Department of Agronomy and Plant Genetics

Appendix

USDA CSREES Review
November 17-22, 2008

UNIVERSITY OF MINNESOTA

College of Food, Agricultural and Natural Resource Sciences

SOLUTION ▸ *DRIVEN* SCIENCE™

Department of Agronomy and Plant Genetics
Appendix
USDA CSREES Review

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James A. Anderson

Professor
Wheat Breeding and Genetics
80% Research, 20% Teaching

Professional Experience:

2006 – present	Professor University of Minnesota
2002 – 2006	Associate Professor University of Minnesota
1998 – 2002	Assistant Professor University of Minnesota
1996 – 1998	Research Geneticist USDA-ARS, Pullman, WA
1992 – 1996	Assistant Professor North Dakota State University

Educational History:

Ph.D.	1992	Cornell University (Plant Breeding)
M.S.	1989	University of Kentucky (Crop Science)
B.S.	1987	University of Minnesota (Agronomy)

Professional Societies:
American Society of Agronomy
Crop Science Society of America

Professional Interests and Responsibilities: I lead a comprehensive wheat improvement program, including cultivar development and the investigation of breeding/genetic principles related to crop improvement. Major research effort is genetic investigations of complexly inherited traits including disease resistance and grain quality and incorporating resistance into new cultivars using marker-assisted selection. I teach a graduate level plant breeding class, coordinate a one credit survey course on Research Methods in Crop Improvement and Production, and co-teach a First Year Experience Seminar for undergraduate students.

Honors and Awards (2003 – present):

- 2005-2007 Univ. MN Star Faculty Award for outstanding performance
- 2006 Fellow, American Society of Agronomy
- 2007 Fellow, Crop Science Society of America

Significant Committee/Professional Service (2003 – present):

- Chair of Expert On-Site Review Team for USDA-ARS Plant Science and Entomology Research Unit, Manhattan, KS (11/16/03-11/19/03)
- Crop Science Society of America Division C-7 Chair (2008/2009)
- Associate DGS, Applied Plant Sciences Graduate Program (9/07-)
- Regional Coordinator (North Central Region) for WheatCAP project (12/05-)
- USDA-CSREES Review Team Member, Agronomy Dept., Kansas St. Univ. (3/08)

Teaching and Advising Activities:
AGRO 8201: Principles of Plant Breeding I, 3 credits, every other Fall
AGRO 5311: Research Methods in Crop Improvement and Production, 1 credit, summer
AGRO 1660: First Year Colloquium/Experience in Agroecosystems Analysis, 2 credits, Fall
Graduate Advising: 4 M.S. and 4 Ph.D. students
Graduate Committee Membership: 14 M.S. and 11 Ph.D. students

Major Extension Education Activities: none

Intellectual Property and Scholarly Products:

Contributed to development of 12 wheat varieties

Extramural Funding Received (2003 – present):

Total Funding Received: $4 million

Selected Funded Projects:

Title	PI's	Years	Sponsor	PI Amt.
The Structure and Function of the expressed portion of the wheat genome	C. Qualset et al. (14 coPIs)	9/99-8/03	NSF	$298,144
Bringing Genomics to the Wheat Fields	J. Dubcovsky et al. (17 coPIs)	10/01-9/05	USDA-IFAFS	$219,750
Haplotype polymorphism in polyploid wheats and their diploid ancestors	Dvorak et al. (11 coPIs)	9/03-8/06	NSF	$219,750
Map-based Cloning of a Major QTL for Fusarium Head Blight Resistance in Wheat	J. Anderson	9/04-8/07	USDA-NRI	$355,000
Wheat Applied Genomics	J. Dubcovsky et al. (20 coPI's)	12/05-9/09	USDA-CSREES	$201,875
Durable Rust Resistance in Wheat	R. Coffman et al.	2/08-2/11	Bill & Melinda Gates Found.	$257,719

Publications (2003 – present):

Refereed: 35 ***Abstracts/Proceedings:*** 43 ***Invited Presentations:*** 24
Variety Releases: 5 ***Book Chapters:*** 2

Selected Publications (2003 – present):

Conley, E.J., ... (35 additional authors)... and J.A. Anderson. 2004. A 2600-locus chromosome bin map of wheat homoeologous group 2 reveals interstitial gene-rich islands and colinearity with rice. Genetics 168:625-637.

Fuentes-Granados, R.G., H.R. Mickelson, R.H. Busch, R. Dill-Macky, C.K. Evans, W.G. Thompson, J.V. Wiersma, W. Xie, Y. Dong, and J.A. Anderson. 2005. Resource allocation and cultivar stability in breeding for Fusarium head blight resistance in spring wheat. Crop Sci. 45:1965-1972.

Anderson, J.A., and J.A. Kolmer. 2005. Rust control in glyphosate tolerant wheat following application of the herbicide glyphosate. Plant Dis. 89:1136-1142.

Liu, S., X. Zhang, M.O. Pumphrey, R.W. Stack, B.S. Gill, and J.A. Anderson. 2006. Complex microcolinearity among wheat, rice and barley revealed by fine mapping of the genomic region harboring a major QTL for resistance to Fusarium head blight in wheat. Functional and Integrative Genomics 6:83 -89.

Pumphrey, M.O., R. Bernardo, J.A. Anderson. 2007. Validating the *Fhb1* QTL for Fusarium head blight resistance in near-isogenic wheat lines developed from breeding populations. Crop Sci. 47:200-206.

Tsilo, T.J., Y. Jin, and J.A. Anderson. 2008. Diagnostic microsatellite markers for the detection of stem rust resistance gene *Sr36* in diverse genetic backgrounds of wheat. Crop Sci. 48:253-261.

Roger L. Becker

Professor, Extension Weed Scientist
Invasive Weeds, Sweet Corn, Biological Control of Weeds
75 % Extension; 25 % Research

Professional Positions:

Employer	Dates	Position
Iowa State University	1978-1982	Extension Associate
Monsanto Company	1982-1985	Product Development Representative
Monsanto Company	1985-1987	Product Development Associate
University of Minnesota	1987-1993	Assistant Professor
University of Minnesota	1993-1999	Associate Professor
University of Minnesota	1999-present	Professor

Educational History:

Name of Institution	Years	Major	Degree
Iowa State University	1972-1976	Agronomy	B.S.
Iowa State University	1976-1978	Botany (Plant Physiology)	M.S.
Iowa State University	1978-1982	Agronomy (Crop Physiology)	Ph.D.

Professional Organizations and Honor Societies:

American Society of Agronomy	Phi Kappa Phi
Weed Science Society of America	Gamma Sigma Delta
North Central Weed Science Society of America	Sigma Xi

Professional Interests and Responsibilities: Weed management strategies in annual and perennial systems in disturbed and undisturbed habitats. Current projects include purple loosestrife in wetlands, Canada thistle in native prairies, common buckthorn and garlic mustard in woodlands, commercial processing sweet corn and peas, biological control of weeds, and the environmental impacts of herbicide and non-herbicide weed management systems.

Honors and Awards and Dates Received: The Minnesota Integrated Weed Management Group sponsored University Extension Outstanding Service Award for 2004.

Significant Committee/Professional Service (2003 – present):

2003- Agroecology Prelim Subcommittee. Chair in 2005.
2003-2005 Minnesota Department of Agriculture Pesticide Management Plan, Advisor
2003- Minnesota Invasive Species Advisory Committee, Terrestrial Plants Subcommittee
2003- Minnesota Invasive Species Advisory Committee, Research Subcommittee
2003- Minnesota Department of Agriculture County Ag Inspectors Advisory
2003-2005 Weed Science Society of America (WSSA) Executive Board
2003- Weed Science Society of America, Web Information Systems Committee
2003- Upper Midwest Fruit and Vegetable Growers Association Board (member)
2003-2005 North Central Weed Science Society Representative to the WSSA
2003-2004 WSSA – NAWMA 2004 Invasive Plant Species Workshop. Chair, Organizer.
2003-2005 North Central Weed Science Society Executive Board
2004-2007 Agronomy and Plant Genetics Department Head Search Committee
2004 North Central Weed Science Society Resident Education Committee,
2004-2006 Weed Science Society of America 50th Anniversary Committee Co-Chair
2004-2006 Weed Science Society of America History Committee Co-Chair 2004
2005- Minnesota Department of Agriculture Pesticide Management Plan Committee.

2005 Buckthorn and Garlic Mustard Workshop. U of M, MnDNR. Co-Chair,
2005- Midwest Invasive Plants Network (MIPN). Board Member. Research Committee.
2005- North Central Weed Science Society - Midwest Invasive Plants Network Joint Symposia Team.
2006- IGERT- Graduate Training Grant for Risk Analysis for Introduced Species & Genotypes. Faculty Participant.
2006- Minnesota Invasive Terrestrial Plant Conference Committee.
2007- Minnesota Cooperative Weed Management Areas (CWMA) Committee.

Teaching and Advising Activities: no formal teaching appointment, do guest lectures.
Graduate Advising: 1 Ph.D. students
Graduate Committee Membership: 5 M.S. and 3 Ph.D. students

Extramural Funding Received (2003 – present):
Total Funding Received: $667,064
Selected Funded Projects:
Biological control of garlic mustard. L. Skinner, R.L. Becker, E.J. Katovich, and D.W. Ragsdale.. MnDNR, US Forest Service and Mn LCMR grants passed through the MnDNR.. 2003-07. $170,000.
Implementation of Biological control of garlic mustard. L. Skinner, and R.L. Becker. LCMR pass through MnDNR. Establish baseline plots for future release of *Ceutorynchus* spp. and conduct basic biology of garlic mustard. 2005-2008 $ 90,000.
Canada Thistle Seed Movement. R.L. Becker and M.J. Haar. CTS via Mn DOT. 2006-2008. $88,000
Best Management Practices to Improve Invasion Resistance Of Natural Landscapes. R.L. Becker. MnDNR Heritage Fund. 2004-2007 . $90,000.

Publications (2003 – present):
Refereed: 4 ***Abstracts/Proceedings:*** 31 ***Invited Presentations:*** 10
Teaching Publications 3 ***Research Reports and Articles*** 5
Extension Bulletins, Folders and Fact Sheets 19 ***Book Chapters:*** 2

Selected Publications (2003 – present):
Jordan, N., R. Becker, J. Gunsolus, S. White, and S. Damme. 2003. Knowledge networks: an avenue to ecological management of weeds. Weed Sci. 51:271-277.
Katovich, E.J.S., R.L. Becker, and J.L. Bryon. 2003. Winter survival of late emerging purple loosestrife (*Lythrum salicaria*) seedlings. Weed Sci. 51:565-568.
Sheaffer C.C., Undersander, D.J., and R.L. Becker. 2007. Comparing Roundup Ready and Conventional Systems of Alfalfa Establishment. © 2007 Plant Management Network. Published 24 July 24, 2007. 7 p. http://www.plantmanagementnetwork.org/sub/fg/research/2007/alfalfa/
Martinson, K., L. Hovda, M. Murphy. Plant poisonous or harmful to horses in the North Central United States. Contribution author. University of Minnesota Pub. No. 08491. 44 p.
Hutchison, B. (ed.), R. Becker, D. Ragsdale, R. Jones, C. Rosen, and V. Fritz (Minnesota Contributors) 2007. Midwest vegetable production guide for commercial growers. University of Minnesota Extension Service, St. Paul, Minnesota. BU-7094-S. http://www.entm.purdue.edu/Entomology/ext/targets/ID/
Katovich, E.K, R.L. Becker, D.W. Ragsdale, and L.C. Skinner. 2005. Host range testing of garlic mustard (*Alliaria petiolata*) biocontrol insects in Minnesota. *In:* Proceedings: Symposium on the biology, ecology, and management of garlic mustard (*Alliaria petiolata*) and European buckthorn (Rhamnus cathartica). L.C. Skinner ed. Forest Health Technology Enterprise Team. US Forest Service FHTET-2005-09. Sept. 2005. 63 p.

Rex N. Bernardo

Professor and Endowed Chair in
Corn Breeding and Genetics
80% Research, 20% Teaching

Professional Experience:

2005 – present	Professor and Endowed Chair, Department of Agronomy and Plant Genetics
2004	Visiting Scientist, Institut National de la Recherche Agronomique, Gif-sur-Yvette, France
2000 – 2005	Associate Professor and Endowed Chair, Department of Agronomy and Plant Genetics
1999 – 2000	Associate Professor, Department of Agronomy, Purdue University
1997 – 1999	Assistant Professor, Department of Agronomy, Purdue University
1988 – 1997	Research Scientist, Limagrain Genetics, Champaign, IL

Educational History:

Ph. D. – 1988	University of Illinois at Urbana-Champaign (Plant Breeding)
B.S. – 1983	Visayas State College of Agriculture, Philippines (Plant breeding)

Professional Societies:

American Society of Agronomy
Crop Science Society of America

Professional Interests and Responsibilities: I discover new ways of breeding corn, breed corn for new uses, and educate future plant breeders. My interests include exploiting new technologies in applied corn breeding and elucidating the nature of genetic variation for quantitative traits.

Honors and Awards (2003 – present):

2003	Who's Who in Agriculture Higher Education
2005	Fellow, American Society of Agronomy
2005	Fellow, Crop Science Society of America

Significant Committee/Professional Service (2003 – present):

2007-present	CFANS Promotion and Tenure Committee
2006-present	Department strategic planning committee
2006	Chair, CSSA division C1 (Crop Breeding & Genetics)
2006	Program chair, 2006 International Plant Breeding Symposium, 21-26 August 2006, Mexico City
2005	CFANS Graduate Working Committee
2005-07	Director of Graduate Studies, Applied Plant Sciences
2004-06	Editorial board, *Theoretical and Applied Genetics*
2004-05	Chair, CSSA Young Crop Scientist Award committee
2003-present	Department faculty personnel committee
2002-05	College Faculty Development Committee

Teaching and Advising Activities:

AGRO 8202: Plant Breeding Principles II, 3 credits, Spring semester (even years)
AGRO 8900: (Advanced Discussions) Publishing in Plant Science Journals, 2 credits, every 3rd semester
Graduate Advising (2003-present): 5 M.S. and 5 Ph.D. students

Graduate Committee Membership (2003-present): 8 M.S. and 11 Ph.D. students

Intellectual Property and Scholarly Products:

2008 *Miner* software

Extramural Funding Received (2003 – present):

Total Funding Received: $6,212,748

Selected Funded Projects:

USDA-NRI Plant Genome: Towards in silico gene mapping from phenotypic, pedigree, and genomic data in plant breeding. R. Bernardo. $207,693. 2002-05.

USDA: Barley Coordinated Agricultural Project: Leveraging genomics, genetics, and breeding for gene discovery and barley improvement. G.J. Muehlbauer, R. Dill-Macky, K.P. Smith, B. Steffenson, R. Bernardo. $4,982,036. 2006-09.

USDA National Needs Fellowship: Educating tomorrow's plant breeders: From genomes to cultivars. R. Bernardo, J.A. Anderson, G.J. Muehlbauer. $153,000. 2007-11.

USDA: Strategies for using molecular markers to simultaneously improve corn grain yield and stover quality for ethanol production. R. Bernardo and Hans J.G. Jung. $715,000. 2007-10.

Publications (2003 – present):

Refereed: 23	***Abstracts/Proceedings:*** 8	***Invited Presentations:*** 1
Variety Releases: 0	***Book Chapters:*** 0	

Selected Publications (2003 – present; * indicates primary authorship):

Bernardo*, R. 2003. Parental selection, number of breeding populations, and size of each population in inbred development. Theor. Appl. Genet. 107: 1252-1256.

Parisseaux*, B., and R. Bernardo*. 2004. In silico mapping of quantitative trait loci in maize. Theor. Appl. Genet. 109: 508-514.

Bernardo*, R., L. Moreau, and A. Charcosset. 2006. Number and fitness of selected individuals in marker-assisted and phenotypic recurrent selection. Crop Sci. 46: 1972-1980.

Bernardo*, R., and J. Yu. 2007. Prospects for genomewide selection for quantitative traits in maize. Crop Sci. 47:1082-1090.

Lorenzana*, R.E., and R. Bernardo*. 2008. Genetic correlation between corn performance in conventional and organic production systems. Crop Sci. 48:903-910.

Bernardo*, R. 2008. Molecular markers and selection for complex traits: Learning from the last 20 years. Crop Sci. 48: (Sept-Oct issue).

Vernon B. Cardwell

Professor
Undergraduate Teaching and Advising
100% Teaching (@75% phased retirement)

Professional Experience:

1978 – present	Professor, Department of Agronomy and Plant Genetics
1973 – 1978	Associate Professor, Department of Agronomy and Plant Genetics
1967 – 1973	Assistant Professor, Department of Agronomy and Plant Genetics
1964 – 1967	Instructor, Department of Agronomy, Iowa State University
1960 – 1964	Assistant Professor, Colorado State University

Educational History:

Ph. D. – 1967	Iowa State University (Crop Physiology)
M.S. – 1961	Colorado State University (Field Crops Breeding)
B.S. – 1958	Colorado State University (Agricultural Education)

Professional Societies:

American Society of Agronomy (ASA)
Crop Science Society of America (CSSA)
Soil Science Society of America (SSSA)
American Institute of Biological Sciences (AIBS)
Renewable Natural Resources Foundation (RNRF)
Council for Agricultural Science and Technology (CAST)
National Association of Colleges and Teachers of Agriculture (NACTA)
National Science Teachers Association (NSTA)
Minnesota Association of Environmental Educators (MAEE)
American Association for the Advancement of Science (AAAS)
Council of Scientific Society Presidents (CSSP)

Professional Interests and Responsibilities: I have spent most of my 42 years at the University of Minnesota focusing on agronomic education and curriculum, undergraduate advising and agricultural literacy programs. My research has been in the area of crop management and seed physiology.

Honors and Awards (2003 – present):

2005 – Distinguished Alumni Award, Department of Agronomy, Colorado State University
2006 – Community Service Award, University of Minnesota
2006 – Outstanding Advisor Award, Presented by COAFES Student Board
2008 – Inducted into Minnesota FFA Hall of Fame
2008 – Little Red Oil Can Award, CFANS Quality of St. Paul Campus Life award

Significant Committee/Professional Service (2003 – present):

Department:	1998 – 2004	Coordinator, Crops and Soil Resource Management Major
	1997 – Present	Advisor, Gopher Crops and Soils Club
	1999 – 2004	Member, COAFES Curriculum Committee
	2006 – Present	Coordinator, Agronomy College-in-the-Schools
College:	2005	COAFES/CNR Outreach and Public Engagement Working Group
	1997 – 2006	Advisor, COAFES Student Board
	2006 – Present	Advisor, CFANS Student Board
	2005 – 2007	Elected Member, COAFES Faculty Consultative Committee

	2006 – 2008	Co-chair, CFANS Faculty Consultative Committee
University:	2001 – 2004	Appointed, University of Minnesota Honors and Awards Committee
	2001 – 2006	Elected, University Senate
	2004 – 2006	Steering Committee of UM Academy of Distinguished Teachers
	2003 – 2006	Member, MacArthur Fellowship Selection Committee
	2001 – 2007	Appointed to Senate Committee on Educational Policy
	2005 – 2007	Member, Morse-Alumni Teaching Awards Selection Committee
	2007 – 2009	Steering Committee of UM Academy of Distinguished Teachers
	2008	Appointed member of AFEE Faculty Search Committee, CEHD
Other:	2001 – 2004	Elected, Board of Governors for Food, Land and People
	2004	Consultant to Petrobras on corn problem in Los Lajitas, Argentina
	2005 – Present	National Board of Directors for Food, Land and People
	2006 – 2008	Member, National Academy of Science, Board on Agriculture and
	2006	Participant/Presenter, Leadership Summit to Effect Change in Teaching and Learning
	2006 – 2009	Chair of Standards and Assessment sub-committee, S591 - Soil Science Society K-12 Committee

Teaching and Advising Activities:

Agro-1093: Directed Studies—1 to 4 cr. All terms, 1 to 3 students per term
Agro-1101: Biology of Plant Food Systems—Lab for Ag Ed majors, 1 cr. Fall, 15-18 students
Agro-2103: Biology of Food, Land, People and Environment—4cr. Fall, 8-12 students
Agro-4005: Applied Crop Physiology and Management—4 cr. Spring, 12-18 students
Agro-4093: Direct Studies for Advanced Students—1 to 4 cr. All terms, 0-3 students per term
Agro-4096: Professional Experience Program: Internship—1 to 3 cr. All terms, 5-12 students
Agro-4603: Field Problems Diagnosis—3 cr. Summer, 4-8 students
Undergraduate advising—3 (phasing out, not taking new advisees—working with advisors)
Graduate committees—2 Ag Education-Master of Education Majors

Extramural Funding Received (2003 – present):

Total Funding Received: $92,608

Selected Funded Projects:

Funding from Minnesota Agricultural Education Leadership Council to develop "Tool Kits in support of MN-FLP Lessons" 2004 – $5,250

Minnesota Office of Higher Education, Public Law 107-110 – Improving Teacher Quality Grant: Investigating Environment, Soil, Water and Climate to Understand Concepts of Science for K-9 Teachers in Southwest Minnesota. Sixty hours of instruction each summer. 2007 – $40,039; 2008 –$47,249

Publications (2003 – present):

Cardwell, V.B., S. Anderson, L. Wiger. 2004. Food, Land and People: 55 New Lessons to Complement PLT, WET and Wild. Minnesota Science Teachers Association. Volunteer paper, April 16, 2004

Cardwell, V. B. 2004. Content Standards for Agriculture or Agriculture Content imbedded within Core Standards. Agriculture Education J. 77

Cardwell, V.B. 2005. Literacy: What Level for Food, Land, Natural Resources, and Environment? JNRLSE 34:112-117

Cardwell, V.B. 2006. Role of Scientific and Professional Societies in Teaching and Learning. Midwest Section, American Society of Animal Science, Des Moines, IA. Invited Paper. March 22, 2006

Cardwell, V.B. 2007. *College in the High Schools: An Opportunity for Our Disciplines*. Agronomy Abstracts

Jeffrey A. Coulter

Assistant Professor and Extension Agronomist
Corn-based Cropping Systems
60% Extension, 40% Research

Professional Experience:

2008 – present	Assistant Professor, Department of Agronomy and Plant Genetics

Educational History:

Ph. D. – 2008	University of Illinois (Crop Sciences)
M.S. – 2005	University of Illinois (Crop Sciences)
B.S. – 2003	South Dakota State University (Agronomy)

Professional Societies:

American Society of Agronomy
Crop Science Society of America
Soil Science Society of America
Gamma Sigma Delta Agricultural Honor Society

Professional Interests and Responsibilities: My responsibilities include Extension and research, with the goal of helping corn producers increase productivity and profitability while protecting our natural resources. The Extension and research program that I lead is focused on solving current and future issues in corn production through field experiments conducted at University Research and Outreach Centers and in production fields throughout the state.

Honors and Awards (2003 – present):

2003	South Dakota State University Gamma Sigma Delta Outstanding Senior
2004	North Central Extension-Industry Soil Fertility Conference Graduate Student Award
2006	Illinois Fertilizer and Chemical Association Graduate Student Award
2007	Crop Science Society of America Gerald O. Mott Graduate Student Award
2004-07	Selected four times to the List of Teachers Ranked as Excellent by Their Students at the University of Illinois
2004-08	University of Illinois Crop Sciences Graduate Fellowship

Significant Committee/Professional Service (2003 – present):

2006-08	University of Illinois – Crop Sciences Departmental Advisory Committee
2008-present	Agronomy Journal – Associate Editor, Crops (starting July 1)

Teaching and Advising Activities:

Teaching Assistant, University of Illinois:
- Applied Statistical Methods I, 4 credits, Spring 2006 and Fall 2005, 2006, and 2007
- Applied Statistical Methods II – Advanced Experimental Design, 5 credits, Spring 2007
- Crop Growth and Management, 3 credits, Spring 2008

Graduate Advising: None
Graduate Committee Membership: None

Extramural Funding Received (2003 – present):

Total Funding Received: $13,800 (expected)

Selected Funded Projects:

EMD Crop Bioscience. Evaluation of starter fertilizer and plant growth promoters in corn cropping systems. J.A. Coulter. $6,300, 2008.

BASF. Foliar fungicide timing and rates in continuous corn. J.A. Coulter. $7,500, 2008.

Publications (2003 – present):

Refereed: 5 (3 in review) ***Abstracts/Proceedings:*** 5

Invited Presentations: 2

Extension: 0 ***Popular press:*** 5

Book Chapters: 0

Selected Publications (2003 – present):

Coulter, J.A., and E.D. Nafziger. 2007. Planting date and glyphosate timing on soybean. Weed Technol. 21:359-366.

Coulter, J.A., and E.D. Nafziger. 2008. Yield and agronomic responses of soybean to cotyledon and unifoliolate node removal. Crop Sci. 48:353-356.

Coulter, J.A., and E.D. Nafziger. 200_. Continuous corn response to residue management and nitrogen fertilization. Agron. J. *In Review*.

Coulter, J.A., E.D. Nafziger, and M.M. Wander. 200_. Soil organic matter response to crop rotation and nitrogen fertilization. Soil Sci. Soc. Am. J. *In Review*.

Coulter, J.A., E.D. Nafziger, and M.M. Wander. 200_. Sampling phase influence on soil organic matter in a corn-soybean rotation. Soil Sci. Soc. Am. J. *In Review*.

Gregory J. Cuomo

Associate Dean for Extension – CFANS
Administration, Extension agricultural and natural resources programming
100% Administration

Professional Experience:

University of Minnesota:

6/08 – present	Associate Dean for Extension - College of Food, Agricultural and Natural Resource Sciences.
10/06 – 6/08	Director of Operations - UMore Park and Rosemount Research and Outreach Center, Rosemount, Minnesota
2/00 – 10/06	Head, West Central Research and Outreach Center, Morris, Minnesota
7/05 – 10/06	Administrator - Sand Plain Research Farm, Becker Minnesota
7/05 – present	Professor, Department of Agronomy and Plant Genetics
1999 – 2005	Associate Professor, Department of Agronomy and Plant Genetics
1996 – 1999	Assistant Professor, Department of Agronomy and Plant Genetics

Louisiana State University

1992 – 1996	Assistant Professor, Southeast Experiment Station, Franklinton, Louisiana/School of Plant, Environmental and Soil Sciences

Educational History:

University of Nebraska	Agronomy (Forages)	Ph.D.	1992
Texas Tech University	Range Science	M.S.	1988
Texas A&M University	Range Science	B.S.	1984

Professional Societies:
American Society of Agronomy
Crop Science Society of America

Professional Interests and Responsibilities: Responsibility for Extension programming in agricultural and natural resources for Minnesota. Academic background in forages. Renewable energy systems have been the focus of my non-administrative work over the last 8-years.

Significant Committee/Professional Service (2003 – present):

2007 – present	North Central Sun Grant Advisory Committee
2006 – 2008	Vermillion Highlands Operations Group, joint University/DNR/Dakota County oversight committee.
2006 – 2008	UMore Park Management Team
2000 – 2006	Barnes-Aastad, oversight committee, for Morris USDA-ARS unit.

