced Technology Development, \$143,000, 1992-94, PI

Seed Improvement Training Program, Mississippi State University, \$6,550, 1992, PI

W-168 Regional Seed Quality Project, Regional Funds, \$156,000, 1991-03, PI

Performance of a Macox Treater, Wilbur-Ellis, \$5,000, 1991-92, PI

Graduate Assistance in Areas of National Need, U.S. Department of Agriculture, \$108,000, 1991-96, Co-PI

Image Integrated Computer Cataloging of Corn Germplasm, U.S. Department of Agriculture, \$190,246, 1991-98, PI

Preservation of High-moisture Corn with Rovral, Rhone-Poulenc Ag Co., \$38,000, 1991-93, Co-PI



Effect of Fungicide Treatment on Carbon Dioxide Evolution of High-moisture Corn, Rhone-Poulenc Company, \$25,000, 1990-92, Co-PI

Undergraduate Research Experiences in Agricultural and Food Engineering, National Science Foundation, \$171,856, 1990-94, Co-PI

Undergraduate Research Experience in Agricultural and Food Engineering, NSF, \$83,300, 1990-91, Co-PI

Carbon Dioxide Evolution of Fungicide-treated Corn, Rhone-Poulenc Co., \$25,000, 1990-92, Co-PI

Ultrasound and Video Imaging Technology for Quality Determination of Agricultural Products, U. S. Department of Commerce, \$194,900, 1990-92, PI

Applying Soybean Oil and Fungicide to Improve Storability of Corn, Rhone-Poulenc Company, \$137,000, 1989-1993, PI

Field Testing of Soybean Oil and Fungicide to Improve Storability of Corn, Rhone-Poulenc Company, \$125,000, 1989-93, Co-PI

Computer Vision for Corn Germplasm, Plant Introduction Station (USDA), \$137,000, 1988-94, PI

Conditioning of Shrivelled Soybean Seed, Department of Agronomy, \$2,800, 1988-89, PI

Application of Soybean Oil and Fungicide for Dust and Mold Control, American Soybean Association, \$36,940, 1987-89, Co-PI.

Microcomputer Control of a Gravity Table, Pioneer Hi-Bred, Inc., \$73,384, 1987-89, PI

Ultrasound and Computer Vision Technology for Identifying Seed Corn Kernels with Split Coleoptiles, Pioneer Seed Company, \$3,000, PI

Gravity Separation of Seed Corn, Forsberg Company, \$2,800, 1985-86, PI

Acoustic Properties of Seeds and Grains, Iowa High Technology Council, \$196,025, 1984-87, PI

Computerization of an Air-screen Seed Cleaner, Crippen Manufacturing Company, \$78,199 plus equipment (\$18,000 value), 1984-86, PI

Soybean Seed Handling, Iowa Crop Improvement Association, various conveyor manufacturers, \$27,789 plus equipment, 1984-86, PI

Microcomputer Control in Seed Conditioning, Carter-Day Company, \$32,146, 1983-84, PI

Soybean Seed Quality During Conditioning, Iowa Crop Improvement Assoc,  
\$37,596, 1981-83, PI

### Graduate Students/Undergraduates/Visiting Scientists/Post-Docs

#### *Graduate Students:*

<b>Name</b>	<b>Degree</b>	<b>Year</b>	<b>Department</b>	<b>Role</b>
Valacia Lakovoglou	Ph.D	2006	Forestry	POS Member
Audrey Hansen (ABE)	M.S.	2004	ABE	POS Member
Nicole Waterland	M.S.	2004	Horticulture	POS Member
Adriana Murillo-Williams	M.S.	2004	Plant Pathology	POS Member
Ruth Hein	M.of Ag.	2002	ABE	POS Member
Amy Wilke	M.S.	2002	Plant Pathology	POS Member
Li Gang	M.S.	2001	Horticulture	POS Member
Nezar Samarah	Ph.D.	2000	Agronomy	POS Member
Claudia Totir	M.S.	2000	Plant Pathology	POS Member
Eileen Feilmeier	M.S.	1999	Agronomy	POS Member
Kelly Gillette	M.S.	1999	Plant Pathology	POS Member
Ibni Rukunudin	Ph.D.	1997	ABE	POS Member
Mitsuru Tsubo	M.S.	1997	Agronomy	POS Member
Antonio Perdomo	Ph.D.	1995	Agronomy	POS Member
Ron Walcott	M.S.	1995	Plant Pathology	POS Member
Prince Dugba	M.S.	1994	ABE	POS Member
Slaven Aljinovic	M.S.	1993	ABE	POS Member
Cassandra Biggerstaff	M.S.	1999	Plant Pathology	POS Member
Loren Steenhoek	Ph.D.	1998	ABE	Major Professor
Sulaiman Al-Yahya	Ph.D.	1991	ABE	POS Member
Suranjan Panigrahi	Ph.D.	1991	ABE	Major Professor
Lal Pandya	M.S.	1991	ABE	Major Professor
Jorge Risse	M. S.	1990	ABE	Major Professor
Mike Potter	M. S.	1989	ABE	Major Professor
Leopold Baudet	Ph.D.	1987	ABE	Major Professor

#### *Undergraduate Students' Research:*

Advised or co-advised undergraduate students in research projects. **Six students won national/regional awards.** They are as follows:

**Nick Krueger** won **first place nationally** in the student paper competition (2002) at the American Society of Agricultural Engineers (ASAE) meeting with research on "Gravity Separation of Commodity Corn."

**Jasmine Zingler Bootman** won **second place nationally** and \$1,000 at the Society of Women Engineers National Conference in 2000 with a paper titled "Storability of 16 Varieties of Shelled Corn."

**Amy Van Dyke** won **first place nationally** and \$1,500 in the Society of Women Engineers Technical Paper Competition in 1993 with a paper titled "Mechanical Damage to Soybean Seed During Bag Handling."

**Brian Fischer** won **first place in the Mid-Central Region** Student paper competition in 1992 with a paper titled “ Effects of Brush Machine Adjustments on Physical Properties of Crambe and Oats.”

**Mitch Hushak** won **second place** in the American Society of Agricultural Engineers student paper competition in 1985 with a paper titled "Performance of a Revolving Screw Conveyor."

**Alan Gaul** won **second place** in the American Society of Agricultural Engineers student paper competition in 1983 with a paper titled "Variation of Physical Properties of Gravity Separated Soybeans".

**Visiting Scientists/Post-docs:**

James Aketch Okeno (Kenya, 2008); Paul Christensen (2003); Adelaida Harris (Argentina, 2003); Mick Turner (England, 2002); Yuh-Yuan Shyy (1985-91); Yehia Ibrahim (Egypt, 1992-93); Ahmed Zaid (Egypt, 1992-93); Sujit Jain (India, 1991); Anwar Kazi (Pakistan, 1992); Pervez Khan (1992); S. Jain (India,1990); Y. Chung (Korea,1984); and Oje Kayode (Nigeria, 1983).

**Reviewer and Editorial Activities:**

Grant review panel for American Seed Research Foundation (1991-present), reviewed approximately 30 proposals every three years and recommended funding priorities

Editorial Board, *Seed World*, 2002-present

Reviewed proposals annually for Plant Science Institute Grants Program, 2000-12

Reviewed proposals annually for Institute for Food Safety and Security Grants Program, 2006-08

Reviewed papers for publication in the *Transactions of the ASAE* (and selected papers for the technical paper award by the ASAE), for publication in the *Journal of Seed Technology*, Association of Official Seed Analysts, for publication in *Cereal Chemistry*, and for publication in the *Journal of Ag. Economics*

Reviewed proposals for The World Bank National Agricultural Technology Project in India and recommended funding

Reviewed proposals for the Illinois Soybean Program Board and recommended funding priorities

**Patents/Technology Transfer:**

Developed six new technologies for which patents were obtained. They are:

1. Shyy, Y. and M. Misra, “**Continuation in Part: Method of Measuring Flow Rate of Flowable Material under Continuous Flow Conditions, and an In-line Continuous Flow Meter.**” U.S. Patent 6,973,843, 2005.

2. Shyy, Y. and M. Misra, “**Method of Measuring Flow Rate of Particulate Material under Continuous Flow Conditions, and an In-line Continuous Flow Meter.**” U.S. Patent # 6805014 B1. 2004.
3. Misra, M. and Y. Shyy. “**Acoustic and Video Imaging System for Quality Determination of Pharmaceutical Products.**” U.S. Patent # 5,422,831 with 22 claims awarded June, 1995.
4. Misra, M. and Y. Shyy. “**Acoustic and Video Imaging System for Quality Determination of Agricultural products.**” U.S. Patent # 5,309,374, awarded May, 1994.
5. Misra, M. and Y. Shyy. “**Methods and Means for Gravity Table Automation.**” U.S. Patent #5,024,334, June, 1991.
6. Misra, M. and Y. Shyy. “**Automation of an Air-screen Cleaner.**” U.S. Patent #4,991,721, September, 1990.

In addition, a patent disclosure has been made: “**Method and Apparatus for Detection of DNA and DNA Products.**” Disclosure to ISU Research Foundation, docket number 03408. Another new technology for “**Digital Imaging System Development for Corn Germplasm Accessions,**” was made available in the public domain and no patent application was filed (because it was a USDA-supported project). The USDA is using the new technology at the present time for their operation.

Commercialization of the intellectual properties (IP) is a priority for Iowa State University for spurring economic development. So, the IP procured in patents 1 and 2 are being commercialized through the formation of a start-up company called FloMetrix. I serve as its President. With this responsibility, I have gained additional business skills (raising funds from investors, R&D, quality control, and marketing etc.) that are important to the success of a business in addition to technology procurement.

### C. Teaching/Curriculum Activities

***Developed a new graduate curriculum titled “Global Curriculum on Seed Science and Business Management”:***

This highly innovative curriculum combines science with business acumen to develop future leaders in the seed industry. Further, the curriculum is delivered via distance education technology, thus taking the university to the world and bringing the world to the ISU campus. The program is self sufficient, i.e. the program is paid for by tuition fees.

In July 2007, the board of regents approved the curriculum and Iowa State offered the first class in its new global master’s degree in Seed Technology and Business (STB). The interdisciplinary degree is a cooperative effort between the Colleges of Business and Agriculture and Life Sciences. Because classes are offered through the Internet, working professionals can and do participate.

*Currently, 55 graduate students from 8 countries are enrolled in this program that integrates technical and business subjects into a single graduate program for seed industry management that does not exist anywhere else in the world.*

***Facilitated Undergraduate and Graduate Curriculum:***

An undergraduate secondary major in Seed Science is offered at ISU. I facilitate this interdisciplinary/interdepartmental Seed Science curriculum. To attract undergraduate students to Seed Science and to the seed industry, I provided leadership in raising an endowment through the Iowa Seed Association for providing scholarships for students with a Seed Science interest. A total of \$300,000 has been raised to date as an endowment. From the interest, approximately 10-12 undergraduate scholarships of \$1,000 are awarded annually.

Both Ph.D. and M.S. degree programs are also offered with Seed Science emphasis through the primary major. To enhance this program, I initiated an “Investing in People” fundraising campaign through the Iowa Seed Association. The goal for this campaign was \$1 million dollars, and the target has been exceeded.

***Teaching of classes:***

I developed a new graduate course “Seed Technology & Business # 539” titled “Seed Conditioning Management” and am teaching the course via distance education technology. I am teaching the course this semester with graduate students (from 8 countries) enrolled in the course.

I also taught classes on “Seed Conditioning & Handling” and conducted laboratory exercises in AE 110, AE 214, AE 469, AE 648, AE 302, AE 437/537, Agron/Hort 338, Agron 237, Ag Mech 464X, PP 594, and an ABE open freshmen engineering course.

***Implemented “Operation Student Connection”:***

This is a national program designed by the American Seed Research Foundation with the intent to support 20 graduate students annually to travel to the American Seed Trade Association Conference. A further objective is to connect graduate students with prospective employers. I have been involved from the beginning in designing and refining the program. Two ISU graduate students have participated in this program every year since 2001.

**D. Extension/Outreach Activities**

I initiated a completely new Extension program at Iowa State University on seed handling and have built it to the extent that it is recognized as an excellent program both nationally and internationally. A few selected activities are highlighted below:

***i) Developed and conducted seed conditioning workshops:***

I initiated this outreach program in 1982 and the workshops continue to be extremely popular with the seed industry as evidenced by the fact that five workshops were conducted in 1984, seven in 1987, and since then we continue to conduct an average of 10 workshops annually for domestic seed companies. Workshops are also now conducted at the site of domestic seed companies and for international clientele. In 2009 alone, a total of 270 individuals from 22 states and

four countries (Argentina, Mexico, Canada, and the U.S.) attended the workshops and received in-depth training in small group settings.

*ii) Responded to critical need:*

An example is the workshop on “**Soybean Rust**” which was conducted in September 2002. It is estimated that this disease can cause losses of up to \$10 billions if introduced into our agriculture. I provided leadership and organized a proactive workshop to analyze the risk of incidence for Soybean Rust and to develop an action plan to respond if the disease were introduced in Iowa or elsewhere in the U.S. accidentally or deliberately. A total of 41 key stakeholders from the industry sector, USDA-ARS, USDA-APHIS, the Iowa Soybean Association, Agribusiness Association of Iowa, United Soybean Promotion Board, American Seed Trade Association, the Iowa Department of Agriculture, and academic institutions attended and developed an action plan. This was instrumental in making Iowa well prepared and brought additional resources to ISU.

Another example was to influence science-based legislation for establishment of the Maximum Allowable Variation (MAV) of number of seeds in a bag of seed. The proposed legislation of 1.5% MAV was found inaccurate. The industry task force accepted ISU findings and recommended that the Weights & Measures modify the legislation based on an Iowa State University study.

Other examples are conditioning of extremely dry soybeans in 2000, discolored soybeans in 1998, and ergots in Barley in 1996, etc. In each case, applied research was conducted, and recommendations with hands-on training opportunities were provided to solve the problem, thus resulting in the protection of revenues for Iowa suppliers.

*iii) Media and other communications:*

Presented radio and television programs: A series of 90 seconds TV spots were featured in "Good Morning, America" for five consecutive days.

The application of ultrasound and computer technology was broadcast on National Public Radio (NPR) and then by “Voice of America.”

Developed four educational software programs: 1) Sizing of seed corn, 2) Design of a soybean seed conditioning plant, 3) Seed conditioning operation analysis, and 4) Screen selection

Produced videotapes: These videotapes are used by over 100 seed companies to train their employees. Pioneer translated the videotape into Spanish to train their employees in Latin America. Three of the four videotapes won awards (please see below for details).