Teaching and Advising Activities:

2006 – 2008	"Renewable energy in practice," Renewable Energy Technologies, CHEN 5551. One lecture.
2003 – 2006	"Renewable energy, society and the environment," Energy, Environment, and Society, EE 1701W. One lecture.
2005	"Renewable energy," Chemical Energy Process Design, CHEN 4501. One lecture.
2003	"Leadership for change," Thriving in the 21st Century Workplace. Agri. 1000H. One lecture.

Major Extension Education Activities:

2008 – present Associate Dean for Extension

Extramural Funding Received (2003 – present):
Total Funding Received: $11,129,380

Selected Funded Projects:

2006	"Legislative appropriation," Wind-to-Anhydrous ammonia	$2,500,000
2005	USDA-DOE "University of Minnesota Biomass Development Initiative"	$1,896,493
2005	Legislative Commission on Minnesota Resources "Wind-to-hydrogen demonstration"	$ 800,000
2003 – 2007	Initiative for Renewable Energy and the Environment "Renewable Energy – Assistantships, Fellowships, and Visiting Scientists"	$ 330,000
2002 – 2004	Department of Energy, "Native grasses as a biomass energy feedstock" (Vance Owen SDSU, PI.). Project budget $126,000	$ 45,000
2003 – 2006	NCR SARE Research and Education Grant Enhancing pasture productivity by improving winter survival of perennial ryegrass; (P.R. Peterson PI); Project budget $149,998	$ 9,000
2001 – 2004	University of Minnesota-Rapid Agricultural Response Fund "Restoring native legumes/plants to preserve perenniality and viability in Minnesota agriculture" (P.R. Peterson, PI), renewed for 3rd year, Project budget $295,000	$ 15,000
2003	State legislative appropriation – Renewable Energy Center-Morris	$3,960,000

Publications (2003 – present):

Refereed: 4 ***Abstracts/Proceedings:*** 3 ***Invited Presentations:*** >100 ***Extension:*** 6

Selected Publications (2003 – present):

Cuomo, G.J., M.V. Rudstrom, D.G. Johnson, A. Singh, P.R. Peterson, C.C. Sheaffer, and M.H. Reese. 2005. Nitrogen fertilization impacts on stand dynamics and forage mass of rotationally stocked cool-season grass-legume pastures. Agron. J. 1194-1201.

Cuomo, G.J., M.V. Rudstrom, P.R. Peterson, D.G. Johnson, A. Singh, and C.C. Sheaffer. 2005. Initiation date and nitrogen rate for stockpiling smooth bromegrass in the north central USA. Forage and Grazinglands. http://www.plantmanagementnetwork.org/pub/fg/research/2005/pasture/

Laberge, G., S. Seguin, P.R. Peterson, C.C. Sheaffer, N.J. Ehlke, G.J. Cuomo, and R.D. Mathison. 2005. Establishment of kura clover no-tilled into grass pastures with herbicide sod suppression and nitrogen fertilization. Agron. J. 97:250-256.

Cuomo G.J., P.R. Peterson, A. Singh, D.G. Johnson, W.A. Head Jr., and M.H. Reese. 2003. Persistence and spread of kura clover in cool-season grass pastures. Agron. J. 95:1591-1594.

Beverly R. Durgan

Dean - University of Minnesota Extension
Director – Minnesota Agriculture Experiment Station
Professor and Weed Scientist
100% Administration

Professional Experience:

University of Minnesota	2005- present	Dean – University of Minnesota Extension
University of Minnesota	2005- present	Director – MN Ag Experiment Station
University of Minnesota	2000 - 2005	Associate Dean for Research and Outreach
University of Minnesota	1998 - 2000	Interim Associate Dean for Research
University of Minnesota	1997 – 1998	Assistant Dean
University of Minnesota	1997 - present	Professor (Weed Scientist)
University of Minnesota	1995 - 1996	Acting Assistant Dean
University of Minnesota	1990 - 1995	Associate Professor (Weed Scientist)
University of Minnesota	1985 - 1990	Assistant Professor (Weed Scientist)

Educational History:

North Dakota State University	PhD	Agronomy	1985
North Dakota State University	MS	Agronomy	1983
Montana State University	BS	Business	1981

Professional Organizations and Honor Societies:
Weed Science Society of America
North Central Weed Science Society
Western Weed Science Society
Sigma Xi

Professional Interests and Responsibilities: My job responsibilities are primarily administrative as Dean of University of Minnesota Extension and Director of the Minnesota Agriculture Experiment Station. I conduct research and provide leadership for extension programs in small grain weed management systems. I also teach one undergraduate course every other fall semester.

Honors and Awards and Dates Received (2003- present):
2007 - Friend of Minnesota Agriculture. Minnesota Soybean Growers Association.
2008 – Honorary Premier Seedsman Award. Minnesota Crop Improvement Association.

Significant Committee/Professional Service (2003 – present):

2007 – present	Chair – North Central Extension Directors Association
1990 - present	Minnesota Plant Food and Chemicals Association Board of Directors
1992 - present	Minnesota Certified Crop Advisors – State Board of Directors
2003 – 2005	Minnesota Crop Improvement Association Board Member

Teaching and Advising Activities:
AGRO 2501: Plant Identification in Urban and Rural Landscapes. 3 credits. Fall Semester
Graduate Advising: 1 MS and 1 Ph.D.

Major Extension Education Activities:
My primary extension responsibilities are to plan, develop, implement and evaluate statewide educational programs on small grain weed management systems. I use various methods to establish contact with

clientele groups throughout the state. These include: county and regional meetings, research and outreach center field days, county field plot tours, radio, and printed materials. I also conducted radio interviews, and served as a resource for articles in farm magazines and newspapers throughout the year. My major clientele group is agricultural professional.

Grower educational meetings: 35 ***Agriculture professional educational meetings: 25***

Extramural Funding Received (2003 – present)

Total funding Received: $250,000.

Publications (2003 – present):

Referred: 8 ***Abstracts and Proceedings: 18*** ***Extension: 25***
Invited Presentations: 10

Selected Publications (2003 – present):

Martinson, K. B., Durgan, B. R., Wiersma, J. J. 2007. Wild oat *(Avena fatua* L.) Control with Reduced Rates of Postemergence Herbicides. Crop Management doi:10.1094/CM-2007-0219-02-RS.

Martinson, K.B., Durgan B.R., Wiersma, J, and Forcella, F., Spokas, K., and Archer, D. 2007. An Emergence Model for Wild Oat (*Avena factua*). Weed Science. 55:584-591.

Martinson, K. B., Durgan, B. R., Gunsolus, J. L., and Sothern, R. B. 2006. Time of day of application effect on glyphosate and glufosinate efficacy. Online. Crop Management doi:10.1094/CM-2005-0718-02-RS.

Wiersma, Jochum J., Beverly R. Durgan, and Krishona Martinson. 2003. Hard red spring wheat (*Triticum aestivum*) tolerance to postemergence grass herbicides. Weed Tech. 17:297-301.

Miller, Ryan P., Krishona B. Martinson, Robert B. Sothern, Beverly R. Durgan, and Jeffrey L. Gunsolus. 2003. Circadian response of annual weeds in a natural setting to high and low application rates of four herbicides with different modes of action. Chronobiology International.20.2

Extension:

Martinson K., B.R. Durgan, J.J. Wiersma, F. Forcella. 2007. Modeling Weed Emergence. North Central Weed Sci. Soc. Abstr. 62.49-50.

Martinson, K.B., Durgan B.R., Wiersma, J, and Forcella, F. 2006. Modeling weed emergence. 2006 NCWSS Research Report. 61.30.

Durgan, B. R. 2006. Weed control in small grains. In Cultural and chemical weed control in field crops – 2003. Extension Bulletin (BU-03157-F). University of Minnesota Extension, University of Minnesota. pp. 58-74.

Durgan, B. R. 2005. Weed control in small grains. In Cultural and chemical weed control in field crops – 2003. Extension Bulletin (BU-03157-F). University of Minnesota Extension, University of Minnesota

Durgan, B. R. 2004. Weed control in small grains. In Cultural and chemical weed control in field crops – 2003. Extension Bulletin (BU-03157-F). University of Minnesota Extension, University of Minnesota

Nancy Jo Ehlke

Professor and Head
Administration, Turf and Legume Breeding, Genetics and Seed Production
100 % Administration

Professional Experience:

2005 – present	Department Head, Department of Agronomy and Plant Genetics
1998 – present	Professor, Department of Agronomy and Plant Genetics
1993 – 1998	Associate Professor, Department of Agronomy and Plant Genetics
1986 – 1993	Assistant Professor, Department of Agronomy and Plant Genetics

Educational History:

Ph. D. – 1987	The Pennsylvania State University (Agronomy)
M.S. – 1983	The University of Wisconsin (Plant Breeding and Plant Genetics)
B.S. – 1981	The University of Wisconsin (Agronomy and Plant Pathology)

Professional Societies:

American Society of Agronomy
Crop Science Society of America

Professional Interests and Responsibilities: My job responsibilities are primarily administrative as Head of the Department of Agronomy and Plant Genetics. I conduct research on the genetics and breeding methodologies of turf grasses and native legumes and develop management strategies which maximize the profitability and sustainability of grass and legume seed production in northern Minnesota

Honors and Awards (2003 – present):

2003	Fellow, Committee on Institutional Cooperation Academic Leadership Program.
2004	Fellow, American Society of Agronomy
2008	Outstanding Alumni Award, Department of Crop and Soil Sciences, The Pennsylvania State University

Significant Committee/Professional Service (2003 – present):

2003-05	CFANS Promotion and Tenure Committee
2004	Chair, Campus Committee on Student Behavior
2005-present	Minnesota Crop Improvement Board Member
2003-present	CSSA - C459: Seed Science Award member and chair (2004)
2004	President, 18th Annual *Trifolium* Conference
2005-07	American Society of Agronomy – Fellows Selection Committee
2007-08	Chair, Search Committee, CFANS Associate Dean of Extension

Teaching and Advising Activities:

AGRO 5121: Applied Experimental Design, 4 credits, Spring semester
Graduate Advising: 2 M.S. and 1 Ph.D. students
Graduate Committee Membership: 11 M.S. and 2 Ph.D. students

Intellectual Property and Scholarly Products:

2005 Ragnar II Perennial Ryegrass
2006 Polar Green Perennial Ryegrass
2007 Arctic Green Perennial Ryegrass
2008 A99-2626 Kentucky bluegrass

Extramural Funding Received (2003 – present):

Total Funding Received: $1,117,040

Selected Funded Projects:

Minnesota Department of Transportation/Center for Transportation Studies, UM: Adaptability and DNA Fingerprinting of Native Plant Populations from Diverse Ecoregions. N.J. Ehlke, C.C. Sheaffer, D.L. Wyse, and G. J. Muehlbauer. $105,094, 2002-2004

Minnesota Turf Seed Council. Nitrogen Fertilizer Form and Application Timing in Kentucky bluegrass and Perennial Ryegrass Grown for Seed. N.J. Ehlke and D.L. Wyse. $121,306, 2005-2007.

Rapid Agricultural Response Fund (MEAS): Reducing Economic Loss Caused by Stem and Crown Rust in Perennial Ryegrass. E. Watkins, B. Steffenson, N. Ehlke, B. Horgan, D. Wyse, D. Compton. $173,956, 2007-2009.

Publications (2003 – present):

Refereed: 17	***Abstracts/Proceedings:*** 16	***Invited Presentations:*** 2
Variety Releases: 4	***Book Chapters:*** 2	

Selected Publications (2003 – present):

Wyse, D.L., C.C. Sheaffer, N.J. Ehlke, D. R. Swanson, and D.J. Vellekson. 2003. Registration of Everett Quackgrass. Crop Sci 43: 433.

Ehlke, N.J., D.L. Wyse and D.J. Vellekson. 2003. Registration of Roseau Birdsfoot Trefoil. Crop Sci. 43: 732-733.

DeHaan, L.R., N.J. Ehlke, C.C. Sheaffer, G.A. Meuhlbauer, and D.L. Wyse. 2003. Illinois bundleflower genetic diversity determined by AFLP analysis. Crop Sci. 43:402-408.

DeHaan, L.R., N.J. Ehlke, C.C. Sheaffer, R.L. DeHaan, and D.L. Wyse. 2003. Evaluation of diversity among and within accessions of Illinois bundleflower. Crop Sci. 43: 1528-1537.

Moncada, K. M., N.J. Ehlke, G.J. Muehlbauer, C.C Sheaffer, D.L. Wyse, and L.R.DeHaan. 2007. Genetic variation in three native plant species across the state of Minnesota. Crop Sci. 47: 2379-2389.

Casler, M.D., K.P. Vogel, C.M. Taliaferro, N.J. Ehlke, J.D. Berdahl, E.C. Brummer, R.L. Kallenbach, C.P. West, and R.B. Mitchell. 2007. Latitudinal and longitudinal adaptation of switchgrass populations. Crop Sci. 47: 2249-2260.

Hulke, B.S., E. Watkins, D. Wyse, and N. Ehlke. 2007. Winterhardiness and turf quality of accessions of perennial ryegrass (Lolium perenne L.) from public collections. Crop Sci. 47: 1596-1602.

Hulke, B.S., E. Watkins, D. Wyse, and N. Ehlke. 2007. Freezing tolerance of selected perennial ryegrass (Lolium perenne L.) Accessions and its association with field winter hardiness traits. Euphytica. DOI 10.1007/s10681-007-9631-z.

Jeffrey L. Gunsolus

Professor, Extension Agronomist-Weed Science
Extension Program Leader (Admin.) – Crops Program Area
25% Research, 5% Teaching, 70% Extension
(25% Administration w/in Extension)

Professional Experience:

2005 - present	Extension Program Leader – Crops Program Area
1999 - present	Professor, University of Minnesota
1992 - 1999	Associate Professor, University of Minnesota
1986 - 1992	Assistant Professor, University of Minnesota

Educational History:

Ph.D. - 1986	North Carolina State University (Crop Science)
M.S. - 1982	Iowa State University (Agronomy)
B.S. - 1976	Iowa State University (Animal Ecology)

Professional Societies:

North Central Weed Science Society
Weed Science Society of America

Professional Interests and Responsibilities: My job responsibilities are to plan, develop, implement, and evaluate statewide educational programs on corn and soybean weed management. My weed management research program is designed to be applicable to Minnesota growers' needs and the primary objective is to help growers' diversify their weed management program. The primary objective of my extension program is to develop a more sustainable corn and soybean production system by teaching the principles of safe, effective, and cost-efficient weed management

Significant Committee/Professional Service (2003 – present):

2003 - present	Dept. Extension Team Leader
2003 - 2005	Dept. Personnel Committee
2004	Primary author for the Extension Business Plan for Commodity Crops
2005 - present	Extension Program Leader – Crops Program Area
2006 - 2007	Search Committee for the Soil and Plant Nutrient Management Extension position in the Dept. of Soil, Water, and Climate
2006 - present	North Central Weed Science Society Nominations Committee

Teaching and Advising Activities:

CFANS 3001: Pests and Crop Protection, 3 credits, spring semester
Graduate Advising / Committee Membership (2003 – present): none
Graduate Advising (1986 – present): 3 M.S. and 1 Ph.D. students
Committee Membership (1986 – present): 5 M.S. and 3 Ph.D. students

Major Extension Education Activities:

Institute for Ag Professionals – Activities involve program planning and implementation and development and delivery of educational content for the following programs:

Crop Pest Management Short Course – 3-day event in December of each year
Ag Professional Updates – 6-day event in January of each year
Ag Professional Field School – 2-day event in July of each year

Commodity Crop Production – Activities involve development and delivery of educational content in the areas of corn and soybean weed management

Pesticide Safety Education – Activities involve development and delivery of educational content in the area commercial and private pesticide applicator training

Extramural Funding Received (2003 – present):

Total Funding Received: $75,000

Selected Funded Projects:

Agrichemical industry grant-in-aid to support applied weed control research.

Publications (2003 – present):

Refereed: 8	***Abstracts/Proceedings:*** 7	***Invited Presentations:*** 2
Extension: 6	***Research Reports/Popular press:*** 46	***Book Chapters:*** 1

Selected Publications (2003 – present):

Jordan, N., R. Becker, J. Gunsolus, S. White, and S. Damme. 2003. Knowledge networks: an avenue to ecological management of invasive weeds. Weed Sci. 51: 271-277.

Miller, R. P., K. B. Martinson, R. B. Sothern, B. R. Durgan, and J. L. Gunsolus. 2003. Circadian response of annual weeds in a natural setting to high and low application rates of four herbicides with different modes of action. Chronobiology International 20(2): 299-324.

Hoverstad, T. R., J. L. Gunsolus, G. A. Johnson and R. P. King. 2004. Risk-efficiency criteria for evaluating economics of herbicide-based weed management systems in corn. Weed Technol. 18:687-697.

Hoverstad, T. R., G. A. Johnson, J. L. Gunsolus and R. P. King. 2006. Evaluating the economic risk of herbicide-based weed management systems in corn and soybean using stochastic dominance testing. Weed Technol. 20:422-429.

Scursoni, J., F. Forcella, J. Gunsolus, M. Owen, R. Oliver, R. Smeda, R. Vidrine. 2006. Weed diversity and soybean yield with glyphosate management along a north-south transect in the United States. Weed Sci. 54:713-719.

Jordan, N., H. Niemi, S. Simmons, R. Becker, J. Gunsolus and S. White. 2006. Learning groups for implementation of integrated weed management: principles and practical guidelines. Chapter 25 In Handbook of Sustainable Weed Management, Hawthorn Press.

Scursoni, J. A., F. Forcella, and J. L. Gunsolus. 2007. Weed escapes and delayed weed emergence in glyphosate-resistant soybean. Crop Protection 26: 212-218.

Uscanga-Mortera, E., S. A. Clay, F. Forcella, and J. L. Gunsolus. 2007. Common waterhemp growth and fecundity as influenced by emergence date and competing crop. Agron. J. 99: 1265-1270.

Milton J. Haar

Assistant Professor
Weed Scientist for Diversified Cropping Systems
90% Research, 10% Teaching

Professional Experience:

7/2002-present Assistant professor, University of Minnesota
5/1999-6/2002 Post-doctoral research assistant, University of California, Davis

Educational History:

Ph.D.- 1998	Iowa State University (Agronomy)
M.A. - 1990	University of South Dakota (Biology)
B.S. - 1088	University of South Dakota (Biology)

Professional Societies:

Weed Science Society of America
North Central Weed Science Society

Professional Interests and Responsibilities My job responsibilities are primarily weed science research. I work on projects that address short- and long-term weed science needs for the ecology and management of integrated and diversified cropping systems in southwestern Minnesota. Principal emphasis focuses on developing weed management strategies that decrease economic and environmental risks associated with a range of cropping systems and environments. The program focus on developing novel approaches for sustainable weed management in two crop (e.g. corn/soybean) rotations, alternative (e.g. "third crop" options) cropping systems, and in organic production.

Significant Committee/Professional Service (2003 – present)

2004-present	NE-1026, Weed Management Strategies for Sustainable Cropping Systems, secretary 2007 and chair 2008
2007-present	Multifunctional agriculture and landscape use for healthy food, environment and lives team,
	Dept. of Agronomy and Plant Genetics, 2007
2007-present	Research and Outreach Center Faculty Consultative Committee
2002-04	COAFES Curriculum Committee, 2002-2004
2002-05	University of Minnesota/Southwest Minnesota State University Partnership Program

Teaching and Advising Activities:

Senior Member of the graduate faculty in the field of applied plant Sciences 2 /8/ 2008
CFANS 3001: Pests and Crop Protection,1 of 3 credits Spring 2007 and 2008
Graduate advising: 1 M.S. student
Graduate Committee Membership: 1 Ph.D. student

Major Extension Education Activities:

Extension work focused on weed management in organic agriculture and management of Canada thistle in natural areas. Presentations have been given on these topics at a field days, meetings, winter schools and conferences. Participation in variety of field days held at the SWROC.

Extramural Funding Received (2003 – present):

Total Funding Received: 1,113,984

Selected Funded Projects:

Developing Carbon-Positive Organic Systems through Reduced Tillage and Cover Crop-Intensive Crop Rotation Schemes. CSREES Integrated Organic Program. Kathleen Delate, Jeff Moyer, Patrick Carr, Erin Silva, Jim Riddle, Paul Porter, and Milton Haar, and Dale Mutch. $855,629

Organic Valley's Farmers advocating for Organic. No-till Organic Crop Production Research. M. Haar, J. Riddle, P. Nickel and C. Fernholz, $50,000.

Perfecting organic no-till systems nationwide. USDA-NRCS. Jeff Moyer, M. J. Haar et al. Rodale Institute, joined project in 2007, $50,000.

Soil Carbon Sequestration by cover crops included in a corn and soybean rotation in Minnesota, Parker Sanders Research Grant, M. Haar and D. Wyse, 2007, $4,320

Applied soybean research SW MN Soybean Checkoff Research Funding 2007 Milton Haar, Bruce Potter, John Lamb, Jodi DeJong-Hughes and Liz Stahl. $21,238

Predicting fields at risk from soybean aphid. 2007-8. Ian MacRae, Milton Haar, Bruce Potter, Fritz Brietenbach and Carlyle Holen. Soybean Checkoff Research Funding. $44,797

Canada thistle seed movement. 2005-7. Roger Becker and Milton Haar. Center for Transportation Studies. $88,000

Publications (2003 – present):

Refereed: 6 ***Abstracts/Proceedings:*** 16 ***Invited Presentations:*** 6

Selected Publications (2003 – present):

Fennimore, S.A. J. Duniway, G. Browne, F. Martin, H. Ajwa, B. Westerdahl, R. Goodhue, M. Haar and C. Winterbottom. 2008. Methyl bromide alternatives for California strawberries. California Ag. 62:62-68.

Chen, S. D. L. Wyse, G. A. Johnson, P. M. Porter, S. R. Stetina, D. R. Miller, K. J. Betts, L. D. Klossner, and M. J. Haar. 2006. Effect of Cover Crops Alfalfa, Red Clover, and Perennial Ryegrass on Soybean Cyst Nematode Population and Soybean and Corn Yields in Minnesota. Crop Science 46:1890-1897.

Kabir, Z., S. A. Fennimore, J. M. Duniway, F. N. Martin, G. T. Browne, C. Q. Winterbottom, H. A. Ajwa, B. B. Westerdahl, and R. E. Goodhue and M. J. Haar. 2005. Alternatives to Methyl Bromide for Strawberry Runner Plant and Fruit Production. HortScience 40(6):1709-1715

Haar, M.J. and S.A. Fennimore. 2003. Evaluation of integrated practices for common purslane (*Portulaca oleracea*) management in lettuce (*Lactuca sativa*). Weed Technology. 17(2):229-233.

Haar, M.J., S.A. Fennimore, H.A. Ajwa and C.Q. Winterbottom. 2003. Chloropicrin effect on weed seed viability. Crop Protection 22:109-115.

S.A. Fennimore, M.J. Haar and H. Ajwa. 2003. Weed control in strawberry provided by shank and drip-applied methyl bromide alternatives. HortScience 38(1):55-61.

Gregg A. Johnson

Associate Professor
Biomass Cropping Systems and Weed Science
80% Research, 20% Outreach

Professional Experience:

2000 – Present	Associate Professor, Department of Agronomy and Plant Genetics
1994 – 2000	Assistant Professor, Department of Agronomy and Plant Genetics

Educational History:

Ph. D. – 1994	University Nebraska (Agronomy)
M.S. – 1991	University of Missouri (Agronomy)
B.S. – 1988	University of Minnesota (IPM)

Professional Societies:

American Society of Agronomy
Weed Science Society of America
North Central Weed Science Society

Professional Interests and Responsibilities: My primary responsibilities are in the areas of biomass production and alternative cropping systems. Much of my work emphasizes applied ecology in the development of economic and environmentally sustainable farming systems. Outreach activities center on SROC special events, serving as a resource person for several organizations, and participation in Extension programs throughout the year.

Significant Committee/Professional Service (2003 – present):

1997-present	Associate Editor - Journal of Precision Agriculture.
2001-2003	COAFES Elections and Nominations Committee.
2003-2004	Chair, Written Prelim Exam Subcommittee
2004-2005	Agronomy and Plant Genetics Department Head Search Committee
2004	Chair, NC-202 5-year project proposal writing committee
2004	Judge, North Central Collegiate Weed Science Contest
2007-present	University Faculty Senate

Teaching and Advising Activities:

Taught section on spatial and temporal weed management as part of S4111 'Introduction to Precision Agriculture. 2001 – present
Graduate Advising: 4 M.S. students
Graduate Committee Membership: 2 M.S. students

Extramural Funding Received (2003 – present):

Total Funding Received: $1,800,040

Selected Funded Projects:

Transgenic Corn and Corn Rootworms: Assessing the Risk of Host-Plant Switching in a Changing Weed Management environment. K.R. Ostlie, G.A. Johnson, and A.M. Journey. USDA Biotechnology Risk Assessment Program. $318,674. 2002-2005

Biological Control of Canada Thistle in Wetland Prairie Restoration. D.L. Wyse and G.A. Johnson. Minnesota DOT, UofM Center for Transportation Studies. $110,000. 2004-2006

Risk Efficiency Models for Evaluating One- and Two-Pass Glyphosate Applications in Corn and Soybeans. G. Johnson, T. Hoverstad, J. Gunsolus, F. Breitenbach, J. Getting, B. Potter. Crop Production Research Foundation. $5,000. 2004-2005

Maximizing Production of Fiber, Fermentable Sugars, and Energy by Matching Biomass Species to Landscape Position. G. Johnson, H. Jung, C. Sheaffer, U. Tschirner, D. Wyse, and D. Current. Initiative for Renewable Energy and the Environment, UM. $497,021. 2005-2008

Overcoming Barriers to Facilitate the Commercialization of Willow Biomass Crops as a Feedstock for Biofuels, Bioenergy and Bioproducts. T. Volk, L. Smart, G. Johnson, L. Abrahamson and E. Gray. USDA/DOE Biomass Research and Development Initiative. $813,450. 2007-2010

Publications (2003 – present):

Refereed: 11 ***Abstracts/Proceedings:*** 14 ***Invited Presentations:*** 0
Variety Releases: 0 ***Book Chapters:*** 1

Selected Publications (2003 – present):

Fischer, D. R. G. Harvey, T. Bauman, S. Phillips, S. Hart, G. Johnson, J. Kells, P. Westra, J. Lindquist. 2004. Common lambsquarters (Chenopodium album) interference with corn across the North central United States. Weed Sci. 52: 1034-1038.

Vetter, S.A., S. Chen, D.L. Wyse, G.A. Johnson, and P.M. Porter. 2004. Effect of rotation crops on Heterodera glycines population density in a preliminary green house study. J. Nematology 36:351.

Banerjee, S., G. Johnson, N. Schneider, and B. Durgan. 2005. Modeling Replicated Weed Growth Using Spatially Varying Growth Curves. Environmental and Ecological Statistics. 12:357-377.