1. R. Cooper, B. High, D. Ireland, J. Tank, D. Tesar, and M. Misra. 1998. “How to Operate the Forsberg Gravity Table,” **Outstanding Agronomic Educational Materials Award from the American Association of Agronomy in national competition.**

2. Coordinated the production of the promotional videotape “Quality Seeds to Feed the World: The Seed Science Center.” 1995. **The Communicator Award of Distinction.** (The Communicator is a national awards organization that recognizes outstanding work in the visual communications).
3. Misra, M., R. White, and Y. Shyy. 1990. “Basic Operation and Adjustments of a Forsberg Gravity Separator.” Iowa State University Cooperative Extension Service.
4. Misra, M. and R. White. 1989. “Basic Operation and Adjustments of an Oliver Gravity Separator.” ISU Cooperative Extension Service, **Blue ribbon award from the American Society of Agricultural Engineers.**

## E. International Activities

The Seed Science Center has conducted programs for seed professionals from over 80 countries in the last twelve years and is currently conducting programs in 30 countries of Africa. In addition, I have conducted the following activities:

Led a delegation to Africa and explored the possibility of establishing a Seed Enterprise Management Institute in Africa. Prepared a proposal which was funded by the Alliance for Green Revolution for Africa (AGRA) which is turn is funded by the Bill & Melinda Gates Foundation. The seed institute is being established at the University of Nairobi.

UNDP consultant to China on millet seed processing plant design and training programs for seed quality assurance

USDA consultant to Ukraine on needs assessment for the country’s national seed system and development of training program

World Bank consultant on design for a seed processing plant in Ethiopia and Ukraine

FAO consultant to India on a seed improvement program

Completed an AID Development Assistance Training (DAT) Program (both basic and advanced)

Completed an intensive one-week Spanish language training program

Negotiated three strategic partnerships: One with the Food and Agriculture Organization (FAO) to conduct international programs in global seed policies reforms, the second with IICA to conduct seed and biotechnology programs in the Americas, and the third with the Common Market for Eastern and Southern Africa (COMESA) to develop science-based seed policies in the COMESA region.

## F. Selected Invited Presentations

“To Feed the Future, We Must First Seed the Future”, Kansas State University, May 2015

“Recommendations of the National Genetics Resources Advisory Council (NGRAC) to the National Agricultural Research, Extension, Education and Economics (NAREEE) Advisory Board, April 2015

“Quality Seeds to Feed the World”, Presentation to the National Academy of Sciences, New Delhi, India, March 2015

“To Feed the Future, We Must First Seed the Future”, Michigan State University, February 2015

Review of African Universities to support an integrated seed science, business and systems curriculum, Presented to the Bill & Melinda Gates Foundation, November 2014

**Keynote Speaker**, The World Bank Seed Symposium, “The current status and the future trends of Seed Science, Technology and Industry” March 2013, Washington D.C.

**Moderator**, World Affairs Series “Feed the Future: Food Security & Agriculture in Development” held in the Great Hall of the Memorial Union with USAID Administrator Rajiv Shah and Peace Corps Acting Director Carrie Hessler-Radelet, October 2012.

**Program Chair**, American Seed Trade Association Corn and Sorghum Conference, 2011. (This is the biggest seed conference in the world with over 2000 attendees.)

**Banquet Speaker**, Service: The Legacy of Dr. George Washington Carver, Iowa Seed Association Convention, Ames, Iowa, 2009.

**Moderator**, Networking on Biotechnology, Global Round Table Discussion for Farmers, World Food Prize International Symposium, 2007.

The Legacy of Dr. George Washington Carver, National Black Caucus of State Legislators Conference, Little Rock, Arkansas, 2007.

**Moderator**, Access to Biotechnology, Global Round Table Discussion for Farmers, World Food Prize International Symposium, 2006

**Speaker and Panel member**, Biotechnology Opportunities and Challenges, World Food Prize International Symposium, 2005

The Iowa India Interaction (I<sup>3</sup>): A Formula and a Vision to Feed the World, Presentation to the Indian Minister of Science and Technology Delegation, 2006.

The Biosecurity Platform, Presentation to the Economic Development Committee of the Iowa Legislature, 2006.



**Panel moderator:** “Land Grant Universities Prospective: Success Stories and the Principal Obstacles We Encounter when Working with USAID.” Board on International Food and Agricultural Development (BIFAD), Des Moines, Iowa, October 13, 2004.

Biosafety Institute for Genetically Modified Agricultural Products (BIGMAP), M.S. Swaminathan Research Foundation, Chennai, India, August 16, 2004.

Risk Assessment Methodologies for GM Crops Intended for Non-food Applications, Indian Institute for Agricultural Research, New Delhi, India, August 6, 2004.

**Session chair:** Pharmaceutical Crops, Risk Assessments and Processing Capacity, BIO 2004, June 8, San Francisco.

Science-based Risk Assessment for Approval of Genetically Engineered Non-food Crops, 117<sup>th</sup> AOAC international meeting, Atlanta, Georgia

Science-based Risk Assessment for Genetically Modified Non-food Crops, University Industry Consortium Meeting, April 29, 2003, Ames, Iowa

Biosafety Institute for Genetically Modified Agricultural Products (BIGMAP), Plant Sciences Institute Advisory Board meeting, April 16, 2003, Ames, Iowa

Biosafety Institute for Genetically Modified Agricultural Products (BIGMAP), Monsanto Protein Technologies, April 9, 2003, St. Louis, Missouri

“Science-based Risk Assessment of Plant-Made Pharmaceuticals.” Corn Promotion Board Biotech Committee, March 27, 2003, Des Moines, Iowa

Biosafety Institute for Genetically Modified Agricultural Products (BIGMAP), Commodity Group Board meeting, March 5, 2003, Ames, Iowa

Homeland Security and Transgenics, Biochem 2020, Defense Intelligence Agency (DIA), February 25, 2003, Washington, D.C.

Risks and Benefits of Plant Made Pharmaceuticals, Seed Technology Conference, ISU, February 18, 2003, Ames, Iowa.

Science-based Risk Assessment for Genetically Modified Non-food Crops, AgSTATE meeting, January 31, 2003, Des Moines, Iowa.

Science-based Risk Assessment for Genetically Modified Non-food Crops, Agribusiness Association of Iowa Annual Meeting and Conference, Jan 15, 2003, Des Moines, Iowa.

Science-based Risk Assessment for Genetically Modified Non-food Crops, North American Millers Association, December 19, 2002, Ames, Iowa.

A Homeland Security Program for Countering Terrorism to Plant Agriculture, Plant Agriculture Animal and Plant Health Inspection Services (APHIS), 2002, Wash, D.C.

Countering Agro-Terrorism to Plant Agriculture, Iowa Seed Association Convention, October 29-30, 2002, Ames, Iowa

Plant Agro-Terrorism, Testimony to the House Committee on Government Reform's Subcommittee on Government Efficiency, Financial Management and Intergovernmental Relations, (August, 2002), Iowa City, Iowa.

Technologies and Systems to Counter Bio-Terrorism in Foods, Sustainable Agriculture Colloquium, September 2002, Ames, Iowa

Advanced Technologies and Systems for Homeland Plant Security, Midwest Governor's Conference, Omaha, Nebraska, July 2002.

**Chair, Planning and Program Committee:** Soybean Seed Research Conference, American Seed Trade Association, December 2001

**Keynote Speaker:** "Cooperation Between the Seed Industry and Public Seed Researchers," The American Seed Research Foundation, San Antonio, Texas, June 2001.

Quality Seeds to Feed the World, M.S. Swaminathan Research Foundation, Chennai, India, Jan 2001.

Digital Imaging for Management of Germplasm Resources, Central Rice Research Institute, Cuttack, India, Jan 2001.

Quality Seeds to Feed the World, Plant Science Institute Colloquium, Iowa State University, Ames, Iowa.

MAV for Regulating Seed Counts in a Bag, National Council of Weights & Measures Meeting (San Antonio, TX, January, 1999.

**Discussion Leader:** "Regulating Seed Count." Annual Meeting of the American Seed Trade Association, June 1998.

Maximum Allowable Variation Resolution Group (consisting of seed control officials, seed industry, representatives of Association of Official Seed Analysts), Chicago, 1999

Annual Corn and Sorghum Research Conference, American Seed Trade Association, December, 1999

Serving Seed Conditioners Through Distance Education, Annual Meeting of the American Society of Agronomy. October 1999, Salt Lake City, Utah

A National Survey on Seed Industry Trends and Needs, Annual Seed Technology Conference, ISU February, 1999. Ames.

Improving the Regulatory Environment for Agriculture in the Developing World, Summer meeting of the American Seed Trade Association, 1999.

## G. Committee Activities

- Chair, National Genetic Resources Advisory Council (NGRAC), Appointed by the Secretary of Agriculture, United States Department of Agriculture, 2012-14
- Chair, Planning committee, Corn and Sorghum Seed Research Conference, American Seed Trade Association, 2011 (This is the largest seed conference in the world with about 2,500 attendees.)
- Steering Committee, Food and Agriculture Organization (FAO) International Biotechnology Conference, 2009-10
- Founding Board member, “First the Seed Foundation,” 2008-present
- Board member, Biosciences Alliances of Iowa (also co-chair of “Biosecurity” platform), 2006-present
- Board member, National Alliance for Food Safety and Security, 2005-2008
- College of Agriculture Budget Model Task Force, 2007
- Member, Presidential Candidate Forum Committee, ISU, 2006
- College of Agriculture “Case Statement” Committee
- Member, Social Responsibility Committee, Iowa State University, 2004
- Member, Soybean Rust Team, College of Agriculture, 2004
- Chair, Strategic Planning Committee, College of Agriculture, ISU, 2003
- Chair, Biocontainment Task Force for Plant-made Pharmaceuticals, ISU, 2002-06
- Member, Biotechnology Working Group formed by Iowa Secretary of Agriculture, 2003
- Member, Counter Agroterrorism Committee, Iowa State University, 2002-2005
- Member, ABE Strategic Planning Committee, 2002-present
- Member, Transboundary Movement of Seed and Biotechnology Committee, International Seed Trade Federation (FIS), 1999-2002
- ISU Project Leader, W-168 Regional Seed Production and Quality Committee, 1993 present
- Member, Scientific Advisory Council, American Seed Foundation, 1991-present
- Chair, Planning committee, Soybean Seed Research Conference, American Seed Trade Association, December 2001
- Chair, Planning Committee, Plant Sciences Institute Colloquium, ISU, 2001
- International Seed Network Committee, International Seed Trade Federation 2001
- Panel moderator, USAID Conference on “Global Agriculture and the American Midwest”
- Chairman, Identity Preservation Committee, Iowa Crop Improvement Association, 1994-01
- Member, Public Research Advisory Committee, Am. Seed Trade Association, 1995-96.
- Member, Value-added Processing Committee, ISU Extension, 1995,96
- Member, Value-added Processing Committee, Agriculture Extension, 1995
- Chairman, International Programs Subcommittee, College of Agriculture Planning Advisory Council (CPAC), 1994
- Member, College Planning Advisory Council (CPAC), College of Agriculture, 1994, 2002
- Chairman, International Programs Subcommittee of College Planning
- Member, College Planning Advisory Council (CPAC), College of Agriculture, 1994
- Advisory Council (CPAC), College of Agriculture, 1994.

- Member, Intellectual Properties Committee, American Seed Trade Association, 1993-94
- Member, NIS Steering Committee, College of Agriculture. 1993,94.
- Chairman, Fiber Optics Network Committee, Agriculture Extension, 1993
- Member, NIS Steering Committee, College of Agriculture. 1993-94
- Member, Intellectual Properties Committee, Am Seed Trade Assoc, 1993-94
- Member, several nomination writing committees for ABE faculty
- Board of Directors, Iowa Crop Improvement Association, 1993-present
- Chairman, Identity Preservation Committee, Iowa Crop Improvement Association, 1992-2000
- Board of Directors, Iowa Seed Association, 1991-present
- Full member, Graduate Faculty Committee, 1990-present

### **Civic Committees**

- Co-organizer, Martin Luther King Day Program, City of Ames (multiple years)
- Search Committee for Ames Middle School principal, Ames schools district superintendent.
- Invited speaker on community issues (4 speeches/yr on topics such as “Non-violence the True Meaning,” (on Martin Luther King’s day), “Beauty: External and Internal,” “Seven Habits of Most Effective People,” “The Art of Living,” and “Modern Relevance of Gita” etc.)

## **H. Professional Improvement Activities**

- a) Kaizan Workshop, ISU, 2006
- b) Media Training Workshop, ISU, 2003, 2001
- c) Process Improvement (ISO) workshop, Pioneer Hi-bred International, Inc., 1999
- d) Fund Raising seminar series, ISU Foundation, 2003, 1997
- e) Intellectual Property Law Seminar, ISU Research Foundation, 1997
- f) Facilitative Leadership, Texas Instruments Learning Institute, 1995
- g) ISO 9000 Orientation Seminar, CIRAS, ISU, 1994
- h) Total Quality Management, Texas Instruments Learning Institute, 1994
- i) Building and Maintaining Employee Morale: How to Manage Negative Thinking, by CPED, ISU, 1992
- j) Leadership and Team Development Skills for Supervisors. by I.S.U. Extension and the Center for Professional and Executive Development, Ames, Iowa, 1991
- k) Focus Groups, Iowa State University Extension, 1991
- l) Biotechnology for Extension. July 30 - August 10, 1990. I.S.U., Biotechnology Council.
- m) Time Management. March 6-10, 1989. ISU Ames, University Extension and Agricultural Education Department.
- n) Bar Code Technology Workshop. December 6-7, 1988, I.S.U., Ames, Iowa
- o) Machine Vision. June 27-28, 1987. Baltimore, Maryland. American Society of Agricultural Engineers
- p) Expert Systems in Agriculture. May 27-30, 1986. Purdue University, West Lafayette, IN.
- q) Cost Reduction Through Methods Analysis. 1984. ISU, Engineering Management Institute, Ames, Iowa.

- r) Integrating Layout Planning and Materials Handling Analysis. March 27, 1984. Engineering Management Institute, ISU, Ames, Iowa.

## I. Awards, Honors, and Recognition

- Chair, National Genetic Resources Advisory Council (NGRAC), Appointed by the Secretary of Agriculture, United States Department of Agriculture, 2012-14
- Appreciation plaque, the American Seed Trade Association, Program Chairman of the Corn and Sorghum Seed Research Conference (This is the largest seed conference in the world, with over 2000 attendees.), 2011
- Order of the Knoll Distinguished Faculty and Staff Award, Iowa State University, 2008
- Dean's Chair for Distinction, College of Agriculture and Life Sciences, 2008-present
- Honorary Member, Iowa Seed Association, 2007
- Moderator, Global Farmer-to-Farmer Roundtable, World Food Prize Symposium, 2007
- Moderator, Global Farmer-to-Farmer Roundtable, World Food Prize Symposium, 2006
- "Manjit Misra Outstanding Award in Seed Science," An annual student award established by a donor to recognize Misra's contribution to Seed Science, 2006
- Editorial Board, *Seed World*, 2002-2006
- Appreciation plaque for formation of the National Seed Health System, American Seed Trade Association, 2002
- Plaque of appreciation and \$25,000 for graduate student support for acting as the Chair of Soybean Seed Research Conference at The American Seed Trade Association Convention, 2001 (This is the largest gathering of seed professionals in the world—about 2,500.)
- Distinguished Service Award, American Seed Trade Association, 1999 for Leadership, Vision, and Exemplary Service to the U.S. seed industry (This is their highest award.)
- Scientific Advisory Council, American Seed Research Foundation, 1991-present
- Superior Engineering Extension Award, College of Engineering, ISU, 2001
- Certificate of Excellence, American Society of Agronomy for "Development of Outstanding Educational Materials Contest," 1998
- Six U.S. patents on new inventions (2005, 2004, 1995, 1994, 1991, 90) and 1 provisional patent, 2002
- Board of Directors, Iowa Crop Improvement Association, 1993-present
- Engineer of the Year, Iowa Section, American Society of Agricultural Engineers, 1992
- Excellence in Research and Extension Award, ISU, Ames, Iowa, 1992
- Certificate of Appreciation, Iowa Seed Association, for contribution on the Board, Convention, and Field Day, 1992
- Board of Directors, Iowa Seed Association, 1991-present
- Blue ribbon, awarded by the American Society of Agricultural Engineers for Extension publication "Seed Lot Sampling," 1991.
- Blue ribbon, awarded by the American Society of Agricultural Engineers for videotape "Basic Operation and Adjustments of an Oliver Gravity Separator," 1990
- Blue ribbon, awarded by the American Society of Agricultural Engineers for Extension publication "Conveyors for Bulk Handling of Seed," in 1983