Adam S. Davis, John Cardina, Frank Forcella, Gregg A. Johnson, George Kegode, John L. Lindquist, Edward C. Luschei, Karen A. Renner, Christy L. Sprague, Martin M. Williams. 2005. Environmental factors affecting seed persistence of annual weeds across the U.S. corn belt. Weed Sci. 53: 860-868.

D.R. Miller, S. Y. Chen, P.M. Porter, G.A Johnson, D.L. Wyse, S.R. Stetina, L.D. Klossner, and G.A. Nelson. 2005. Rotation Crop Evaluation for Management of the Soybean Cyst Nematode in Minnesota. Agron. J. 98:569-578.

Hoverstad, T.R., G.A. Johnson, J.L. Gunsolus, and R.P. King. 2006. Evaluating the Economic Risk of Herbicide-Based Weed Management Systems in Corn and Soybean Using Stochastic Dominance Testing. Weed Technol. 2:422-429.

Banerjee, S. and G. Johnson. 2006. Coregionalized single- and multiple-resolution spatially varying growth curve modeling with application to weed growth. Biometrics. 864-876.

Hoverstad, T.R., G.A. Johnson, J.L. Gunsolus, and R.P. King. 2006. Evaluating the Economic Risk of Herbicide-Based Weed Management Systems in Corn and Soybean Using Stochastic Dominance Testing. Weed Technol. 2:422-429.

Robert J. Jones

Professor and Senior Vice President
100% Administration

Professional Experience:

2004 – present	Senior Vice President for System Academic Administration
2002 – 2005	Vice President and Executive Vice Provost for Faculty and Academic Programs
2001 – 2002	Vice President for Campus Life and Vice Provost for Faculty and Academic Personnel
2000 – 2001	Interim Vice President for Student Development and Vice Provost for Faculty and Academic Personnel
1997 – 2005	Vice Provost for Faculty and Academic Personnel
1994 – 1997	Assistant Vice President for Academic Affairs
1988 – present	Professor, Department of Agronomy and Plant Genetics
1983 – 1988	Associate Professor, Department of Agronomy and Plant Genetics
1978 – 1983	Assistant Professor, Department of Agronomy and Plant Genetics

Educational History:

Ph.D.	University of Missouri, Crop Physiology (1978)
M.S.	University of Georgia, Crop Physiology (1975)
B.S.	Fort Valley State College, Agronomy (1973)

Professional Societies:

American Association for the Advancement of Science
American Society of Agronomy
American Society of Plant Physiologists
Crop Science Society of America
Beta Kappa Chi
Gamma Sigma Delta
International Mentoring Association

Professional Interests and Responsibilities:
My job responsibilities are administrative as Senior Vice President for System Academic Administration, I serve as the senior academic and administrative office for the University of Minnesota System reporting directly to the President. I conduct research on the Physiology of kernel development in maize focusing on the role of cytokinins in the stabilization of grain yield against global climate change and environmental stress.

Honors and Awards (2003 – present):

2004	Fellow, TIAA CREF Institute

Significant Committee/Professional Service (2003 – present):

2003	Chair, Search Committee for Chancellor, University of Minnesota, Crookston
2006	Member, USDA Agricultural Plant Biochemistry Review Panel
2002-2005	Member, American Society of Agronomy Budget and Finance Committee
2005	Commissioner, Midwest Higher Education Compact

Extramural Funding Received (2003 – present):

Total Funding Received: None

Selected Funded Projects: None

Publications (2003 – present):

Refereed: 5 ***Abstracts/Proceedings: 0***

Invited Presentations: 0

Extension: 0 ***Popular press: 0***

Book Chapters: 0

Selected Publications (2003 – present):

P. Monjardino, A.G. Smith and R.J. Jones. 2006. Zein Transcription and Endoreduplication in Maize Endosperm are Differentially Affected by Heat Stress. Crop Sci. 46:2581-2589.

Liu, A., G. L. Malzer, G. W. Rehm and R. J. Jones. 2006. Degradation of ^{14}C-Zinc Ammonium Acetate in Soils as influenced by Soil Type, Soil Sterilization and Carriers. J. Plant Nutrition. 29: 1003-1019.

Liu, A., G. L. Malzer, G. W. Rehm and R. J. Jones. 2006. Fate of Ammonium Acetate in Soils and Its Uptake by Corn. J. Plant Nutrition. 29:797-708.

Monjardino, A.G. Smith and R.J. Jones. 2005. Heat Stress Effects on Protein Accumulation of Maize Endosperm. Crop Sci. 45: 1203-1210.

Brugiere, N., S. Jiao, S. Hantke C. Zinselmeier, J. Roessler, X. Niu, R.J. Jones and J.E. Habben. 2003. Cytokinin oxidase (*Ckx-1-2*) gene expressions in *Zea mays* is localized to the vasculature, and is induced by cytokinins, abiotic stress and abscisic acid. Plant Physiol. 132: 1228-1240.

Nicholas R. Jordan

Professor
Agroecology research and teaching
80% Research, 20% Teaching

Professional Experience:

1984-1986	Teaching Assistant, Department of Botany, Duke
1986-1991	Assistant Professor, Division of Science, Truman State Univ.
1991-1994	Associate Professor, Division of Science, Truman State Univ.
1994-2008	Assistant Professor-Professor, Agronomy & Plant Genetics, University of Minnesota

Educational History:

1974-1979	Harvard College, A.B. with High Honors (Biology)
1980-1986	Duke University, Ph.D. (Botany and Genetics)

Professional Interests and Responsibilities: My research program in agricultural ecology addresses use of biological diversity to improve on-farm productivity and resource efficiency, while reducing harmful environmental effects of agroecosystems. Research, instruction and many service/outreach activities are integrated around this theme.

Significant Committee/Professional Service (2003-present):

1999-	Director of Graduate Studies, Sustainable Agriculture Systems Grad. Minor
2003-2006	Conservation Biology Graduate Program Steering Committee
2004	Graduate School Faculty Grants-in-Aid Review Panel
2007-	Conservation Biology Graduate Program Written Prelim Coordinator
2006-	Steering Committee, Green Lands Blue Waters Consortium
2006-	A&PG Strategic Planning Committee, 2006-
2007-	Admissions Committee, IGERT: Risk Analysis of Introduced Species & Genotypes
2006-2007	LCCMR Statewide Conservation and Preservation Plan. Land-use Team
2007-	LCCMR Statewide Conservation and Preservation Plan. Energy Production and Use Team
2004	Panel Member, NSF Biocomplexity Panel
2006	Panel Member, CALFED Bay-Delta Agricultural Diversification Grant Program
2008	Panel Member, West Central Regional IPM Program, 2007, 2008

Teaching and Advising Activities:
AGRO 5321: Ecology of Agricultural Systems, 3 credits, Fall Semester
ESPM/AGRO 3108: Ecology of Managed Ecosystems, 3 credits, Fall Semester
Graduate Advising: 8 M.S. and 2 Ph.D. students
Graduate Committee Membership: 4 M.S. and 12 Ph.D. students

Extramural Funding Received (2003-present):
Total Funding Received: $3,269,723

Selected Funded Projects:

USDA-, SARE. Experiential Learning Opportunities for Graduate and Undergraduate Students. Murray and Jordan. Funded $60,000, 2003-2006.

LCMR. Native Plants and Third Crops for Water Quality. Meschke, Brooks, Wyse, Sheaffer, Current, Jordan. Funded $900,000, 2004-2006.

U.S. Dept. of Interior, Geological Survey, Biological Resources Div. Leafy Spurge Eradication and Post-Eradication Restoration. Larson and Jordan. Funded $300,000, 2006-2008.

McKnight Foundation. Green Lands Blue Waters Initiative. Murray and Jordan. Funded $75,000, 12/1/06-11/30/07.

Minnesota DNR. Garlic Mustard Interactions & Impacts. Phillips and Jordan. Funded $45,000, 5/1/05-4/30/08.

National Science Foundation. Understanding the Importance of Weak-tie Networks in Complex Human-Environment Systems: Ecosocial Feedback in Multifunctional Agriculture. Jordan, Nelson and Manson. Funded $925,000, 9/1/07-8/31/10.

National Science Foundation. IGERT: Risk Analysis for Introduced Species and Genotypes. Newman et al. Funded $2,900,000 (Jordan is among 15 Senior Personnel), 2007-2012.

Publications (2003 – present):

Refereed: 15	*Abstracts/Proceedings*:	*Invited Presentations:*
Variety Releases:	*Popular press/Book Reviews*: 3	*Books:* 1/*Book Chapters:* 3

Selected Publications (2003 – present):

Jordan, N., R. Becker, J. Gunsolus, S., White, and S. Damme. 2003 Knowledge networks: an avenue to ecological management of weeds. Weed Science 51: 271-277

Blumenthal, D, N. Jordan, and M. Russelle. 2003. Soil carbon addition controls weeds and facilitates prairie restoration. Ecological Applications 13: 605-613

Blissett, H., S. Simmons, N. Jordan, and K. Nelson. 2004. Evaluation of learning group approaches for fostering integrated cropping systems management. Journal of Natural Resources and Life Science Education: 33: 134-140.

Clements, D., A. DiTommaso, N., Jordan, B.D. Booth, J. Cardina, D. Doohan, C. Mohler, S. Murphy, S., and C. Swanton. 2005. Adaptability of plants invading north american cropland. Agriculture, Ecosystems and Environment 104: 379-398.

Vatovec, C., N. Jordan, and S. Huerd. 2005. Mycorrhizal responsiveness among certain agronomic weed species. Renewable Agriculture and Food Systems 20 (3): 181-189.

Jordan, N., D. Andow, and K. Mercer. 2005. Ecology of Agricultural Systems: A service-learning course in agroecology. Journal of Natural Resource and Life Sciences Education. 34: 83-89.

Peters, S., N. Jordan, and M. Adamek, (editors). 2005. Engaging Campus and Community: The Practice of Public Scholarship in the American State and Land-Grant University System. Kettering Foundation Press, i-vii+ 499 pp.

Jordan, N., G. Boody, W. Broussard, et al. (13 total co-authors). 2007. Sustainable development of the agricultural bio-economy. Science 316: 1570-1571.

Jordan, N., D. Larson, and S. Huerd. 2008. Soil modification by invasive plants: effects on native and invasive species of mixed-grass prairies. Biological Invasions 10: 177-190.

Gary J. Muehlbauer
Associate Professor and Endowed Chair in Molecular Genetics
Barley and Wheat Molecular Genetics
100% Research

Professional Experience:

University of Minnesota	2006-present	Endowed Chair
University of Minnesota	2003-present	Associate Professor
Scottish Crop Research Institute	2002-2003	Visiting Scientist
University of Minnesota	1997-2003	Assistant Professor
University of California, Berkeley	1994-1997	Postdoctoral Research Associate

Educational History:

University of Minnesota	Plant Breeding	Ph.D., 1994
University of Nebraska	Plant Breeding	M.S., 1989
Washington State University	Biology	B.S., 1986

Professional Societies:
Crop Science Society of America
American Society of Agronomy
American Society of Plant Biologists
American Association for the Advancement of Science

Professional Interests and Responsibilities: My position is focused on wheat and barley molecular genetics. One area of my research is directed towards *Fusarium* head blight (FHB) of wheat and barley. Another research area is focused on developing and integrating genomics resources into barley breeding programs. Other areas involve identifying genetic variation in wild barleys for use in germplasm enhancement, and to genetically characterize a collection of barley tillering mutants.

Honors and Awards (2003 – present): None

Significant Committee/Professional Service (2003 – present):
Legume Genomics Assistant Professor Search Committee Chair (2006-2007)
Undergraduate Committee (1998-present)
Discovery Grants on Biofuels and the Environment Panel Member (2007)
Hamm Awards Committee (2004-present)
Institutional Biosafety Committee (2005-2008)
Grant-in-Aid Review Committee (2003-2008)
Faculty Senate (2004-2007)
USDA-CSREES-NRI Plant Genome and Coordinated Agricultural Project Panel Manager (2007-2008)
The Plant Genome Associate Editor (2008-present)
Crop Science Associate Editor (2007-present)
Field Crops Research Associate Editor (2003-2007)
USDA-CSREES-NRI Plant Genome and Coordinated Agricultural Project Panels (2007)
C-7 Representative CSSA Board of Directors (2006-present)
U.S. Barley Genome Project Steering Committee (2006-present)
U.S. Wheat and Barley Scab Initiative, Biotechnology/Host Genetics and Genomics (2000-2007)

Teaching and Advising Activities last five years:
AGRO 4660" Senior Capstone", 2 credits
AGRO 8240 now 8241 "Molecular and Cellular Genetics in Crop Improvement", 3 credits
AGRO 8900 "Advanced Plant Genetics Discussions", 2 credits
AGRO 8270 "Graduate Seminar", 1 credit
Advised three M.S. students to completion
Advising three Ph.D. students and one M.S. student
Co-advising one M.S. student
Advising four postdoctoral research associates

Advised seven postdoctoral research associates
Committee member for 14 graduate students

Major Extension Education Activities: Helped coordinate the extension activities of the Barley CAP.
Intellectual Property and Scholarly Products: None

Extramural Funding Received (2003 – present):

Total Funding Received: $8,235,950 from 27 funded grants

Selected Funded Projects:

Barley Coordinated Agricultural Project: Leveraging genomics, genetics, and breeding for gene discovery and barley improvement. USDA-CSREES-NRI, G.J. Muehlbauer (lead PI) and 28 other co-PIs, $5,000,000, 2006-2010.

Genetics of tillering in barley. USDA-CSREES-NRI, G.J. Muehlbauer, $310,000, 2004-2008.

Genetic analyses of shoot meristem function in maize, NSF, M.J. Scanlon, M. Timmermans, J. Yu, D. Janick-Buckner, G.J. Muehlbauer, $5,219,153 ($871,904 to Muehlbauer) 2008-2012.

Mining barley in the fertile crescent: a genomics approach for exploiting allelic diversity for disease resistance in barley. USAID Cereal Comparative Genomics Initiative, B.J. Steffenson, A.H. Yahyaoui, G.J. Muehlbauer, S. Grando, K.P. Smith, $305,816, 2004-2006.

Educating tomorrow's plant breeders: from genomics to cultivars. USDA-CSREES-NRI, National Needs Graduate and Postdoctoral Fellowship. R. Bernardo, J.A. Anderson, G.J. Muehlbauer, $229,500, 2007-2010.

Enhancing wheat and barley scab resistance using molecular genetics. USDA-ARS, G.J. Muehlbauer, $150,000, 2003-2004.

Publications (2003 – present):

Refereed: 31	***Abstracts/Proceedings: 74***	***Invited Presentations: 26***
Extension: 0	***Popular press: 0***	***Book Chapters: 1***

Selected Publications (2003 – present):

Boddu, J., S. Cho and G.J. Muehlbauer. 2007. Transcriptome analysis of trichothecene-induced gene expression in barley. Mol. Plant-Microbe Interact. 20:1364-1375.

Mackintosh, C.A., J. Lewis, L.E. Radmer, S. Shin, S.J. Heinen, L.A. Smith, M.N. Wyckoff, R. Dill-Macky, C.K. Evans, S. Kravchenko, G.D. Baldridge, R.J. Zeyen and G.J. Muehlbauer. 2007. Overexpression of defense response genes enhances the resistance of wheat to Fusarium Head Blight. Plant Cell Rep. 26:479-488.

Boddu, J., S. Cho, W.M. Kruger and G.J. Muehlbauer. 2006. Transcriptome analysis of the barley-*Fusarium graminearum* interaction. Mol. Plant-Microbe Interact. 19:407-417.

Cho, S., D.F. Garvin and G.J. Muehlbauer. 2006. Transcriptome analysis and physical mapping of barley genes in wheat-barley chromosome addition lines. *Genetics* 172:1277-1285.

Muehlbauer, G.J., B.S. Bhau, N.H. Syed, S. Heinen, S. Cho, D. Marshall, S. Pateyron, N. Buisine, B. Chalhoub, and A.J. Flavell. 2006. A *hAT* superfamily transposase domesticated by the cereal grass genome. Mol. Gen. Genomics 275:553-563.

Druka, A., G.J. Muehlbauer, I. Druka, R. Caldo, U. Baumann, A. Schreiber, N. Rostoks, R. Wise, T. Close, A. Kleinhofs, A. Graner, A. Schulman, P. Langridge, K. Sato, P. Hayes, J. McNicol, D. Marshall and R. Waugh. 2006. An atlas of gene expression from seed to seed through barley development. Funct. Integr. Genomics 6:202-211.

Henderson, D.C., G.J. Muehlbauer and M.J. Scanlon. 2005. Radial leaves of the maize mutant *ragged seedling2* retain dorsiventral anatomy. Dev. Biol. 282:455-466.

Close, T.A., S. Wanamaker, R.A. Caldo, S.M. Turner, D.A. Ashlock, J.A. Dickerson, R.A. Wing, G.J. Muehlbauer, A. Kleinhofs and R.P. Wise. 2004. Global expression profiling in cereals: 22K barley GeneChip comes of age. Plant Physiol. 134:960-968.

Caldwell, D.G., N. McCallum, P. Shaw, G.J. Muehlbauer, D.F. Marshall and R. Waugh. 2004. A structured mutant population for forward and reverse genetics in barley (*Hordeum vulgare* L.). The Plant J. 40:143-150.

Mesfin, A., K.P. Smith, R. Dill-Macky, C.K. Evans, R. Waugh, C.D. Gustus and G.J. Muehlbauer. 2003. Quantitative trait loci for Fusarium head blight resistance in barley in a two-rowed by six-rowed population. Crop Sci. 43:307-318.

Seth L. Naeve

Associate Professor
Soybean Physiology, Production and Extension
25% Research, 75% Extension

Professional Experience:

University of Minnesota	August, 1998	Assistant Professor & Extension Agronomist (P&A)
University of Minnesota	September, 2001	Assistant Professor & Extension Agronomist
University of Minnesota	July, 2008	Associate Professor & Extension Agronomist

Educational History:

Iowa State University	Crop Production and Physiology	Ph.D., 1998
Iowa State University	Biology	B.S., 1993

Professional Societies:
American Society of Agronomy and Crop Science Society of America

Professional Interests and Responsibilities:
Applied soybean production and physiology research focused yield and seed quality enhancement
Soybean production Extension program
International market expansion of bulk commodity and food grade soybean and soybean products

Significant Committee/Professional Service (2003 – present):

- 2004-present– Soybean Rust Taskforce – A joint committee made up of representative from the University of Minnesota, the Minnesota Department of Agriculture, and the Minnesota Soybean Research & Promotion Council
- 2005-present – Education Subcommittee of the Soybean Rust Taskforce – Chairman
- 2005-present – Extension Commodity Crops Program co-lead
- 2004-present – Three faculty search committees

Teaching and Advising Activities:
Currently advising 2 M.S. students in Applied Plant Sciences
Served on two Ph.D. committees

Major Extension Education Activities:
Co-lead on the Commodity Crops Program
Primarily responsible for Soybean Production programming
Co-PI for an *eXtension* project – Corn and Soybean Production

Extramural Funding Received (2003 – present):

Total Funding Received:

~ $1.25 million as primary PI

Selected Funded Projects:

"Management and environmental effects on yield formation and seed quality in Minnesota grown soybeans" Naeve. May, 2008- April, 2009. $100,000. Minnesota Soybean Research and Promotion Council.

Forward genetic screen for soybean varieties with improved oil/protein content" Naeve and Orf. May, 2008- April, 2009. $150,000. Minnesota Soybean Research and Promotion Council.

"Growing the Value of Minnesota soybeans through enhanced seed quality" Naeve. May, 2008-April, 2009. $42,000. Minnesota Soybean Research and Promotion Council.

"Annual soybean quality survey" Naeve and Orf. May 2008-December, 2008. $65,000. U.S. Soybean Export Council.

"Annual food soybean quality survey" Naeve and Orf. July 2008-December, 2008. $50,000. U.S. Soybean Export Council.

Publications (2003 – present):

Refereed: 7	***Abstracts/Proceedings:*** 5	***Invited Presentations:*** 1
Extension: 7	***Popular press:*** many	***Book Chapters:*** **0**

Selected Publications (2003 – present):

Naeve, S., T. O'Neill, and J. Miller-Garvin. 2008. Canopy N reserves: impact on soybean yield and seed quality traits in northern latitudes. Agron. J. *In Press.*

Naeve, S., and S. Huerd. 2008. Year, region, and temperature effects on the quality of Minnesota's soybean crop. Agron. J. *In Press.*

Naeve, S., R. Proulx, B. Hulke, and T. O'Neill. 2008. Sample size and heterogeneity effects on the analysis of whole soybean seed using near infrared spectroscopy. Agron. J. 100:231-234.

Naeve, S.L. 2006. Iron deficiency chlorosis in soybean: soybean seeding rate and companion crops effects. Agron. J. 98:1575-1581.

Naeve, S.L., and G.W. Rehm. 2006. Genotype X environment interactions within iron deficiency chlorosis-tolerant soybean genotypes. Agron. J. 98:808-814.

Naeve, S., and R. Shibles. 2005. Distribution and mobilization of sulfur during soybean reproduction. Crop Sci. 45:2540-2551.

Naeve, S.L., and J.H. Orf. 2007. Quality of the 2007 soybean crop from the United States [Online]. Available at www.ussoyexports.org/resources/2007USSoybeanQuality_Report.pdf (verified 23 June, 2008). The U.S. Soybean Export Council, St. Louis, MO, and at www.soybeans.umn.edu. (verified 23 June, 2008).

James H. Orf

Professor
Soybean Breeding and Genetics
80% Research, 20% Teaching

Professional Experience:

	Dates	Position
University of Kentucky	1979-81	Assistant Professor
University of Minnesota	1981-85	Assistant Professor
University of Minnesota	1985-91	Associate Professor
University of Minnesota	1991-present	Professor

Educational History:

	Years	Major	Degree
University of Wisconsin-River Falls	1967	Agriculture	--
University of Wisconsin-Madison	1968-1971	Agronomy	B.S.
University of Illinois	1974-1976	Plant Breeding and Genetics	M.S.
University of Illinois	1976-1979	Plant Breeding and Genetics	Ph.D.

Professional Societies:

- American Soybean Association
- Minnesota Soybean Association
- American Society of Agronomy
- Crop Science Society of America
- Northern Food Grade Soybean Association
- American Association for the Advancement of Science

Professional Interests and Responsibilities:

Conduct soybean variety development program, carry out research on soybean genetics and soybean breeding methodology, co-teach Agronomy 4401 "Plant Genetics and Breeding," assist in training graduate students working on soybean breeding project as well as students on other projects, conduct soybean variety testing, and cooperate with other researchers (departmental, university, national and international) in conducting soybean research.

Honors and Awards (2003-present):

Inventor Recognition Award – University of Minnesota – 2005

Significant Committee/Professional Service (2003-present):

Department:	Personnel Committee, 2005-present
	Legume Genomics Committee, 2006-2007
College:	Crop Variety Review Committee, 2003-present
	CFANS Honors Program Committee, 2003-present
	Promotion and Tenure Committee, 2005-2007
	Plant Licensing Task Force, 2006-2007
University:	Senate Library Committee, 2006-present (Chair, 2007-present)
National:	United Soybean Board Production Committee Review Panel, 2003, 2005
	Soybean Genetics Executive Committee, 2003-2006

Teaching and Advising Activities:

AGRO/HORT 4401 Plant Genetics and Breeding, Spring Semester, 4 credits, 3 Undergraduates
Graduate Advising 3 M.S., 1 Ph.D. Graduate Committee 9 M.S., 8 Ph.D.

Intellectual Property and Scholarly Products:

2003 MN0091, MN1005, MN0305RR **2004** MN0905SP, MN1010SP **2005** MN0092, MN0602CN, MN1008SP, MN1104SP

2006 MN0082SP, MN0103SP, MN0502, MN0906SP, MN1106CN, MN1410, MN1605SP **2007** MN0094SP, MN0104SP, MN0207SP, MN0307SP, MN0403SP, MN0804SP, MN1203SP, MN1505SP **2008** MN0096SP, MN0105, MN0806CN

Extramural Funding Received (2003-present): *Total Funding Received:* $2,625,173

Selected Funded Projects:

2003 Measurement and Identification of Minnesota Adapted Soybeans Naturally Differing in Isoflavone and Small Peptide Levels. J.H. Orf, M. Kurzer and G. Gardner. 2004-2005. Minnesota Soybean Research

and Promotion Council. $23,000.

Development of Low Saturate, Low Linolenic Acid and Mid Oleic Acid Soybean Cultivars. J.H. Orf. 2004-2005. United Soybean Board $67,429.

Soybean Genetic Diversity to Increase Yield. R.L. Nelson, T.E. Carter, J.H. Orf, B.W. Diers, P.B. Cregan, H.R. Boerma and W.J. Kenworthy. 2004-2005. United Soybean Board. $45,703.

Developing NIR equations for reducing soybean seed polysaccharides. D.A. Somers, J.H. Orf and H. Jung. 2004-2005. Minnesota Soybean Research and Promotion Council. $30,000.

2004 Developing Cyst Nematode Resistant Soybeans with Traditional and Molecular Mapping Techniques. J.H. Orf and N.D. Young. 2003-2004. Minnesota Soybean Research and Promotion Council. $99,991.

Soybean Breeding for Iron-Deficiency Chlorosis. L.K. Faulkner and J.H. Orf. 2002-2003. Minnesota Soybean Research and Promotion Council. $30,575.

Characterization of Sudden Death Syndrome and Identification of Resistance in Minnesota-adapted Soybean Varieties. J.E. Kurle, S. Stetina, and J.H. Orf. 2003-2004. Minnesota Soybean Research and Promotion Council. $64,400.

A Multitatic Approach for Management of Soybean Aphid. D. Ragsdale, K. Ostlie, R. Venette, I. MacRae, G. Heimpel, J.H. Orf, J. Gunsolus, and D. Somers. 2003-2004. $58,760.

Evaluating Protein Content in Upper Midwest Soybean Varieties. J.E. Specht, G. Graef, B. Diers, J. Orf, N. Young and R. Scott. 2003-2004. NC Soybean Research Council. $29,400

2005 Drought Tolerance in Soybean. T.E. Carter, H.R. Boerma, P. Cregan, J.E. Specht, J.H. Orf and R. Wells. 2004-2005. United Soybean Board. $47,000.

Breeding Minnesota Adapted Lines for Partial-Resistance to Soybean Rust. J.H. Orf and J. Kurle. 2005 Rapid Response Funds. $44,600.

2006 Annual Soybean Quality Survey. J.H. Orf and S.L. Naeve. 2006 U.S. Soybean Export Council. $31,838.

2007 Expanded Variety Development for Northern Minnesota. J.H. Orf. 2006-2007. Minnesota Soybean Research and Promotion Council. $25,000.

Annual Food Bean Quality Survey. S.L. Naeve and J.H. Orf. 2007. U.S. Soybean Export Council. $56,314.

Publications (2003 – present):

Refereed: 8	*Abstracts/Proceedings*: 15	*Invited Presentations:* 20
Variety Releases: 15	*Popular press*: 14	*Book Chapters:* 3

Selected Publications (2003 – present):

Niblack, T.L., P.R. Arelli, G.R. Noel, C.H. Opperman, J.H. Orf, D.P. Schmitt, J.G. Shannon, and G.C. Tylke. 2003. A revised classification scheme for genetically diverse populations of *Heterodera glycines*. Journal of Nematology 34:364-370.