- Gold medal, Best University Graduate, Orissa University of Agriculture and Technology, India, 1971
- Gold medal, Best Agricultural Engineering Graduate, College of Agricultural Engineering, Orissa University of Agriculture & Technology, India, 1971
- Chancellor's cup, Best debater, Orissa University of Agricultural and Technology, India, 1971
- Indian Council of Agricultural Research Scholarship, 1966-71

## J. Publications

1. Okeno, J., J. Wolt, M. Misra, and L. Rodriguez. 2013. "Africa's Inevitable Walk to Genetically Modified (GM) Crops: Opportunities and Challenges for Commercialization." *New Biotechnology* 30(2):124-130.
2. Okeno, J., E. Mutegi, S. de Villiers, J. Wolt, and M. Misra. 2012. "Morphological Variation in the Wild-Weedy Complex of Sorghum Bicolor In Situ in Western Kenya: Preliminary Evidence of Crop-to-Wild Gene Flow," *International Journal of Plant Sciences* 173:507-515.
3. Iakovoglou, V., M. K. Misra, R. B. Hall, and A. D. Knapp. 2010. "Alterations of Seed Variables Under Storage in Nitrous Oxide (N<sub>2</sub>O) Atmospheres for Two Recalcitrant *Quercus* Species," *Scandinavian Journal of Forest Research*, 25(1): 24-30.
4. Iakovoglou, V., M. K. Misra, R. B. Hall, and A. D. Knapp. 2009. "How Seed Size and Desiccation Time Affect Seed Deterioration of *Quercus macrocarpa* L.," *Seed Technology*. 31(1) 21-39.
5. Krueger, N. A., C. J. Bern, M. K. Misra, and K. M. Adam. 2007. "Gravity Table Sorting of Commodity Corn." *Applied. Engineering in Agriculture*, 23(3), 319-325.
6. Iakovoglou, V., M. K. Misra, R. B. Hall, and A. D. Knapp. 2007. "The Effect of Seed Size and Parent Tree on Seed Variables and Seedling Growth of *Quercus* spp." *Seed Science and Technology*, 35:771-777.
7. Wolt, J.D., Y-Y. Shyy, P. Christensen, K.S. Dormin, and M. Misra. 2005. "Quantitative Exposure Assessment for Confinement of Maize Biogenic Systems," *Environmental Biosafety Research*, 3:183-196. Also at <http://www.edpsciences.org/10.1051/ebr:2005004>.
8. Adam K, M. Misra, and D. Thoreson. 2004. "Removal of Ergot from Barley by Density Separation," *Applied Engineering in Agriculture*, 20(1):39-43.
9. Rukunudin, I. H., C.J. Bern, M. Misra, and T.B. Bailey. 2004. "Carbon Dioxide Evolution from Fresh and Preserved Soybeans," *Transactions of the ASAE*, 47(3): 827-833.
10. Adam K, M. Misra, and D. Thoreson. 2003. "Removal of Ergot from Barley by Density Separation," *Applied Engineering in Agriculture*, 20(1):39-43.
11. Steenhoek, L., M. Misra, W. Batchelor, and J. Davidson. 2001. "Probabilistic Neural Network for Segmentation of Features in Corn Kernel Images," *Applied Engineering in Agriculture*, 17(2): 225-234.
12. Steenhoek, L., M. Misra, C. Hurburgh, and C. Bern. 2001. "Implementing a Computer Vision System for Corn Kernel Damage Evaluation." *Applied Journal in Agriculture*, 17(2): 235-240.
13. Panigrahi, S., M. Misra, and S. Wilson. 1999. "Shape Classification of Corn Germplasm using Fractal Geometry and Invariant Moments," *Computers and Electronics in Agriculture*, 20,1-20.

14. Walcott, R., M. Misra, and D. McGee. 1998. "Detection of Asymptomatic Fungal Infections of Soybean Seeds using Ultrasound Analysis," *Plant Disease*, 82(5):584-589.
15. Taylor, A., P. Allen, M. Bennett, K. Bradford, J. Burriss, and M. Misra. 1997. "Seed Enhancements." Proceedings of the Symposium on Seed Biology and Technology," 8(2):245-256.
16. Panigrahi, S. and M. Misra. 1997. "Color Image Processing for Quality Evaluation of Edible Beans," The Proceedings of the International Conference on Imaging Science, Systems, and Technology. pp. 178-183.
17. Dugba, P., C. Bern, I. Rukundin, M. Misra, and T. Bailey. 1996. "Preservative Effects of Ipordione on Shelled Corn," *Transactions of the ASAE*, 39(5): 1751-1756.
18. Bultena G, M. Duffy, S. Jungst, R. Kanwar, B. Menzel, M. Misra, P. Singh, J. Thomson, A. Van Der Walk, and R. Willham. 1996. "Impacts of Agricultural Developments on Biodiversity: Lessons from Iowa," World Bank Studies and Monograph Series 311:80-94.
19. Panigrahi, S., M. Misra, C. Bern, and S. Marley. 1995. "Background Segmentation and Dimensional Measurements of Corn Germplasm," *Transactions of the ASAE*, 38(1):291-297.
20. Misra, M. and Y. Shyy. "Acoustic and Video Imaging System for Quality Determination of Pharmaceutical Products," U.S. Patent # 5,422,831 with 22 claims awarded June, 1995.
21. Aljinnovic, S., Slaven, C.J. Bern, P.N. Dugba, and M.K. Misra. 1995. "Carbon-dioxide Evolution from High-moisture Shelled Corn Treated with Ipodione," *Journal of Food Production*, 58(6), 673-677.
22. Al-Yahya, S, C. Bern, M. Misra. 1994. "Simulation of Ambient Air Drying of Fungicide Treated High Moisture Corn," *Transactions of the ASAE*, 37(5), 1550-1560.
23. Misra, M. and Y. Shyy. "Acoustic and Video Imaging System for Quality Determination of Agricultural products," U.S. Patent # 5,309,374 with 21 claims awarded May, 1994.
24. Misra, M. "Maintaining Soybean Seed Quality During Processing," *Seed Research*. Indian Society of Seed Technology. Sp. 2. 841-850, 1993.
25. Misra, M., B. Koerner, and Y. Shyy. 1993. "Ultrasound and Computer Vision Technology for Determining Seed Quality," *Seed Research*. Indian Society of Seed Technology, Sp. Vol. 2: 809-817.
26. Al-Yahya, S., C. Bern, M. Misra, and T. Bailey. 1993. "Carbon-dioxide Evolution of Fungicide-treated High-moisture Corn," *Transactions of the ASAE*, 36 (5):1417-1422.
27. J. Risse, M. Misra, A. Knapp, and C. Bern. 1991. "Conditioning Shriveled Seed: Part 1. Variation in Physical Properties," *Transactions of the ASAE*, 34(2): 481-486.
28. M. Misra, Y. Shyy, L. Baudet, S.J. Marley. 1991. "Conveyors for Bulk Handling of Seed Soybeans," 1991, *Transactions of the ASAE*, 7(6): 735-740.
29. J. Risse, M. Misra, A. Knapp, and C. Bern. 1991. "Conditioning Shriveled Soybean Seed: Part 2. Correlation of Physiological Characteristics with Physical Properties," *Transactions of the ASAE*, 34(2):487-491.
30. Misra, M. and Y. Shyy. "Methods and Means for Gravity Table Automation." U.S. patent #5,024,334 with 13 claims awarded June, 1991.
31. Misra, M., B. Koerner, A. Pate, and C. P. Burger. 1990. "Acoustic Properties of Soybeans," *Transactions of the ASAE*, 33(2):671-677.