Tischner, T. L. Allphin, K. Chase, J.H. Orf and K.G. Lark. 2003. Genetics of seed abortion and reproductive traits in soybean. Crop Sci. 43: 464-473.

Stombaugh, S.K., J.H. Orf, H.G. Jung and D.A. Somers. 2003. Relationships between soybean seed cell wall polysaccharides, yield, and seed traits. Crop Sci. 43: 571-576.

Orf, J.H. and R.L. Denny. 2004. Registration of 'MN1302' soybean. Crop Sci. 44: 693.

Panthee, D.R., V.R. Pantalone, C.E. Sams, A.M. Saxton, D.R. West, J.H. Orf and A.S. Killam. 2005. Quantative trait loci controlling sulfur containing amino acids, methionine and cysteine, in soybean seeds. TAG 122(5): 161-6.

Orf, J.H., K. Chase, J. Specht, I. Choi, P.B. Cregan and K.G. Lark. 2006. Abnormal leaf formation in soybeans: genetic and environmental effects. TAG 113:137-146.

Orf, J.H., B.W. Diers, and H.R. Boerma. 2004. Genetic improvement: Conventional and molecular-based strategies. pp. 417-450. *In:* H.R. Boerma and J.E. Specht (ed.) Soybeans: Improvement, production and uses. American Society of Agronomy, Madison, WI.

Orf, J.H. 2007. Methods of Soybean Breeding. pp. 28-44. In: J. Milandinovic (ed.) Soybean, Institute of Field and Vegetable Crops, Nov: 5th ed..

Orf, J.H. 2007. Breeding, genetics and production of soybeans. pp. 87-119. In: L. Johnson, R. Galloway and P.J. White (ed.) Soybeans: Chemistry, Production, Processing and Utilization. American Oil Chemist's Society, Urbana, IL.

Paul R. Peterson

Associate Professor
Forage Management and Use
25% Research, 75% Extension

Professional Experience:

2006–present	Associate Professor, Dept. of Agronomy & Plant Genetics
2000–2006	Assistant Professor, Dept. of Agronomy & Plant Genetics
1997–2000	Assistant Professor, Virginia Tech
1994–1996	Assistant Professor, McGill University – Macdonald Campus
1992–1994	Research Specialist, Univ. of Missouri Forage Systems Res. Ctr.

Educational History:

Ph.D., 1993	University of Minnesota (Agronomy)
M.S., 1990	University of Minnesota (Agronomy)
B.S., 1987	University of Wisconsin (Agronomy)

Professional Societies:

American Society of Agronomy & Crop Science Society of America
American Forage and Grassland Council
British Grassland Society

Professional Interests and Responsibilities: I conduct extension and applied research programs in forage management and use. I emphasize management of grasses, alfalfa, and alternative legumes for improved yield, forage quality, persistence, and economic value.

Honors and Awards (2003–present):

2005 Presidential Citation, American Forage and Grassland Council
2007 Outstanding Service Award, Midwest Forage Association

Significant Committee/Professional Service (2003–present):

2004–present	Contributing Editor, MFA Forage Focus
2004–2006	MN Ex-officio Rep, MFA Board of Directors
2004–2006	Editor, AFGC Forage Leader
2002–2005	AFGC Board of Directors
2001–2004	Associate Editor, Agronomy Journal
2006–present	Department Personnel Committee
2003–present	Univ. of MN Rep, NCCC-31: Ecophysiological Aspects of Forage Management, Secretary (Chair-elect) 2008
2000-present	Extension Forage Team
2003-2004	President, AFGC Affiliate Advisory Committee
2004-2006	NIR Spectroscopy Consortium Board of Directors

Teaching and Advising Activities:

Graduate Advising: 1 M.S. student
Graduate Committee Membership: 2 M.S. and 1 Ph.D. students

Major Extension Education Activities: I work with a team of regional and local extension educators to develop, deliver, and apply forage research results to farmers and ag professionals. My major activities include writing in Extension and popular press publications, coordinated statewide annual winter

meetings (Forage Days), on-farm research and demonstrations, grant-writing, and collaboration/facilitation of Midwest Forage Association's educational efforts.

Extramural Funding Received (2003–present):

Total Funding Received: ~$685,000

Selected Funded Projects:

NCR SARE. Demonstrating success with Kura clover and birdsfoot trefoil on Minnesota farms. P.R. Peterson, R.D. Mathsion, 4 NRCS grazing specialists, and 7 Extension educators. $103,000. 2008-2011.

Rapid Agricultural Response Fund (MAES). Distribution of *Phoma sclerotioides*, the causal agent of brown root rot of alfalfa in Minnesota, and assessment of its impact on winter injury in alfalfa and wheat. D. Samac, P. Peterson, C. Sheaffer, C. Hollingsworth, R. Mathison, J. Wiersma, and 13 Extension educators. $132,000. 2004-2006.

NCR SARE. Enhancing pasture productivity by improving winter survival of perennial ryegrass. P.R. Peterson, E.C. Brummer, G.J. Cuomo, N.J. Ehlke, D.G. Johnson, R.D. Mathison, D.H. Min, M. Rudstrom, C. Sheaffer, and D.L. Wyse. $149,998. 2003-2007.

Publications (2003-present):

Refereed: 11	***Abstracts/Proceedings: 23***	***Invited Presentations: ~100***
Extension: 17	***Popular press: 76***	***Book Chapters: 3***

Selected Publications (2003-present):

Guay, J.F., A.O. Abaye, J.P. Fontenot, and P.R. Peterson. 2007. Compatibility, yield, and nutritive value of Matua prairie grass with interseeded legumes. Online. Forage and Grazinglands doi:10.1094/FG-2007-1217-01-RS.

Peterson, Paul R., Edward B. Rayburn, James B. Cropper, and David P. Belesky. 2007. Perennial warm-season grasses. p.56-76. In Edward B. Rayburn (ed.) Forage utilization for pasture-based livestock production. NRAES-173. Natural Resource, Agriculture, and Engineering Service, Cooperative Extension, Ithaca, NY.

Peterson, Paul R., James B. Cropper, Edward B. Rayburn, and William L. Stout, Jr. 2006. Nutrient management in forage-livestock systems. p.51-63. In Edward B. Rayburn (ed.) Forage production for pasture-based livestock production. NRAES-172. Natural Resource, Agriculture, and Engineering Service, Cooperative Extension, Ithaca, NY.

Martinson, K., M. Hathaway, J. Wilson, B. Gilkerson, P. Peterson, & R. Del Vecchio. 2006. University of Minnesota horse owner survey: Building an equine extension program. Journal of Extension, [On-line], 44(6) Article # 6RIB4. www.joe.org/joe/2006december/rb4.shtml.

Cuomo, G.J., M.V. Rudstrom, P.R. Peterson, D.J. Johnson, A. Singh, and C.C. Sheaffer. 2005. Initiation date and nitrogen rate for stockpiling smooth bromegrass in the north central USA. Agron. J. 97: 1194-1201.

Fischbach, J.A (*M.S. student*), P.R. Peterson, N.J. Ehlke, D.L. Wyse, and C.C. Sheaffer. 2005. Illinois bundleflower forage potential in the upper midwestern USA: II. Forage quality. Agron. J. 97: 895-903.

Laberge, G., P. Seguin, P.R. Peterson, C.C. Sheaffer, N.J. Ehlke, G.J. Guomo, and R.D. Mathison. 2005. Establishment of kura clover no-tilled into grass pastures with herbicide sod suppression and nitrogen fertilization. Agron. J. 97:250-256.

Cuomo, G.J., P.R. Peterson, A Singh, D.G. Johnson, W.A. Head Jr., and M.H. Reese. 2003. Persistence and spread of kura clover in cool-season grass pastures. Agron. J. 95:1591-1594.

Ronald L. Phillips

Regents Professor and McKnight Presidential Chair in Genomics
Plant Genetics Research and Teaching
90% Research, 10% Teaching

Professional Experience:

University of Minnesota	1967-68	Research Associate
University of Minnesota	1968-72	Assistant Professor
University of Minnesota	1972-76	Associate Professor
University of Minnesota	1976-93	Professor
University of Minnesota	1993-present	Regents Professor
University of Minnesota	1999-present	McKnight Pres. Chair
University of Minnesota	2000-2005	Dir/Microbial & Plant Genomics Center

Educational History:

Purdue University	1961	Crop Science	B.S.
Purdue University	1963	Plant Breeding and Genetics	M.S.
University of Minnesota	1966	Genetics - Cytogenetics and Plant Breeding	Ph.D.
Cornell University	1967	Genetics	Postdoctorate

Professional Societies:

- American Society of Agronomy
- Crop Science Society of America
- American Association for the Advancement of Science
- Genetics Society of America

Professional Interests and Responsibilities:

- Research and teaching in plant genetics applied to plant improvement bridging basic and applied.
- Co-teach a graduate cytogenetics course in alternate years.
- Organize the National Academy of Sciences Lecture Series and the Leading Edge Technology Seminar Series.
- Participate in University-wide, national, and international issues as Regents Professor, National Academy of Sciences member, and program chair of the IRRI Board of Trustees.

Honors and Awards (2003 – present):

- McKnight Presidential Chair in Genomics (2000-present)
- Wolf Prize in Agriculture, co-recipient (2007)

Significant Committee/Professional Service (2003 – present):

- AAAS, Program Committee (2003-2005); Women in Agricultural Sciences (2006-present)
- Univ. Minnesota Microbial and Plant Genomics Inst., Co-founder and Director (2000-2005)
- International Crop Science Society, Vice President (2004-present)
- World Food Prize, Committee and Youth Institute Faculty (2004-present)
- Council of Scientific Society Presidents, Chair (2006)

Teaching and Advising Activities:

- Agro8231 Cytogenetics, 4 credits, Fall semester (2004, 2006, 2008)
- Graduate Advising: 2 M.S. and 5 Ph.D students (plus 1 M.S. and 2 Ph.D. current)

Intellectual Property and Scholarly Products:

- Porter, Kahler, Carey, Braeten, Schumer, and Phillips. Wild rice K2EF-C4. 2005, 2006
- Phillips, High-methionine corn lines (B73, Mo17, A619 backgrounds). 2007

Extramural Funding Received (2003 – present)*: $3,633,168*

Selected Funded Projects:

- NSF Plant Genome Research Program: A radiation hybrid system for the genetic and physical mapping of the corn genome. Phillips and Rines, 2004-2006, $3,081,245. Supplement 2006-2007, $51,000
- IREE and Institute on Environment Discovery Grant: Dual renewable biofuels from a single source, Phillips (P.I.), Springer, Ruan, and Tiffany (Co-PIs), 2007-2009, $150,000 x 2 years

Publications (2003 – present):

Refereed: 19; Abstr/Proc: 58; Book Chap: 9; Invited Presentations: 48; Germplasm releases: 2

Selected Publications (2003 – present):

Kynast, R.G., R.J. Okagaki, M.W. Galatowitsch, S.R. Granath, M.S. Jacobs, A.O. Stec, H.W. Rines, and R.L. Phillips. 2004. Dissecting the maize genome by using chromosome addition and radiation hybrid lines. Proc. Natl. Acad. Sci. USA 101: 9921-9926. (cover)

Odland, W., A. Baumgarten, and R. Phillips. 2006. Ancestral rice blocks define multiple related regions in the maize genome. The Plant Genome 1: S41-S48 (Supplement to Crop Sci. 46).

Baumgarten, A.M., J. Suresh, G. May, and R.L. Phillips. 2007. Mapping QTLs contributing to *Ustilago maydis* resistance in specific plant tissues of maize. Theor. Appl. Genet. 114:1229-1238.

Salvi, S., G. Sponza, M. Morgante, D. Tomes, X. Niu, K.A. Fengler, R. Meeley, E.V. Ananiev, S. Svitashev, E. Bruggemann, B. Li, C.F. Hainey, S. Radovic, G. Zaina, J.-A. Rafalski, S.V. Tingey, G.H. Miso, R.L. Phillips, and R. Tuberosa. 2007. Conserved noncoding genomic sequences associated with a flowering-time quantitative trait locus in maize. Proc. Natl. Acad. Sci. USA 104:11376-11381.

Okagaki, R.J., M.S. Jacobs, A.O. Stec, R.G. Kynast, E. Buescher, H.W. Rines, M.I. Vales, O. Riera-Lizarazu, M. Schneerman, G. Doyle, K.L. Friedman, R.W. Staub, D.F. Weber, T.L. Kamps, I.F.E. Amarillo, C.D. Chase, and R.L. Phillips. 2008. Maize centromere mapping: A comparison of physical and genetic strategies. J. Hered. 92: 85-93.

Makarevitch, I., R.L. Phillips, and N.M. Springer. 2008. Profiling expression changes caused by a segmental aneuploid in maize. BMC Genomics 9:7.

Phillips, R.L., N. Magor, D. Shires, H. Leung, S. McCouch, and D. McIntosh. 2008. Student Opportunity: short-term exposure to international agriculture. Rice 1: (in press).

Phillips, R.L., W.E. Odland, and A.L. Kahler. 2007. Rice as a reference genome and more. In: 5th Intl. Rice Genetics Symp., Eds. D.S. Brar, D. Mackill, and B. Hardy. pp 3-15.

Phillips, R.L., and H.W. Rines. 2008. Genetic analyses with oat maize addition and radiation hybrid lines. In: The Maize Handbook: Domestication, Genetics, and Genome, Eds. J.L. Bennetzen and S.C. Hake, Springer-Life Sciences, New York, NY (in press).

Paul M. Porter

Professor
Cropping Systems Agronomist
75% Research, 25% Teaching

Professional Experience:

Professor	Univ. of Minnesota	St. Paul, MN	07/06 to present
Associate Professor	Univ. of Minnesota	St. Paul, MN	07/98 to 06/06
Associate/Assistant Prof.	Univ. of Minnesota - SWROC	Lamberton, MN	01/95 to 01/00
Assistant Professor	Clemson Univ.	Blackville, SC	08/89 to 01/95
Research Associate	Univ. of Illinois	Urbana, IL	01/89 to 08/89
Assistant Professor	Univ. of Wyoming	Baidoa, Somalia	01/86 to 10/88
Peace Corps Volunteer	Institute Luanga	Minova, Zailre	06/78 to 06/80

Educational History:

Ph.D.	1986	Univ. of Illinois	Agronomy (soil-plant relations)
M.S.	1983	Univ. of Illinois	Agronomy (soil chemistry)
B.S.	1978	Moorhead State University	Chemistry

Professional Societies:

American Society of Agronomy
Crop Science Society of America
Soil Science Society of America
American Association for the Advancement of Science

Professional Interests and Responsibilities: My job responsibilities include cropping systems research involving rye as a cover crop, canola, crop rotations, alternative crops and organic production strategies. In addition, I teach several courses annually and am currently coordinator of the Agricultural Industries and Marketing (AIM) undergraduate degree.

Honors and Awards (2003 – present):

2006 Division A-8 Chair, American Society of Agronomy
2003 Outstanding Service Award – Minnesota Canola Council

Significant Committee/Professional Service (2003 – present):

2003-2005	University Senate
2001-2007	Northwest Regional Sustainable Development Partnership board
2003-	University Office for Conflict Resolution Hearing Panelist & Officer
2004-	Natural Resources Conservation Service State Technical Committee
2004-	Minnesota Institute for Sustainable Agriculture (MISA) board
2005-	University Campus Committee on Student Behavior
2006-	University rep on NC 1036 (Support for the Renewal of an Agriculture of the Middle)
2007-	University Academic Freedom & Tenure Committee (AT&F)
2007-	CFANS Curriculum Committee

Teaching and Advising Activities:

AGRO 3131/5151: Student Organic Farm, 3 credits, Spring semester
AGRO 3203W: Envir., Global Food Prod. and the Citizen , 3 credits, Spring semester

AGRO 4103: World Food Problems, 3 credits, Spring semester
AGRO 5999: Agroecosystem Analysis Field Course, 3 credits, Summer semester
HSEM 2609H: Evaluating Starvation, 3 credits, Fall semester
AIM degree coordinator (advising ~14 of 40)
Graduate Advising: 2 M.S., Graduate Committee Membership: 4 M.S. and 4 Ph.D.

Extramural Funding Received (2003 – present):

Total Funding Received: $1,165,000

Selected Funded Projects:

Canola Research – Minnesota State Special 2003-2007	$297,500
Use of rye as a cover crop prior to soybean. MDA-ESAP	20,000
Bringing small-grain variety development and selection onto organic farms. USDA/NCR-SARE. P. Carr et al.	77,000
Soybean aphid suppression using a fall-seeded rye cover crop. CSREES-IOP. G. Heimpel et al.	463,645

Publications (2003 – present):

Refereed:	19	***Abstracts/Proceedings:***	48	***Invited Presentations:***	2
Variety Releases:	0	***Book Chapters:***	2	*Extension/Reports:*	29

Selected Publications (2003 – present):

Russelle, M.P., R.V. Morey, J.M. Baker, P.M. Porter, and H-J.G. Jung. 2007. Comment on "Carbon-Negative Biofuels from Low-Input High-Diversity Grassland Biomass". *Science:* 316

Feyereisen, G.W., G.R. Sands, B.N. Wilson, J.S. Strock, and P.M. Porter. 2006. A probabilistic assessment of the potential for winter cereal rye to reduce field nitrate-nitrogen loss in southwestern Minnesota. Agron. J. 98:1416-1426.

Bradley, C.A., R.A. Henson, P.M. Porter, D.G. LeGare, L.E. del Río, and S.D. Khot. 2006. Response of canola cultivars to *Sclerotinia sclerotiorum* in controlled and field environments. Plant Dis. 90:215-219.

Carr, P.M., H.J. Kandel, P.M. Porter, R.D. Horsley, and S.F. Zwinger. 2006. Wheat cultivar performance on certified organic fields in Minnesota and North Dakota. Crop Sci. 46:1963-1971.

Ashling, J., C. Tchida, A. Markhart, and P. Porter. 2006. Origin of Cornercopia, the University of Minnesota Student Organic Farm. Journal of Hunger & Environmental Nutrition. 1(2):27-42. (doi:10.1300/J477v01n02_03)

Porter, P., D. Allan, K. Crookston, M. Harbur, K. Olson, and D. Wyse. 2006. Overview of the University of Minnesota Variable Input Crop Management Systems (VICMS) Trail. In: *Long-term Field Experiments in Organic Farming.* Joachim Raupp, Carola Pekrun, Meike Oltmanns, Ulrich Köpke (Eds.) ISOFAR Scientific Series No 1. Verlag Dr. Köster, Berlin, Germany. p204. (ISBN 3-89574-590-1) g.

Porter, P.M., and S. Chen. 2005. Sugarbeet cyst nematode not detected in the Red River Valley of Minnesota and North Dakota. Journal of Sugar Beet Research. 42:79-85.

De Bruin, J.L., P.M. Porter, and N.R. Jordan. 2005. Use of a rye cover crop following corn in rotation with soybean in the upper-Midwest. Agron. J. 97:587-598.

Craig C. Sheaffer

Professor
Research in sustainable cropping systems; teaching in agronomy
65% Research 35% Teaching

Professional Experience

Assistant Professor, University of Minnesota, 1977-1982
Associate Professor, University of Minnesota, 1982-1986
Professor, University of Minnesota, 1986-present

Education

B.S.	Agronomy	Delaware Valley College, 1971
M.S.	Agronomy	University of Maryland, 1974
Ph.D.	Agronomy	University of Maryland, 1977

Professional societies:

American Society of Agronomy
Crop Science Society of America;
North American Alfalfa Improvement Conference

Overview of Research and Teaching program.

Research is on perennial native and introduced legumes, grasses, and woody species. I study organic crops, crop rotations, legume management, cover cropping, and legume-grass forage polycultures. I teach 2 undergraduate courses and a graduate level course. I conduct the alfalfa variety trials and corn silage hybrid trials and participate in outreach education programs.

Awards:

American Society of Agronomy, Fellow, 1994
Crop Science Society of America, Fellow, 2000
College Agric., Food, & Environ. Sci., Distinguished Teaching Award, 2005
ASA-CSSA-SSSA Education Materials Award, computer software dev., 2007

Committee/professional service:

North American Alfalfa Imp. Conference., Executive Committee, 2000- ,
President 2004-2006
Sustainability Studies Minor Curriculum Development Committee, 2005-2006
Graduate School Thesis Research Grant committee, 2007

Teaching and Advising.

Crops Environment and Society (4 cr)
Sustainable agric Colloquium (2 cr.)
Issues in Sustainable Agriculture (2 cr)
Horse in Your Backyard (2 cr)

Graduate Advising: 5 M.S.
Advise for Undergraduate Sustainable Agriculture Minor.

Recent Grants received: Primary author or coauthor of grants: $2.5 million since 2005

Tools for managing pest and environmental risks to organic crops in the upper Midwest. Sheaffer, C., D. Wyse, M. Harbur, P. Nickel. 2005-2008. USDA, Risk Management Agency. $645,000

Beyond corn and soybean: alternative organic crops for the Upper Midwest. C. Sheaffer, M. Harbur, D. Wyse, and D. Allan. 2006-2009. USDA-CSREES. $610,000

Maximizing production of fiber, fermentable sugars, and energy by matching biomass species to landscape position. Johnson, G., H. Jung, C. Sheaffer, U. Tschirner, D. Wyse, and D. Current. 2005-2008. U Minnesota Initiative for Renewable Energy and the Environment. $497,000.

Native plants and alternative crops for water quality. L. Meschke, D. Wyse, D. Current, N. Jordan, and C. Sheaffer. K. Brooks. 2005-2008. Legislative Commission Minnesota Resources. $600,000.

Grass-legume mixtures for persistence, biomass production, and intake by dairy cattle on pasture. K. Albrecht and C. Sheaffer. North Central SARE. 2007-2009. $140,623.

Fertilizer requirements for native perennial plants harvested fro biomass. C. Sheaffer and J. Lamb. 2008. Minnesota Agric. Fertilizer Research Council. 2008-2010. $55,928.

Effective knowledge transfer: integrating learning through internships. M.Brakke, C. Sheaffer, and D. Wyse. 2004-2007. USDA/CSREES Higher Education Challenge Grant $235,570.

Publications (2003-present)

Referred: 30; Abstrs/proc: 25; Extension: 15; Book: 1; book chapters:2; Invited:3

DeHaan,L.R., N.J. Ehlke, C.C. Sheaffer, R.L. DeHaan, and D.L. Wyse. 2003. Evaluation of diversity among and within accessions of Illinois bundleflower. Crop Sci. 43:1528-1537.

Jung, H.G., and C.C. Sheaffer. 2004. Influence of Bt transgenes on cell wall lignification and digestibility of maize stover for silage. Crop Sci. 44:1781-1789.

Byun, J. C.C. Sheaffer, M.P. Russelle, N.J. Ehlke, D.L. Wyse, and P.H. Graham. 2004. Dintirogen fixation in Illinois bundleflower. Crop Sci. 44:493-500.

Halgerson, J.L.,C.C. Sheaffer, N.P. Martin, P.R. Peterson, and S.J. Weston. 2004. Near-infrared reflectance spectroscopy prediction of leaf and mineral conc. in alfalfa. Agron. J. 96:344-351.

Sheaffer, C.C., and G.W. Evers. 2007. Cool season legumes for humid areas. P. 179-190. In R. F Barnes et al. (eds). 6th Ed. Forages: the science of grassland agriculture. Blackwell Publishing. Ames, Iowa.

Lamb, J.F.S., H. J. Jung, C. C. Sheaffer, and D. A. Samac. 2007. Alfalfa Leaf Protein and Stem Cell Wall Polysaccharide Yields under Hay and Biomass Management Systems. Crop Sci. 2007 47:1407-1415.

Moncada, K.M., N. J. Ehlke, G. J. Muehlbauer, C. C. Sheaffer, D. L. Wyse, and L. R. DeHaan. 2007. Genetic Variation in three native plant species across Minnesota. Crop Sci 2007 47: 2379-2389.

Sheaffer, C.C., Undersander, D.J., and Becker, R.L. 2007. Comparing Roundup Ready and conventional systems of alfalfa establishment. Online. Forage and Grazinglands doi:10.1094/FG-2007-0724-01-RS.

Sheaffer, C.C., and K. Moncada. 2007. Forage legume Identification. Computer software programs. Crop Advisor Institute. Iowa State University, Ames, Iowa.

Sheaffer, C.C., and K. Moncada. 2008. *Introduction to agronomy: food, crops, and environment.* Thompson, Delmar cengage Learning, Clifton Park, NY.

Kevin P. Smith

Associate Professor
Barley Breeding and Genetics
80% Research, 20% Teaching

Professional Experience:

2003 – Present	Associate Professor, Department of Agronomy and Plant Genetics
1998 – 2003	Assistant Professor, Department of Agronomy and Plant Genetics

Education History

Ph. D.	1992-97	University of Wisconsin-Madison	Plant Breeding and Plant Genetics
M.S.	1990-92	University of Wisconsin-Madison	Plant Breeding and Plant Genetics
B.S	1980-84	University of Wisconsin-Madison	Botany, Cert. of Environmental Studies

Professional Societies

Crop Science Society of America
American Phytopathological Society
American Society of Brewing Chemists

Professional Interests and Responsibilities: I am responsible for directing research in barley genetics and managing the barley breeding program. My research interests are in genetics of complex traits and the application of genetics and genomics to crop improvement. I have a specific emphasis in the genetics of disease resistance and malting quality.

Significant Committee/Professional Service (2003 – present):

Associate Editor Crop Science C1/C8 Division. 1/07 – present.
Member, Barley Crop Registration Subcommittee for Crop Science. 8/2/02 – present
Chair, USDA-ARS NP301 Small Grains Project Review Panel 10/1/07 – 2/15/08
Member, National Barley Improvement Committee. 11/01/02 – present.
Member, U. S. Wheat and Barley Scab Initiative – Steering Committee 4/08 – present
Chair, U. S. Wheat and Barley Scab Initiative – Barley Coordinating Committee 3/07 – present
Major Coordinator, Applied Plant Science major. 6/04 – present
Member, CFANS Curriculum Committee. 9/04 to present
Member, Departmental Strategic Planning Committee. 1/07 – present
Member, Crop Variety Review Committee. 3/01 – present

Teaching and Advising Activities:

Agro 1101: Biology of Plant Food Systems and the Environment
Undergraduate Advising: 11 B.S. students
Graduate Advising: 4 M.S. and 2 Ph.D. students
Graduate Committee Membership: 7 M.S. and 8 Ph.D. students

Intellectual Property and Scholarly Products:

2008 Rasmusson six-rowed malting barley
2000 Lacey six-rowed malting barley

Extramural Funding Received (2003 – present):

Total Funding Received: $1,656,494 as primary PI
$5,838,253 as co-PI

Selected Funded Projects:

Barley Coordinated Agricultural Project: Leveraging genomics, genetics, and breeding for gene discovery and barley improvement. USDA CSREES. Muehlbauer, G., Smith, K.P., Steffenson, B., Dill-Macky, Bernardo, R. and many others. 4/1/06 – 3/30/10. USDA-CSREES. Co-PI $5,000,000 ($166,512 my allocation).

Breeding and Genetics of Fusarium Head Blight Resistance in Barley. USDA-ARS U. S. Wheat and Barley Scab Initiative. 2003 – 2007. $762,448

Marker assisted breeding for enhanced disease resistance in barley; Minnesota Agricultural Experiment Station - Minnesota Small Grains Initiative; 7/07 - 6//09 $133,777.

Barley Improvement. American Malting Barley Association; 2003 –07 $265,597.

Publications (2003 – present):

Refereed: 16	***Abstracts/Proceedings:*** 39	
Invited Presentations: 21	***Variety Releases:*** 2	***Popular press: 3***

Selected Publications (2003 – present):

Condon, F., C. Gustus, D. C. Rasmusson, and K. P. Smith. 2008. Effect of Advanced Cycle Breeding on Genetic Diversity in Barley Breeding Germplasm. Crop Sci. 48:1027-1036

Nduulu L. M., A. Mesfn, G. J. Muehlbauer, and K. P. Smith. 2007. Analysis of the chromosome 2(2H) region of barley associated with the correlated traits Fusarium head blight resistance and heading date. Theor. Appl. Genet. 115:561–570.

Gyenis, L., S. J. Yun, , K. P. Smith, B. J. Steffenson, E. Bossolini, M. C. Sanguineti, and G. J. Muehlbauer. 2007. Genetic architecture of quantitative trait loci associated with morphological and agronomic trait differences in a wild by cultivated barley cross. Genome 50:714-723.

Zhong, S., H. Toubia-Rahme, B. J. Steffenson, and K. P. Smith. 2006. Molecular Mapping and Marker-Assisted Selection of Genes for Septoria Speckled Leaf Blotch Resistance in Barley. Phytopathology 96:993-999

Brakke, M., K. P. Smith, P. Baepler, and J.D. Walker. 2006. Using Problem-Based Learning to Enhance Students' Motivation to Learn. Creative College Teaching Journal "Problem-Based Learning : Successful Examples from Across the Disciplines"

Wingbermuehle, W. J., Gustus, C., and Smith, K. P. 2004. Exploiting selective genotyping to study genetic diversity of resistance to Fusarium head blight in barley. Theor. Appl. Genet. 109: 1160-1168.

Smith, K. P., C. K. Evans, R. Dill-Macky, C. Gustus, W. Xie , and Y. Dong. 2004. Host genetic effect on deoxynivalenol accumulation in Fusarium head blight of barley. Phytopathology 94:766-771.

Canci, P. C., L.M. Nduulu, R. Dill-Macky, G.J. Muehlbauer, D.C. Rasmusson, and K.P. Smith. 2004. Validation of Quantitative Trait Loci for Fusarium Head Blight and Kernel Discoloration Resistance in Barley. Mol. Breeding 14:91-104.

Canci, P. C., L.M. Nduulu, R. Dill-Macky, G.J. Muehlbauer, D.C. Rasmusson, and K.P. Smith. 2003. Genetic relationship between kernel discoloration and grain protein concentration in barley. Crop Sci. 43: 1671-1679.

Robert M. Stupar

Assistant Professor
Legume molecular biology and genomics
75% Research, 25% Teaching

Professional Experience:

2008 – present	Assistant Professor, Department of Agronomy and Plant Genetics
2005 – 2007	Post-doctoral research associate, Department of Plant Biology, University of Minnesota-Twin Cities

Educational History:

Ph. D. – 2005	The University of Wisconsin (Plant Breeding and Plant Genetics)
B.S. – 1998	The University of Minnesota (Biology)

Professional Societies:

American Society of Agronomy
Crop Science Society of America
Soil Science Society of America
Alpha Zeta Agriculture Honorary Fraternity

Professional Interests and Responsibilities: My research focuses on soybean molecular genetics. Specifically, my lab is interested in defining the transcriptional variation present in soybean and assessing the relationship between this transcriptional variation and phenotypic variation. We are also interested in identifying the genetic and epigenetic causes of this variation. Additionally, I am responsible for course instruction in plant molecular biology and chromosome biology. I will begin teaching in the Spring semester 2009.

Significant Committee/Professional Service (2003 – present):

2007	Soybean Genomics Research Strategy Planning Meeting
2007	ASPB Lab Leadership Workshop
2008	Plant Biological Sciences Minority Recruitment Committee

Teaching and Advising Activities:

Teaching Assistant: Introductory Cytogenetics, University of Wisconsin, Spring 2001-2003
Co-Instructor (with Gary Muehlbauer): AGRO 8241: Molecular and Cellular Genetics of Plant Improvement, 3 credits, scheduled for Spring semester 2009
Advising: 2 Post-doctoral research associates; 1 Ph.D. student; 1 Undergraduate student directed research project
Graduate committee membership: 1 M.S. and 2 Ph.D. students

Extramural Funding Received (2003 – present):

Total Funding Received: $25,000

Selected Funded Projects:

Minnesota Soybean Research & Promotion Council. A candidate gene for maturity group and flowering time in soybeans. R.M. Stupar. $25,000, 2008-2009.

Publications (2003 – present):

Refereed: 12	***Abstracts/Proceedings:*** 8	***Invited Presentations:*** 6
Variety Releases: 0	***Book Chapters:*** 1	

Selected Publications (2003 – present):

Nagaki, K., J. Song, R.M. Stupar, A.S. Parokonny, et al. 2003. Molecular and cytological analyses of large tracks of centromeric DNA reveal the structure and evolutionary dynamics of maize centromeres. Genetics 163: 759-770.

Downes, B.P., R.M. Stupar, D. Gingerich, and R.D. Vierstra. 2003. The HECT ubiquitin-protein ligase (UPL) family in Arabidopsis: UPL3 has a specific role in trichome development. Plant J. 35: 729-742.

Adawy, S.S.M., R.M. Stupar, and J. Jiang. 2004. Fluorescence in situ hybridization analysis reveals multiple loci of knob-associated DNA elements in one-knob and knobless maize lines. J. Histochem. Cytochem. 52: 1113-1116.

Stupar, R.M., K.A. Beaubien, W. Jin, J. Song, et al. 2006. Structural diversity and differential transcription of the patatin multicopy gene family during potato tuber development. Genetics 172: 1263-1275.

Stupar, R.M., and N.M. Springer. 2006. Cis-transcriptional variation in maize inbred lines B73 and Mo17 leads to additive expression patterns in the F1 hybrid. Genetics 173: 2199-2210.

Springer N.M., and R.M. Stupar. 2007. Allelic variation and heterosis in maize: how do two halves make more than a whole? Genome Res. 17: 264-275.

Stupar, R.M., P.B. Bhaskar, B.S. Yandell, W.A. Rensink, et al. 2007. Phenotypic and transcriptomic changes associated with potato autopolyploidization. Genetics 176: 2055–2067.

Makarevitch, I., R.M. Stupar, A.L. Iniguez, W.J. Haun, et al. 2007. Natural Variation for Alleles Under Epigenetic Control by the Maize Chromomethylase Zmet2. Genetics 177: 749-760.

Springer N.M., and R.M. Stupar. 2007. Allele-Specific Expression Patterns Reveal Biases and Embryo-Specific Parent-of-Origin Effects in Hybrid Maize. Plant Cell 19: 2391-2402.

Stupar, R.M., P.J. Hermanson, and N.M. Springer. 2007. Nonadditive Expression and Parent-of-Origin Effects Identified by Microarray and Allele-Specific Expression Profiling of Maize Endosperm. Plant Physiol. 145: 411-425.

Stupar, R.M., J.M. Gardiner, A.G. Oldre, W.J. Haun, V.L. Chandler, and N.M. Springer. 2008. Gene expression analyses in maize inbreds and hybrids with varying levels of heterosis. BMC Plant Biol. 8: 33.

Chaudhary, B., L. Flagel, R.M. Stupar, et al. 2008. Reciprocal silencing, transcriptional bias and functional divergence of homoeologs in polyploid cotton (Gossypium). Genetics (accepted pending revision).

Deon D. Stuthman

Professor
Project Leader, Oat Breeding and Genetics
90% Research, 10% Teaching

Professional Experience:

1979-present	Professor, Department of Agronomy and Plant Genetics
1971-1979	Associate Professor, Department of Agronomy and Plant Genetics
1966-1971	Assistant Professor, Department of Agronomy and Plant Genetics

Educational History:

M.S. and Ph.D.	1964 and 1967	Purdue University (Plant Breeding and Genetics)
B.S.	1962	University of Nebraska (Technical Agronomy)

Professional Societies:

American Society of Agronomy
Crop Science Society of America
American Association for Advancement of Science
Sigma Xi
CAST
Gamma Sigma Delta
Minnesota-Uruguay Partners of the Americas

Professional Interests and Responsibilities: Project leader of Oat Breeding and Genetics
Research interests include: durable rust resistance, cause of spontaneous mutants in selected populations, healthy agroecosystems, and international agriculture.

Significant Committee/Professional Service (2003 – present):

2000-06	Charter Board Member, WC Regional Sustainable Development Board
2004-07	President, Minnesota-Uruguay Partners of America
2003-06	President, University of Minnesota Faculty Association,
2006-07	Organizing Committee, National Plant Breeding Workshop Planning Committee
2007-08	Chair, Local Host Committee, 8th International Oat Conference

Teaching and Advising Activities:

Agro 1660 with Jim Anderson: Field trip
Agro 4888 with Craig Sheaffer (SAGR 8010):
Agro 8280 with Christian Thill: Applied Plant Science Topics

Advised more than 50 graduate students for 1 or 2 degrees

Major Extension Education Activities: None formally
Field Days and interaction with growers on-farm trials

Intellectual Property and Scholarly Products: Minnesota cultivars: Winona 2005. Contributed to >25 Mexican cultivars and ~20 in Brazil, Argentina, and Chile.

Extramural Funding Received (2003 – present):
Total Funding Received: $943,898 for 2003-2008

Selected Funded Projects:

Quaker Oats annually Minnesota Oat Breeding, $160,000, 2002-2006; $100,000, 2007
Quaker Oats for South American activities, $6,600/yr, 2003-2008
Quaker Oats RFLP map, $275,000 total, 2001-2006
NCIPM, $37,598, 2006-2009
MAES RRF, $48,300, 2006-2007
North American Millers Association (NAMA), graduate student support, $10,000/yr

Publications (2003 – present):

Refereed: 3	***Abstracts/Proceedings:*** 6	***Invited Presentations:*** 3
Extension: 6	***Popular press:*** 2	***Book Chapters:*** 1

Selected Publications (2003 – present):

Diaz-Lago, J.E., Stuthman, D.D., and Leonard, K.J. 2003. Evaluation of components of partial resistance to oat crown rust using digital image analysis. Plant Disease 87(6) 667-674.

Peltonen-Sainio, P., A. Rajalaa, S. Simmons, R. Caspers and D.D. Stuthman. 2003. Plant Growth Regulator and Daylength Effects on Preanthesis Main Shoot and Tiller Growth in Conventional and Dwarf Oat. Crop Science 43(1) 227:233.

Stuthman, D.D. 2003. Do you want an Education or a Degree? Freshman Orientation Welcome Week, August 28, University of Minnesota, Minneapolis.

Stuthman, D.D. 2003. GMO Food, Ready or Not. Online Journal of Lutheran Ethics http://www.elca.org/jle

Stuthman, D.D. 2004. Good Teaching: Learning Begins with Probing Questions. Partners in Learning: A Campus-Wide Symposium, University of Minnesota, Minneapolis Campus.

Stuthman, D. 2004. What oat breeders really need from biotechnology. Proceedings, 7th International Oat Conference, Agrifood Research Reports 51, Helsinki, Finland. Invited major presentation.

Pacheco, M.T, D. Stuthman, and J. Miller-Garvin. 2004. Selection for partial resistance to oat crown rust in two recurrent selection populations. Proceedings, 7th International Oat Conference, Agrifood Research Reports 51, Helsinki, Finland. Invited presentation.

Stuthman, D.D. and D.L. Wyse. 2004. Breeding for Organic/Sustainable Systems. Major Invited oral presentation, ASA meeting, Seattle, WA.

Portyanko, V.A., G. Chen, H.W. Rines, R.L. Phillips, K.J. Leonard, G.E. Ochocki, and D.D. Stuthman. 2005. Quantitative trait loci for partial resistance to crown rust, Puccinia coronata, in cultivated oat, Avena sativa L. Theor. Appl. Genet. 111:313-324.

Stuthman, D.D., K.J. Leonard, J. Miller-Garvin. 2007. Breeding Crops for Durable Resistances. In: Advances in Agronomy. D.L. Sparks (ed.) Advances in Agronomy 95:319-367, invited major review.

Jochum J. Wiersma

Associate Extension Professor
Small Grains
15% Research, 15% Teaching, 70% Extension

Professional Positions:

University of Minnesota	3/95-6/97	Assistant Professor, Small Grains Specialist (annual renewable)
University of Minnesota	7/97-6/04	Assistant Professor, Small Grains Specialist (tenure track)
University of Minnesota	7/04-3/08	Assistant Extension Professor, Small Grains Specialist
University of Minnesota	3/08-present	Associate Extension Professor, Small Grains Specialist

Educational History:

Wageningen Agricultural University	1991	Plant Breeding	Ir.
University of Minnesota	1995	Plant Breeding	Ph.D.

Professional Organizations and Honor Societies:

Crop Science Society of America; 1991-present.
American Society of Agronomy; 1991-present.

Professional Interests and Responsibilities:

As Small Grains Specialist stationed at the Northwest Research & Outreach Center, my extension mission is to develop educational programs, to organize grower and industry meetings, and to handle inquiries and requests from the public. The research mission is to develop programs that meet the small grain production and management needs so small grain production is profitable and sustainable. The third part of my mission is to provide high quality education in plant breeding to complement the Agriculture Department at the University of Minnesota Crookston (UMC).

Honors and Awards and Dates Received (2003 - present):

American Society of Agronomy, Educational Materials Contest, Certificate of Excellence for the Small Grains Field Guide; 2006

Committee and other professional activities (2003 - present):

Crop Variety Review Committee; 1997-present.
Coordinator, NWROC Field Day; 1997-present.
Director Institute for Ag Professionals; 2005-present.
Reviewer, Rapid Agricultural Response Fund, 2006 – present
Agronomy Journal - Associate Editor; 2006-present.

Teaching and Advising Activities

PIM 3023 – Plant Breeding

Extension Education Activities:

SmallGrains website - a digital platform of news, weather, markets, and production information dedicated to wheat and barley

Small Grains Update - The Small Grains Update is jointly organized with the Minnesota Association of Wheat Growers (MAWG). The update is comprised of 9 half-day meetings across the northwestern part of the state in the third week of January.

Institute for Ag Professionals - The University of Minnesota Extension conducts crop production education programming for agricultural professionals through a suite of events known as the Institute for Agricultural Professionals (IAP).

Grants (2003 - present): $ 402,702

Liquid versus dry phosphorus fertilizer formulations with air seeders. Minnesota Wheat Research & Promotion Council. 2006 – 2008. $ 18,200.-

Quantification of the rotational benefits of wheat to the corn and soybean enterprises. K.D. Olsen, J.B. Craig, and J.J. Wiersma. 2007 – 2008. $10,800.-

Using historical yield data to determine the effect of climate change on productivity of wheat, barley, and oats in Minnesota. J.J. Wiersma, D.D. Stuthman, and K. Klink – Rapid Agricultural Response Fund (also submitted to the CFANS Faculty Grant Program and the CURA Faculty Interactive Research Program). 2008-2009. $ 83, 807.-

Publications (2003 - present):

Refereed: 11	***Abstracts/Proceedings: 22***	***Book Chapters: 1***
Extension Publications: 2	***Extension Fact Sheets: 19***	***Popular Press: 20***

Selected Publications (2003 – present)

Wiersma, J. J., and Kandel, H. J. 2004. The response of *Fusarium graminearum* infected seed of hard red spring wheat to Vitavax Extra RTU and Dividend XL seed treatments. Online. Plant Health Progress doi:10.1094/PHP-2004-0416-01-RS.

Wiersma, J.J. and C.D. Mottberg. 2004. Evaluation of five fungicide application timings for control of leaf spotting diseases and Fusarium Head Blight in Hard Red Spring Wheat. Can. J. Plant Pathol. Vol. 27: 25-27.

Wiersma, J.J., C. Sheaffer, G. Nelson, D. Wyse, K. Betts. 2005. Intercropping Legumes in Hard Red Spring Wheat under Semi-Arid Conditions. Online. Crop Management doi:10.1094/CM-2005-0119-01-RS.

Wiersma, J.J. H. Kandel, and Z. Fore. 2006. The feasibility of winter wheat following soybean in Northern Minnesota. Online. Crop Management doi:10.1094/CM-2006-1110-01-RS.

Martinson B., B.R. Durgan, and J.J. Wiersma. 2007. Wild Oat (Avena fatua L.) control with reduced rates of postemergence herbicides. Online. Crop Management doi:10.1094/CM-2007-0219-02-RS.

Wiersma, J.J. 2007 Development and impact of an extension website. Online. Journal of Extension 45 (5): 5RIB5.

Martinson, K., B.R. Durgan, F. Forcella, J.J. Wiersma, K. Spokas, and D. Archer. 2007. An Emergence Model For Wild Oat (Avena fatua L.). Weed Science (accepted).

Wiersma, J.J., and J.K. Ransom (editors). 2005. Small Grains Field Guide. University of Minnesota Extension Service, St. Paul, MN and North Dakota State University Extension Service, Fargo, ND. Item # MI-07488-S.

Wiersma, J.J., B.R. Durgan, C. Hollingsworth, I.V. MacRae, and G. Rehm. 2006. Winter Wheat in Minnesota. University of Minnesota Extension Service, St. Paul, MN. Item #AG-MI 08421.

Donald L. Wyse

Professor and Co-director
Center for Integrated Natural Resources and Agricultural Management Research
Invasive weed biology and ecology, perennial weed management, organic cropping system development, grass seed production systems, and perennial crop breeding
80% Research, 20% Teaching

Professional Experience:

1995-present	Co-director Center for Integrated Natural Resources and Agricultural Management
1992-2000	Founding Director, Minnesota Institute for Sustainable Agriculture, Univ. of Minnesota
1986-present	Professor, Dept. of Agronomy and Plant Genetics, University of Minnesota,
1980-1986	Associate Professor, Dept. of Agronomy/Plant Genetics, University of Minnesota
1974-1980	Assistant Professor, Dept. of Agronomy and Plant Genetics, University of Minnesota

Educational History:

Ph.D.	1974	Michigan State University, Crop Science (Weed Science)
M.S.	1972	Michigan State University, Crop Science (Weed Science)
B.S.	1970	The Ohio State University, Agronomy

Professional Societies:
North Central Weed Science Society
Weed Science Society of America
Sigma XI
Plant Physiology

Professional Interests and Responsibilities: My job responsibilities are primarily 20% teaching and 80% research along with the management of CINRAM. I conduct research on the biology and ecology of invasive weeds, diversification of cropping systems, weed management in annual and perennial cropping systems, design and management of renewable energy systems, and selection and breeding of winter annual and perennial crops.

Significant Committee/Professional Service (2003 – present):

1995-present	Co-director Center for Integrated Natural Resources and Agricultural Management
2001-2004	Member University Senate
2000-present	Member, Department Undergraduate Committee
2004-2007	Member, Faculty Personnel Committee
2006-present	Founding Executive Committee Member Midwest Cover Crops Council

Teaching and Advising Activities:
AGRO 4503: Biology, Ecology and Management of Invasive Plants, 3 credits, spring semester
AGRO 4603: Integrated Crop Management, 2 credits, spring semester
Graduate Advising: 7 M.S. and 4 Ph.D. students
Graduate Committee Membership: 9 M.S. and 5 Ph.D. students

Intellectual Property and Scholarly Products:
Ragnar II Perennial Ryegrass
Arctic Green Perennial Ryegrass
Polar Green Perennial Ryegrass
A99-2626 Kentucky bluegrass

Extramural Funding Received (2003 – present):
Total Funding Received: Approximately $ 7,000,000

Selected Funded Projects:

Native plants and alternative crops for water quality. L. Meschke, D. Wyse, D. Current, N. Jordan, and C. Sheaffer. K. Brooks. 2005-2008. Legislative Commission Minnesota Resources. $600,000 total BERBI and University of Minnesota; University of Minnesota portion $260,000.

Maximizing production of fiber, fermentable sugars, and energy by matching biomass species to landscape position. Johnson, G.A., H. Jung, C. Sheaffer, U. Tschirner, D. Wyse, and D. Current. 2005-2008. IREE. University of Minnesota Initiative for Renewable Energy and the Environment. $497,000.

Effective knowledge transfer: integrating learning through internships. M.P. Brakke, C. Sheaffer, and D. Wyse. 2004-2007. USDA/CSREES Higher Education Challenge Grant $235,570.

Tools for managing pest and environmental risks to organic crops in the upper Midwest. Sheaffer, C., D. Wyse, M. Harbur, P. Nickel. 2005-2008. USDA, Risk Management Agency. $645,000

Beyond corn and soybean: Alternative organic crops for the upper Midwest. C. Sheaffer, D.Wyse, D. Allan, S. Hathaway, 2006-2010 USDA-Integrated Organic Program. $615,840

Biomass assessment for renewable energy system in East Central Minnesota. D. Wyse, C. Lehman, C. Sheaffer 2007-2008, MN Dept. of Agric., $400,000

Biomass assessment for renewable energy system in White Earth Reservation. D. Wyse, C. Lehman, C. Sheaffer 2007-2008, MN Dept. of Agric., $300,000

The White Earth indigenous crop research program (ICRP). D. Wyse, D. Current, J. Gillman. 7/01/07-6/30/09, USDA-CSREES Tribal College Initiative, $92,413

Publications (2003 – present):

Refereed: 24 ***Abstracts/Proceedings:*** 20 ***Invited Presentations: 25***
Variety Releases: 4 ***Book Chapters:*** 0

Selected Publications (2003 – present):

Wyse, D.L., C.C. Sheaffer, N.J. Ehlke, D.R. Swanson, and D.J. Vellekson. 2003. Registration of Everett quackgrass. Crop Sci. 43: 433.

DeHaan, L.R., N.J. Ehlke, C.C. Sheaffer, R.L. DeHaan, and D.L. Wyse. 2003. Evaluation of diversity among and within accessions of Illinois bundleflower. Crop Sci. 43: 1528-1537.

Grossman, J.M., C.C. Sheaffer, D. Wyse, and P.H. Graham. 2005. Characterization of slow-growing root nodule bacteria from *Inga oerstediana* in organic coffee agroecosystems in Chiapas, Mexico. Appl. Soil Ecol. 29_: 236-251. On-line. doi:10.1016/j.apsoil.2004.12.008

Mercer, K.L., D.L. Wyse, R.G. Shaw. 2006. Effects of competition on the fitness of wild and crop-wild hybrid sunflower from a diversity of wild populations and crop lines. Evolution 60:2044-2055.

Mercer, K.L., R.G. Shaw, D.L. Wyse. 2006. Increased germination of diverse crop-wild hybrid sunflower seeds. Ecological Applications 16:845-854.

Chen, S., D.L. Wyse, G.A. Johnson, P.M. Porter, S.R. Stetina, D.R. Miller, K.J. Betts, L.D. Klossner, and M.J. Haar. 2006. Effect of cover crops alfalfa, red clover, and perennial ryegrass, on soybean cyst nematode population and soybean and corn yields in Minnesota. Crop Sci. 46:1890-1897.

Miller, D.R., S.Y. Chen, P.M. Porter, G.A. Johnson, D.L. Wyse, S. R. Stetina, L.D. Klossner, and G. A. Nelson. 2006. Rotation crop evaluation for management of the soybean cyst nematode in Minnesota. Agron. J. 98:569-578

Warnke, S.A., S.Y. Chen, D.L. Wyse, G.A. Johnson, and P.M. Porter. 2006. Effect of rotation crops on *Heterodera glycines* population density in a green house screening study. J. of Nematology 38:391-398

Moncada, K.M., N.J. Ehlke, G.J. Muehlbauer, C.C. Sheaffer, D.L. Wyse, and L.R. DeHaan. 2007. Genetic variation in three native plant species across the state of Minnesota. Crop Sci. 47:2379-2389

Hulke, B.S., E. Watkins, D. Wyse, and N. Ehlke. 2007. Winterhardiness and turf quality of accessions of perennial ryegrass (Lolium perenne L.) from public collections. Crop Sci. 47; 1596-1602

David F. Garvin

Adjunct Assistant Professor
USDA-ARS Research Geneticist, Wheat Improvement
Appointment: 100% Research

Professional Experience:
1992-1994, Postdoctoral Molecular Biologist, USDA-ARS, Ithaca, NY
1994-1996, Postdoctoral Fellow, CSIRO Plant Industry
1996-1997, Postdoctoral Associate, Cornell University
1998-2001, Research Molecular Biologist, USDA-ARS, Ithaca, NY
1998-2002, Courtesy Assistant Professor, Cornell University
2001-present, Research Geneticist, USDA-ARS, St. Paul, MN
2001-present, Adjunct Assistant Professor, University of Minnesota

Educational History:
1984, B.A. Biology, California State University-Fullerton
1987, M.S. Plant Sciences, University of California-Riverside
1992, Ph.D. Plant Breeding, Cornell University

Professional Societies:
Crop Science Society of America
Genetics Society of America

Professional Interests and Responsibilities:
My appointment is 100% research, with a focus on improving disease resistance in wheat through genetic and genomic methods. Another major research focus is developing resources for the model grass *Brachypodium distachyon*, and using these to enhance grass crop improvement. I also coordinate two regional wheat performance nurseries for northern hard red spring wheat.

Honors and Awards (2003 – present):
2006, 2007, Superior Performance award, USDA-ARS

Significant Committee/Professional Service (2003 – present):
2003-present, Member of National Wheat Improvement Committee
2003-present, Coordinator of U.S. Hard Red Spring Wheat Performance Nursery Program
2003-present, Coordinator of Uniform Regional Scab Nursery for Spring Wheat Parents
2006-present, Organizer of *Brachypodium distachyon* Genomics Workshop, PAG Conference
2006-present, Co-coordinator of International Brachypodium Initiative
2007-present, Member of the CSSA G.O. Mott Scholarship Committee
2008-present, Member of U.S. Wheat and Barley Scab Initiative Steering Committee

Teaching and Advising Activities:
Graduate Advising: 1 M.S. student (co-advised)
Graduate Committee Membership: 3 M.S. and 3 Ph.D. students

Major Extension Education Activities: N/A

Intellectual Property and Scholarly Products:
2004, Co-inventor on patent application “Enhancement of beta-carotene in plants”

2005, Co-inventor on patent application "The *Or* gene and its use in manipulating carotenoid content and composition in plants and other organisms"
2005, Development and release of a core set of inbred lines of *Brachypodium distachyon*
2006-2008, Development and release of FHB resistance QTL NIL series in hard red spring wheat
2008, Development of the first RIL populations of *Brachypodium distachyon*

Extramural Funding Received (2003 – present):
Total Funding Received: $418,000

Selected Funded Projects:
U.S. Barley Genome Project: Use of gene chips for high-throughput chromosome mapping in barley. G.J. Muehlbauer and D.F. Garvin. $43,000. 2004-2005.
U.S. Wheat and Barley Scab Initiative: Tagging a New FHB Resistance QTL for Spring Wheat and Evaluating New FHB-Resistant Germplasm. D.F. Garvin and R. Dill-Macky. $45,000. 2008-2009.
U.S. DOE JGI: Genome sequencing of *Brachypodium distachyon*, a model for energy crops and temperate grasses. J.P. Vogel, D.F. Garvin and M. Bevan. No funds distributed. 2006-2008.