32. Misra, M. and Y. Shyy. "Automation of an Air-screen Cleaner." U.S. patent #4,991,721 with 16 claims awarded September, 1990.
33. Misra, M. 1990. "Maintaining Seed Quality During Processing," Proceedings of the International Conference on Seed Science and Technology, New Delhi, India.
34. Balascio, C., M. K. Misra, and H. P. Johnson. 1988. "Stochastic Modelling of Granular Flow in Seed Sorting," *Mathematical Computation Modelling*, 11: 523-527.
35. Misra, M. K. 1987. "Removal of Black Nightshade Contamination from Soybean Seeds," *Seed Science and Technology*, 15: 219-227.
36. Balascio, C., M. K. Misra, and H. P. Johnson. 1987. "Particle Movement and Separation Phenomena for a Gravity Separator. I. Development of a Markov Probability Model and Estimation of Model Parameters." *Transactions of ASAE*, 30(6):1834-39.
37. Balascio, C., M. K. Misra, and H. P. Johnson. 1987. "Particle Movement and Separation Phenomena for a Gravity Separator: II. Experimental Data and Performance of Distance-transition Markov Model." *Transactions of ASAE*, 30(6):1840-47.
38. Gaul, A., M. Misra, C. Bern and C. Hurburgh. 1986. "Variation of Physical Properties in Gravity Separated Soybeans," *Transactions of ASAE*, 29(4):1146-49.
39. Misra, M. K., A. Gaul, and O. Kayode. 1985. "Soybean Seed Quality During Conditioning," *Transactions of ASAE*, 28(2):576-579.
40. Misra, M. K. and D. B. Brooker. 1980. "Thin Layer Drying and Rewetting Equations for Shelled Corn," *Transactions of ASAE*, 23(5):1254-60.
41. Misra, M. K. and R. P. Beasley. 1975. "Performance of Corrugated Plastic Tubing in Underground Drainage," *Transactions of ASAE*, 18(2):260-262, 269.

### **Book chapters and handbook**

1. Book chapter: Christensen, P., S. Goggi, M. Westgate, J. Wolt, and M. Misra. 2005. "Seed Biology" Chapter in the USDA-APHIS Environmental Impact Statement (EIS) Handbook.
2. 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*.

### **Proceedings**

1. Misra et-al. "A National Survey on Seed Industry Trends and Needs," ASTA Proceedings, Annual Corn & Sorghum Research Conference, American Seed Trade Association, 2000.
2. Misra et-al. "A National Survey on Seed Industry Trends and Needs," Proceedings, Seed Technology Conference, Iowa State University, 1999.
3. Misra, M. 1995. "The Latest on Regulating Seed Count." Proceedings of the twenty fifth soybean seed research conference, American Seed Trade Association, #25, pp 97-106.
4. Misra. 1994. "Getting the Most From your Gravity Table," Proceedings of the 24th Soybean Seed Research Conference, American Seed Trade Association.
5. Shyy Y and M. Misra. "Development of a Soybean Quality Analyzer," Proceedings of the FPAC III Conference, FPEI, Orlando, FL, 1994.



6. Shyy, Y. and M. Misra. 1993. "Development of a Soybean Quality Analyzer." Conference on Food Engineering, Am. Inst. of Chemical Engineering, Chicago, IL.
7. Panigrahi, S. and M. Misra. 1992. "Color Classification of Corn Germplasm using Computer Vision." Proceedings of the International Society of Optical Engineers, Vol. 1836, Boston, Mass.
8. Misra, M. 1991. "Ultrasound and Computer Imaging for Soybean Seed." Proceedings of the twenty-first soybean seed conference, American Seed Trade Association, Chicago.
9. Misra, M. 1990. "Ultrasound and Computer Vision Technology for Determining Seed Quality." Proceedings of the International Seed Technology Conference, New Delhi, India.
10. Panigrahi, S., M. Misra, and S. Illangantileke. 1990. "Computer Vision: Its Potential and Application in Agriculture for Developing Countries." Proceedings of International Agricultural Engineering Conference, Bangkok, Thailand (to be presented in December).
11. Misra, M. 1990. "Computer Vision: Potential for Application to Agriculture." Proceedings of the Annual Conference of Association of Official Seed Certification Agencies.
12. Misra, M. 1989. "Maintaining Seed Quality During Conditioning and Handling," Proceedings of the Mid-Atlantic Seed Conference, North Carolina State University.
13. Risse, J., M. Misra, and A. Knapp. 1989. "Conditioning of Shrivelled Soybean Seed." Proceedings of the Nineteenth Annual Soybean Research Conference. American Seed Trade Association, pp 48-52.
14. Misra, M. 1989. "Conditioning Drought-stressed Soybean Seed." Proceedings of the Eleventh Annual Seed Technology Conference. Iowa State University, pp. 93-100.
15. Misra, M. K. "Challenges in Seed Conditioning." 1988. Proceedings of the Tenth Annual Seed Technology Conference, Iowa State University, pp 33-42.
16. Misra, M., L. Baudet, Y. Shyy, and S. Marley. 1987. "Soybean Seed Handling." Proceedings of the Ninth Annual Seed Technology Conference, pp 153-175.
17. Koerner, B., A. Pate, M. Misra, and C. Burger. 1987. "Classification of Soybeans by Impact-force Response." Proceedings of National Noise Control Conference, Pennsylvania State University, Pennsylvania.
18. Misra, M., Y. Shyy, and Y. Chung. 1986. "Profitability Through Computerized Conditioning." Proceedings of the Eighth Annual Seed Technology Conference, Iowa State University, Ames, Iowa.
19. Misra, M., L. Baudet, and Y. Shyy. 1986. "Soybean Seed Handling." Proceedings of the Mississippi State Seed Technology Conference, Starkville, Mississippi.
20. Misra, M. "Soybean Seed Conditioning." 1985. Proceedings of the Third Kentucky Seed Conditioners' Workshop, Lexington, Kentucky, pp 12-32.
21. Misra, M., A. Knapp, and D. McGee. 1985. "Reduction of Wheat Scab Through Conditioning." Proceedings of the Third Kentucky Seed Conditioners' Workshop, pp 40-44.
22. Misra, M., A. Knapp, and D. McGee. 1985. "Reduction of Wheat Scab Through Conditioning." Proceedings of the Third Kentucky Seed Conditioners' Workshop, pp 40-44.