Publications (2003 – present):

Refereed: **25**	***Abstracts/Proceedings:*** **35**	**I*nvited Presentations:*** **8**
Extension: **10**	***Book Chapters:*** **3**	

Selected Publications (2003 – present):

Garvin, D.F., Gu, Y.-Q., Hasterok, R., Hazen, S.P., Jenkins, G., Mockler, T.C., Mur, L.A.J., and Vogel, J.P. 2008. Development of genetic and genomic research resources for *Brachypodium distachyon*, a new model system for grass crop research. The Plant Genome 48:69-84.
Garvin, D.F. *Brachypodium distachyon* – a new model system for structural and functional analysis of grass genomes. 2007. In R.K. Varshney and R.M.D. Koebner (eds.) Model Plants and Crop Improvement. CRC Press, p. 109-124.
Cho, S., Garvin, D.F., and Muehlbauer, G.J. 2006. Transcriptome analysis and physical mapping of barley genes in wheat-barley chromosome addition lines. Genetics 172: 1277-1285.
Lu, S., Van Eck, J., Zhou, X., Lopez, A.B., O'Halloran, D.M., Cosman, K.M., Conlin, B.J., Paolillo, D.J., Garvin, D.F., Vrebalov, J., Kochian, L.V., Kuepper, H., Earle, E.D., Cao, J., and Li, L. 2006. The cauliflower *Or* gene encodes a cysteine-rich zinc finger domain-containing protein that mediates high-levels of beta-carotene accumulation. Plant Cell 18: 3594-3605.
Mackintosh, C.A.*, Garvin, D.F.*, Radmer, L.E., Heinen, S.J., and Muehlbauer, G.J. 2006. A model wheat cultivar for transformation to improve resistance to Fusarium Head Blight. Plant Cell Reports 25: 313-319. (*co-first authors).
Vogel, J., Garvin, D.F., Leong, O., and Hayden, D.M. 2006. *Agrobacterium*-mediated transformation and inbred line development in the model grass *Brachypodium distachyon*. Plant Cell, Tissue & Organ Culture 84: 199-211.
Magalhaes, J.V., Garvin, D.F., Wang, Y., Sorrells, M.E., Klein, P.E., Schaffert, R.E., Li, L., and Kochian, L.V. 2004. Molecular mapping of a major aluminum tolerance gene in sorghum and insights into Al tolerance gene conservation and diversity in the Poaceae. Genetics 167: 1905-1914.
Bolton, M.D., Kolmer, J.A., Xu, W.W., and Garvin, D.F. 2008. *Lr34*-mediated leaf rust resistance in wheat: transcript profiling reveals a high energetic demand supported by transient recruitment of multiple metabolic pathways. Molecular Plant-Microbe Interactions (in press).

John W. Gronwald

Adjunct Professor
Plant Physiologist, USDA-ARS
100% Research –Developing Alfalfa as a Biofuel

Professional Experience:

1983-present	Plant Physiologist, USDA-ARS
1993-present	Adjunct Professor, Department of Agronomy and Plant Genetics

Educational History:

Ph.D. – 1979	University of Illinois (Plant Physiology)
M.S. – 1976	University of Illinois (Agronomy)
B.S. – 1969	University of Illinois (Agricultural Science)

Professional Societies:

American Society of Plant Biologist

Professional Interests and Responsibilities:

I conduct research involving plant biochemistry and molecular biology with the goal of advancing the development of alfalfa as a biofuel feedstock.

Teaching and Advising Activities:

Herbicide Mode of Action (Agro 8030), 1991, 1994

Extramural Funding Received (2003 – present):

Selected Funded Projects: USDA-CRIS (3640-12210-001-00D), Improving Alfalfa and other Forage Crops for Bioenergy, Livestock Production and Environmental Protection

Publications (2003 – present):

Refereed: 6 ***Abstracts/Proceedings: 5***

Selected Publications (2003 – present):

Gronwald, J.W., Plaisance, K.L., and Bailey, B.A. 2004. Effects of the fungal protein Nep1 and *Pseudomonas syringae* on growth of Canada thistle (*Cirsium arvense*), common ragweed (*Ambrosia artemisiifolia*), and common dandelion (*Taraxacum officinale*). Weed Sci. 52:98-104.

Gronwald, J.W., Plaisance, K.L., Marimanikkuppam, S., and Ostrowki, B.G. 2005. Tagetitoxin purification and partial characterization. Physiol. Mol. Plant Path. 67:23- 32.

Litterer, L.A., Plaisance, K.L., Gronwald, J.W., and Somers, D.A. 2005. Assaying uridine diphosphoglucose dehydrogenase in the presence of alcohol dehydrogenase. Anal. Biochem. 343:192-194.

Litterer, L.A., Schnurr, J.A., Plaisance, K.L., Storey, K.K., Gronwald, J.W., and Somers D.A. 2006. Characterization and expression of Arabidopsis UDP-sugar pyrophosphorylase. Plant Physiol. Biochem. 44:171-180.

Schnurr, J.A., Storey, K.K., Jung, H-J.G., Somers, D.A., and Gronwald, J.W. 2006. UDP-sugar pyrophosphorylase is essential for pollen development in Arabidopsis. Planta 224:520-532.

Litterer, L.A., Plaisance, K.L., Schnurr, J.A., Storey, K.K., Jung, H-J.G., Gronwald, J.W., and Somers, D.A. 2006. Biosynthesis of UDP-glucuronic acid in developing soybean embryos: possible role of UDP-sugar pyrophosphorylase. Physiologia Plantarum 128:200-211.

Hans-Joachim G. Jung

Adjunct Professor
USDA-ARS Research Dairy Scientist
100 % Research

Professional Experience:

1992 – present	Research Dairy Scientist, USDA-ARS, St. Paul, MN and Adjunct Professor, Department of Agronomy and Plant Genetics and Department of Animal Science, University of Minnesota
1986 – 1992	Research Dairy Scientist, USDA-ARS, St. Paul, MN and Adjunct Associate Professor, Department of Animal Science, University of Minnesota
1982 – 1986	Research Animal Scientist, USDA-ARS US Meat Animal Research Center, Clay Center, NE

Educational History:

Ph. D. – 1982	University of Illinois, Urbana (Animal Science)
M.S. – 1979	University of Illinois, Urbana (Ecology)
B.S. – 1976	University of California, Davis (Wildlife Biology)

Professional Societies:

American Dairy Science Association
American Society of Animal Science
Crop Science Society of America
American Association for the Advancement of Science

Professional Interests and Responsibilities: Assigned responsibility is to improve forage utilization by dairy cows and as a resource for bioenergy production. Research is focused on understanding cell wall development and composition in alfalfa, perennial grasses, and corn stover/silage in order to identify targets for genetic modification that will increase digestibility by livestock and improve bioenergy conversion efficiency.

Significant Committee/Professional Service (2003 – present):

2007-present	Advisory board for the journal *Biofuels, Bioproducts and Biorefining*
2008	Organizing Committee for *Short Rotation Crops* International Conference
2008	Scientific Advisory Committee for *Ferulate '08* International Meeting

Teaching and Advising Activities: (current)

Graduate Advising: 2 M.S. and 1 Ph.D. students
Graduate Committee Membership: 3 M.S. and 1 Ph.D. students

Extramural Funding Received (2003 – present):

Total Funding Received: $4,145,639

Selected Funded Projects:

National Institute of Health: The impact of fiber fermentation on fecal incontinence. D.Z. Bliss, L R. Fischer, H.G. Jung, A. Lowry, and K. Savik. $2,864,868, 2003-07.

University of Minnesota Initiative for Renewable Energy and the Environment: Maximizing production of fiber, fermentable sugars, and energy by matching biomass species to landscape position. G.A. Johnson, H.G. Jung, C.C. Sheaffer, U.W. Tschirner, D.L. Wyse, and D.A. Current. $497,021, 2005-08.

DOE-USDA Joint Solicitation: Strategies for using molecular markers to simultaneously improve corn grain yield and stover quality for ethanol production. R. Bernardo and H. G. Jung, $715,000, 2007-2010.

Publications (2003 – present):

Refereed: 26 ***Abstracts/Proceedings:*** 18 ***Invited Presentations:*** 7
Variety Releases: 0 ***Book Chapters:*** 4

Selected Publications (2003 – present):

Jung**,** H.G. 2003. Maize stem tissues: ferulate deposition in developing internode cell walls. Phytochemistry 63: 543-549.

Jung, H.G., and C.C. Sheaffer. 2004. Influence of Bt transgenes on cell wall lignification and digestibility of maize stover for silage. Crop Sci. 44: 1781-1789.

Engels**,** F.M., and H.G. Jung. 2005. Alfalfa stem tissues: impact of lignification and cell length on ruminal degradation of large particles. Anim. Feed Sci. Technol. 120: 309-321.

Jung, H.G., and M.D. Casler. 2006. Maize stem tissues: cell wall concentration and composition during development. Crop Sci. 46: 1793-1800.

Jung, H.G., and M.D. Casler. 2006. Maize stem tissues: impact of development on cell wall degradability. Crop Sci. 46: 1801-1809.

Dien, B.S., H.G. Jung, K.P. Vogel, M.D. Casler, J.F.S. Lamb, L. Iten, R.B. Mitchell, and G. Sarath. 2006. Chemical composition and response to dilute-acid pretreatment and enzymatic saccharification of alfalfa, reed canarygrass, and switchgrass. Biomass Bioenergy 30: 880-891.

Jung, H.G., and J.F.S. Lamb. 2006. Stem morphological and cell wall traits associated with divergent in vitro neutral detergent fiber digestibility in alfalfa clones. Crop Sci. 46:2054-2061.

Boateng, A.A., H.G. Jung, and P.R. Adler. 2006. Pyrolysis of energy crops including alfalfa stems, reed canarygrass, and eastern gamagrass. Fuel 85: 2450-2457.

Russelle, M.P., R.V. Morey, J.M. Baker, P.M. Porter, and H.G. Jung. 2007. Comment on "Carbon-negative biofuels from low-input high-diversity grassland biomass". Science 316:www.sciencemag.org/cgi/content/full/316/5831/1567b.

Lamb, J.F.S., H.G. Jung, C.C. Sheaffer, and D.A. Samac. 2007. Alfalfa leaf protein and stem cell wall polysaccharide yields under hay and biomass management systems. Crop Sci. 47: 1407-1415.

Casler, M.D., H.G. Jung, and W.K. Coblentz. 2008. Selection for lignin and etherified ferulates in three perennial grasses. Crop Sci. 48: 424-433.

JoAnn F. S. Lamb

Adjunct Associate Professor
USDA-ARS Alfalfa Geneticist
100% Research

Professional Experience:
2007-present, GS-14 Research Geneticist, USDA, ARS, St. Paul, MN
1999-2007, GS -13 Research Geneticist, USDA, ARS, St. Paul, MN
1996-1999, GS-12 Research Geneticist, USDA, ARS, St. Paul, MN
Adjunct Associate Professor, 2001-present, Department of Agronomy and Plant Genetics, Adjunct Assistant Professor, 1991-2001, Department of Agronomy and Plant Genetics
1991-1995, GS-12, Post Doc. - Research Geneticist, USDA, ARS, St. Paul, MN
1986-1990, Lecturer, Univ. of MN-Crookston, and Univ. of North Dakota, Grand Forks, ND

Educational History:
1985 University of Nebraska-Lincoln, Plant Genetics and Breeding; Ph.D.
1982 University of Nebraska-Lincoln, Plant Genetics and Breeding; M. S.
1978-1980 Black Hills State College, Biology (Botany)
1977 Black Hills State College, Composite Major in Music; B.S. in Ed.

Professional Societies:
American Society of Agronomy
Crop Science Society of America

Professional Interests and Responsibilities: I conduct basic and applied genetic research in alfalfa (*Medicago sativa* L.) to investigate desirable traits for use in sustainable agriculture such as biological nitrogen fixation, nutrient cycling, phytoremediation of groundwater and soil, tolerance to manure disposal, improved livestock nutritional value, and new uses such as biomass/bioenergy/biofuel production.

Significant Committee/Professional Service (2003 – present):
Chair of the Alfalfa Subcommittee of C852 Crop Registration, Crop Science Society of America, 2002-2006
ARS representative on the Association of Official Seed Certifying Agencies (AOSCA) National Review Board - Alfalfa and Misc. Legumes, 2000-2005
Crop Science Society of America (CSSA) representative on AOSCA National Review Board - Alfalfa and Misc. Legumes, 2006-present
President of the North American Alfalfa Improvement Conference (NAAIC), 2008-present; Vice president of the NAAIC, 2006-2008; Secretary of the NAAIC, 2004-2006
Program Chair joint meetings of the Trifolium Conference and the North America Alfalfa Improvement Conference 2008; Co-Chair, 2004 and 2006

Teaching and Advising Activities:
Co-Advised one M.S. student
Graduate Committee Membership: 1 Ph.D. student

Publications (2003 – present):

Refereed: **15**	***Abstracts/Proceedings:*** **15**	***Invited presentations:*** **1**
Popular press: **3**	***Book Chapters:*** **3**	

Selected Publications (2003 – present):

Lamb, J.F.S., C. C. Sheaffer, D.A. Samac. 2003. Population density and harvest maturity effects on leaf and stem yield in alfalfa. Agron. J. 95:635-641.

Jung, H.J.G., and J.F.S. Lamb. 2003. Identification of lucerne stem cell wall traits related to in vitro neutral detergent fibre digestibility. Animal Feed Sci Tech 110:17-29.

Jung, H.J.G., and J.F.S. Lamb. 2004. Prediction of cell wall polysaccharide and lignin concentrations of alfalfa stems from detergent fiber analysis. Biomass and Bioenergy. 27:365-373.

Schwab, P.M., J. F. S. Lamb, C. C. Sheaffer, and D. K. Barnes. 2005. Germplasm variability and environmental effects on stem cellulose and lignin concentration in alfalfa. J. Agronomy & Crop Science 191:386-392.

Lamb, JoAnn F. S., Michael P. Russelle, and Michael A. Schmitt. 2005. Alfalfa and reed canarygrass response to mid-summer manure application. Crop Sci. 45:2293-2300.

Lamb, JoAnn F.S., Craig C. Sheaffer, Landon H. Rhodes, R. Marc Sulc, and Daniel J. Undersander, E. Charles Brummer. 2006. Five decades of alfalfa cultivar improvement: Impact on forage yield, persistence, and nutritive value. Crop Sci. 46: 902-909.

Samac, D.A., H.J.G. Jung, and J.F.S. Lamb. 2006. Development of Alfalfa (Medicago sativa L.) as a feedstock for production of ethanol and other bioproducts. . *In* Minteer, S., editor. Alcoholic Fuels. Boca Raton, FL: CRC Press. p. 79-98.

Jung, H.G., and J.F.S. Lamb. 2006. Stem morphological and cell wall traits associated with divergent in vitro fiber digestibility and alfalfa clones. Crop Sci. 46:2054-2061.

Dien, B.S., H.G. Jung, K.P. Vogel, M.D. Casler, J.F. Lamb, L.B. Iten, R. Mitchell, and G. Sarath. 2006. Chemical composition and response to dilute-acid pretreatment and enzymatic saccharification of alfalfa, reed canarygrass and switchgrass. Biomass and Bioenergy. 30:880-891.

Vogel, K.P. and J. F. S. Lamb. 2007. Chapter 28. Forage Breeding In R.F. Barnes, C.J. Nelsom, K.J. Moore and M. Collins (ed.) Forages, Vol II, 6th Ed. The Science of Grassland Agriculture. Iowa State University Press, Ames, IA. p. 427-438.

Russelle, Michael P., JoAnn F.S. Lamb, Nancy B. Turyk, Byron H. Shaw, and Bill Pearson. 2007. Managing nitrogen contaminated soils: Benefits of N_2-fixing alfalfa. Agron. J. 99:732-746.

Lamb, J.F. S., H.-J.G. Jung, C.C. Sheaffer, and D.A. Samac. 2007. Alfalfa leaf protein and stem carbohydrate and lignin content under hay and biomass management systems. Crop Sci. 47:1407-1415.

Lamb J.F.S., M.P Russelle D.M. Fenton. 2008. Field based selection method creates alfalfa populations that differ in nitrate-N uptake. Crop Sci. 48:450-457.

Boateng, A.A., C. A. Mullen, N.M. Goldberg, K.B. Hickes, H.G. Jung, and J. F.S. Lamb. 2008. Production of Bio-oil from alfalfa stems by fluidized-bed fast pyrolysis. Ind.Eng.Chem. Res. 47: 4115-4122. 2008

Boateng, A.A., P.J. Weimer, H.G. Jung, and J.F.S. Lamb. 2008. Response to thermochemical and biochemical conversion processes to lignin concentration in alfalfa stems. Energy and Fuels, in press.

Howard W. Rines

Adjunct Professor
USDA-ARS Research Plant Geneticist - Oats
100% Research

Professional Experience:

1976 – present	USDA-ARS Research Plant Geneticist
1989 – present	Adj. Professor, Dept. Agronomy & Plant Genetics, Univ. of Minnesota
1976 – 1989	Adj. Assoc. Professor, Dept. Agronomy & Plant Genetics, Univ. of Minnesota
1971 – 1976	Asst. Professor, Dept. Botany, Univ. of Georgia

Educational History:

Ph.D. – 1969	Yale University (Genetics)
M.S. – 1965	Purdue University (Genetics)
B.S. – 1964	Purdue University (Agricultural Science)

Professional Societies:

American Society of America
Crop Science Society of America
American Oat Workers Conference

Professional Interests and Responsibilities: I conduct research on genetics, genomics, and germplasm development and enhancement in oat with emphasis on molecular marker development, identification of partial resistance to crown rust, and transfer of crown rust resistance from wild oat relatives.

Honors and Awards (2003 – present):

Significant Committee/Professional Service (2003 – present):

2003 – present	Coordinator, Regional Uniform Early and Midseason Oat Performance Nurseries
2003 – 2006	Secretary, American Oat Workers Conference

Teaching and Advising Activities:

Graduate advising: Co-advised 2 Ph.D. students and 2 M.S. students
Graduate Committee Membership: 6 M.S. and 5 Ph.D. students
Post doctorate advising: Co-advised 3 post doctorates

Intellectual Property and Scholarly Products:

2003 – present	Co-developed novel maize chromosome additions and radiation hybrids in oat and distributed materials under MTAs to more than 60 labs internationally as maize and oat genomics research tools

Extramural Funding Received (2003 – present):

Total Funding Received: $1,239,850

Selected Funded Projects:

NSF Plant Genome Research Program: A Radiation Hybrid System for the Genetical and Physical Mapping of the Corn Genome. R.L. Phillips and H.W. Rines. $3,081,245 for 2001-2006 with a supplement of $51,014 for 2007.

Publications (2003 – present):

Refereed: 6 ***Book Chapters:*** 5 ***Abstracts/Proceedings:*** 18
Invited Presentations: 6

Selected Publications (2003 – present):

Vales, M.V., O. Riera-Lizarazu, H.W. Rines, and R.L. Phillips. 2004. Transmission of maize chromosome 9 rearrangements in oat-maize radiation hybrids. Genome 47:1202-1210.

Kynast, R.G., R.J. Okagaki, M.W. Galatowitsch, S.R. Granath, M.S. Jacobs, A.O. Stec, H.W. Rines, and R.L. Phillips. 2004. Dissecting the maize genome by using chromosome addition and radiation hybrid lines. Proc Natl. Acad. Sci. USA 101:9921-9926.

Rines, H.W., R.L. Phillips, R.G. Kynast, R.J. Okagaki, W.E. Odland, A.O. Stec, M.S. Jacobs, and S.R. Granath. 2005. Maize chromosome additions and radiation hybrids and their use in dissecting the maize genome. Pp. 427-421. *In*: R. Tuberosa, R.L. Phillips and M. Gale (eds.) In the wake of the double helix: From the green revolution to the gene revolution. Avenue Media, Bologna, Italy.

Portyanko, V.A., G. Chen, H.W. Rines, R.L. Phillips, K.J. Leonard, G.E. Ochocki, and D.D. Stuthman. 2005. Quantitative trait loci for partial resistance to crown rust, *Puccinia coronata*, in cultivated oat, *Avena sativa* L. Theor. Appl. Genet. 111:313-324.

Rines, H.W., S.J. Molnar, N.A. Tinker, and R.L. Phillips. 2006. Oat. pp. 211-242. *In*: Kole, C. (ed.) Genome mapping and molecular breeding in plants. Vol. 1:Cereals and millets. Springer, New York.

Rines,H.W., H.L. Porter, M.L. Carson, and G.E. Ochocki. 2007. Introgression of crown rust resistance from diploid oat *Avena strigosa* into hexaploid cultivated oat *A. sativa* by two methods: Direct crosses and through an initial 2*x*+4*x* synthetic hybrid. Euphytica 158:67-79.

Okagaki, R.J., M.S. Jacobs, A.O. Stec, R.G. Kynast, E. Buescher, H.W. Rines, M.I. Vales, O. Riera-Lizarazu, M. Schneerman, G. Doyle, K.L. Friedman, R.W. Staub, D.F. Weber, T.L. Kamps, I.F.E. Amarillo, C.D. Chase, H.W.Bass, and R.L. Phillips. 2008. Maize centromere mapping: A comparison of physical and genetic strategies. J. Heredity 99:85-93.

Kowles, R.V., J.M. Minnerath, M.D. Walch, C. Bernacchi, A.O. Stec, and R.L. Phillips. 2008. Expression of C4 photosynthetic enzymes in oat-maize chromosome addition lines. Maydica (In press)

Carroll P. Vance

Adjunct Full Professor
USDA-ARS Research Plant Geneticist
100% Research

Professional Experience:

1974-1976 Research Associate, Pennsylvania State University, University Park, PA
1976-present Research Plant Physiologist, USDA-ARS, Plant Science Research Unit, St. Paul, MN
1995-present Research Leader, USDA-ARS, Plant Science Research Unit, St. Paul, MN
1976-present Adjunct Professor, Agronomy and Plant Genetics, University of Minnesota

Education History:

1967 East Tennessee State University, Biology and History; BS
1971 Ohio State University, Plant Pathology and Plant Physiology (NSF Fellow);
1972-1974 Postdoctoral Fellow, University British Columbia, Vancouver, Canada

Professional societies:

American Society of Plant Biologists
American Society of Agronomy
Crop Science Society of America
American Association for Advancement Science
American Phytopathological Society

Professional Interests:

Vance has been involved in legume N_2 fixation, N and C metabolism, and plant-microbe interaction research for 30 years. During the last 15 years he has also been involved in studies of plant adaptation to P stress. His early work focused on root nodule development and the role of plant enzymes in nodule N assimilation. He was the first to isolate and characterize AS, AAT, PEPC, NADH-GOGAT, and MDH from legume nodules, produce antibodies to the proteins, and isolate the genes. Through studies of ineffective nodules he established the paradigm that root nodule formation is analogous to a highly controlled disease process. He collaborated in the development of alfalfa germplasm incapable of N_2 fixation and nodulation which has been shared with more than 100 laboratories. His work on P-stress induced cluster roots in white lupin has been instrumental in defining how plants adapt to the stress of low P. His laboratory has demonstrated a close link between the induction of P-deficiency induced genes in roots and their regulation by plant sugars. Most recently Vance has been an international leader in the functional genomics of symbiotic nitrogen fixation and root responses to P-deficiency. His project has sequenced a total of some 70,000ESTs from Medicago, Lupinus, and Phaseolus and characterized the whole genome transcript expression response in these species.

Honors and Awards (2003- present)

2003 Senior Grade Scientists USDA/ARS (supergrade)
2007 Crop Science Society Monsanto Distinguished Career Award

Committee/ Professional Service

2003 Panel Chair USDA/NRI Plant Biochemistry Panel
2004 Coordinated the USDA/ARS National Program 302 OSQR report and New Program Direction
2004-present External Program Review and Advisory Board Australian Centers Legume Research
2004-2008 Lead U.S. Organizer for the 2nd , 3rd and 4th International Conference on Legume Genetics and Genomics

2004 Co-Organizer 12th International Congress on Plant-Microbe Interactions
2004 Co-Organizer University of Minnesota Plant Molecular Genetics Course Plant Microbe Interactions
2006- Co-Organizer 2nd Pan-American Plant Membrane Conference
2007- Co-Organizer and Editor Plant Physiology Volume "Legume Biology Focus"
2004- present Editorial Board of *Symbiosis*, *Plant Science*, *Plant and Soil*, *Plant Physiology*, and *BMC Plant Biology*

Teaching and Advising

Graduate Advising: 1 Ph.D.
Graduate Committee Membership: 6 Ph.D.
Undergraduate Research Projects: 3

Extramural Funding

Co-PI USDA and NSF Funding $3.5 million

Peer-Reviewed Publications 2003-present (11 of 26) :

Uhde-Stone, C., J. Liu, K.E. Zinn, D.L. Allan, and C.P. Vance. 2005. Transgenic proteoid roots of white lupin: a vehicle for characterizing and silencing root genes involved in adaptation to P stress. Plant J. 44:840-853.

Liu, J., D.A. Samac, B. Bucciarelli, D.L. Allan, and C.P. Vance. 2005. Signaling of phosphorus deficiency induced gene expression in white lupin requires sugars and phloem transport. Plant J. 41:257-268.

Ivashuta, S., J. Liu, J. Liu, D.P. Lohar, S. Haridas, B. Bucciarelli, K.A. VandenBosch, C.P. Vance, M.J. Harrison, and J.S. Gantt. 2005. RNA interference identifies a calcium-dependent protein kinase involved in *Medicago truncatula* root development. Plant Cell 17:2911-2921.

Ramirez, M., M.A. Graham, L. Blanco-Lopez, S. Silvente, A. Medrano-Soto, M.W. Blair, G. Hernandez, C.P. Vance, and M. Lara. 2005. Sequencing and analysis of common bean ESTs. Building a foundation for functional genomics. Plant Physiol. 137:1211-1227.

Tesfaye, M., D.A. Samac, and C.P. Vance. 2006. Insights into symbiotic nitrogen fixation in *Medicago truncatula*. Mol. Plant-Microbe Interact. 19:330-341.

Bucciarelli, B., J. Hanan, D.E. Palmquist, and C.P. Vance. 2006. A standardized method for analysis of *Medicago truncatula* phenotypic development. Plant Physiol. 142:207-219.

Tesfaye, M., K.A. Silverstein, B. Bucciarelli, D.A. Samac, and C.P. Vance. 2006. The Affymetrix Medicago GeneChip Array is applicable for transcript analysis of alfalfa (*Medicago sativa*). Funct. Plant Biol. 33:783-788.

Graham, M.A., M. Ramirez, O. Valdes-Lopez, M. Lara, M. Tesfaye, C.P. Vance, and G. Hernandez. 2006. Identification of candidate phosphorus stress induced genes in Phaseolus vulgaris L. through clustering analysis across several plant species. Funct. Plant Biol. 33:789-797.

Liu, J., S.S. Miller, M. Graham, B. Bucciarelli, C.M. Catalano, D.J. Sherrier, D.A. Samac, S. Ivashuta, M. Fedorova, P. Matsumoto, J.S. Gantt, and C.P. Vance. 2006. Recruitment of novel calcium-binding proteins for root nodule symbiosis in Medicago truncatula. Plant Physiol. 141:167-177.

Helene Murray

Adjunct Assistant Professor
Executive Director, Minnesota Institute for Sustainable Agriculture (MISA)
100% Administrative

Professional Experience:

2002-present	Executive Director, Minnesota Institute for Sustainable Agriculture, University of Minnesota
1993-present	Adjunct Assistant Professor, Department of Agronomy & Plant Genetics
1993-2002	Coordinator, Minnesota Institute for Sustainable Agriculture, University of Minnesota
1997-1999	Facilitator, Henry A. Wallace Center for Alternative Agricultural & Environmental Policy, Arlington, Virginia
1988-1993	Sustainable Agriculture Project Associate, Oregon State University
1992	Albania Assessment Team Member, Oregon State University
1988	Horticultural Consultant - Nepal, University of Idaho, Postharvest Institute for Perishables, Moscow, Idaho
1985	Agricultural Inspector, San Luis Obispo County
1982-1984	U.S. Peace Corps - Nepal. Volunteer, Horticultural Extension

Educational History:

Ph.D.	Crop Science, minor in Extension, Oregon State University, 1993
M.S.	Horticulture, Oregon State University, 1988
B.S.	Fruit Science, California Polytechnic State University - San Luis Obispo, 1981

Professional Societies:
Agriculture, Food and Human Values

Professional Interests and Responsibilities:
Sustainable and Organic Agriculture; Multifunctional Agriculture; Local Food Systems

Significant Committee/Professional Service (2003 – present):
Council on Public Engagement, University of Minnesota, 2006-present
Search Committee Member, U of MN College of Food, Agricultural & Natural Resource Sciences Dean, 2006
Committee Member, Larson and Allmaras Annual Lecture committee. 2003-present
Associated Faculty, MacArthur Program/Interdisciplinary Center for the Study of Global Change, 2001-present
Committee Member, Applied Plant Sciences Preliminary Exam Committee, Agroecology, 2002-2004
Chair, School of Agriculture Endowed Chair in Agricultural Systems Search Committee, 2002-present
MacArthur Program Scholarship selection committee, 2001-2005
Chair, Theodora and Arnold Johnson Scholarship committee, 2001-present
Council member, Agriculture, Food and Human Values Society (AFHVS), 2002-2005
Evaluation Panel Member, US Dept. of Commerce, National Institute of Standards & Technology, 2004
Committee Member, Emerging Issues in Soil and Water, William E. Larson and Raymond R. Allmaras Lecture Series. 2003-present
Committee Member, NE 1012 “Sustaining Local Food Systems in a Globalizing Environment: Forces, Responses, Impacts.” 2002-2008

Teaching and Advising Activities:

Committee Member:

Renee Maas, M.A. Humphrey Public Policy program, completed 2008
Eric Casler, Ph.D., Conservation Biology, anticipated completion 2010
Deborah Brister, Ph.D. Fisheries and Wildlife, anticipated completion 2009
Lauren Lautenschalager, M.S., Food Science and Nutrition, degree completed in 2006

Extramural Funding Received (2003 – present):

Total Funding Received: **$264,301**

Selected Funded Projects:

2006-2008 H. Murray (P.I.) Green Lands, Blue Waters Consortium. Leopold Center for Sustainable Agriculture (USDA Prime) $88,494

2007-2008 H. Murray (P.I.) Green Lands, Blue Waters Consortium. McKnight Foundation. $60,349

2003 H. Murray (P.I.) USDA Sustainable Agriculture Research & Education (SARE) Program, Experiential Learning Opportunities for Graduate and Undergraduate Students. $60,000

Publications (2003 – present):

Refereed:

Chander, Yogesh, Satish C. Gupta, Kuldip Kumar, Sagar M. Goyal, and Helene Murray. 2008. Antibiotic Use and the Prevalence of Antibiotic Resistant Bacteria on Turkey Farms. Journal of the Science of Food and Agriculture. 88:714-719.

Chander, Yogesh, Satish C. Gupta, Sagar M. Goyal, Kuldip Kumar and Helene Murray. 2007. Sub-therapeutic Use of Antibiotics and Prevalence of Antibiotic Resistant Bacteria on Swine Farms. In press: Research Journal of Microbiology.

N. Jordan, G. Boody, W. Broussard, J. D. Glover, D. Keeney, B. H. McCown, G. McIsaac, M. Muller, H. Murray, J. Neal, C. Pansing, R. E. Turner, K. Warner, D. Wyse. 2007. Sustainable Development of the Agricultural Bio-Economy. Science, 15 June, Vol. 316. no. 5831, pp. 1570 - 1571.

Simmons, S., A. Dincesen, H. Murray, T. Dunrud, B. Buhr, and C. Angle. 2005. Anybody's Dream: A decision case of marketing alternative crops. Journal of Natural Resources and Life Sciences Education Volume 34: 29-35.

Abstracts/Proceedings:

Chander, Y., S.Gupta, S. Goyal, K. Kumar, and H. Murray. 2006. Prevalence of antibiotic resistant bacteria on swine farms. ASA-CSSA-SSSA International Annual Meetings. November 12-16

Invited Presentations:

Murray, Helene and George Boody. 2006. Finding the Win-Win Solutions: Incorporating Sustainable Agriculture Approaches. International Conference on Rivers and Civilization: Multidisciplinary perspectives on major river basins. Presentation. June 25-28, LaCrosse, WI

Murray, Helene and George Boody. 2006. Finding the Win-Win Solutions: Incorporating Sustainable Agriculture Approaches. Am. Assoc. for the Advancement of Science (AAAS) annual meeting. Presentation. February 16-20, Saint Louis, MO.

Murray, Helene. 2005. Commodities, Consumers and Communities: Local foods systems in a globalizing environment. Invited Presentation. Geographical Indications (GIs) and Sustainable Rural Development: Exploring the Connections, a National Conference. May 16-18, St. Louis, MO.

Chander, Y., S. Gupta, S. Goyal, K. Kumar, H. Murray, Ashok Singh. 2004. Role of Antibiotics Feeding in Food Animals on Antimicrobial Resistance in the Environment. Am. Society for Agronomy Annual Meeting. Presentation. October 31-November 4, 2004. Seattle, WA.

Department of Agronomy and Plant Genetics
Strategic Plan

Introduction

The Department of Agronomy and Plant Genetics' strategic plan positions the department and builds the capacity of the institution to address crop sciences research and education from a local to global context through 2020. This plan focuses specifically on the next five years of the Department's work.

During the winter of 2006 – 2007, faculty undertook a strategic planning process to articulate a new mission and priorities, to identify new goals and benchmarks, and to suggest human and fiscal resources required to fulfill these aims. This strategic plan also contains a roadmap for intentional development of departmental culture and a proposed process for positioning the department in an international crop sciences context, within the University of Minnesota's 'Top 3' institutional development process, and among the academic departments in the College of Food, Agricultural and Natural Resource Sciences. Through this process, faculty have determined whom they will serve, the departmental role in the various communities of which it is a part, the types of programs and services offered, and resources required to achieve this ambitious endeavor.

Land Grant Legacy

The Department remains committed to the three dimensions of the land grant mission in equal measure – learning, discovery, and outreach – and is proud to reflect the agricultural legacy and civic aims of these important public institutions. The Department is pleased to sustain its involvement with Minnesota farmers, educational programs for future crop sciences professionals, and meeting citizen needs through contributions to food production, biofuel, biomass, and ecological services.

As times change, so too does the focus, relevance and role of land grant universities to the American public. We understand that the shifting nature of food production, landscape management, natural resources and human societies necessitate innovations in programs and research, and changing priorities across the University of Minnesota. To that end, we believe that the Department of Agronomy and Plant Genetics is well-positioned to lead a renewed sense of the land grant mission toward leadership and the creation of scientific knowledge around preservation of natural resources, sustainable and efficient food and biomass production and landscape management, vitality and prosperity of rural communities, and alleviation of poverty and hunger.

The importance of food – and increasingly, outputs of crop agriculture including biomass and ecological services – in our daily lives serves as a bridge that connects the historic and future identities of the land grant university. The work of our Department in coming years reflects this nexus, demonstrating exciting advances grounded in an appreciation for our land grant legacy.

The Future of Crop Sciences (Agronomy and Plant Genetics)

Change is a constant that holds true for our future; crop sciences are no exception. This expansion of opportunity and focus by the Department in coming years is driven by technological innovations, a need for conservation of our natural resources, changing roles of public and private sectors in food and biomass production, and shifts in how knowledge is generated and shared.

In the future, basic, applied and translational research will all play important roles, with agroecology, genomics, bioinformatics, and a 'systems biology' orientation brought to bear to solve critical questions. Our work will focus on crop development for food, feedstocks, pharmaceuticals and bioenergy generated from diversified cropping systems while simultaneously protecting water quality and conserving ecological resources. This expanded emphasis will also shift us from raw commodity-driven approaches to those that are "end product"-driven, led by large, multidisciplinary teams.

Mission

The mission of the Department of Agronomy and Plant Genetics is to discover and share knowledge and develop plant genetic materials that increase the efficiency, reliability, and profitability of crop production and utilization within Minnesota and around the world.

We conduct these research and education activities in a local to global context to promote efficient crop production, rural and economic vitality, human wellness, environmentally sound practices, biodiversity, renewable energy, and alleviation of poverty and hunger.

Vision

We envision a world where each individual and every family and community is deeply connected to the food system and the land. In this world the landscape is healthy, diversified and beautiful with clean water, air, and soil, where the food we eat and grow is a balanced between local and global production. Strong economies are supported by these agricultural production systems that benefit rural communities. Whether growing backyard gardens, protecting environmentally fragile areas, ecologically conscious urban development, or producing food and biofuels, we will all make decisions from a perspective that cares for nature; respects those who produce our food; seeks sustainable innovation in biofuels and natural products; develops appropriate technology; and provides public support to sustain ecosystems, agriculture, and related land grant programs. In this world, the Department of Agronomy and Plant Genetics will serve as a role model, conducting unbiased research, providing future-oriented and transformative educations, developing new materials for the landscape, building respectful connections between vital urban and rural communities, and contributing to robust regional agricultural systems and economies.

Values

In keeping with the land grant mission of contributing to and sustaining the common public good, the Department of Agronomy and Plant Genetics values:

- High quality, innovative, ethical and unbiased teaching, research and Extension efforts in basic, applied and translational components.
- Proactive approaches that make a positive difference in Minnesota economies, ecologies, and communities and maintain relevance in agriculture, renewable energy, environmental sustainability, and health.
- Collaborative, team-oriented approaches to our work.
- Active support for personal and professional development for stakeholders, faculty, staff, and students.

Priorities

The Department has identified key priorities that define the scope and aims of its discovery, engagement and learning functions:

- Clientele- and student-centered learning.
- Crop improvement through translation of basic biology and crop science.
- Multifunctional agriculture and landscape use for healthy food, environment, and lives.
- Renewable energy and natural products for a bioeconomy.

These priorities will inform the development of 'flagship' projects that will raise the departmental profile and offer a clear and effective institutional niche in service to supporting landscape, human and animal well-being.

Workplan for Priorities

Faculty have developed a five-year workplan for each of the priority areas, assigning personnel, identifying resources required, outlining programs and activities, and establishing benchmarks.

Priority #1 *Clientele and student-centered learning*

For the Department of Agronomy and Plant Genetics, the overarching commitment to exemplary education is the signature feature of all discovery, engagement, and learning endeavors.

a) Undergraduate Education

Team: Kevin, Paul, Steve, Student Services (Karl Lorenz, Caitrin Mullen)

Purpose: The Department creates exemplary undergraduate programs that produce a diverse group of reflective, globally-minded future leaders capable of communicating effectively; thinking critically and creatively; and understanding plant sciences and food systems. These focused programs offer students a broad range of experiences and knowledge inclusive of multiple ways of knowing that encourage deep learning; opportunities for research, community and civic opportunities; and faculty advising and mentoring. The Department cultivates a culture of education, avails itself of current faculty expertise in service to students, and regards teaching as a valued form of scholarship.

Five Year Workplan:

During 2007, the team involved with the undergraduate education component will convene a dialogue with business and community partners to determine their needs and interests for undergraduate education and establish an active advisory committee. Faculty will also develop concrete examples of experiential and transformative learning opportunities to integrate into its APS and AIM undergraduate programs. This team will conduct an undergraduate course review as part of a collegiate-wide effort that will establish a baseline for efforts in succeeding years. Faculty will collaborate with the College's student service office to explore new resources, continue to improve its student advising, and pursue opportunities and approaches to increasing student numbers and broadening the cultural diversity of undergraduate majors. This team will also explore ways to develop strong professional development opportunities for key personnel.

By the 2009, the Department will offer courses required by other majors to expand the base of undergraduate students within CFANS or those wishing to fulfill liberal education requirements. This priority area will also determine metrics in addition to student contact hours to effectively evaluate this more comprehensive approach to undergraduate education, such as time in laboratory, experiential learning opportunities, internships, etc. Based on the course evaluation the minor will be streamlined, repositioned, and redesigned. The priority area working group will also identify professional development needs of faculty, create a blueprint for faculty development, and implement an ongoing development program. By 2011, undergraduate curriculum will be fully evaluated and retooled, including offering a liberal education course that includes the civic, social and ethical dimensions of agriculture. There will be ongoing consideration about the effective use of technology to promote learning. There will be at least eighty majors in the department. Improved, expanded and more active relationships with K-12 teachers and counselors will be under way. Admissions materials (print and online) will be revised, redesigned and available for distribution. We will launch a dialogue with Career Services to better identify career opportunities and strategies for conveying these options to prospective students. We will also pursue how best to connect with and synchronize our efforts with those of the Environmental Sciences major.

By the end of 2011, we will have nearly tripled our undergraduate majors (including APS and AIM), expanded required courses, developed an effective strategy for communicating our major to recruits, and ensure that each undergraduate has one substantial interaction with faculty. We will integrate these efforts with the other priority areas. From a bureaucratic standpoint, we need to streamline existing 'systems disincentives', such as registration hurdles that prevent students from registering for our courses or attribution of credit when a course is co-taught across academic units. We will also explore ways to maintain contact with graduates to assess connections between their professional development and undergraduate education.

Our partners in this multi-pronged strategy include the business and community sectors; Carlson School; Department of Biosystems and Agricultural Engineering; current students; other environmental science majors, departments and organizations; IONE; high school teacher and counselors; St. Paul Campus Career Services; and CFANS student services staff. Our work will also align with the University's initiative in "Enhancing Undergraduate Education."

Current efforts underway:

- implementation of a detailed plan for APS major with two more years remaining for completion
- formalizing and enhancing 'out of classroom' experiences for students (e.g. new models for internships
- development of metrics for 'out of classroom' experiences
- emerging discussion on how to attract students from diverse cultural backgrounds

b) Graduate Education

Team: Anderson, Bernardo, Muehlbauer, Sheaffer (APS Steering committee subset) + 2 graduate students

Purpose: Strengthen and refine conceptual framework, curricular content, and standards of excellence for APS graduate program, aligning with aims and content of the University's Top 3 positioning process. Cultivate sense of collaborative leadership and faculty cohesiveness around mission, scope, standards, content, and framework of APS graduate program.

After participating in a graduate school-led review of the APS program, the APS graduate committee will spend the first year of strategic plan implementation developing thoughtful and inclusive responses to the review document. This process will involve a series of planning retreats led by the APS graduate committee and including faculty, students, departmental leadership, and relevant staff. This process will yield a strategic plan for graduate education, conceptual framework, and details for a five year implementation schedule. An additional outcome of this work will be the improved alignment, coordination, and collaboration across departments involved with the APS program.

Year 1

Conduct a series of APS grad program retreats to develop conceptual framework for graduate education, including creation of a vision, stringency standards for students, curricular content review, funding plan and proposed new directions. These retreats will occur during the second half of 2007 and conclude with a report and/or recommendations submitted to the graduate school by 1/2008. Activities will include:

- Articulate conceptual framework
- Evaluation and redesign of curriculum
    - In depth review of existing graduate courses to determine their fit with future student needs
    - Development of minimum standards and content knowledge criteria for graduate education and tools to assess if students meet these standards.
- Create plan to augment financial support for graduate students to be competitive with ISU and Cornell
- Revisit written prelims and strengthen oral prelim (refine content area).
- Development of process for continuous self-review and tools for periodic internal assessment and evaluation of graduate education in department

At the fall APS orientation, new and current students will be included and involve a 'launch' conversation about this strategic planning process. An APS poster session will be scheduled prior to the start of fall semester classes as part of new student orientation activities.

Outcomes of this planning effort include (1) the institution of the continuous practice of self-review and assessment; (2) improved and more cohesive relationships among departments and department heads affiliated with the APS program; (3) cultivate a shared and coherent sense of purpose and objectives around graduate education; (4) improvement of the graduate program; and (5) increase in graduate student numbers.

c) Extension

Team: Becker, Gunsolus, Hicks, Naeve, Peterson

Purpose: To develop and sustain strongly funded multi-sector program teams that conduct applied research, create and deliver education programs, publish research results, and assess impact on the economic and agronomic dimensions of weed and crop management (including corn, soybeans, small grains, and forage crops) that respond to both short- and long-term needs of agriculture.

Five Year Workplan:

Activities outlined in this paragraph will be directly sponsored and initiated by the Extension Priority Area Working Group. During 2007 - 2008, the Extension Priority Area Working Group will sponsor three major activities: (1) professional development events focusing on leadership, associated meanings, and

styles; (2) convene departmental Brown Bag session on integration of Extension approaches in research dissemination (using Barley CAP grant as case study) and implications for future work; (3) sponsorship of process to develop new metrics on programming and Extension-related work for annual review and tenure within the Department and subsequently in the second year among agricultural production systems-related departments (Plant Pathology; Soil, Water, and Climate; Animal Science; and Entomology). The development of new metrics must be an intentional, phased process that is dialogic and oriented toward full buy-in and complete adoption across the college by 2011. During 2009 – 2010 with the assistance of the Department Head, this group will assist other departments in CFANS with the development and adoption of annual and tenure review metrics associated with Extension-related work by faculty.

This paragraph addresses activities and outcomes under the aegis of the Extension Service that will impact the activities, scope of work, and goals of faculty affiliated with the Extension Priority Area Working Group. The following activities and outcomes are associated with the Extension Service and will emerge over the next five years. This Extension Priority Area Working Group, in collaboration with key colleagues and administrators, will clarify the roles of and strengthen interrelationships between the Regional Extension Educators, other state specialists and program teams and Research and Outreach Centers. 2008 and 2009 will yield a clear role and secure funding for these shared programmatic efforts, including applied research, program development and delivery. By 2011, Extension clientele will use website for technical information on crop sciences on an ongoing basis. Staffing will be required to assist with web design and marketing. Within two to three years, Extension faculty will require new electronic media information delivery systems. These efforts should be connected with state and federal environmental education programs.

Throughout this period, the Department will need to collaborate with Extension to clarify and resolve questions around the relevance of Extension to the Top 3 positioning process; enhanced integration into the CFANS organizational structure; instability of funding; clearly defined clientele; appropriate appointments for applied research and dedicated Extension appointments; translation of Top 3 into impacts on rural/urban landscapes; effective information distribution system; and professional education. Additionally the Department should resolve concerns about recognition of Extension work by research faculty and explore possibilities for partnerships to fund this work.

Funding Questions

A sustainable base of support must be provided and augmented beyond existing levels to effectively support the applied research base, with a special emphasis on leveraging sustainable public support. Resources required to undertake this workplan include University and legislative funds, as well as support from state and federal agencies, nonprofits, commodity groups and other traditional stakeholder groups.

Current efforts underway:

- Nationally coordinated corn/soybean “e-Xtension” web-based delivery system
- Field days and annual winter Extension days
- Applied research includes: forage management (weed control), soybean production management (market development, quality issues), sweet corn weed management, biocontrol, invasive species management; vegetable production weed management; IR-4 coordination for federal program to develop pesticide needs; registration for minor vegetable crops; corn/soybean weed management

Priority #2 *Crop improvement through translation of basic biology and crop science*

Team: Anderson, Orf, Muehlbauer, Phillips

Purpose: The Crop Improvement priority area will be an institutional, regional, and international leader in crop improvement through translation of basic biology and crop science. We will forge critical partnerships to effectively focus on variety development, durable disease resistance, new food products linked to specific traits or health outcomes, alternative species, bioenergy, organic production, and agronomic adaptation.

Five Year Workplan:

Under the auspices of this priority area during the first two years, the Department will hire a faculty member in legume genomics and undertake planning to determine the future of the oat breeding program. Team members, along with key partners, will undertake discussion to identify health targets that will be central to informing the development of this priority area. During 2007, the team will design and inaugurate an annual plant breeding/genetics seminar in addition to a weekly seminar series on plant breeding and genetics for graduate students. We will also convene dialogues with key colleagues in biomedicine, food science, and nutrition to explore possible areas for collaboration and proposal development. During this period, researchers will identify genes (QTL) associated with health targets identified by an interdisciplinary team. We will subsequently produce fully developed health and bioenergy programs, using Marker Assisted Selection, integrated gene discovery, and durable resistance dimensions in the research program. As always, ongoing support for agronomic adaptation will be a feature of all our efforts and contribute to a paradigm shift toward an integrated approach to healthy lives, bioenergy, and plant sciences.

By the close of 2011, the Department will have a significantly enhanced and active emphasis on health-related and bioenergy crop improvement, increased effort (more than or equal to .5 FTE) in minor and new crops. We will employ greater utilization of marker-assisted selection, integration of gene discovery in breeding germplasm and durable disease resistance, and enhanced translational research including model species. From a facilities standpoint, we will have a new state-of-the-art seed storage facility, access to genotyping and phenotyping equipment, and a general fund to support equipment repair and replacement as needed.

During 2007-2008, we will also convene a series of conversations with colleagues within the Plant Sciences Division to explore the feasibility of an Upper Midwest regional plant breeding institute that includes statistics, breeding programs, genomics, and vital collaborations with plant pathologists, nutrition, food and biomedical scientists.

Partners in this effort will include new colleagues at this and other institutions as well as plant, animal, food and biomedical scientists. We will also develop relationships with bioprocessors, engineers and bioinformaticians. Strengthening ties with partners like regional marker labs, commodity groups, and industry will also be an important feature of our relationship-building.

To effectively carry out these aims, faculty involved with these efforts will need to learn about areas such as bioinformatics, alternative species information and resources, breeding targets for health (food), bioenergy, and other non-food products, knowledge of private industry efforts (seed companies) and stay updated on genomics advances.

Current efforts underway:

- Increased interaction with multifunctional agriculture and landscape use priority area focusing on organic production and bioenergy
- Ongoing breeding efforts to meet agronomic standards

- Initial discussions with colleagues in other disciplines on plant breeding efforts to address the interaction between human health, and food
- Ongoing efforts in plant genomics research include gene cloning, gene mapping, gene discovery, and plant transformation

Priority #3 *Multifunctional agriculture and landscape use for healthy food, environment, and lives.*

Team: Haar, Jordan, Murray, Sheaffer

Purpose: The Multifunctional Agriculture and Landscape Use priority area will experiment with landscape change on a landscape scale and the components of large-scale agricultural systems with the broad aim of enhancing economies, local environments, and communities and the specific intent of improving ecosystems services and farmer profitability. This working group will strategically focus its work to procure resources to achieve a different and better integrated agriculture on the landscape. It will also provide continuous outreach and leadership to integrate concerns associated with hydrologic, perennial cropping systems, wildlife habitat, and relevant germplasm development and plant-related research.

Five Year Workplan:

During 2007, the multifunctional agriculture team will develop a coalition of key partners and subsequently create a shared vision for this priority area. A first step will be the development of a MNFutures grant for $25,000 to convene a symposium that will form interdisciplinary teams working on biomass issues. The intent of this activity is to develop a strategically and coherently shaped program that will weave interorganizational partnerships, policy aims, and organizational goals. Out of this shared vision, a specific action plan with concrete goals, benchmarks, programs, personnel and budgets, and fundraising strategy will emerge, with *Green Lands, Blue Waters* as the legacy/signature project of this Working Group. Partners will initiate search for funding. By 2009, this team will have launched searches to fill new faculty positions. Research planning will be well under way. One new project will be launched. At the close of 2011, this priority area will have established a functional center or working group with three full time faculty (could entail faculty reassignments); graduate students; capacity to undertake landscape-level research; three successfully funded research and development projects conducted on a landscape scale.

To ensure our success, we will need research and development projects that are funded and scaled more broadly than typical (i.e. from plot level to landscape level) as well as reliable legislative support. We also require internal support including a facilitator to further shape and clarify our efforts, receipt of credit for our efforts to build a viable and productive team, creation of a new mentoring system to build capacity for this type of publicly oriented effort that will provide ‘wings’ for our work, and effective strategies to procure state and federal support.

Key partners in this endeavor will meet several needs, including policy, organizing, financial support, and expertise. They include Green Lands, Blue Waters; commodity groups, state agencies (NRCS, DNR, SWCD, MPCA); and federal agencies like USDA and EPA. University of Minnesota partners include CINRAM, IONE, IREE, MISA, Division of Plant Sciences, and Extension; industry partners; foundations; a coalition of fully vested partners (NGOs, commodity groups, government agencies); relevant legislators at the state and federal level; and others.

Current Efforts Underway:

- Green Lands, Blue Waters – activities around grazing, biomass, perennial and cover crops, and agroforestry (encompasses both Minnesota-specific and Upper Midwest-focused activities)
- CINRAM programs
- Sustainable, multifunctional biomass initiatives in Madelia and lower Minnesota River basin
- Sustainable multifunctional grazing program

Priority #4 *Renewable energy and natural products for a bioeconomy*

Team: Johnson, Porter, Sheaffer, Wyse

Purpose: The *Renewable Energy and Bioeconomy* working group will promote a broader view of landscape performance by using cropping systems to generate economic value (such as biofuel) and ecosystems services (such as soil, water, and habitat quality). We will focus research and education efforts on the successful development of germplasm for crop production of biomass species; diversification of agronomic knowledge for new plants and natural products; and explore the impact of biodiverse polycultures on ecosystems services.