23. Misra, M. 1984. "Black Nightshade—Problems and Solutions in the Field and at the Plant." Proceedings of the Fourteenth Soybean Seed Res. Conf., Am. Seed Trade Assn., Chicago, pp 106-115.
24. Misra, M., A. Gaul, and O. Kayode. 1983. "Soybean Seed Quality During Conditioning." Proceedings of the Thirteenth Soybean Seed Res. Conf., Am. Seed Trade Assn., Chicago, pp 57-67.
25. Misra, M. "Drying of Soybean Seed." 1983. Proceedings of the Sixth Annual Seed Technology Conference, Iowa State University, Ames, Iowa, pp 75-87.
26. Misra, M. 1982. "Soybean Seed Quality During Conditioning." Proceedings of the Mississippi State Seed Technology Conference, Starkville, Mississippi, pp 49-53.
27. Misra, M. 1981. "Engineering Aspect of the Soybean Seed Storage." Proceedings of the Fourth Annual Seed Technology Conference, Ames, Iowa, pp 103-111.

### Technical papers

1. Adam, M., M.K. Misra, and L.M. Shepherd. Presented at the Mid-Central meeting of the ASAE March 26<sup>th</sup>, 2004 as Paper No. MC04-404.
2. Adam, K. and M.Misra, "Effects of Various Adjustments of a Spiral Separator for Removing Splits from Soybeans," Paper #MC03-101, presented at the 2003 Mid-central ASAE meeting.
3. Adam, K. and M. Misra. "Effect of Dropping Height, Flow Pattern and Landing Surface on Mechanical Damage to Soybean Seeds," Paper # MC02-101 Mid-central ASAE meeting, 2002.
4. Krueger, N., C. Bern, M. Misra, and Adam K, "Gravity Table Separation of Commodity Corn. Paper presented in 2002 Mid-central ASAE meeting.
5. Adam, K., M. Misra., Y. Shyy, and Dan Curry. 2001. "Regulating Seed Count and Bag Weight for Seed Corn and Soybean Packaging." ASAE Paper No. MC01-104. St Joseph, MI: ASAE.
6. Adam, K., M. Misra, and D. Thoresen, 1997. "Removal of Ergot from Barley by Density Separation," Am. Society of Ag. Engineers, paper #MC97-122.
7. Dugba, P. N. et-al. 1994. "Preservative Effect of Ipordione on Shelled Corn," Paper # 946040, Am. Society of Agricultural Engineers, Kansas City, MO.
8. Shyy, Y. and M. Misra. 1992. "High-speed Ultrasound Signal Analysis." ASAE paper # 92-3008, St. Joseph, MI.
9. Bern, C. J., S. Al-Yahya, and M. Misra. 1992. "Preservation of High-moisture Maize with Rovral Fungicide." Paper presented at the International Conference on Agricultural Engineering, Uppsala, Sweden.
10. Shyy, Y. and M. Misra. "Computer Control of a Gravity Table," ASAE paper # 92-3546, paper presented at Winter ASAE meeting, Nashville, TN.
11. Panigrahi, S., M. Misra, and S. Wilson. 1991. "Fractal Geometry for Shape Analysis of Ear-corn Images." J. 14287 of Ag. Experiment Station.
12. Panigrahi, S., M. Misra, T. Ramabadran, and M. Yung-Hyan. 1991. "Noiseless Compression for Color Images of Ear Corn." ASAE paper # 91-7004, St. Joseph, MI.
13. Panigrahi, S. and M. Misra. 1991. "Machine Vision for Shape Classification of Ear Corn Images." Mid-Central Conference of the ASAE. St. Joseph, MI (presentation at "Machine Vision Applications Workshop").

14. Sulaiman, Al-Yahya, C. Bern, and M. Misra. 1991. "Simulation of Natural-air Drying of Fungicide Treated High-moisture Corn in Iowa." ASAE paper # 91-6556, St. Joseph, MI.
15. Sulaiman, Al-Yahya, C. Bern, M. Misra, and D. C. McGee. 1991. "Carbon Dioxide Evaluation of Fungicide-treated High-moisture Corn." Mid-Central Conference of the ASAE. St. Joseph, MI.
16. Sulaiman, Al-Yahya, C. Bern, and M. Misra. 1991. "Simulation of Natural-air Drying of Fungicide-treated High-moisture Corn in Iowa." ASAE paper # 91-6556, St. Joseph, MI.
17. Risse, J., M.K. Misra, A. Knapp, and C. Bern. 1990. "Physical Properties of Shrivelled Soybeans." American Society of Agricultural Engineers # 90-6063, St. Joseph, MI.
18. Misra, M., B. Koerner, and Y. Shyy. 1989. "Ultrasound Evaluation of Soybean Quality." American Society of Agricultural Engineers paper # 89-3016. St. Joseph, MI.
19. Panigrahi, S., M.K. Misra, and Y. Shyy. 1989. "Color Image Acquisition for a Machine Vision System of Corn Germplasm." American Society of Agricultural Engineers paper MCR-89-124, St. Joseph, MI.
20. Shyy, S. and M. K. Misra. 1989. "Color Image Analysis for Soybean Quality Determination." 1989. American Society of Agricultural Engineers, paper # 89-3572, St. Joseph, MI.
21. Chen, F., S. Marley, L. Xie, and M. Misra. 1989. "Dynamic Analysis of Seeds in Vacuum Vibrational Cleaning." American Society of Agricultural Engineers paper # MCR-89-126, St. Joseph, MI.
22. Xie, L., S. Marley, and M. K. Misra. 1989. "Motion Analysis of Sieves in Vacuum-vibrational Cleaning." American Society of Agricultural Engineers, paper # 89-6537, St. Joseph, MI.
23. Misra, M., B. Koerner, and Y. Shyy. 1989. "Computer Vision for Soybeans." American Society of Agricultural Engineers paper # 89-3001, St. Joseph, MI.
24. Panigrahi, S. and M. Misra. 1989. "Color Image Processing for Characterization of Corn Germplasm." 1989. American Society of Agricultural Engineers, paper # 89-3568, St. Joseph, MI.
25. Shyy, S. and M. K. Misra. 1989. "A Prototype for Acoustic Determination of Soybean Quality." American Society of Agricultural Engineers, paper # 89-6608, St. Joseph, MI.
26. Panigrahi, S. and M. K. Misra. 1990. "Feature Extraction Techniques for Corn Germplasm by Color Computer Vision." American Society of Agricultural Engineers paper # 90-7050, St. Joseph, MI.
27. McGee, D.C. and M.K. Misra. "Combined Application of Soybean Oil and Fungicides for Dust Suppression and Control of Storage Fungi in Corn and Soybeans." Paper presented at the symposium on "Soybean Utilization Alternatives," Univ. of Minnesota, pp 419-421.
28. Misra, M., Y. Shyy, L. Baudet, and S. Marley. 1988. "Soybean Seed Handling." Am. Society of Agricultural Engineers paper # MCR-88-121, St. Joseph, MI.
29. Shyy, Y. Y. and M. Misra. 1987. "Automation of an Air Screen Seed Cleaner." American Society of Agricultural Engineers, paper # 87-6038. St. Joseph, MI.
30. Baudet, L., C. Bern, and M. Misra. 1986. "Response of Electronic Meters in Measuring Moisture of Rewetted Corn." Am. Soc. of Agricultural Engineers, Paper # MCR-86-102, St. Joseph, MI.