Five Year Workplan:

During 2007, this team will develop a comprehensive strategy to fund and implement this priority area focusing on (1) germplasm development; (2) assessment of renewable energy systems for generation of ecosystems services (erosion, hydrology, nutrient management, carbon sequestration); and (3) other high-value components. A key part of this effort will include the identification of resources to expand the capacity of existing programs. During this first year, the team will also contribute to the discussion and decision-making on new positions/hires within the Department. For the following three years, efforts will be focused on filling related faculty positions, identifying and procuring recurring funding sources, augmenting technical support and graduate student numbers, and establishing leadership through research, education, and information resource provision for perennial crops and on-farm biofuel production. By 2011, the Department will be recognized as a leader in renewable energy, natural products and related enterprises for the University's Plant Sciences Division and among its colleagues regionally and internationally. Funding and leadership will be in place to support the Department's role as an information resource, robust research endeavors, and exemplary education and Extension programs which will attract further investment.

By the close of 2011, the Department will enjoy recognized leadership in the use of native perennials for biofuel production and row crops (willow, poplar, false indigo, switchgrass, native legumes, and native polycultures). A suite of funding sources will be secured to support students and staff required to carry out this work. Research and Outreach Centers will have adequate support to facilitate a regional approach to evaluate interaction of genetic type with environment. These regional sites will enable the Department to test products in different ecoregions.

A new faculty position in agroecology must be retained. Faculty in this priority area will collaborate with colleagues within the University's Plant Sciences Division, including cell wall chemistry (breeding/biochemistry) and natural products research (biochemicals). Faculty involved with this priority area will require access to expertise in analytic chemistry.

Partners in this effort will include relevant CFANS and Division collaborators; Institute of Technology; Academic Health Center, commodity groups, industrial partners, farmers, organizations like AURI/CERTS and agencies like PCA. Facilities needs for this priority area include adequate lab and field

space, field equipment, instrumentation, and plant material. During this period, team members will build capacity in communication and fundraising.

Current efforts underway:

- Impact of perennial biomass crops on water quality
- GxE landscape position effects on crop growth and biofuel production
- Variety trials and germplasm evaluation in multiple ecoregions
- Feasibility of small-scale, on farm biodiesel (including meal and oil quality and economic potential)

Strategic Positioning of the Department

Team: Strategic Planning Standing Committee

Purpose: The overarching purpose of strategic positioning is to improve the political influence and public profile of the Department in service to fulfilling the aims outlined in this strategic plan. To this end, strategic positioning will:

- Build relationships that matter
- Significantly enhance our influence in setting benchmarks by which we're evaluated
- Raise our profile with external stakeholders and internal influencers in a way that generates more revenue and greater impact
- Improve public awareness of agriculture, the food system, and environmental health
- Enhance influence of agricultural interests at state legislature
- Strike a healthy balance between the enhancement of individual faculty career advancement and that of the department

Discussion:

How do we enhance our visibility and influence within the College, across the institution, and in the public domain? What is a comprehensive platform for action that will enable us to position the department and leverage influence to generate changes in policy, funding, institutional agendas, and the food system? How can we elevate public awareness about the food system and its connections to agricultural/plant research, teaching and outreach? An improved position requires two main efforts: creation of a strategic communications plan and the development of a platform for action identifying priorities, strategies, and a concrete action plan.

Faculty suggested several dimensions to what constitutes positioning, including anticipating innovation and opportunities, raising awareness of competition, developing communications strategies and materials for public, creating circumstances for success, building centrality to institutional mission, and resonating with constituents. Positioning also includes representation and 'face time' with critical administrative posts, in policy and decision-making at local, regional, state and federal levels. Faculty want to learn how to:

- Build strategic relationships
- Communicate effectively to advance departmental agenda
- Create or avail themselves of circumstances that can leverage positive benefit to the department

The role of communications practices in this effort cannot be understated; it will be critical to the successful advancement of the department. To that end, strategic communications should:

- Enhance UMN institutional perceptions about validity and importance of agriculture to future university initiatives – food, environmental services, renewable energy

- Enhance institutional perceptions about negative impacts of agriculture on environment (MPCA, DOC, DNR)
- Raise public awareness about the food system, its relationship to agriculture, and land grant universities
- Raise policymaker awareness about the need to invest public dollars in agricultural research, teaching and outreach
- Prepare strategic approaches to building relationships with corporate funders

Five Year Workplan:

During 2007, the positioning effort will have a threefold focus: (1) creation of a departmental Advisory Committee; (2) development of positioning plan; and (3) development and associated training of a strategic communications plan for the Department. The committee will work with each of the priority area teams (crop improvement, multifunctional agriculture, renewable energy, and learning) to identify specific strategic goals, training needs, and schedule trainings. Meanwhile, the department head in consultation with faculty will work to develop an overall communications strategy that fulfills meta-level goals shared by all four priority areas. Early in 2008, communications materials and a schedule of activities will be developed. Full implementation of the training and strategic positioning will be underway mid-way through 2008. During the second half of year two, evaluation of progress and any mid-course adjustments will be made. This positioning strategy will begin to yield concrete benefits and clear gains during 2009.

Training for faculty should include: time management, audience analysis, communications technology, 'elevator speeches', legislative/executive summary fact sheets, and presentation materials. The Department should advance their positioning strategy collectively, conducting this work with shared intention and a mutual set of aims designed to advance the department's visibility and influence.

Faculty suggested that important activities included in a positioning strategy include placement on proposal review committees with federal agencies; building a relationship with University's federal liaison; sponsorship of symposia with invitations to key players; and creation of 'face time' opportunities with key funders. Additional elements of a positioning strategy should involve enhancing faculty members communications skills, developing ability to communicate with diverse audiences, gaining skills at lobbying and relationship-building with key influencers, and building capacity to identify and take advantage of strategic opportunities for influence. Faculty as a group should review institutional, state, federal, disciplinary and philanthropic opportunities and relationships and identify a collective strategy for a presence and ongoing connection among all these elements. Faculty should also develop institutional and national linkages, including memberships in multidisciplinary organizations like AAAS and AIBS.

Departmental Culture

The glue that binds any community together is relationships, what Putnam refers to as "social capital." Intentional efforts in this area should target cultivation of a *culture of influence* in the Department as the overarching aim, where it becomes "visible, versatile, and connected." There are two core dimensions to strengthening the culture of influence in the Department: enhancing intradepartmental relationships and faculty training, advancement, and career planning.

During 2007-2008, the Department will initiate regular Brown Bag sessions led by faculty around various contemporary issues and opportunities. The Strategic Planning Committee and Priority Area Working Groups have identified a series of these events, which will begin in June. The Department will also sponsor an inaugural, annual APS poster session in the fall to include students, faculty and staff during

the orientation period for graduate students. The Strategic Planning Committee will work with the Awards and Personnel Committees to develop, implement, monitor, and assess strategies associated with nomination of faculty for institutional and national awards and for career advancement plans. The Department's Strategic Planning Committee will provide ongoing oversight of this dimension of the strategic plan.

Cultural Diversity

As society's demographics shift, so too does higher education. Within a decade, student enrollment at the University of Minnesota will shift dramatically in terms of cultural diversity. Departments and programs should be prepared, necessitating innovations in curriculum, pedagogy, recruitment and retention strategies for students, staff and faculty, departmental culture, scholarly practices and approaches to research among them. To prepare for this transition, the Department will serve as a leader for other departments in CFANS and incorporate intentional efforts around diversity into professional development for the department, workplans for priority areas, hiring of new faculty positions, appointment of Advisory Committee, and development of evaluation mechanisms for departmental activities.

In keeping with the University and College's efforts to enhance capacity around diversity issues, the Department affirms the collegiate statement on diversity:

> *The College embraces diversity and excellence. We are committed to promoting the principles of equal opportunity, affirmative action, and multiculturalism where all individuals are valued, respected, provided the opportunity to flourish, and unobstructed in their pursuit of excellence. Our goal is to create workplace and classroom experiences that promote academic excellence through cultural diversity and are free of intolerance and coercive behaviors. Multiculturalism promotes an understanding that the human experience includes, but is not limited to race, color, creed, religion, national origin, sex, age, marital status, disability, public assistance status, veteran status, or sexual orientation. The process we are unfolding ensures that our diversity initiatives align with the all-University Strategic Positioning work underway. They also align with the NASULGC initiative, "Sustaining Diversity and Creating Beneficial Social Change," as well as other national initiatives addressing multiculturalism and diversity in higher education and research.*

The first steps that the Department will take toward enhancing its own diversity and positioning itself as collegiate leader on these issues will focus on faculty capacity building around multicultural competency, explore how best to incorporate diversity into undergraduate curriculum, pedagogy, and recruitment, and seek approaches to enhancing domestic cultural diversity of graduate students.

Evaluation

How will we know that we are making progress toward the objectives stated in this strategic plan? What are indicators of progress that we can use to accrue evidence of success at implementing our strategic plan? Because the department has committed to a practice of continuous planning, systematic evaluation provides an important way to assess our progress, identify challenges that arise, determine unanticipated and anticipated outcomes, and adjust our course as we go.

To that end, we will retain consulting services to develop an overall evaluation plan for the Department that includes mid and long-term benchmarks, indicators of progress, mechanisms for evaluation, and collaboration with each of the key groups (priority areas, Syngenta Professional Development, Awards

and Personnel committees, Advisory Committees, and other relevant entities). This evaluation will result in tools that these committees can use to monitor progress and enable the Department Head and Strategic Planning Committee to determine overall success of strategic plan implementation and any needs for course adjustments.

Funding

As a part of the strategic planning process, faculty identified potential means to generate new resources and reassign/reallocate existing resources to accomplish aims outlined in this plan. During the first year, the Department Head in collaboration with the Strategic Planning Committee and Advisory Committee will build capacity for major donor solicitation and strengthen relationships with University of Minnesota Foundation. Identifying target corporate and individual donors and potential philanthropic support is an important step in this process, including a commitment to add two new foundations as funders for departmental efforts. A key goal with respect to fundraising during 2007 and 2008 is the procurement of $100,000 in support from the McKnight Foundation for graduate education, with special emphasis on training graduate students from countries supported by McKnight crop sciences grant programs. Systematic follow-through with Monsanto related to generating substantial ongoing funding support for graduate students will also be a part of first year efforts.

Each priority area working group has identified strategies for fundraising, which include generation of internal and external resources (grant-driven) to support large-scale, multidisciplinary grant programs. Moreover, faculty have discussed internal faculty reassignments and the new hires associated with retirements as means to fulfill objectives outlined by Priority Area Working Groups, without the need to raise additional revenue. Finally, professional development and internal departmental capacity building listed in this strategic plan will be supported by the Syngenta endowment earmarked for professional development.

Department of Agronomy and Plant Genetics
Strategic Plan
Executive summary
Summer 2007

Introduction

As times change, so too does the focus, relevance and role of land grant universities to the American public. We understand that the shifting nature of food production, landscape management, natural resources and human societies necessitate innovations in programs and research, and changing priorities across the University of Minnesota. To that end, we believe that the Department of Agronomy and Plant Genetics is well-positioned to lead a renewed sense of the land grant mission toward leadership and the creation of scientific knowledge around preservation of natural resources, sustainable and efficient food and biomass production and landscape management, vitality and prosperity of rural communities, and alleviation of poverty and hunger.

During the winter of 2006 – 2007, faculty undertook a strategic planning process to articulate a new mission and priorities, to identify new goals and benchmarks, and to suggest human and fiscal resources required to fulfill these aims. This strategic plan also contains a roadmap for intentional development of departmental culture and a proposed process for positioning the department in an international crop sciences context, within the University of Minnesota's 'Top 3' institutional development process, and among the academic departments in the College of Food, Agricultural and Natural Resource Sciences.

In the future, basic, applied and translational research will all play important roles, with agroecology, genomics, bioinformatics, and a 'systems biology' orientation brought to bear to solve critical questions. Our work will focus on crop development for food, feedstocks, pharmaceuticals and bioenergy generated from diversified cropping systems while simultaneously protecting water quality and conserving ecological resources. This expanded emphasis will also shift us from raw commodity-driven approaches to those that are "end product"-driven, led by large, multidisciplinary teams.

Mission

The mission of the Department of Agronomy and Plant Genetics is to discover and share knowledge and develop plant genetic materials that increase the efficiency, reliability, and profitability of crop production and utilization within Minnesota and around the world.

We conduct these research and education activities in a local to global context to promote efficient crop production, rural and economic vitality, human wellness, environmentally sound practices, biodiversity, renewable energy, and alleviation of poverty and hunger.

Priorities

The Department has identified key priorities that define the scope and aims of its discovery, engagement and learning functions:

- Clientele- and student-centered learning.
- Crop improvement through translation of basic biology and crop science.
- Multifunctional agriculture and landscape use for healthy food, environment, and lives.
- Renewable energy and natural products for a bioeconomy.

These priorities will inform the development of 'flagship' projects that will raise the departmental profile and offer a clear and effective institutional niche in service to supporting landscape, human and animal well-being. This work will be carried out by several "Priority Area Working Groups" who will oversee implementation, funding, and evaluation associated with activities outlined in the strategic plan.

Priority #1 *Clientele and student-centered learning*

For the Department of Agronomy and Plant Genetics, the overarching commitment to exemplary education is the signature feature of all discovery, engagement, and learning endeavors. To this end, faculty have developed strategies for improvement and innovation associated with Extension, undergraduate and graduate education that are learner-centered, driven by scholarship, and oriented toward the public good.

Undergraduate Education – Efforts in undergraduate education focus on tripling undergraduate enrollment in departmental majors; improving advising, extracurricular, career development, pedagogy, and curriculum for undergraduate programs; integrate cultural diversity goals into undergraduate programming and administration; and strengthen relationships with relevant stakeholders associated with undergraduate education.

Graduate Education – Over five years, our plan includes (1) institution of the continuous practice of self-review and assessment; (2) improved and more cohesive relationships among departments and department heads affiliated with the APS program; (3) cultivate a shared and coherent sense of purpose and objectives around graduate education; (4) improvement of the graduate program; and (5) increase in graduate student numbers.

Extension Education – In addition to work carried out under the aegis of the UMN Extension Service, the Extension Priority Area Working Group will (1) sponsor leadership development events; (2) convene departmental Brown Bag session on integration of Extension approaches in research dissemination; and (3) develop new metrics on programming and Extension-related work for annual review and tenure as a pilot for relevant departments.

Priority #2 *Crop improvement through translation of basic biology and crop science*

The Department will hire a faculty member in legume genomics and minor/new crops; undertake planning to determine the future of the oat breeding program; convene discussion to identify health targets associated with future research directions in plant breeding/genetics. The team will inaugurate an annual plant breeding/genetics seminar and a weekly seminar series on plant breeding and genetics for graduate students. We will also convene dialogues with key colleagues in biomedicine, food science, and nutrition to explore possible areas for collaboration and proposal development and produce fully developed health and bioenergy programs using Marker Assisted Selection, integrated gene discovery, and durable resistance. As always, ongoing support for agronomic adaptation will be a feature of all our efforts and contribute to a paradigm shift toward an integrated approach to healthy lives, bioenergy, and plant sciences. We will also seek legislative support for a state of the art seed storage facility. We will also convene a series of conversations with colleagues within the Plant Sciences Division to explore the feasibility of an Upper Midwest regional plant breeding institute that includes statistics, breeding programs, genomics, and vital collaborations with plant pathologists, nutrition, food and biomedical scientists.

Priority #3 *Multifunctional agriculture and landscape use for healthy food, environment, and lives.*

This priority area will experiment with landscape change on a landscape scale and the components of large-scale agricultural systems with the broad aim of enhancing economies, local environments, and communities and the specific intent of improving ecosystems services and farmer profitability. This working group will strategically focus its work to procure resources to achieve a different and better integrated agriculture on the landscape. It will also provide continuous outreach and leadership to integrate concerns associated with hydrologic, perennial cropping systems, wildlife habitat, and relevant germplasm development and plant-related research. This group will focus its research efforts on biomass, grazing, perennial and cover crops and agroforestry. The signature effort of this group is the implementation of the Green Lands, Blue Waters initiative.

Priority #4 *Renewable energy and natural products for a bioeconomy*

This team will develop a comprehensive strategy to fund and implement this priority area focusing on (1) germplasm development; (2) assessment of renewable energy systems for generation of ecosystems services (erosion, hydrology, nutrient management, carbon sequestration); and (3) other high-value components. A key part of this effort will include the identification of resources to expand the capacity of existing programs. Within five years, the Department will be recognized as a leader in renewable energy, the use of native perennials for biofuel production and row crops, natural products and related enterprises for the University's Plant Sciences Division and among its colleagues regionally and internationally.

Strategic Positioning and Departmental Culture

The Department will undertake a systematic and aggressive strategy to enhance its visibility and influence within CFANS, the Plant Science Division, University and among its international peers. To this end, we will undertake a capacity building process that enables us to:

- Build relationships that matter
- Significantly enhance our influence in setting benchmarks by which we're evaluated
- Raise our profile with influencers to generate more revenue and greater impact
- Improve public awareness of agriculture, the food system, and environmental health
- Enhance influence of agricultural interests at state legislature
- Strike a healthy balance between the enhancement of individual faculty career advancement and that of the department

This process includes the creation and implementation of a strategic communications plan and associated professional development for departmental members.

The Department also seeks to build on its history as a highly collegial and collaborative department by adding in new elements that contribute to building a 'culture of influence'. To that end, we will implement a new, biweekly Brown Bag lunch series and an annual APS poster session/open house to inform each other about emerging opportunities, progress in research, and issues germane to the Department's development.

Cultural Diversity

A new area for the Department in this strategic plan is an intentional focus on enhancing cultural diversity in recruiting (both students and faculty), as well as in curriculum, pedagogy, advising, and recruiting for undergraduate and graduate education. We will serve as a collegiate pilot to create new strategies and approaches that can be adapted and adopted by peer CFANS departments.

Continuous Planning and Evaluation

To ensure that we are making adequate progress toward the goals outlined in our strategic plan, we have determined that engaging in continuous strategic planning and creating assessment tools to evaluate our work are critical to our success. We have created a standing Strategic Planning Committee for the Department which will be both charged with oversight and evaluation of implementation of our goals, objectives, and activities.

Cultural Diversity Enhancement Plan
Department of Agronomy and Plant Genetics
College of Food, Agricultural, and Environmental Sciences
2008

Context

The University's Office for Equity and Diversity recently published the strategic document, "Reimagining Equity and Diversity: A Framework for Transforming the University of Minnesota." This document outlines an ambitious plan to support the University's preparation in coming years for the transition to a nation composed predominantly of people of color. To adequately meet the needs of our future faculty and students - who will come from many cultural heritages and backgrounds, each academic unit within the University will be expected to creatively, proactively and effectively implement recommendations and programs outlined in this document.

Moreover during the last three years, CFANS has increased its infrastructure commitment to enhancing cultural diversity in the procedures, policies, programs, and personnel of the collegiate community. As a part of this effort, the Dean has identified seven broad areas that will enable departments to enhance their cultural and ethnic diversity and asked that each department prepare a plan that responds to at least three of these areas that will substantially enhance its multicultural competency. As part of their annual review, CFANS Department Heads will be accountable to effectively implementing these initiatives.

The Department of Agronomy and Plant Genetics through its recent strategic planning process committed to constructively and intentionally seeking to enhance cultural diversity in its student and faculty population as well as its programs. This document provides a specific strategy that aligns with the Vice-President/Vice-Provost's report and with collegiate expectations. It also reflects the unique interests and opportunities within the Department with respect to strengthening its skills and programming in cultural diversity and equity.

Departmental Goals for Cultural Diversity and Equity

The Department has determined that there are three opportunities to improve cultural diversity and equity that align with current departmental interests in other areas. Given several pending faculty retirements, it is an opportune time to explore the feasibility of new faculty recruitment and retention strategies that seek to increase the cultural diversity of faculty and modify the Department's approach in order to attract a broader pool of candidates. Secondly, the Department is also committed to increasing the number of undergraduate students in its programs. Developing a deliberate initiative to recruit students from historically underrepresented groups will not only create a broader diversity of students, but will also meet the objective of increasing the total number of undergraduates in our programs. Finally, conversations are already underway within the Department on how to strengthen its international presence, reputation and programming. This international focus fulfills the third commitment to broadening the research, outreach, and educational programs to meet the needs of agriculture in a developing world context.

Thus, the areas of effort that the Department will focus on over the next five years include:

1. Undergraduate Student Enrollment and Curriculum
2. Faculty Recruitment and Retention
3. Reinvigorating International Research, Extension and Education Programs

These three efforts align in the following ways with departmental, collegiate, institutional and NASULGC priorities:

Departmental	Collegiate	Institutional	NASULGC
Enhance cultural diversity of undergraduate student population & adjust curriculum toward more inclusive content	Teaching (inclusive content)	Historically Underrepresented	Structural diversity Classroom diversity Interactional diversity Environmental diversity
Hire new faculty for newly developed positions	Hiring (historically underrepresented faculty)	Historically underrepresented	Structural diversity Classroom diversity
Strengthen programs and relationships with international partners	Inclusive outreach and research	International	Structural diversity Interactional diversity

Implementation Plan

To successfully achieve these goals, the Department has identified a series of related activities that will enable us to achieve the above diversity goals. We intend to implement these activities with the full collaboration and support of fellow departments embarking on a similar journey, as well as in consultation with CFANS administration and the College's Director of Diversity Programs. We anticipate administrative, human resource, and fiscal support from the College that will augment and strengthen our own efforts and investments in this important area.

The activities required to increase the cultural diversity of our departmental community and educational, outreach, and research programs will require a simultaneous investment in professional development. Preparing an institution for its future students and societal needs necessitates appropriate, timely and effective enhancement of the expertise base of its personnel. The proposed activities include an appropriate level of capacity building for the Department to best enable it to achieve these important goals.

The activities proposed by the Department of Agronomy and Plant Genetics to enhance cultural diversity and equity focus on (1) an increase in the number of faculty and students from historically under-represented communities; (2) a shift in curriculum, pedagogy, and advising toward more culturally inclusive content and culturally responsive approaches to teaching and advising; and (3) an integrated and intentional focus on the Department's international involvement in teaching, research and outreach.

Enhance representation of students from historically under-represented communities in undergraduate courses and majors offered by departmental faculty

<u>Curriculum, Teaching, and Advising</u>

- Develop and execute survey to determine which programmatic areas currently and potentially offered to undergraduates within the Department may be most attractive to a diverse base of

students (e.g. Agriculture and Industries Marketing, Applied Plant Sciences, sustainable agriculture, etc.)

- Identify existing and potential courses within the Department that would be attractive to a diversity of undergraduate students, in consultation with the Director of Diversity Programs and as part of the CFANS curriculum revitalization process
- Develop strategies for orientation and inter-departmental advising to increase registration of students from historically under-represented communities in these courses
- Integrate content that reflects diverse cultural perspectives into undergraduate courses offered by Department
    - Conduct review of existing and proposed courses and programs to identify opportunities for inclusion of multiple cultural frameworks within course content
    - Seek funding and advisory support from CFANS to facilitate retooling of courses to incorporate culturally inclusive content
    - Co-sponsor CFANS-wide professional development experiences for faculty that provide critical resources and tools to enable them to effectively design and teach culturally inclusive content
- Incorporate pedagogical strategies that reflect and support the learning styles and cultural needs of students from diverse cultural and ethnic backgrounds
    - Provide professional development to departmental faculty to facilitate learning in these areas
    - Implement adjustments in pedagogy for undergraduate coursework that meet cultural needs and learning styles of diverse students

<u>Recruitment and Retention of Historically Under-Represented Students</u>

- Work with the CFANS Director of Diversity to establish an appropriate recruitment goal, based on current demographics, institutional goals and existing student numbers in applied plant sciences-related coursework
- Collaborate with CFANS Director of Diversity to identify prospective departmental undergraduate programs and under-represented communities that are well-matched
- Develop and execute strategic plan for recruitment and retention that focuses on:
    - relationship-building with these communities of interest
    - identification of key high schools that can provide a pool of potential students
    - scholarship opportunities that will attract these students
    - effective, holistic retention strategies including career development, pre-college preparation, advising, extra-curricular/student activities, research, internship and employment opportunities and academic support services
    - Develop a summer institute for under-represented youth that explores the science and technology of our applied plant sciences

Enhance Representation of Departmental Faculty from Historically Under-Represented Communities

The Department is experiencing a time of transition, as numerous faculty prepare to retire in coming years. Due to this shift, the Department will consider how best to integrate its twin commitments to (1) diversifying the gender and ethnic diversity of the faculty and (2) fulfilling key, cutting edge needs in research. The Department will thus undertake a capacity building and recruitment/retention strategic plan designed to fulfill these important aims.

Increasing the cultural and gender diversity of faculty is a key factor in attracting students from multicultural backgrounds. We believe a commitment of time and resources in this area will also pay dividends toward our interest in creating more multicultural student population.

Recruit and Retain Multicultural Faculty

- Work with CFANS Director of Diversity to affirm goals for search process and faculty hires for upcoming positions that fulfill our objective to increase amount of faculty from historically underrepresented communities
- Develop departmental capacity for effective recruitment and retention practices of faculty from historically under-represented communities
    - Participate in relevant professional development opportunities that build a base of expertise and understanding of recruitment strategies within the Department
    - Work with the Director of Diversity Programs to develop a cross-departmental strategy for supporting new faculty of color
- Seek assistance from key players and build relationships with entities positioned to identify and attract a diverse candidate pool for all job descriptions
- Develop and refine a search process in collaboration with the CFANS Director of Diversity that effectively supports the aim to attract a culturally diverse candidate pool

Strengthen Programs and Relationships with International Partners

The Department not only enjoys a strong international reputation for excellence in its teaching, research and outreach programs among fellow scientists, but also continues to make constructive contributions to agricultural systems across the world. Given its history, the Department wishes to expand its impact in this area with increased international involvement, in addition to existing international engagement of its faculty. Proposed efforts will include:

Revive and Create Partnerships in Africa

- Create experimental distance learning course led by faculty member while working internationally
- Collaborate with other academic and administrative units within UMN to catalyze new programming with longstanding partners in Morocco

Increase Global Awareness of High School and College Students

- Select high school and college students to attend World Food Prize and subsequently participate in international research opportunities
- Create international studies course and explore feasibility of international internships

Expand Study Abroad Programs

- Develop semester, summer, and May term study abroad opportunities for CFANS students that encourage awareness of international agricultural issues and cultural diversity concerns

Conclusion

This array of activities is designed to build a department that reflects the diversity of our society in coming years. With a commitment to understand and reflect the skills and needs of our multicultural society, the Department's investment of people, time and resources will ensure a substantive increase in representation in students and faculty from historically underrepresented backgrounds. Moreover, we will be positioned to effectively attract and retain these individuals, given our efforts to develop culturally responsive teaching, research and work environments. Finally, maintaining a constructive international presence is critical when food access, agricultural problems and environmental challenges remain so pressing.

Given CFANS' formal efforts to enhance collegiate diversity and revitalize the undergraduate curriculum, the Department intends to leverage its own commitments to this important work with contributions and involvement from collegiate administration. We look forward to being a constructive and key player in the College's curriculum revitalization and campus cultural initiatives and to receiving the support and participation of our colleagues.