31. Misra, M.K. and C. J. Bern. 1982. "Evaluation of Nylon Bristles Auger for Handling of Soybean Seeds." American Society of Agricultural Engineers, Paper # 82-3568, St. Joseph, MI.
32. Misra, M. 1980. "Seed Quality Loss to Soybeans During Processing." American Society of Agricultural Engineers, paper # 80-3356, St. Joseph, MI.
33. Misra, M. and D.B. Brooker. 1978. "Thin-layer Drying of Shelled Corn." American Society of Agricultural Engineers, paper # 78-3002, St. Joseph, MI
34. No, Sang, D.B. Brooker, and M. Misra. 1977. "Heat Storage from Solar Energy in a Low Melting Temperature Eutectic for Grain Drying." American Society of Agricultural Engineers, paper # 77-4538, St. Joseph, MI.

### Published abstracts

1. Fessehaie, A., L.M. Shepherd, C.C. Block, and M.K. Misra. 2006. "A Diagnostic Real-time TaqMan PCR Assay for the Detection of *Pantoea stewartii* subsp. *stewartii*." *Phytopathology* 96: S35.
2. Misra, M. 2003. "Science-based Risk Assessment for Approval of Genetically Engineered Non-food Crops," abstract # 1102 of the 117th AOAC International Annual Meeting, Atlanta.
3. "Image Integrated Computer Cataloging of Maize Germplasm," Abstracts of the Annual Meeting of the Association of Official Seed Analysts, June 1996, 70(2): pp 19.
4. Walcott, R., M. Misra, and D. McGee. 1994. "The Detection of Asymptomatic Soybean Seeds Infested with *Aspergillus* and *Penicillium* spp. Using Ultrasound Analysis." *Phytopathology*, 84:1153.
5. Misra, M., Y. Shyy, S. Panigrahi, M. Millard, and P. Bretting. 1993. "An Image-integrated Computer Cataloging System for Maize Genetic Resources," Abstracts of *Am. Journal of Botany*, (80)6: 77.
6. Baudet, L. and M. Misra. 1992. "Quality Attributes of Maize Seed Conditioned by a Gravity Table." Abstracts of the International Seed Testing Congress. Buenos Aires, Argentina, pp. 48.
7. McGee, D.C., A. Iles, and M. Misra. 1989. "Suppression of Storage Fungi in Grain with Soybean Oil," *Phytopathology Abstract* 79:1140.
8. Misra, M., Y. Shyy, and S. Panigrahi. 1989. "Equipment and Software Components for a Seed Imaging and Analysis System." *Agronomy Abstract*.
9. Misra, M., A. Gaul, and O. Kayode. 1984. "Soybean Seed Quality During Conditioning." World Soybean Research Conference III, Abstracts, Ames, Iowa.

### Posters

1. Fessehaie, A., C.C. Block, L.M. Shepherd, and M.K. Misra. 2007. "Molecular Characterization of *Stenocarpella maydis* Based on Nuclear Ribosomal Internal Transcribed Spacer Regions Between the 18S and 28S Nuclear rRNA Gene Sequences." *Phytopathology* 97: S37.
2. Fessehaie, A., C.C. Block, L.M. Shepherd, and M.K. Misra. 2007. "Quantitative TaqMan Real-time PCR Assay for *Stenocarpella maydis*, the Causal Agent of Diplodia Ear and Stalk Rot of Maize." *Phytopathology* 97: S35.
3. Fessehaie, A., C.C. Block, L.M. Shepherd, and M.K. Misra. 2007. "Evaluation of LNA, MGB and Non-modified DNA Probes to Improve the Detection Limit of

- TaqMan Real-time PCR Assay for *Pantoea stewartii* subsp *stewartii*.” *Phytopathology* 97: S35.
4. Fessehaie, A., C.C. Block, L.M. Shepherd, and M.K. Misra. 2007. “Duplex TaqMan real-time PCR Assay for Quantitative Detection of *Pantoea stewartii* subsp *stewartii* and *Stenocarpella maydis*.” *Phytopathology* 97: S35.

#### Extension publications or popular articles

1. Misra, M., D. Curry, Y. Shyy, and K. Adam, 1996. “Seed by Seed,” *The Seed World*, September pages 15-18.
2. Panigrahi, S., M. K. Misra, and S. Wilson. 1991. “Fractal Geometry for Shape Analysis of Ear Corn Images.” *Iowa Seed Science*, Vol. 12, No. 2, pp 10-13.
3. Risse, J., M. Misra, A. D. Knapp, and C. Bern. 1990. “Conditioning Shriveled Soybean Seed.” *Iowa Seed Science*. Vol. 12, No. 1, pp 1-2.
4. Knapp, A., T. Gutormson, and M. Misra. 1990. “Seed Lot Sampling.” **NCR-403. Blue ribbon award from the ASAE.**
5. Knapp, A., M. Misra, N. Hartwig, L. Sweets, and D. McGee. 1989. *Wheat Scab SSC-2*
6. Panigrahi, S., M. Misra, and Y. Shyy. 1989. “Color Image Acquisition of Corn Germplasm by Computer Vision.” *Iowa Seed Science*, 11 (2):12-14.
7. Misra, M., Y. Shyy, L. Baudet, and S. Marley. 1988. “Soybean Seed Handling.” *Iowa Seed News*, 41: 9-10.
8. Misra, M. 1988. “Curso internacional de capacitacion sobre tecnologia de produccion de semillas de maiz” (International Training Course on Production Technology of Seed Corn). Compiled the book, facilitated translation into Spanish and wrote the chapter on seed corn conditioning.
9. McGee, D. C. and M. K. Misra. 1988. “Soybean Oil Application for Dust Suppression and Control of Storage Molds in Corn and Soybeans.” *Iowa Seed Science*, 10 (1) pp.
10. Ebner, W. C. and M. Misra. 1988. “Census of Seed Analysis Equipment.” *Annual Meeting of Association of Official Seed Analysts*, pp 1-29.
11. Balascio, C.C., M.K. Misra, and H.P. Johnson. 1987. “Stochastic Modelling of Seed Sorting on a Gravity Table.” *Iowa Seed Science*, (9) 2:13-15.
12. Misra, M., Y. Shyy, and Y. Chung. “Computerizing an Air-screen Cleaner.” *Iowa Seed Science*, 8(2):8-11.
13. Misra, M., L. Baudet, and Y. Shyy. 1986. “Soybean Seed Handling.” *Iowa Seed Science*, 8(1):5-7.
14. Misra, M. “Selecting a Bucket Elevator to Handle Seed.” *SSC-1*, 1986.
15. Misra, M., L. Baudet, and D. Francois. 1985. “Removal of Soil Pods from Soybean Seeds.” *Iowa Seed Science*, 7(2):11-12.
16. Gaul, A., M. Misra, C. Bern, and C. Hurburgh. 1984. “Variation of Physical Properties in Gravity Separated Soybeans.” *Iowa Seed Science*, 6( 2): 8-10.
17. Misra, M. and Y. Chung. 1984. “A New Machine for Removing Fresh Nightshade Berries from Soybeans.” *Iowa Seed Science*, 6 (1): 4-6.
18. Misra, M. “Minimizing Mechanical Damage to Soybean Seed.” I.S.U. Extension publication #Pm-999, 1984.
19. Misra, M. K. 1984. “Soybean Seed Storage.” I.S.U. Extension Pm-1004
20. Misra, M., A. Gaul, and O. Kayode. 1983. “Soybean Seed Quality During Conditioning.” *Iowa Seed Science*, Vol. 5, No. 2.

21. Misra, M. 1983. "Cleaning of Black Nightshade Berries from Soybean Seeds." Iowa Seed Science, 5 (1): 5-6.
22. Wilcke, W. and M. Misra. "Soybean Drying." I.S.U. Extension publication #AE-3026.
23. Misra, M. "Conveyors for Bulk Handling of Seed." I.S.U. Extension publication #Pm-1026, 1983. **Blue ribbon award from American Society of Agricultural Engineers.**

**Total Publications: 140**